DRAFT

Initial Study and Mitigated Negative Declaration

Scott M. Leaman Elementary School Master Plan

Lead Agency:

Western Placer Unified School District
600 Sixth Street, Suite 400
Lincoln, California 95648

September 2018

30 YEARS
ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

DRAFT

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Scott M. Leaman

Elementary School

Master Plan

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Lead Agency:

Western Placer Unified School District
600 Sixth Street, Suite 400
Lincoln, California 95648

Prepared by:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2525 Warren Drive
Rocklin, California 95677

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DRAFT MITIGATED NEGATIVE DECLARATION
SCOTT M. LEAMAN ELEMENTARY SCHOOL PROJECT

Lead Agency:	Western Placer Unified School District
Project Proponent:	Western Placer Unified School District
Project Location:	The Project Area is located southeast of the intersection of Caledon Circle and Brentford Circle in the City of Lincoln. (*Figure 1. Project Vicinity* and *Figure 2 Site Location*). The Project is located in the northern half of Section 28 of Township 12 North, Range 6 East, (Mount Diablo Base and Meridian). It is also known as Assessor's Parcel Numbers (APN) 327-010-012-000 and 327-010-014-000. The approximate center of the site is located at latitude 38.863848 ˚ and longitude -121.311405˚ (NAD83).
Project Description:	The Proposed Project would create a new elementary school on a currently vacant parcel. The Project site totals ±14.2 acres and has been designed to accommodate an anticipated school enrollment of 650 students with future expansion potential to accommodate 150 more students for a total of 800. The school facility will occupy 9.4 acres with irrigated grass turf proposed for the remaining 4.8 acres.
Public Review Period:	September 25, 2018 to October 24, 2018

Mitigation Measures Incorporated into the Project to Avoid Significant Effects:

AES-1 Bare metallic or otherwise reflective surfaces such as large expanses of windows, non-finished metal roofs, light poles, pipes, vents, gutters, and flashings shall have a non-reflective finish or be concealed from view.

Timing/Implementation: *To be incorporated as part of Project building design and during construction and operation of the Proposed Project.*

Enforcement/Monitoring: *Western Placer Unified School District*

BIO-1: Prior to any Project grading or construction, Section 7 consultation shall occur with USFWS to establish mitigation, avoidance, and/or minimization measures for any impacted Project site features that provide suitable habitat (vernal pools, seasonal wetlands, and seasonal wetland swales) for the vernal pool fairy shrimp.

Timing/Implementation: *Prior to grading and construction activities*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-2: WPUSD shall retain a biologist to conduct a preconstruction western spadefoot survey within 48 hours of the initiation of grading and construction activity within suitable habitat for western spadefoot. If no western spadefoot individuals are found during the preconstruction survey, the biologist shall document the findings in a letter report, and no further mitigation shall be required. If individuals are found, the biologist shall consult with CDFW to determine appropriate avoidance measures.

Timing/Implementation: *Within 48 hours of the initiation of Project grading and construction activity.*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-3: WPUSD shall retain a biologist to conduct a preconstruction northern western pond turtle survey in conjunction with the western spadefoot pre-construction survey within 48 hours of the initiation of construction activity within suitable habitat for northern western pond turtle. If no northern western pond turtle individuals are found during the preconstruction survey, the biologist shall document the findings in a letter report, and no further mitigation shall be required. If individuals are found, the qualified biologist shall consult with CDFW to determine appropriate avoidance measures.

Timing/Implementation: *Within 48 hours of the initiation of Project grading and construction activity.*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-4: Conduct a pre-construction nesting bird survey of all suitable habitat on the Project site within 14 days prior to the commencement of construction during the nesting season (February 1-August 31). Surveys should be conducted within 500 feet of the Project for Swainson's hawk, 300 feet of the Project for nesting raptors, including burrowing owl, and 100 feet of the Project for nesting songbirds. If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a biologist in consultation with CDFW or the CEQA lead agency. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures are necessary. Pre-construction nesting surveys are not required for construction activity outside the nesting season.

Timing/Implementation: *Within 14 days prior to the commencement of Project grading and construction activity.*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-5: The following mitigation measure is required to minimize potential impacts to Waters of the U.S.:

- A permit authorization to fill wetlands under the Section 404 of the federal Clean Water Act (CWA, Section 404 Permit) must be obtained from U.S. Army Corp of Engineers (USACE) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no net loss of wetland function and values. An application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. within the Project Area is proposed at a 1:1 ratio for direct impacts however final mitigation requirements will be developed in consultation with USACE.

- A Water Quality Certification or waiver pursuant to Section 401 of the federal CWA must be obtained for Section 404 permit actions.

Timing/Implementation: *Prior to grading and construction activities.*

Monitoring/Enforcement: *Western Placer Unified School District*

CUL-1: If subsurface deposits believed to be cultural or human in origin are discovered during grading and construction activities, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately, and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the lead agency and applicable landowner. The agency shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work may not resume within the no-work radius until the lead agency, through consultation as appropriate, determines that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, the archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Placer County Coroner (as per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center;

using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agency, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *WPUSD*

CUL-2 If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify WPUSD. WPUSD shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, WPUSD shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *WPUSD*

GEO-1: WPUSD shall implement the recommendations provided in the Geotechnical Engineering and Geologic Hazards Report Scott M. Leaman Elementary School (Wallace-Kuhl & Associates. 2018) regarding settlement/collapse at the site.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *WPUSD*

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LIST OF ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AD	Anno Domini
ADWF	Average dry weather flow
AF	Acre-feet
AMSL	Above mean sea level
APE	Area of Potential Effects
APN	Accessor Parcel Number
AQMP	Air Quality Management Plan
ASTM	American Society of Testing and Materials
BP	Before present
BLM	Bureau of Land Management
BMPs	Best Management Practices
Board	Board of Education
BP	Before present
BRA	Biological Resource Assessment
BRM	Bedrock mortar
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CCRR	California Central Railroad
CCTS	Central California Taxonomic System
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CGS	California Geological Survey
CH_4	Methane
City	City of Lincoln
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CRHR	California Register of Historic Places
CRPR	California Rare Plant Rank
CWA	Federal Clean Water Act
DOC	California Department of Conservation

LIST OF ACRONYMS AND ABBREVIATIONS

DOE	Department of Education
DOF	Department of Finance
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EC	Employment Center
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
General Permit	General Construction Activity Stormwater Permit
GHGs	Greenhouse Gases
GLO	General Land Office
gpd	Gallons per day
HCM	Federal Highway Administration
I-80	Interstate 80
LCSP	Lincoln Crossing Specific Plan
L_{dn}	Day-night average sound level
LDR	Low Density Residential
L_{eq}	Equivalent continuous sound level
LFD	Lincoln Fire Department
LOS	Level of Service
LPD	Lincoln Police Department
mg	Million gallons
mgd	Million gallons per day
MLD	Most Likely Descendent
MMT	Million Metric Tons
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zones
MSL	Mean sea level
MTBA	Migratory Bird Treaty Act
N_2O	Nitrous Oxide
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
ND	Negative Declaration
NHPA	National Historic Preservation Act
NID	Nevada Irrigation District
NOI	Notice of Intent
NO_x	Nitrogen Oxides

LIST OF ACRONYMS AND ABBREVIATIONS

NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OHP	California Office of Historic Preservation
OPR	California Office of Planning and Research
OS	Open Space
P	Park
PCAPCD	Placer County Air Pollution Control District
PCCP	Placer County Conservation Plan
PCT	Placer County Transit
PCWA	Placer County Water Agency
PEA	Preliminary Environmental Assessment
PF	Public Facilities
PM_{10} and $PM_{2.5}$	Particulate Matter
PNWWA	Placer Nevada Wastewater Authority
PR	Park and Recreation
PRC	Public Resource Code
Project/ Proposed Project	Scott M. Leaman Elementary School Master Plan
PUB	Public
PWWF	Peak wet weather flow
ROG	Reactive Organic Gases
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SCH	State Clearinghouse
SCS	Sustainable Communities Strategy
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SJCCD	Sierra Joint Community College District
SMARA	Surface Mining and Reclamation Act of 1975
SO_2	sulfur dioxide
SR	State Route
SRA	Sensitive Receptor Area
SSC	Species of special concern
SVAB	Sacramento Valley Air Basin
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TIS	Transportation Impact Study
UCMP	California Museum of Paleontology

LIST OF ACRONYMS AND ABBREVIATIONS

USACE	United States Army Corps of Engineers
USC	U.S. Code
USEPA	Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WMP	Water Master Plan
WPUSD	Western Placer Unified School District
WTP	Water Treatment Plan
WWTRF	Wastewater Treatment and Reclamation Facility

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SECTION 1.0 BACKGROUND

1.1 Summary

Project Title:	Scott M. Leaman Elementary School Master Plan
Lead Agency Name and Address:	Western Placer Unified School District (WPUSD) 600 Sixth Street, Suite 400 Lincoln, California 95648
Contact Person and Phone Number:	Michael Adell, Director of Facilities (916) 645-5100
Project Location:	The Project Area is located southeast of the intersection of Caledon Circle and Brentford Circle in the City of Lincoln. The Project is located in the northern half of Section 28 of Township 12 North, Range 6 East, (Mount Diablo Base and Meridian). It is also known as Assessor's Parcel Numbers (APN) 327-010-012-000 and 327-010-014-000. The approximate center of the site is located at latitude 38.863848˚ and longitude -121.311405˚.
General Plan Designation:	Public Facilities (PF), Parks and Recreation (PR)
Zoning:	Public (PUB), Park (P)

1.1 Introduction

The WPUSD is the Lead Agency for this Initial Study. The Initial Study has been prepared to identify and assess the anticipated environmental impacts of the Scott M. Leaman Elementary School Master Plan (Project or Proposed Project). This document has been prepared to satisfy the California Environmental Quality Act (CEQA) (Public Resource Code [PRC], § 21000 et seq.) and State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences of Projects over which they have discretionary authority before acting on those Projects. A CEQA Initial Study is generally used to determine which CEQA document is appropriate for a Project (Negative Declaration, Mitigated Negative Declaration [MND], or Environmental Impact Report [EIR]).

1.2 Project Location

The Project site is located in the City of Lincoln, California. As illustrated in *Figure 1. Location and Vicinity* and *Figure 2. Project Location* maps, the proposed Scott M. Leaman Elementary School campus is located south of Caledon Circle and Brentford Circle borders the Project site on both the northeast and southwest site boundaries.

1.3 Surrounding Land Uses/Environmental Setting

The Proposed Project is located in the western portion of the City of Lincoln, within the approved Lincoln Crossing Specific Plan. The south fork of Ingram Slough borders the Project site to the south with a single-family subdivision beyond. This area is zoned Open Space (OS) and Low Density Residential (LDR). North, west and east of the Project site are single-family homes on parcels zoned LDR. See *Figure 3. Aerial View*.

The Project site is relatively flat, with elevations ranging from 120 - 170 feet above mean sea level (AMSL). The site was used as irrigated pasture prior to 2003. The site was graded in fall 2003, but left undeveloped and fallow. Since the grading in 2003, the western two-thirds of the Project site has been routinely plowed while the eastern 1/3 of the Project site has been routinely mowed.

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Figure 1. Project Vicinity

2017-225 Scott M. Leaman Elementary School

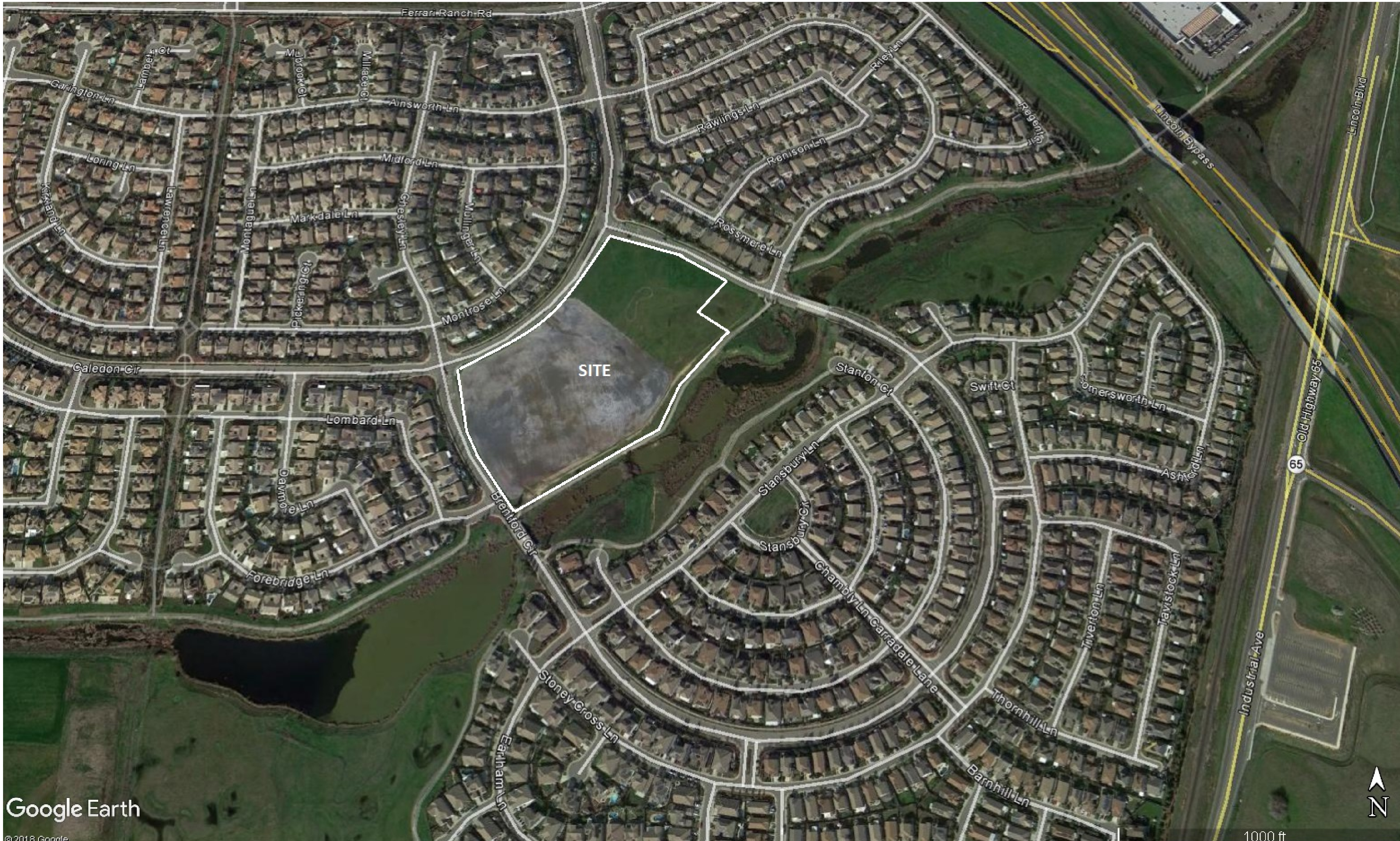

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Figure 2. Project Location

2017-225 Scott M. Leaman Elementary School

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Figure 3. Aerial View
2017-225 Scott M. Leaman Elementary School

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SECTION 2.0 PROJECT DESCRIPTION

2.1 Project Background

The Proposed Project is the development of the Scott M. Leaman Elementary School located in the Lincoln Crossing Specific Plan area. In 1992, the City of Lincoln (City) approved the Lincoln Crossing Specific Plan (LCSP), which was later revised in 2001 and again in 2003. As part of the Specific Plan, areas were set aside for future educational uses. The 1992 and 2001 versions of the LCSP identified an area for an elementary school located on what is now Caledon Circle. This area was north of the area identified for this use in the 2003 Specific Plan. The Proposed Project site is consistent with the elementary school site location in the 2003 Specific Plan.

2.1.1 Lincoln Crossing Specific Plan Environmental Review

The original LCSP EIR was completed in 1992. Educational uses and facilities are included in the original specific plan. However, the location for the proposed elementary school was not in its current location.

In 2001, a Supplement to the 1992 LCSP EIR was completed. This Supplemental EIR included an Initial Study and a revised air quality assessment, noise assessment and traffic assessment. This Supplemental EIR was done to analyze proposed changes to the Specific plan including the following:

a. The removal of the golf course from the plan,

b. A realignment of commercial, high- and medium-density residential areas, and neighborhood park,

c. Total acreage for neighborhood parks, landscaped areas, and open space was increased by 24.25 acres,

d. Reduction of the number of medium- and high-density residential units and increase in the number of low-density residential units.

e. Reduction of the area for schools by two acres.

The elementary school site is in the same location as in the 1992 EIR, which does not correspond to the current Project location.

In 2003, an Addendum to the LCSP EIR and Supplement was completed. This Addendum was done in order to analyze changes specific to Phase II of the LCSP, which included revisions to the mix of residential units, and the addition of 17 acres of commercial uses, 3.9 acres of open space, and five acres of schools. While the elementary school site was shown in its present location on the proposed specific plan, as shown in Figure 2-4 of the 2003 Addendum, the site was not in Phase II of the LCSP. Because the 2003 Addendum specifically states that the addendum was for those changes in Phase II, it appears, that the "new" school site was not analyzed for potential environmental impacts as a part of the revised Specific Plan. As such, this Initial Study represents the CEQA analysis for the Proposed Project.

2.1.2 Project Characteristics

The Proposed Project is located on two parcels: one owned by WPUSD (APN 327-010-014-000) and one owned by the City (APN 327-010-012-000). See *Figure 4. Parcel Map*. Actual school development would occur only on the WPUSD 9.4-acre parcel, while WPUSD would also improve 4.8 acres of the City-owned parcel with grass and irrigation, as described below.

The Proposed Project would create a new elementary school on a currently vacant parcel owned by WPUSD. *Figure 5. Project Site Plan* illustrates the development anticipated for the Project site. The school has been designed to accommodate an anticipated school enrollment of 650 students with future expansion potential to accommodate 150 more students, for a total of 800 students. The Proposed Project involves the creation of the following:

- Building A – Administration and Multipurpose (13,067 sq. ft.)
- Building B - Library (2,308 sq. ft.)
- Building C - Classroom (13,686 sq. ft.)
- Building D1/D2 – Classroom (12,135 sq. ft.)
- Building E – Classroom (6,037 sq. ft.)
- Building F - Future Classroom (6,037 sq. ft.);
- Outdoor covered collaboration areas;
- Kindergarten play area;
- Hard court play areas;
- Outdoor dining area;
- Outdoor exploration area

In addition to those uses discussed above, as shown in Figure 5, the Project includes installation of grass and irrigation on the majority of the northern parcel, which is owned by the City. Through a joint use agreement with the City, WPUSD will be allowed to use this area for school-related activities. This parcel is identified for future use as a park to be developed by the City. Future development as a park may require CEQA review. However, development of a park is not a part of this Project and therefore not analyzed in this Initial Study. Additionally, there is a wetland feature in the extreme northeastern portion of the City's parcel. This area is also not a part of the Proposed Project and will be avoided with typical best management practices (BMPs) such as a silt fence and straw wattles during construction.

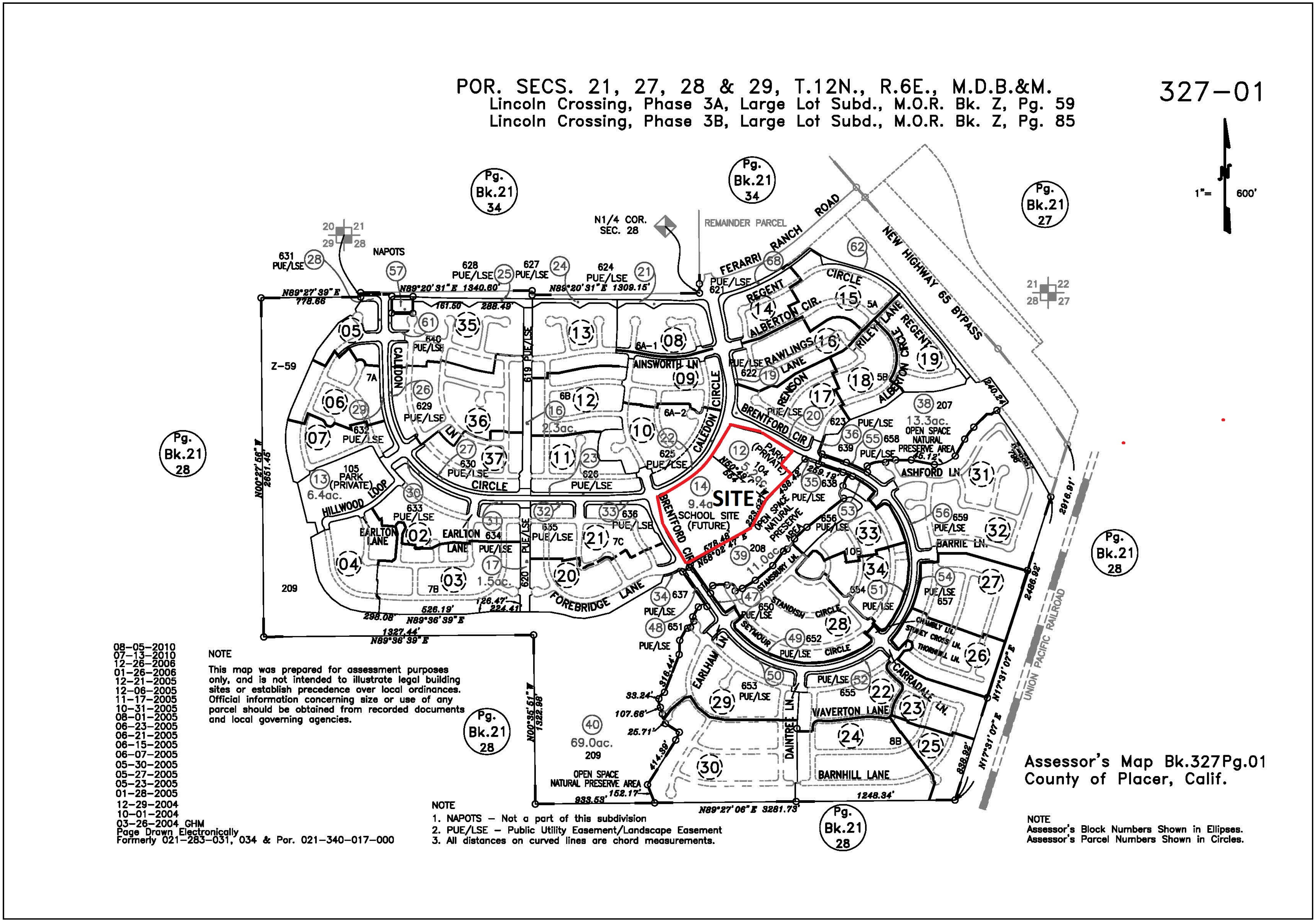

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Figure 4. Parcel Map

2017-225 Scott M. Leaman Elementary School

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BUILDING DATA

	BUILDING NAME	BUILDING SF
A	ADMINISTRATION & MULTI-PURPOSE	13,067
B	LIBRARY	2,308
C	KINDERGARTEN/CLASSROOM	13,686
D1/D2	CLASSROOM	12,135
E	CLASSROOM	6,037
F	FUTURE CLASSROOM	6,037
	TOTAL:	53,270

1" = 140'-0"

N

Legend

A - Admin & Multi-Purpose Building
B - Library Building
C - Classroom Building
D - Classroom Building
E - Classroom Building
F - Future Classroom Building
Pa - Parking (42 stalls)
Pb - Parking (25 stalls)
Pc - Future Parking Lot
WS - Seasonal Wetland Swale

Material Legend

- Concrete Pavement
- Accent Pavement
- Plantable Area
- Accent Landscape
- Grass
- Asphalt
- Play Surface
- Hydroseeding + Irrigation
- Natural Site

WPUSD

SCOTT M. LEAMAN ES | DESIGN DEVELOPMENT

OVERALL SITE PLAN

Date: 07/12/2018

Client Project No: 3548-002

HMC Architects

2.1

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Figure 5. Project Site Plan

2017-225 Scott M. Leaman Elementary School

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School Operation

As discussed above, the Proposed Project anticipates a student capacity of approximately 650 students in the first few years of operation, with an increase to 800 students by 2030. Based on the 2017/2018 WPUSD school calendar, the school year would begin in late August and end in early June. With holidays, weekends, and winter and spring breaks, the student school year would be approximately 180 days. Classes would generally start at 8:00 a.m. and end by 2:40 p.m. After-school activities are minimal and would extend the school day for a small number of students.

2.2 Project Construction Timing

Construction of the Proposed Project is anticipated to begin in 2019 and be completed by fall 2020. Construction of future classrooms will be dependent on student enrollment trends and available funding. It is anticipated by WPUSD that the future classroom will be completed around 2030. School will be in session for at least a portion of the construction period for this phase. Onsite construction staging, and storage areas are anticipated to be on the Project site.

2.3 Regulatory Requirements, Permits, and Approvals

The following approvals and regulatory permits would be required for implementation of the Proposed Project.

2.3.1 Lead Agency Approval

WPUSD is the lead agency for the Proposed Project. In order to approve the Proposed Project, the WPUSD Board of Education (Board) must first adopt the IS/MND, approve the Proposed Project, and file a Notice of Determination within five working days. The Board will consider the information contained in the IS/MND in making its decision to approve or deny the proposed project. The IS/MND is intended to disclose to the public the Proposed Project's details, analyses of the Proposed Project's potential environment impacts, and identification of feasible mitigation that will reduce potentially significant impacts to less than significant levels.

Other agency approvals include the following:

- Construction general permit from the State Water Resources Control Board (SWRCB)
- Project plan approval from the California Department of Education, School Facilities Planning Division
- Project plan approval from the California Department of General Services, Division of the State Architect

2.4 Relationship of Project to Other Plans and Projects

2.4.1 City of Lincoln General Plan 2050

The City of Lincoln General Plan 2050 is the primary document governing land use development in the city. The General Plan 2050 was adopted in March 2008. The City's General Plan includes numerous goals and policies pertaining to sustainability; land use; circulation; community design; downtown; economic development; housing; parks, public facilities, and services; open space and environment; cultural resources and historic preservation; safety; and noise. Public schools in the state of California are considered state property and are therefore not subject to a local jurisdiction's general plan. However, as a matter of practice, WPUSD abides by the Lincoln General Plan goals and policies in the development and implementation of new projects within the district's facilities.

2.4.2 Lincoln Crossing Specific Plan (LCSP)

The Project site is located within the LCSP, which was originally adopted by the Lincoln City Council in 1992. The original Specific Plan covered an area of 1,070 acres and included 3,073 residential units (this number was later reduced to 2,958) and 43.7 acres of commercial/business uses, 242 acres of parks and open space, an 18-hole golf course, two elementary schools, and one junior high school (Lincoln 1992).

A revised Specific Plan was adopted in 2001 and included the removal of the 18-hole golf course from the Specific Plan, added 39 areas of parks and open space, decreased the area for schools by two acres, and reduced the number of medium- and high-density residential units and increased the number of low-density residential units (Lincoln 2001).

In 2003, an Addendum to the LCSP EIR and Supplement was completed. This addendum was done in order to analyze changes specific to Phase II of the LCSP, which included revisions to the mix of residential units, and the addition of 17 acres of commercial uses, 3.9 acres of open space, and five acres of schools. While the elementary school site was shown in its present location on the proposed specific plan, as shown in Figure 2-4 of the 2003 Addendum, the site was not in Phase II of the LCSP. Because the 2003 Addendum specifically states that the addendum was for those changes in Phase II, it appears the "new" school site was not analyzed for potential environmental impacts as a part of the revised Specific Plan (Lincoln 2003a).

2.4.3 Western Placer Unified School District School Facilities Master Plan

The purpose of the WPUSD School Facilities Master Plan is to provide a fact-based, data-driven report for WPUSD staff and the Board to make decisions related to WPUSD educational facilities that best serve the needs of all present and future students. A Facilities Master Plan is essential in planning for growth expected to occur within a school district's boundaries over the next 10 - 15 years. A Master Plan is intended to be a flexible document that will be revisited and updated periodically to serve as the framework for the construction of facilities necessary to allow the WPUSD to operate effectively. The School Facilities Master Plan was approved in June 2014.

2.5 Consultation with California Native American Tribe(s)

No California Native American tribes traditionally and culturally affiliated with the Project area have submitted written requests to receive notification of the WPUSD's projects pursuant to PRC § 21080.3.1. Further information on potential Tribal Cultural Resources in the Project area is provided in Section 4.18 of this Initial Study.

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SECTION 3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Hazards/Hazardous Materials	☐ Public Services
☐ Agriculture and Forestry Resources	☐ Hydrology/Water Quality	☐ Recreation
☐ Air Quality	☐ Land Use and Planning	☐ Transportation/Traffic
☒ Biological Resources	☐ Mineral Resources	☒ Tribal Cultural Resources
☒ Cultural Resources	☐ Noise	☐ Utilities and Service Systems
☒ Geology and Soils	☒ Paleontological Resources	☐ Mandatory Findings of Significance
☐ Greenhouse Gas Emissions	☐ Population and Housing	

3.1.1.1 Determination

On the basis of this initial evaluation:

I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	☒
I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☐
I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	☐
I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required.	☐

Michael Adell Director of Facilities	Date

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SECTION 4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

The City of Lincoln is situated on the eastern edge of the Sacramento Valley floor at the base of the Sierra Nevada foothills. The terrain ranges from flat to gently rolling foothills, with several waterways traversing the area. Views along State Route (SR) 65, which bisects Lincoln in a north-south direction, include Telegraph Hill to the east, and background views of the Sierra Nevada (Lincoln 2008a).

The core area of the City of Lincoln contains a mixture of commercial, civic, and residential land uses. The Gladding McBean Plant, a terra cotta clay manufacturing plant, several commercial industries, and the Lincoln Regional Airport are located north and west of the core area. In addition, a lumber processing plant and several clay pits are located north of the core area. The Lincoln Wastewater Treatment Plant contains large berms that are up to 15 feet high, which dominate views to the east of Lincoln and the riparian corridor along Markham Ravine (Lincoln 2008a).

4.1.1.1 Regional Setting

While the City's General Plan Background Report identifies views of Telegraph Hill, and background views of the Sierra Nevada from SR-65 to be of scenic quality, the General Plan does not include any policies for the protection of views or identify any view sheds, or scenic vistas that should be protected.

State Scenic Highways

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. A highway can be designated as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view. No officially designated scenic highways are located within the vicinity of the Project site (Caltrans 2018).

4.1.1.2 Visual Character of the Project Site

The topography of the Project site has a gentle gradient, with elevations ranging from 120 - 170 AMSL over the 14.2-acre site. The site was used as irrigated pasture prior to 2003. The Project site was graded but left undeveloped and fallow in fall 2003. Since the grading in 2003, the western two-thirds of the site has been routinely plowed while the eastern 1/3 of the Project site has been routinely mowed.

The Proposed Project site is surrounded by single-family residential uses to the north, east and west. Ingram Slough and adjacent walking/bike path borders the southern project boundary. Ingram Slough, adjacent to the Project site, consists of a series of small, less than half-acre, ponds. There is a larger Ingram Slough pond (±7.7 acres) directly to the southwest of the Project site.

Lighting

Individuals have a range of reactions to the perceived effects of lighting on the environment. As such, whether light is obtrusive is generally based on perception, but is also a function of the actual amount of light emitted from a source. The following are examples of light levels, expressed in foot-candles:[1]

- Direct sunlight - 10,000
- Full daylight - 1,000
- Twilight - 1
- Full moon - 0.1
- Covered parking lot - 5
- Gas station canopy - 12.5
- Department store - 40
- Grocery store – 50

Typical nighttime street lighting requirements are 1- to 3-foot-candles, which is generally considered to be unobtrusive. A typical example of glare effects is the car headlight. When viewed directly in front of a vehicle with the headlights on full beam, vision is impaired, resulting in disabling glare. However, when viewed from the side, the same headlights would not impair vision.

Spill Light

Spill light or light trespass is the light that illuminates surfaces beyond the property line. Typically, spill lighting is from a more horizontal source such as streetlights and way-finding/security lighting than sky glow, which emanates from a more vertical source into the atmosphere. Spill light can be accurately calculated, and the effects of spill light can be measured for general understanding and comparison. However, light that is considered to be obtrusive is a subject of debate. A spill light impact is generally considered significant if the increase in spill lighting would exceed one foot-candle at the property line of the nearest sensitive receptor, sky glow is perceptibly increased, or glare is at a level such that it impairs vision.

Sky Glow

Sky glow is the light that illuminates the sky above the horizon and reflects off of moisture and other tiny particles in the atmosphere. Sky glow would be considered a significant impact if it were a permanent addition to the environment. Control features are available on the light sources to reduce sky glow and glare from nighttime lighting. These control features direct light downward, thereby reducing the spill of light that causes sky glow, and reducing glare.

[1] Foot-candle (fc): A unit of measure of the intensity of light falling on a surface, equal to one lumen per square foot and originally defined with reference to a standardized candle burning at one foot from a given surface. One fc = 0.01609696 watts. Source: Engineering Toolbox, n.d.

Glare

Glare can be described as direct or reflected light, which can then result in discomfort or disability. A well-designed lighting system controls light to provide maximum useful on-field illumination with minimal destructive off-site glare.

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

While the City's General Plan Background Report identifies views of Telegraph Hill and background views of the Sierra Nevada from SR-65 to be of scenic quality, the General Plan does not include any policies for the protection of views or identify any view sheds, or scenic vistas that should be protected. Distant views of the Sierra Nevada's can be seen from the Project site and surrounding area. However, these views are fragmented by existing development and natural features such as trees and hills.

The 1992 LCSP EIR, the 2001 Supplement and the 2003 Amendment determined that the change in scenic resources is a significant and unavoidable impact with no feasible mitigation available. The Proposed Project would not increase this level of impact as the Project site was anticipated for development as LDR units in all three previous environmental analyses. Because the site was intended for development, the Project would not increase the impact beyond what was determined in the original EIR, the 2001 Supplement, and 2003 Addendum; the Project would have a less-than-significant impact on a scenic vista.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

The Proposed Project is not located within the vicinity of an officially designated scenic highway. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

With full implementation of the Proposed Project, the visual character of the site would change from vacant land to a fully developed educational facility, including buildings and parking lots. However, this change was anticipated in the LCSP as the site was identified for development. The 1992 LCSP EIR determined that development of the Specific Plan, including the development of schools, would result in a change in scenic resources and would be a significant and unavoidable impact. The Proposed Project would not increase this level of impact as the Project site was anticipated for development. Because the site was intended for development and the Proposed Project is consistent with this intention and the Project would not increase the impact beyond what was determined in the original LCSP EIR, the Project would have a less than significant impact on visual character on the site or surrounding area.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Upon full buildout, the Project would involve the construction and operation of 53,270 sq. ft. of school facilities, parking lots, and play areas generally associated with elementary schools.

4.1.2.1 School Lighting

During night, interior and exterior lighting from the site would be visible from the surrounding area. School interior lighting would generally be turned off once the custodial staff has completed their work day. This typically occurs between 10:30 and 11:00 p.m. In addition, prior to the end of the custodial staff workday, interior lighting in only those areas where the staff would be working would be illuminated. This would reduce the amount of light originating from the Project. Exterior security lighting would be used throughout the Project site in order to facilitate pedestrian and vehicle movements. All lighting designs and locations would be consistent with adopted WPUSD and state school facilities standards. These standards are designed to minimize light impacts while still providing security and the necessary lighting needed to serve the students and public. Compliance with these standards would reduce the potential lighting impacts from the Project's building and exterior lighting to a less than significant level.

4.1.2.2 Glare

During the daytime certain building materials, such as large expanses of windows, unfinished metal, or reflective finishes, may reflect sunlight resulting in a source of daytime glare. Construction techniques and building materials for the Proposed Project have not yet been determined. As such, it is not possible to ascertain if the materials would result in a glare impact. Therefore, mitigation is required to reduce the potential for glare impacts from the Proposed Project. Implementation of mitigation measure AES-1 would reduce the potential for glare impacts to a less than significant level.

4.1.3 Mitigation Measures

AES-1 Bare metallic or otherwise reflective surfaces such as large expanses of windows, non-finished metal roofs, light poles, pipes, vents, gutters, and flashings shall have a non-reflective finish or be concealed from view.

Timing/Implementation: *To be incorporated as part of Project building design and during construction and operation of the Proposed Project.*

Enforcement/Monitoring: *Western Placer Unified School District*

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

The California Department of Conservation (DOC) manages the Farmland Mapping and Monitoring Program, which identifies and maps significant farmland. Farmland is classified using a system of five categories including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The classification of farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance is based on the suitability of soils for agricultural production, as determined by a soil survey conducted by the Natural Resources Conservation Service (NRCS). The California DOC manages an interactive website, the California Important Farmland Finder. This website program identifies the Project site as being outside of the survey area and is therefore not considered to be agriculturally important land.

The California DOC (2018) identifies the Project site as Grazing Land. This site is not subject to a Williamson Act contract (DOC 2016), and the site is zoned PUB and P in the City of Lincoln Zoning Ordinance. These zoning districts are not intended for agricultural uses. The Project site contains no forest or timber resources and is not zoned for forestland protection or timber production. The entirety of the Project would occur on the existing 14.2-acre site. The Project site is not located adjacent to or within the vicinity of any farmland.

4.2.2 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

The California DOC identifies the Project site as Grazing Land. The Project would have no impact in this area.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

This site is not subject to a Williamson Act contract, and the site is zoned PUB and P in the City of Lincoln Zoning Ordinance. There are no Williamson Act contract lands within the vicinity of the Project site. The Project would have no impact in this area.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

This site is zoned Public by the City. No forest lands exist on the Project site or within the vicinity of the Project. The Project would have no impact in this area.

Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No forest lands exist on the Project site or within the vicinity of the Project. The Project would have no impact in this area.

Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

The surrounding land is either developed or identified as Grazing Land by the DOC. No existing agricultural uses or forest land exist within the Project vicinity. The Project would have no impact in this area.

4.2.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.3 Air Quality

4.3.1 Environmental Setting

The California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (USEPA) focus on the following criteria pollutants to determine air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. In Placer County, the majority of criteria pollutant emissions come from mobile sources.

Toxic Air Contaminants (TAC) are separated into categories of carcinogens and noncarcinogens. Carcinogens, such as diesel particulate matter (diesel PM), are considered dangerous at any level of exposure. Noncarcinogens, however, have a minimum threshold for dangerous exposure. Common sources of TACs include, but are not limited to: gas stations, dry cleaners, diesel generators, ships, trains, construction equipment, and motor vehicles.

4.3.1.1 Topography and Air Quality

The Project area is located in the western portion of Placer County, California, which is within the Sacramento Valley Air Basin (SVAB). The SVAB also comprises all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties and the eastern portion of Solano County.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that influence the potential for high levels of regional and local air pollutants.

The air basin is relatively flat, bordered by mountains to the east, west, and north and by the San Joaquin Valley to the south. Air flows into the SVAB through the Carquinez Strait, moving across the Sacramento Delta, and bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storm systems. From May to October, the region's intense heat and sunlight lead to high ozone pollutant concentrations. Summer inversions are strong and frequent but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. However, the mountains surrounding the SVAB can create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right, and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical air flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the valley is characterized by stagnant morning air or light winds, with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north and carry the pollutants out of the valley, the Schultz Eddy causes the wind pattern to circle back south. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards.

4.3.2 Air Quality (III) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the California Clean Air Act requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The Placer County Air Pollution Control District (PCAPCD) is the agency responsible for enforcing many federal and state air quality requirements and for establishing air quality rules and regulations. The PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. As part of this effort, the PCAPCD has developed input to the SIP, which is required under the federal Clean Air Act for areas that are out of attainment for air quality standards. The SIP includes the PCAPCD's plans and control measures for attaining the ozone national ambient air quality standards.

The SIP plans and control measures are based on information derived from projected growth in Placer County in order to project future emissions and then determine strategies and regulatory controls for the reduction of emissions. Growth projections are based on the general plans developed by Placer County and the incorporated cities in the county. As such, projects that propose development consistent with the growth anticipated by the respective general plan of the jurisdiction in which the proposed development is located would be consistent with the SIP. In the event that a project would propose a development that is less dense than that associated with the general plan, the project would likewise be consistent with the SIP. If a project, however, proposes a development that is denser than that assumed in the general plan, the project may be in conflict with the SIP and could therefore result in a significant impact on air quality.

The City of Lincoln General Plan and zoning code identifies the site as being within the PF land use designation and within the PUB zoning district. The Project's proposed uses would be consistent with these land use designations. The Project site is located within the approved Lincoln Crossing Specific Plan, and the Proposed Project is also consistent with the elementary school use identified for the site by this Specific Plan. As such, no impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

Construction Impacts

Construction of the Proposed Project is anticipated to commence in 2019 and be completed in fall 2020. Further expansion of the elementary school will be contingent upon enrollment trends and funding. Construction associated with the Proposed Project would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the Project area include ozone-precursor pollutants (i.e., reactive organic gas [ROG] and nitrogen oxide [NO_X]) and PM_{10} and $PM_{2.5}$. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the PCAPCD's CEQA-related thresholds of significance. As previously described, the PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. As part of this effort, the PCAPCD has developed significance criteria, as shown in Table 4.3-1, which may be relied upon to make air quality impact determinations from land use development projects.

Construction results in the temporary generation of emissions resulting from site excavation, building construction, and paving. Motor vehicle exhaust is associated with construction equipment and worker trips. Particulate matter is associated with the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

The Project would be constructed in two distinct phases; however, due to uncertainties of timing surrounding the potential future expansion of the school and for the purposes of a conservative analysis, emissions modeling accounts for full buildout of the proposed school. See *Appendix A Air Quality Emissions* for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis. Construction-generated emissions associated with the Proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 4.3-1.

Table 4.3-1. Construction-Related Emissions

Construction Year	Pollutant (maximum pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Full Project Construction						
Year 2019	6.15	54.56	36.35	0.06	20.60	12.16
Year 2020	5.75	37.19	35.74	0.06	2.68	2.05
PCAPCD Potentially Significant Impact Threshold	*82*	*82*	*None*	*None*	*82*	*None*
Exceed PCAPCD Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.
Notes: Building construction, paving, and architectural coating assumed to occur simultaneously. Bolded results represent greatest daily emissions.

As shown in Table 4.3-1, all criteria pollutant emissions would remain below their respective thresholds during Project construction. Therefore, criteria pollutant emissions generated during Project construction would not result in a violation of air quality standards.

Operational Impacts

Implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM_{10}, $PM_{2.5}$, CO, and SO_2 as well as ozone precursors such as ROG and NO_X. Project-generated increases in emissions would be predominantly associated with motor vehicle use. Long-term operational emissions attributable to the Proposed Project are summarized in Table 4.3-2.

Table 4.3-2. Operational-Related Emissions

Source	Pollutant (maximum pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Summer Emissions (Pounds per Day)						
Scott M. Leaman Elementary School – Build-out	4.42	11.61	29.96	0.09	7.19	1.99
Winter Emissions (Pounds per Day)						
Scott M. Leaman Elementary School – Build-out	3.77	12.35	29.65	0.08	7.19	1.99
PCAPCD Potentially Significant Impact Threshold	*55*	*55*	*None*	*None*	*82*	*None*

Exceed PCAPCD Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.
Notes: Emissions projections account for a trip generation rate identified by WSP USA 2018 for Project buildout.

As shown in Table 4.3-2, the Project's net emissions would not exceed PCAPCD thresholds for any criteria air pollutants. Therefore, operations emissions would result in a less than significant long-term air quality impact.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐

The PCAPCD's approach to assessing cumulative impacts is based on the projected increases in emissions attributable to the Proposed Project. In other words, the PCAPCD considers the impact of a project to be less than cumulatively considerable if it does not exceed significance thresholds under project-level conditions. As discussed under Issue b), the Project would not exceed PCAPCD construction or operational significance thresholds. Furthermore, as identified under Issue a), the Project would not conflict with the PCAPCD's air quality planning efforts. Therefore, cumulative impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. Sensitive receptors closest to the Project site include residential neighborhoods to the north and west located as close as 75 feet from the Project site. Once operational, the Project itself would be considered a sensitive receptor.

Construction Impacts

Construction-related activities would result in temporary, short-term Project-generated emissions of diesel particulate matter (DPM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading), soil hauling truck traffic, paving, application of architectural coatings, and other miscellaneous activities. As previously stated, construction of the Proposed Project is anticipated to begin in 2019 and be completed by fall 2020. The Project would be constructed in two distinct phases; however, the timing of the future expansion of the school is dependent on student enrollment growth trends, available funding, and the timing of anticipated and approved development in Lincoln. Thus, the specific timing of the future expansion is unknown. For the purposes of this analysis, it is assumed that school will be in session for at least a portion of construction of the future expansion of the school.

For construction activity, DPM is the primary TAC of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. The potential cancer risk from the inhalation of DPM, 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. Accordingly, DPM is the focus of this discussion.

Based on the emission modeling conducted, the maximum construction-related daily emissions of $PM_{2.5}$ exhaust, considered a surrogate for DPM, would be 2.2 pounds per day during construction activity (See *Appendix A*). ($PM_{2.5}$ exhaust is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., $PM_{2.5}$), according to CARB. Most $PM_{2.5}$ exhaust derives from combustion, such as use of gasoline and diesel fuels by motor vehicles). Furthermore, even during the most intense month of construction, emissions of DPM would be generated from different locations on the Project site, rather than a single location, because different types of construction activities (e.g., site preparation, 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 the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-, 30-, or 9-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the Proposed Project. Consequently, an important consideration is the fact that construction activity associated with the Proposed Project is anticipated to span less than two years (though this time span would not occur continuously as construction would be potentially limited in the winter season). Therefore, considering the relatively low mass of DPM emissions that would be generated during even the most intense season of construction, the relatively short duration of construction activities (two years), and the highly dispersive properties of DPM, construction-related TAC emissions would not expose sensitive receptors to substantial amounts of air toxics.

Operational Impacts

Operation of the Proposed Project would not result in the development of any substantial sources of air toxics. The Project proposes the construction of a new elementary school and therefore would not include stationary sources of air toxics (i.e., smoke stacks). Furthermore, schools do not require the need for substantial material deliveries involving heavy-duty trucks, a source of diesel particulate matter. According to the California Air Pollution Control Officers Association's Health Risk Assessments for Proposed Land Use Projects (2009), operations that require more than 100 heavy-duty delivery trucks daily are considered a potential health risk from diesel particulate matter. The proposed school would not generate 100 heavy-duty trucks daily. Therefore, the Project would not be a source of TACs and there would be no impact as a result of the Project during operations.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Typically, odors are 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 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; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to 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, 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.

Construction Impacts

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would result in a less than significant impact related to odor emissions.

Operational Impacts

The land uses generally identified as sources of odors include wastewater treatment plants, wastewater pumping facilities, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing and fiberglass manufacturing facilities, painting/coating operations, rendering plants, coffee roasters, food processing facilities, confined animal facilities, feedlots, dairies, green waste and recycling operations, and metal smelting plants. If a source of odors is proposed to be located near existing or planned sensitive receptors, this could have the potential to cause operational-related odor impacts. The proposed elementary school is not considered a land use that contains substantial amounts of odor sources. This impact is less than significant.

4.3.3 Mitigation Measures

No significant impacts were identified; no mitigation measures are required.

4.4 Biological Resources

The following information was provided by the Biological Resource Assessment (BRA) and the Delineation of Waters of the U.S. completed by ECORP Consulting, Inc. (2018a). These documents are included as *Appendix B* of this Initial Study.

4.4.1 Environmental Setting

The Project site is located within the City of Lincoln, California at an elevation of approximately 130 feet AMSL. The Project site was an irrigated pasture prior to 2003. The Project site was mass-graded but left undeveloped and fallow in the Fall of 2003. Since the grading in 2003, the western two-thirds of the Project has been routinely plowed while the eastern 1/3 of the Project has been routinely mowed. As a result of the disturbance and routine maintenance the Project now contains a ruderal vegetation community. The southern fork of the Ingram Slough is located along the southern border the Project site. Scattered ephemeral wetland features (e.g., seasonal wetlands and a vernal pool) exist throughout the ruderal community. Waters that flow from the Project are tributary to Ingram Slough, which is a tributary to Orchard Creek. The immediate surrounding area is primarily made up of residential development with the exception of the slough that runs along the southern boundary of the project site.

Vegetation Communities

The eastern portion of the Project site is characterized by annual grassland vegetation and is dominated by brome fescue (*Festuca bromoides*), soft brome (*Bromus hordeaceus*), subterranean clover (*Trifolium subterraneum*), and broad leaf filaree (*Erodium botrys*).

As a result of the recent disturbance and routine maintenance, the western portion of the Project site is characterized by a ruderal vegetation community. The western portion of the Project site was sparsely vegetated during the March 29, 2018 survey due to recent tillage. Dominant plant species in upland portions of this area included Italian ryegrass (*Festuca perennis*), toad rush (*Juncus bufonius*), and hyssop loosestrife (*Lythrum hyssopifolia*). These species are typically associated with seasonal wetland habitats but were common throughout the disturbed western portion of the Project site, including both wetland and upland locations. This is likely the result of long-term and recent soil disturbance and compaction. There are no trees or shrubs present on the Project site.

Wildlife

Wildlife species observed within the Project Area during the March 9, 2018 reconnaissance survey included Canada goose (*Branta canadensis),* Mallard (*Anas platyrhynchos), r*ock dove (*Columba livia),* killdeer (*Charadrius vociferous),* cliff swallow (*Petrochelidon pyrrhonota*), Savannah sparrow (*Passerculus sandwichensis*), and Brewer's blackbird (*Euphagus cyanocephalus).*

Waters of the U.S.

A total of 0.504 acre of potential Waters of the U.S. have been mapped within the Project (ECORP 2018a). This included 0.439 acre of seasonal wetland, 0.054 acre of vernal pool, and 0.010 acre of seasonal wetland swale. A discussion of the wetlands is presented below, and an aquatic resources delineation map is presented in *Figure 6. Potential Waters of the U.S*. These acreages represent a calculated estimation and are subject to modification following the United States Army Corps of Engineers (USACE) verification process.

Seasonal Wetland

Seasonal wetlands are ephemerally wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short and they are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. Eight seasonal wetlands were mapped within the Project site. All of these features occur within the disturbed western portion of the Project site. Seasonal wetlands within the Project site were dominated by toad rush and Italian ryegrass. Hydrophytic vegetation was also present at uplands adjacent to onsite seasonal wetlands. However, while there was virtually no presence of upland-associated plant species within seasonal wetlands, upland-associated plant species were common, though not dominant within uplands.

Vernal Pool

Vernal pools are topographic basins within the grassland community that are typically underlain with an impermeable or semi-permeable hardpan layer. They are generally inundated through the wet season and are dry by late spring through the following wet season. One vernal pool occurs within the central portion of the Project site. This feature was dominated by Carter's buttercup (*Ranunculus bonariensis*). Other common species present within this vernal pool included creeping spikerush (*Eleocharis macrostachya*), and vernal pool hairgrass (*Deschampsia danthonioides*).

Seasonal Wetland Swale

Seasonal wetland swales are generally linear wetland features that convey precipitation runoff and support a predominance of hydrophytic vegetation, but do not exhibit an ordinary high-water mark. These are typically inundated for short periods during and immediately after rain events, but usually maintain soil saturation for longer periods during the wet season. One seasonal wetland swale occurs in the southwestern portion of the Project site. This feature was lined with burlap netting and straw wattles, and was unvegetated during the March 29, 2018 field survey.

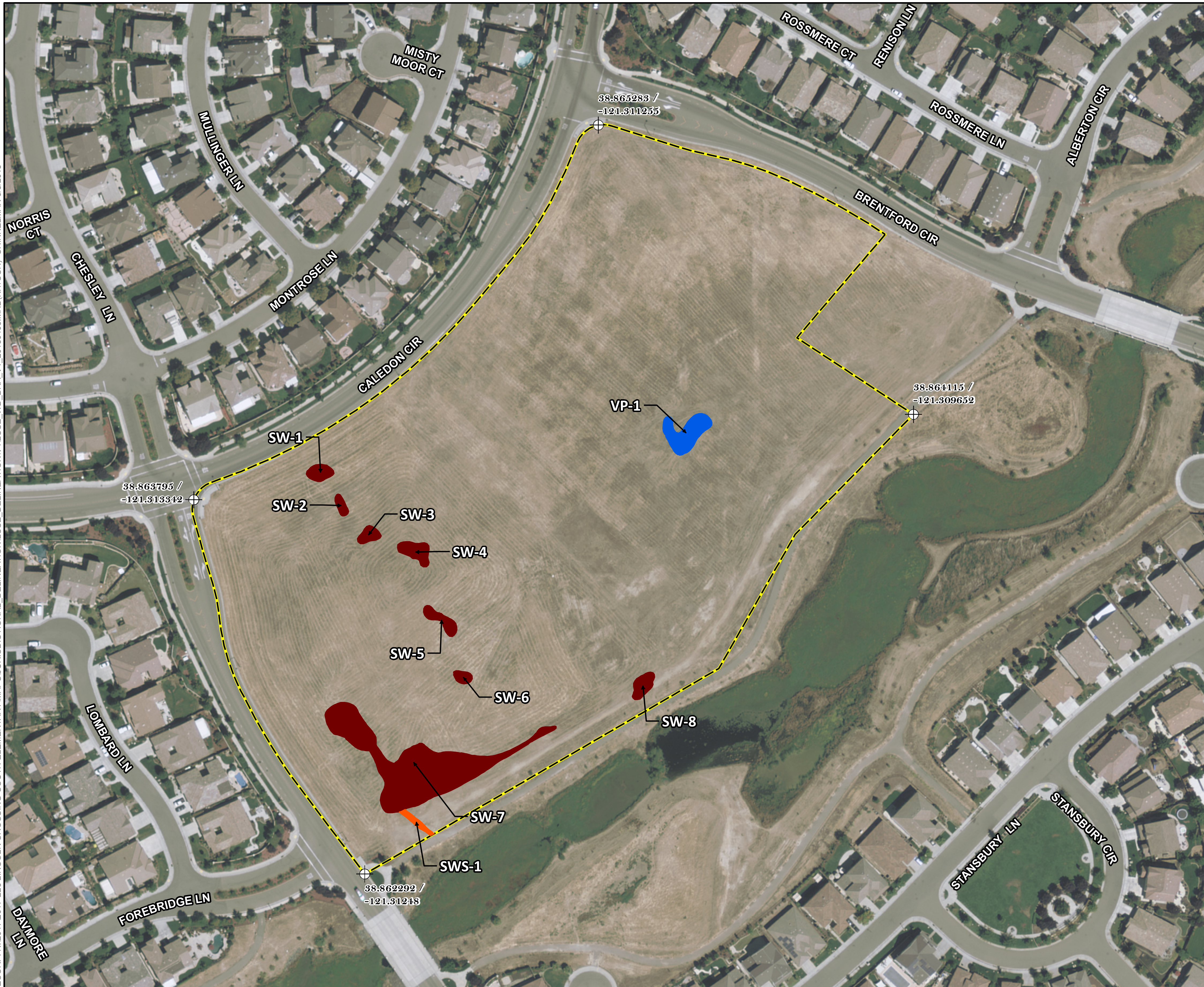


Figure 6.
Potential Waters of the U.S.

Map Features

- Project Boundary - 14.2 acres
- Reference Coordinate

Aquatic Resources (0.504 acres) [1] *

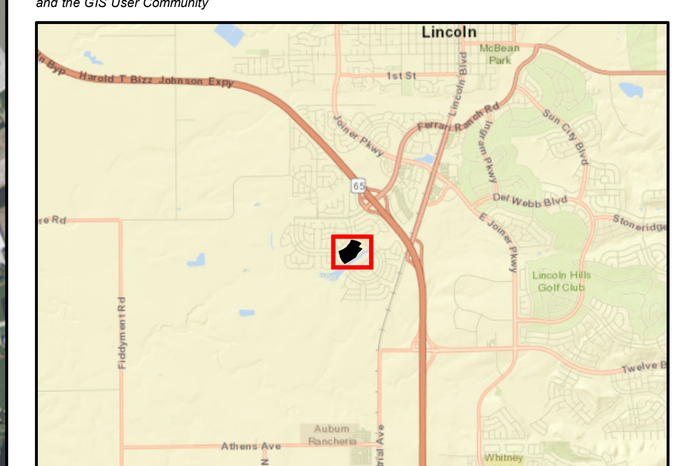
Wetland Type

- Seasonal Wetland - 0.439 ac.
- Seasonal Wetland Swale - 0.010 ac.
- Vernal Pool - 0.054 ac.

[1] *Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.*

* *The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-225 Scott M. Leaman Elementary School

Scale in Feet
0 150

Photo Source: USGS 2013
Boundary Source: Placer County GIS Parcels
Delineator(s): Clay DeLong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

Map Date: 6/5/2018

This feature was saturated during the field survey and would likely have hydrophytic vegetation and hydric soils under normal circumstances, based on its landscape position and hydrology.

4.4.2 Evaluation of Potentially Occurring Special-Status Species

Based on species occurrence information from the literature review and observations in the field, a list of special-status and California Natural Diversity Database-tracked plant and animal species that have the potential to occur within the Project area are shown in *Table 4.4-1*. Only those species that have a potential to occur onsite are shown in Table 4.4-1. For a complete list of special status species, including those that would not occur in the Proposed Project area, refer to the BRA in *Appendix B*. Following the table is a brief description of each species with potential to occur onsite.

A total of 14 special-status plant species were identified as having the potential to occur in the Project area based on the literature review. However, upon further analysis and after the site visit, seven species have been determined to be absent from the site due to the lack of suitable habitat. The remaining species include Big-Scale Balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*), Dwarf Downingia (*Downingia pusilla*), Stinkbells (*Fritillaria agrestis*), Ahart's Dwarf Rush (*Juncus leiospermus* var. *ahartii*), Red Bluff Dwarf Rush (*Juncus leiospermus* var. *leiospermus*), Legenere (*Legenere limosa*), and Adobe Navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*).

A total of four special-status invertebrate species were identified as having potential to occur in the Project area based on the literature review. However, upon further analysis and after the site visit, three species were considered to be absent from the site due to the lack of suitable habitat. The remaining species include vernal pool fairy shrimp (*Branchinecta lynchi*).

A total of two special-status fish species were identified as having potential to occur in the Project area based on the literature review. However, upon further analysis and after the site visit, both of the species were considered to be absent from the site due to the lack of suitable habitat.

A total of two special-status amphibians were identified as having potential to occur in the Project area based on the literature review. However, upon further analysis and after the site visit, California red-legged frog (*Rana draytonii*) has been determined to be absent from the site due to the lack of suitable habitat and that the Project is outside of the current known range of the species. The only species remaining was the Western spadefoot (*Spea hammondii*).

Two special-status reptiles were identified as having the potential to occur in the Project area based on the literature review. However, upon further analysis and after the site visit, giant garter snake (*Thamnophis gigas*) has been determined to be absent from the site due to the lack of suitable habitat. The only species remaining was the northern western pond turtle (*Actinemys marmorata*).

A total of 32 special-status bird species were identified as having the potential to occur within the Project Area based on the literature review. However, upon further analysis and after the site visit, all of these species were determined to be absent from the site due to the lack of suitable habitat. No further discussion of these species is provided in this analysis.

Three special-status mammal species were identified as having the potential to occur within the Project based on the literature review. However, upon further analysis and after the site visit, all three species were considered to be absent from the site due to the lack of suitable habitat.

Table 4.4-1. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA /NPPA	Other			
Plants						
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	-	-	1B.2	Sometimes on serpentine soils in chaparral, cismontane woodland, and Valley and foothill grassland (295' - 5,102').	March-June	Absent – not observed during plant surveys conducted in 2018
Dwarf downingia *Downingia pusilla*	-	-	2B.2	Mesic areas in Valley and foothill grassland, and vernal pools. Species appears to have an affinity for slight disturbance (i.e., scraped depressions, ditches, etc.) (Baldwin et al. 2012, California Department of Fish and Wildlife [CDFW] 2018) (3' - 1,460').	March - May	Absent – not observed during plant surveys conducted in 2018
Stinkbells *Fritillaria agrestis*	-	-	4.2	Clay and sometimes serpentinite soils in chaparral, cismontane woodland, Pinyon and juniper woodland, and Valley and foothill grassland (33' - 5,102').	March-June	Absent – not observed during plant surveys conducted in 2018
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	-	-	1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, Valley and foothill grassland, and vernal pools (115' - 4,101').	March - June	Absent – not observed during plant surveys conducted in 2018
Legenere *Legenere limosa*	-	-	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005) (3' - 2,887').	April - June	Absent – not observed during plant surveys conducted in 2018

Table 4.4-1. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA /NPPA	Other			
Adobe navarretia *Navarretia nigelliformis* ssp. *nigelliformis*	-	-	4.2	Clay and sometimes serpentinite soils in vernally mesic Valley and foothill grasslands and sometimes in vernal pools (328' - 3,281).	April - June	Absent – not observed during plant surveys conducted in 2018
Invertebrates						
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	-	-	Vernal pools/wetlands.	November-April	Potential to occur
Amphibians						
Western spadefoot *Spea hammondii*	-	-	SSC	California endemic species of vernal pools, swales, wetlands, and adjacent grasslands throughout the Central Valley.	March-May	Low potential to occur
Reptiles						
Northern Western pond turtle *Actinemys marmorata*	-	-	SSC	The only extant freshwater turtle in California. The northwestern and southwestern subspecies intergrade in central California. This turtle requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-October	Low potential to occur

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
SSC	CDFW Species of Special Concern
1B	Rare, Threatened, or Endangered in CA and elsewhere
2B	Rare, Threatened, or Endangered in CA, common elsewhere
4	Plants of Limited Distribution/Watch List
0.1	Seriously threatened in California (over 80% of occurrences threatened)
0.2	Moderately threatened in California (20-80% occurrences threatened)

4.4.3 Biological Resources (IV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

There is suitable habitat within the Project for seven special-status plants, two special status invertebrates, two special-status amphibians, one special-status reptile, and six special-status birds.

Seven special-status plants have the potential to occur within the Project. These include big-scale balsamroot, dwarf downingia, stinkbells, Ahart's dwarf rush, red bluff dwarf rush, legenere, and adobe navarretia. No special-status plants were observed within the Project site during the April 25, 2018 reconnaissance survey. Additional surveys for special-status plant species were conducted by ECORP on April 25 and June 13, 2018. These determinate-level field surveys were conducted in accordance with guidelines promulgated by USFWS (USFWS 2000), CDFW (CDFW 2018), and California Native Plant Society (2001). Meandering transects were walked throughout the survey area to ensure complete coverage of all suitable habitat for all target species. No special-status plant species were observed during protocol-level special-status plant surveys conducted in 2018. As such, impacts to special status plant species would be less than significant.

Suitable habitat for one special-status invertebrate, vernal pool fairy shrimp, is present within the Project site. As such., mitigation measure BIO-1 is required to reduce the impact to this species to a less than significant level.

There is marginally suitable habitat for one special-status amphibian (western spadefoot) within the Project. As such., mitigation measure BIO-2 is required to reduce impacts to a less than significant level.

Suitable upland habitat for one special-status reptile (northern western pond turtle) is present within the southern portion of the Project. Mitigation measure BIO-3 is required to reduce impacts to a less than significant level.

There is no potentially suitable nesting habitat within the Project site for any special-status birds. However, all native birds, and their active nests, are protected under the California Fish and Game Code and the federal Migratory Bird Treaty Act. As such, to ensure that there are no impacts to protected active nests, mitigation measure BIO-4 is required to reduce impacts to a less than significant level.

There is no potential habitat within the Project area for any special-status mammal species. As such, impacts to special status mammal species would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

No creeks, stream or rivers exist on the Project site. No riparian habitats or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFW or USFWS have been identified on the Project site. The Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐

A total of 0.504 acre of Waters of the U.S. has been mapped within the Project Area. A request for a jurisdictional determination for the Project has been submitted to U.S. Army Corps of Engineers (USACE) for verification. Mitigation measure BIO-5 would reduce impacts to a less than significant level.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) 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?	☐	☐	☐	☒

The Project is bordered by residential development to the west, north, and east. The Ingram Slough corridor to the south provides a potential corridor for the movement of wildlife but this area is not expected to be impacted by Project development.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

The City Municipal Code Chapter 18.69 and the Department of Public Works *Design Criteria & Procedures Manual* define the City policy and procedures for the protection of oak trees in the City. The City's policy is to preserve all oak trees possible through its development review process. Oak tree mitigation identification is through the City's design review process. However, there are no trees on the Project site. As such this policy does not apply. There would be no impact in this area.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The Placer County Conservation Plan (PCCP) will provide guidelines for mitigation requirements and federal and state permitting to ensure compliance with federal and state environmental laws and regulations. In the event that the PCCP is approved prior to the approval of the Project, the guidelines and mitigation requirements provided in the PCCP will be adopted.

4.4.4 Mitigation Measures

BIO-1: Prior to any Project grading or construction, Section 7 consultation shall occur with USFWS to establish mitigation, avoidance, and/or minimization measures for any impacted Project site features that provide suitable habitat (vernal pools, seasonal wetlands, and seasonal wetland swales) for the vernal pool fairy shrimp.

Timing/Implementation: *Prior to grading and construction activities*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-2: WPUSD shall retain a biologist to conduct a preconstruction western spadefoot survey within 48 hours of the initiation of grading and construction activity within suitable habitat for western spadefoot. If no western spadefoot individuals are found during the preconstruction survey, the biologist shall document the findings in a letter report, and no further mitigation shall be required. If individuals are found, the biologist shall consult with CDFW to determine appropriate avoidance measures.

Timing/Implementation: *Within 48 hours of the initiation of Project grading and construction activity.*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-3: WPUSD shall retain a biologist to conduct a preconstruction northern western pond turtle survey in conjunction with the western spadefoot pre-construction survey within 48 hours of the initiation of construction activity within suitable habitat for northern western pond turtle. If no northern western pond turtle individuals are found during the preconstruction survey, the biologist shall document the findings in a letter report, and no further mitigation shall be required. If individuals are found, the qualified biologist shall consult with CDFW to determine appropriate avoidance measures.

Timing/Implementation: *Within 48 hours of the initiation of Project grading and construction activity.*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-4: Conduct a pre-construction nesting bird survey of all suitable habitat on the Project site within 14 days prior to the commencement of construction during the nesting season (February 1-August 31). Surveys should be conducted within 500 feet of the Project for Swainson's hawk, 300 feet of the Project for nesting raptors, including burrowing owl, and 100 feet of the Project for nesting songbirds. If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a biologist in consultation with CDFW or the CEQA lead agency. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures are necessary. Pre-construction nesting surveys are not required for construction activity outside the nesting season.

Timing/Implementation: *Within 14 days prior to the commencement of Project grading and construction activity.*

Monitoring/Enforcement: *Western Placer Unified School District*

BIO-5: The following mitigation measures are required to minimize potential impacts to Waters of the U.S.:

- A permit authorization to fill wetlands under the Section 404 of the federal Clean Water Act (CWA, Section 404 Permit) must be obtained from U.S. Army Corp of Engineers (USACE) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no net loss of wetland function and values. An application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. within the Project Area is proposed at a 1:1 ratio for direct impacts however final mitigation requirements will be developed in consultation with USACE.

- A Water Quality Certification or waiver pursuant to Section 401 of the CWA must be obtained for Section 404 permit actions.

Timing/Implementation: *Prior to grading and construction activities.*

Monitoring/Enforcement: *Western Placer Unified School District*

4.5 Cultural Resources

4.5.1 Cultural Resources Inventory Report

A Cultural Resources Inventory Report was prepared by ECORP Consulting, Inc. (2018b) for the Proposed Project to determine if cultural resources were present in or adjacent to the Project area and assess the sensitivity of the Project area for undiscovered or buried cultural resources. The analysis of cultural resources was based on a records and literature search conducted at the North Central Information Center at California State University-Sacramento on September 22, 2017, a literature review, and a field survey on November 7, 2017. The literature search included the results of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project location.

ECORP contacted the California Native American Heritage Commission (NAHC) on September 22, 2017 to request a search of the Sacred Lands File for the Area of Potential Effect (APE). This search can determine whether or not Sacred Lands have been recorded by California Native American tribes within the APE, because the Sacred Lands File is populated by members of the Native American community who have knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding tribal cultural resources. The search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the project area (ECORP 2018b).

Assembly Bill 52 (AB 52) requires that prior to the release of a CEQA document for a project, an agency begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if: (1) the California Native American tribe requested to the lead agency, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe and (2) the California Native American tribe responds, in writing, within 30 days of receipt of the formal notification, and requests the consultation. While WPUSD did receive one notification request by the Torres-Martinez Desert Cahuilla Indians, this request was later retracted by the Tribe as the WPUSD is not within their geographical area. The WPUSD has not received any other formal notification requests by any California Native American tribes. As such, the consultation responsibilities required by AB 52 have been met by the WPUSD for the Proposed Project.

ECORP mailed letters to the Placer County Historical Society and the Lincoln Area Archives Museum on October 10, 2017 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area.

Confidentiality Restrictions

Sections 6253, 6254, and 6254.10 of the California Code authorize state agencies to exclude archaeological site information from public disclosure under the Public Records Act. In addition, the California Public Records Act (Government Code §6250 et seq.) and California's open meeting laws (The Brown Act, Government Code § 54950 et seq.) protect the confidentiality of Native American cultural place information. Under Exemption 3 of the federal Freedom of Information Act (5 U.S. Code 5 [USC]), because the disclosure of cultural resources location information is prohibited by the Archaeological Resources Protection Act of 1979 (16 USC 470hh) and Section 304 of the National Historic Preservation Act, it is also exempted from disclosure under the Freedom of Information Act. Likewise, the Information Centers of the California Historical Resources Information System (CHRIS) maintained by the California Office of Historic Preservation (OHP) prohibit public dissemination of records search information. In compliance with these requirements, the results of this cultural resource investigation were prepared as a confidential document, which is not intended for public distribution in either paper or electronic format. As such, the Cultural Resources Inventory Report is not included as an attachment in this Initial Study. While information describing the various Cultural Resources time periods is included in the Initial Study discussion, all references to location of artifacts have been removed for confidentiality and protection of these resources.

Area of Potential Affects

The APE consists of the horizontal and vertical limits of the Project and includes the area within which significant impacts or adverse effects to Historical Resources or Historic Properties could occur as a result of the Project. The APE is defined for projects subject to regulations implementing Section 106 (federal law and regulations). For projects subject to CEQA, the term Project Area is used rather than APE. For the purpose of this document, the terms Project Area and APE are interchangeable.

The horizontal APE consists of all areas where activities associated with the Project are proposed and, in the case of the current Project, equals the Project Area subject to environmental review under the National Environmental Policy Act and CEQA. This includes areas proposed for construction, vegetation removal, grading, trenching, stockpiling, staging, paving, and other elements described in the official Project description. The horizontal APE also represents the survey coverage area, which measures ±64 acres in size. The vertical APE is described as the maximum depth below the surface to which excavations for Project foundations and facilities will extend. Therefore, the vertical APE includes all subsurface areas where archaeological deposits could be affected. The subsurface vertical APE varies across the Project Area. Subsurface excavation will be necessary for the building foundations and to install utilities.

The vertical APE also is described as the maximum height of structures that could impact the physical integrity and integrity of setting of cultural resources, including districts and traditional cultural properties. For the current Project, the above-surface vertical APE is up to 50 feet above the surface, which is the maximum height of the proposed buildings.

Records Search

Twenty-one previous cultural resources investigations have been conducted within 0.5 mile of the APE, covering approximately 50 percent of the total area surrounding the APE within the record search radius. These studies revealed the presence of prehistoric sites, including one habitation site, and historical sites, including homestead sites and sites associated with historic ranching activities. The previous studies were conducted between 1978 and 2012.

The results of the records search indicate that none of the property has been previously surveyed for cultural resources, and therefore, a pedestrian survey of the APE was warranted. The records search also determined that seven previously recorded prehistoric and historic-era cultural resources are located within 0.5 mile of the Project area. Of these, one is believed to be associated with Native American occupation of the vicinity, and six are historic period-sites, associated with early Euro-American ranching activities and the railroad. None of the previously recorded resources are location within the Project area.

Map Review and Aerial Photographs

The review of historical aerial photographs and maps of the Project Area provide information on the past land uses of the property. Based on this information, the property was initially used for irrigated agriculture. Following is a summary of the review of historical maps and photographs.

- The 1855 GLO Plat map for Township 12 North, Range 6 East indicates a "ravine" in the vicinity of what is now Ingram Slough, north of the Project Area, and the "Sacramento & Virginia Road" toward the East, following the alignment of the railroad, which is not identified on the map.
- The 1892 USGS California, Sacramento Sheet (1:125,000) map shows the City of Lincoln northeast and the railroad east of the vicinity of the Project Area.
- The 1910 USGS Roseville, CA (7.5-minute) map reveals the Project Area as undeveloped, as do maps from 1952, 1967, 1975, 1981, and 1992, except these maps show the Project Area as an irrigated parcel.
- A review of aerial photographs from 1966, 1993, 1998, and 2002 show the Project Area as unchanged open irrigated agricultural property.
- An aerial photograph from 2005 shows the areas surrounding the Project Area with recently graded land and the addition of road locations.
- The aerial photographs from 2009, 2010, 2012, and 2014 show the area surrounding the Project Area as developed suburban housing.
- All of the aerials photographs from 1966 forward show a meandering wetland drainage running northeast-southwest at the southeast edge of the Project Area.

In sum, the Project area was open land since first mapped in 1855, was used for irrigated agriculture since 1910 and has remained undeveloped through the present day.

Field Survey

A cultural resources field survey was conducted on the Project site to determine the potential for cultural resources. The field survey revealed the Project site is comprised of a generally level and open field surrounded on all sides by residential roads and housing developments. The ground surface within the Project site shows evidence of recent tilling and other heavy machinery impacts, resulting in the scattering of top soils, water-worn cobbles, small boulders, and modern refuse. Ground surface visibility averages between 80 and 95 percent throughout most of the Project site, particularly in those areas where soils have been recently upturned and lack grasses; remaining areas average between 50 and 75 percent ground surface visibility, impeded by low-lying vegetation.

Water-worn cobbles and small boulders were observed throughout the Project site and were closely analyzed for evidence of grinding, pounding, battering and any other indications of cultural modification; much of the stone was observed to be scarred from modern mechanical impacts, but no evidence of ground stone or similar artifacts was identified.

No cultural resources were identified as a result of the field survey.

4.5.2 Environmental Setting

The Project site elevations range from 120 - 170 feet AMSL. Lincoln Crossing, a suburban residential development, borders the north, east, and west sides of the Project site, with an additional residential development to the south on the southern side of an unnamed perennial waterway directly adjacent to the southwest edge of the Project site. The home developments are approximately 12 years old, having not been present on maps prior to 2006. Ingram Slough is adjacent to the Project to the south, and the junction of SR-65 and the Southern Pacific Railroad is approximately 0.4 mile east.

Regional Prehistory

It is generally believed that human occupation of California began at least 10,000 years before present (BP)[2]. The archaeological record indicates that between approximately 10,000 and 8000 BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Animals that were hunted probably consisted mostly of large species still alive today. Bones of extinct species have been found, but cannot definitely be associated with human artifacts. Although small animal bones and plant grinding tools are rarely found within archaeological sites of this period, small game and floral foods were probably exploited on a limited basis. A lack of deep cultural deposits from this period suggests that groups included only small numbers of individuals who did not often stay in one place for extended periods (Wallace 1978).

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[2] Before Present (BP) years is a time scale used mainly in geology and other scientific disciplines to specify when events occurred in the past. Because the "present" time changes, standard practice is to use 1 January 1950 as the commencement date of the age scale.

Around 8,000 BP, there was a shift in focus from hunting toward a greater reliance on plant resources. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter. This period, which extended until around 5,000 years BP, is sometimes referred to as the Millingstone Horizon (Wallace 1978). Projectile points are found in archaeological sites from this period, but they are far fewer in number than from sites dating to before 8,000 BP. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace 1978).

In sites dating to after about 5,000 BP, archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Flaked-stone tools became more refined and specialized, and bone tools were more common. During this period, new peoples from the Great Basin began entering southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. During this period, known as the Late Horizon, population densities were higher than before, and settlement became concentrated in villages and communities along the coast and interior valleys (Erlandson 1994; McCawley 1996). Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber 1925; McCawley 1996; Moratto 1984). These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century (Wallace 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson 1994). The introduction of the bow and arrow into the region sometime around 2,000 BP is indicated by the presence of small projectile points (Wallace 1978; Moratto 1984).

Local Prehistory

This section provides a regional overview with contextual elements drawn from California's Central Valley Region, the Western Foothills Region, and from the transition zone itself where the Project lies. There has been more extensive research and study of Central Valley prehistory than the prehistory of the Sierra Nevada foothill zone, but a fair amount of cultural overlap exists within these regions. This section includes the most recent and readily available research of both regions (Rosenthal et al. 2007), and includes some reference to the climactic changes which swept the Sierra Nevada being a catalyst for population movement that led to cultural change in the foothills.

California's Great Central Valley has long held the attention of archaeologists and was a focus of early research in California. Archaeological work during the 1920s and 1930s led to the cultural chronology for central California presented by Lillard, Heizer, and Fenenga in 1939. This chronology was based on the results of excavations conducted in the lower Sacramento River Valley. This chronology identified three archaeological cultures, named Early, Transitional, and Late (Lillard et al. 1939).

Heizer (1949) redefined the description of these three cultures. He subsumed the three cultural groups into three time periods, designated the Early, Middle, and Late horizons. He primarily focused his research and reexamination of Lillard et al. (1939) on the Early Horizon, which he named Windmiller. He also intimated that new research and a reanalysis of existing data would be initiated for cultures associated with the Middle and Late horizons; however, he did not complete this work and other research filled in the gaps.

Following years of documenting artifact similarities among sites in the San Francisco Bay region and the Delta, Beardsley (1948, 1954) formatted his findings into a cultural model known as the Central California Taxonomic System (CCTS). This system proposed a linear, uniform sequence of cultural succession in Central California, and explicitly defined Early, Middle, and Late horizons for cultural change. Archaeological researchers have subsequently refined and redefined aspects of the CCTS. For instance, Fredrickson (1973, 1974, and 1994) reviewed general economic, technological, and mortuary traits between archaeological assemblages across the region. He separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: Paleo-Indian (12,000- 8,000 BP); Lower, Middle, and Upper Archaic (8,000 BP to AD 500) and Upper and Lower Emergent (AD 500 to 1800).

Fredrickson further defined three cultural patterns: The Windmiller (named after Heizer 1949 and Lillard et al. 1939), the Berkeley, and the Augustine patterns, and assigned them to the Early, Middle, and Late horizons of the CCTS. These patterns were defined to reflect the general sharing of lifeways within groups in a specific geographic region. The Windmiller pattern of the Early Horizon included cultural patterns dating from 5,000 to 3,000 BP; the Berkeley Pattern of the Middle Horizon (also known as the Cosumnes cultural pattern after Ragir 1972), included cultural patterns dating from 3,000 BP to AD 500, and the Augustine Pattern of the Late Horizon included the cultural patterns from AD 500 to the historic period.

Fredrickson's (1974) Paleo-Archaic-Emergent cultural sequence was redefined by Rosenthal, White, and Sutton (2007). Rosenthal et al.'s recalibrated sequence is divided into three broad periods: The Paleoindian Period (11,550 to 8,550 cal. BC); the three-staged Archaic period, consisting of the Lower Archaic (8,550 to 5,550 cal. BC), Middle Archaic (5,550 to 550 cal. BC), and Upper Archaic (550 cal. BC to cal. AD 1,100); and the Emergent Period (cal. AD 1,100 to Historic) (Rosenthal et al. 2007). The three divisions of the Archaic Period correspond to climate changes. This is the most recently developed sequence and is now commonly used to interpret Central California prehistory. The aforementioned periods are characterized by the following:

Paleo-Indian Period

This period began when the first people began to inhabit what is now known as the California culture area. It was commonly believed these first people subsided on big game and minimally processed foods, (i.e., hunters and gatherers), presumably with no trade networks. More recent research indicates these people may have been more sedentary, relied on some processed foods, and traded (Rosenthal et al. 2007). Populations likely consisted of small groups traveling frequently to exploit plant and animal resources.

Archaic Period

This period was characterized by an increase in plant exploitation for subsistence, more elaborate burial accoutrements, and increase in trade network complexity (Bennyhoff and Fredrickson 1994). The three divisions that correspond to prehistoric climate change are characterized by the following aspects (Rosenthal et al. 2007):

Lower Archaic Period. This period is characterized by cycles of widespread floodplain and alluvial fan deposition. Artifact assemblages from this period include chipped-stone crescents and early wide-stemmed points, marine shell beads, eastern Nevada obsidian, and obsidian from the north Coast Ranges. These types of artifacts found on sites dating to this period indicate trade was occurring in multiple directions. A variety of plant and animal species were also utilized, including acorns, wild cucumber, and manzanita berries.

Middle Archaic Period. This period is characterized by a drier climate period. Rosenthal et al. (2007:153) identified two distinct settlement/subsistence patterns in this period: Foothill Tradition and the Valley Tradition. Functional artifact assemblages consisting primarily of locally sourced flaked-stone and groundstone cobbles characterize the foothills tradition, while the Valley Tradition was generally characterized by diverse subsistence practices and extended periods of sedentism.

Upper Archaic Period. This period is characterized by abrupt change to wetter and cooler environmental climate conditions. Much greater cultural diversity is evident from this period. More specialized artifacts, such as bone tools, ceremonial blades, polished and groundstone plummets, saucer, and saddle *Olivella* shell beads, *Haliotis* shell ornaments, and a variety of groundstone implements are characteristic of this period.

Emergent Period

This period is most notably marked by the introduction of the bow and arrow, the emergence of social stratification linked to wealth, and more expansive trade networks signified by the presence of clam disk beads that were used as currency (Moratto 1984). The Augustine pattern (the distinct cultural pattern of the Emergent Period) is characterized by the appearance of small projectile points (largely obsidian), rimmed display mortars, flanged steatite pipes, flanged pestles, and chevron-designed bird-bone tubes. Large mammals and small seeded resources appear to have made up a larger part of the diet during this period (Fredrickson 1968; Meyer and Rosenthal 1997).

The following discussion summarizes the cultural patterns and the different local developments that are represented in archaeological deposits in the region surrounding the current Project Area.

The Windmiller Pattern of the Early Horizon (as defined by Beardsley 1948), dates to the Middle Archaic (as defined by Rosenthal et al. 2007) and may be the most extensively studied of all the cultural patterns defined for the Central Valley. In fact, the similarity noted between elements of Windmiller and materials from other sites may have been the catalyst for early archaeologists identifying the material cultural "blending" of groups in the Central Valley during this period. The temporal span for Windmiller has been updated and reanalyzed several times in the archaeological literature (Fredrickson 1973, 1974; Heizer 1949; Moratto 1984; Ragir 1972). The date originally proposed for the emergence of Windmiller was 4,500 BP (Lillard et al. 1939; Ragir 1972), because the culture at 4,000 years ago appeared to have been fully developed and seemed to have been well integrated into the regional economic system.

Characteristics to identify the Windmiller pattern have been presented by multiple authors over time (Fredrickson 1973, 1974; Heizer 1949; Moratto 1984; Ragir 1972). Most notable characteristics are:

- large, heavy stemmed and leaf-shaped projectile points commonly made of a variety of materials other than obsidian;
- perforate charmstones;
- *Haliotis* and *Olivella* shell beads and ornaments;
- trident fish spears;
- baked clay balls (presumably for cooking in baskets);
- blat slab milling stones;
- small numbers of mortars; and
- ventrally extended burials oriented toward the west.

The subsistence pattern of Windmiller groups probably emphasized hunting and fishing, with supplemental seed collecting (possibly including acorns) (Heizer 1949; Moratto 1984; Ragir 1972).

Windmiller groups acquired obsidian from at least two Coast Ranges and three trans-Sierran sources, *Haliotis* and *Olivella* shells and ornaments from the coast, and quartz crystals from the Sierra Nevada foothills (Heizer 1949; Ragir 1972). It is widely hypothesized that the bulk of these materials were acquired through trade, however some may have been acquired as part of seasonal movements between the Central Valley and the Sierra Nevada foothills.

There is evidence for seasonal transhumance in the distribution of Windmiller artifacts, sites, and burial patterns.

The succeeding Middle Horizon, namely the Cosumnes Culture after Ragir (1972), the Berkeley Pattern after Fredrickson (1974), and absorbed into the Middle and Upper Archaic designations by Rosenthal et al. (2007). Much less-published material discusses the patterns defined for this era than does Windmiller, nonetheless, some of the most notable characteristics are:

- tightly flexed burials with variable orientation;
- red ochre stains in burials;
- distinctive *Olivella* and *Haliotis* beads and ornaments;
- distinctive charmstones;
- cobble mortars and evidence of wooden mortars;
- numerous bone tools and ornaments;
- large, heavy foliate and lanceolate concave base projectile points made of materials other than obsidian; and
- objects of baked clay.

Further classification of the Middle Archaic (as defined by Rosenthal et al. 2007) into the Foothill Tradition and Valley Tradition helped to clarify the different types of cultural sequences that occurred during these time periods. Functional artifact assemblages consisting primarily of locally sourced flaked stone and groundstone cobbles characterize the Foothills Tradition, with very few trade goods. Sites that represent the Valley Tradition are much fewer in number and are generally characterized by much more diverse subsistence practices and extended periods of sedentism. Specialized tools, trade goods, and faunal refuse that indicate year-round occupation are evident on sites of the Valley Tradition (Rosenthal et al. 2007). Distinct artifacts attributed to this tradition include one of the oldest dated shell bead lots in central California (4,160 BP) and a particular type of pestle used with a wooden mortar (Meyer and Rosenthal 1997).

The Sierra Nevada experienced significant climactic shifts and concomitant vegetation change throughout the Holocene, but pollen analysis and climactic records indicate that the current climate pattern and primary constituents of vegetation communities were in place by the Middle Archaic around 1,000 BC (Hull 2007). Seasonal transhumance practiced by indigenous populations of the Sierra may have become more consistent during this period of relative environmental stasis.

The next era in the region is identified as the Late Horizon by Beardsley (1948, 1954), the Hotchkiss Culture by Ragir (1972), and the Augustine Pattern by Fredrickson (1974). The culture was formed by populations during the later Upper Archaic and Emergent Periods, as defined by Rosenthal et al. (2007), and ranges in age from around 550 cal. BC to contact (dates vary between the different models of prehistory developed for the region). The Upper Archaic, as discussed above, corresponds with the late Holocene change in environmental conditions to a wetter and cooler climate. The Emergent Period and Late Horizon are markedly represented by the introduction of bow-and-arrow technology, as well as more pronounced cultural diversity as reflected in diversity of burial posturing, artifact styles, and material culture.

This era primarily represents both local innovation and the blending of new cultural traits introduced into the Central Valley. The Emergent Occupation (as defined by Rosenthal et al. 2007) coincides with the Augustine Pattern (Fredrickson 1974) in the lower Sacramento Valley/Delta region, and with the Sweetwater and Shasta complexes in the northern Sacramento Valley (Fredrickson 1974; Kowta 1988; Sundahl 1982). The emergence of the Augustine Pattern appears to have been associated with the expansion of Wintun populations from the north, which appears to have led to an increase in settlements in the area after 550 B.P. (Bennyhoff 1994; Moratto 1984).

During this period in the Sierra Nevada, paleoenvironmental data suggests severe droughts occurred from around AD 892 to 1112 and AD 1210 to 1350 (Hull 2007; Lindström 1990; Stine 1994). These drier conditions surely affected the seasonal resource procurement rounds of the native populations during this time, and likely led to an influx of population movement and cultural blending into the foothills zone and Central Valley by Sierra Nevada groups.

Despite the varying designations, this emergent era is distinguished in the archaeological record by intensive fishing, extensive use of acorns, elaborate ceremonialism, social stratification, and cremation of the dead. Artifacts associated with the defined patterns (Augustine, Emergent, Hotchkiss) include bow-and-arrow technology (evidenced by small projectile points), mortars and pestles, and fish harpoons with unilaterally or bilaterally placed barbs in opposed or staggered positions (Bennyhoff 1950). Mortuary patterns include flexed burials and cremations, with elaborate material goods found in association with prestigious individuals. A local form of pottery, Cosumnes brown ware, emerged in the lower Sacramento Valley (Rosenthal et al. 2007).

Regional History

The first European to visit California was Spanish maritime explorer Juan Rodriguez Cabrillo in 1542. Cabrillo was sent north by the Viceroy of New Spain (Mexico) to look for the Northwest Passage. Cabrillo visited San Diego Bay, Catalina Island, San Pedro Bay, and the northern Channel Islands. The English adventurer Francis Drake visited the Miwok Native American group at Drake's Bay or Bodega Bay in 1579. Sebastian Vizcaíno explored the coast as far north as Monterey in 1602. He reported that Monterey was an excellent location for a port (Castillo 1978).

Colonization of California began with the Spanish Portolá land expedition. The expedition, led by Captain Gaspar de Portolá of the Spanish army and Father Junipero Serra, a Franciscan missionary, explored the California coast from San Diego to the Monterey Bay Area in 1769. As a result of this expedition, Spanish missions to convert the native population, presidios (forts), and pueblos (towns) were established. The Franciscan missionary friars established 21 missions in Alta California (the area north of Baja California) beginning with Mission San Diego in 1769 and ending with the mission in Sonoma established in 1823. The purpose of the missions and presidios was to establish Spanish economic, military, political, and religious control over the Alta California territory. The nearest missions were in the vicinity of San Francisco Bay and included Mission San Francisco de Asis (Dolores) established in 1776 on the San Francisco Peninsula, Mission Santa Clara de Asis at the south end of San Francisco Bay in 1777, Mission San Jose in 1797, Mission San Rafael, established as an *asistencia* in 1817 and a full mission in 1823, and Mission San Francisco Solano in Sonoma in 1823 (Castillo 1978; California Spanish Missions 2011). Presidios were established at San Francisco and Monterey. The Spanish took little interest in the area and did not establish any missions or settlements in the Central Valley.

After Mexico became independent from Spain in 1821, what is now California became the Mexican province of Alta California with its capital at Monterey. In 1827, American trapper Jedediah Smith traveled along the Sacramento River and into the San Joaquin Valley to meet other trappers of his company who were camped there, but no permanent settlements were established by the fur trappers (Thompson and West 1880).

The Mexican government closed the missions in the 1830s and former mission lands, as well as previously unoccupied areas, were granted to retired soldiers and other Mexican citizens for use as cattle ranches. Much of the land along the coast and in the interior valleys became part of Mexican land grants or "ranchos" (Robinson 1948). During the Mexican period there were small towns at San Francisco (then known as Yerba Buena) and Monterey. The rancho owners lived in one of the towns or in an adobe house on the rancho. The Mexican Period includes the years 1821 to 1848.

John Sutter, a European immigrant, built a fort at the confluence of the Sacramento and American rivers in 1839 and petitioned the Mexican governor of Alta California for a land grant, which he received in 1841.

Sutter built a flour mill and grew wheat near the fort (Bidwell 1971). Gold was discovered in the flume of Sutter's lumber mill at Coloma on the South Fork of the American River in January 1848 (Marshall 1971). The discovery of gold initiated the 1849 California Gold Rush, which brought thousands of miners and settlers to the Sierra foothills east and southeast of Sacramento.

The American period began when the Treaty of Guadalupe Hidalgo was signed between Mexico and the United States in 1848. As a result of the treaty, Alta California became part of the United States as the territory of California. Rapid population increase occasioned by the Gold Rush of 1849 allowed California to become a state in 1850. Most Mexican land grants were confirmed to the grantees by U.S. courts, but usually with more restricted boundaries, which were surveyed by the U.S. Surveyor General's office. Land outside the land grants became federal public land which was surveyed into sections, quarter-sections, and quarter-quarter sections. The federal public land could be purchased at a low fixed price per acre or could be obtained through homesteading (after 1862) (Robinson 1948).

Local History

The Project is located in Placer County, which formed in 1851 from parts of Sutter and Yuba counties. The principal economic activity in much of the county at that time was placer mining, hence the name. However, gold deposits were absent in the alluvial valley portion of western Placer County, and ranching (cattle and sheep) and agriculture (wheat cultivation) were the principal economic activities. The nearby town of Lincoln was surveyed and platted on the proposed line of the California Central Railroad (CCRR) from Folsom to Marysville, which passed through what would become Roseville. Folsom was already connected by rail to Sacramento via the Sacramento Valley Railroad. The CCRR was completed from Folsom to Lincoln in 1861.

The lands of this portion of Placer County are primarily dry plains, cut by occasional rivers and drainages such as Bear River, Coon Creek, and Markham and Auburn Ravine, and were found to be suitable for dry farming and raising livestock by early Euro-American residents. The lands along the major drainages were the first to be occupied, followed by settlement in the dry plains and on the lesser drainages in the 1860s. The lands near the Project vicinity were used for dry farming for crops, such as grain and hay, and for the grazing of livestock. Some of the ranchers seasonally moved their herds to other holdings at higher altitudes in the Sierra Nevada after the annual drying of their ranges following the cessation of the rains in May (Thompson and West 1882).

The town of Lincoln was surveyed and platted in 1864 on the CCRR line from Folsom to Marysville. The town was named after Charles Lincoln Wilson, who built the CCRR. During the next few years, the town prospered, increasing to approximately 500 residents, with several trains arriving from Roseville daily. However, in 1866 the railroad was built north to Wheatland, reducing the amount of shipping that Lincoln had previously received (Thompson and West 1882; Lardner and Brock 1924).

Although the railroad and freight economy declined, fruit crops, dry land agriculture, and cattle ranching continued to compose a large part of the early economy in Lincoln. In 1873, several coal beds were discovered, leading to such mines as the Lincoln and the Clipper coal mines. Large amounts of clay were found within the Lincoln Coal Mine, and when word spread, Charles Gladding, visiting from Chicago, took the clay back home to have it tested by ceramics experts. The quality of the clay was so great that

Gladding came back to Lincoln and started Gladding, McBean and Company, which eventually made and shipped sewer pipe throughout California. By the 1890s, the company was also making fire brick, ornamental pottery, chimney pipes, and world-renowned terra cotta facades (Gladding McBean 2014). In recent times, Gladding, McBean has been a major contributor to the economy of Lincoln, along with Sierra Pacific Industries' sawmill, located just north of Lincoln.

Paleontological Resources

A paleontological records search was requested from the University of California Museum of Paleontology (UCMP) on November 1, 2017. The search included a review of the institution's paleontology specimen collection records for Placer County, including the Project area and vicinity. In addition, a query of the UCMP catalog records; a review of regional geologic maps from the California Geological Survey; a review of local soils data; and a review of existing literature on paleontological resources of Placer County by ECORP. The purpose of the assessment was to determine the sensitivity of the Project area, whether or not known occurrences of paleontological resources are present within or immediately adjacent to the Project area, and whether or not implementation of the project could result in significant impacts to paleontological resources. Paleontological resources include mineralized (fossilized) or unmineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

The results of the search of the UCMP indicated that 64 paleontological specimens were recorded from 29 identified localities and 11 unidentified localities in Placer County. Paleontological resources include fossilized remains of birds, mammals, reptiles, and amphibians. No paleontological resources have been previously recorded within or near the Proposed Project site (UCMP 2017).

4.5.3 Cultural Resources (V) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐

The Cultural Resources Inventory Report researched the available historical resources information to determine the potential for historical resources that may be located on the Project site or nearby resources that may be affected by development of the Project. The following information was derived from this information:

- The OHP's Directory of Properties, Historic Property Data File for Placer County (dated April 5, 2012) did not include any resources within 0.5 mile of the Project Area (OHP 2012).
- The National Register Information System (National Park System [NPS] 2017; OHP 1996) failed to reveal any eligible or listed properties within the Project Area. The two nearest National Register properties are located 2.3 miles northeast of the Project Area in Historic Downtown Lincoln: the Lincoln Public Library and the Woman's Club of Lincoln.

- Resources listed as California Historical Landmarks (OHP 1996) and by the OHP (OHP 2017) were reviewed on October 2, 2017. The nearest listed landmark is #780-2: First Transcontinental Railroad – Rocklin (plaque located seven miles southeast of the Project Area).
- A review of Historic Spots in California (Kyle 2002) did not identify any relevant historic spots within the record search radius; however, Kyle briefly mentions the early development of Lincoln as a thriving stage and freight center, approximately two miles northeast of the Project site.
- Historic General Land Office (GLO) land patent records from the Bureau of Land Management's (BLM) patent information database (BLM 2017) revealed that Joseph Walkup and Samuel Wyman were issued a patent (federal deed) for the northeastern quarter and the eastern half of the northwest quarter of Section 28 on December 1, 1860. The Project Area land was part of 320 acres in California sold to Joseph Walkup and Samuel Wyman.
- A RealQuest online property search for APN 327-010-012-000 revealed the property consists of 5.20 acres of common area. APN 327-010-014-000 revealed the property consists of 9.40 acres of land zoned for a school. No other property history information was on record with RealQuest. The parcel map from 2012 revealed that the property is zoned for a future school site and a private park. The parcel map also reveals that the Project Area is bounded by an open space natural preserve area to the southeast.
- The Caltrans Bridge Local and State Inventories (Caltrans 2017a, 2017b) did not list any historic bridges in or within 0.5 mile of the Project Area.
- The Handbook of North American Indians (Wilson and Towne 1978) lists the nearest Native American villages as Bamuma, located directly east of Lincoln and the Project Area.
- The nearest local historical register is the Sacramento Register of Historical Resources. The Sacramento Register is limited to the City of Sacramento and does not include any properties located near the Project Area.

The Cultural Resources Inventory concluded that no historic properties will be affected by the Proposed Project. However, there always remains the potential for ground-disturbing activities to expose previously unrecorded historic resources. As such, mitigation measure CUL-1 is required to reduce potential historic resource impacts to the less than significant level.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

The Cultural Resources Inventory Report identifies that a records search completed for the Project determined that seven previously recorded prehistoric and historic-era cultural resources are located within 0.5 mile of the Project Area. Of these, one is believed to be associated with Native American occupation of the vicinity, and six are historic period-sites, associated with early Euro-American ranching activities and the railroad. The records search indicated that none of the property had been previously surveyed for cultural resources, and therefore, a pedestrian survey of the APE was warranted.

On November 7, 2017, ECORP subjected the APE to an intensive pedestrian survey under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties* (NPS 1983) using transects spaced 15 meters apart. At that time, the ground surface was examined for indications of surface or subsurface cultural resources. The general morphological characteristics of the ground surface were inspected for indications of subsurface deposits that may be manifested on the surface, such as circular depressions or ditches. Whenever possible, the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances were examined for artifacts or for indications of buried deposits. No subsurface investigations or artifact collections were undertaken during the pedestrian survey. No archaeological resources were found during the field survey.

While no known archaeological resources were found during the Cultural Resources Inventory Report analysis, there always remains the potential for ground-disturbing activities to expose previously unrecorded archaeological resources. As such, mitigation measure CUL-1 is required to reduce potential historic resource impacts to the less than significant level.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

No known paleontological resources sites were identified during the field survey of the Project site. A search of the UCMP failed to indicate the presence of paleontological resources in the Project area. Although paleontological resources sites were not identified in the Project area, there is a possibility that unanticipated paleontological resources will be encountered during ground-disturbing project-related activities. Therefore, impacts to unknown paleontological resources would be less than significant with incorporation of mitigation measure CUL-2.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

No known burial sites were identified during the field survey. A search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the project area. Although Native American burial sites were not identified in the Project area, there is a possibility that unanticipated human remains will be encountered during ground-disturbing project-related activities. Therefore, impacts to unknown human remains would be less than significant with incorporation of mitigation measure CUL-1.

4.5.4 Mitigation Measures

CUL-1: If subsurface deposits believed to be cultural or human in origin are discovered during grading and construction activities, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately, and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the lead agency and applicable landowner. The agency shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the National Register of Historic Places (NRHP) or California Register of Historic Places (CRHR). Work may not resume within the no-work radius until the lead agency, through consultation as appropriate, determines that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, the archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Placer County Coroner (as per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agency, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *WPUSD*

CUL-2 If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify WPUSD. WPUSD shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, WPUSD shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *WPUSD*

4.6 Geology and Soils

4.6.1 Environmental Setting

Geomorphic Setting

The Project site is located in the north-central portion of the Great Valley geomorphic province of California. The Great Valley province is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River and its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor (California Geological Survey [CGS] 2002).

4.6.1.1 Site Geology

According to the (CGS 1981), the Project site is underlain by the Tertiary Mehrten Formation. The Tertiary Mehrten Formation consists of andesitic conglomerate, sand stone and breccia.

4.6.1.2 Site Soils

According to the NRCS through the Web Soil Survey database, the Project site is composed of one soil unit, Kilaga loam, as shown in *Table 4.6-1* below. The Web Soil Survey also identifies drainage, flooding, erosion, runoff, and the linear extensibility potential for the project soils. According to this survey, all of the Project soils are well drained and have a moderate runoff potential, but have no potential for flooding. The majority of Project site soils have a slight erosion potential and a moderate linear extensibility (shrink-swell) (NRCS 2018).

Table 4.6-1. Project Area Soil Characteristics

Soil	Percentage of Site	Drainage	Flooding Frequency Class	Erosion Hazard[1]
Kilaga loam	100%	Well drained	None	Slight
Typical Profile	**Runoff Potential[2]**	**Linear Extensibility (Rating)[3]**	**Plasticity (Rating)**	**Frost Action[4]**
H1 - 0 to 19 inches: loam *H2 - 19 to 30 inches:* clay loam *H3 - 30 to 56 inches:* clay *H4 - 56 to 80 inches:* sandy clay loam	C (moderate)	5.0%, moderate	14.3%	None

Source: NRCS 2018
Notes:

1. The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and offsite damage are likely, and erosion-control measures are costly and generally impractical.
2. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation.
   Group A: Soils having a high infiltration rate (low runoff potential) when thoroughly wet.
   Group B: Soils having a moderate infiltration rate when thoroughly wet.
   Group C: Soils having a slow infiltration rate when thoroughly wet.
   Group D: Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.
3. Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.
4. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Regional Seismicity and Fault Zones

In California, special definitions for active faults were devised to implement the Alquist-Priolo Earthquake Fault Zoning Act of 1972, which regulates development and construction in order to avoid the hazard of surface fault rupture. The State Mining and Geology Board established policies and criteria in accordance with the act. The board defined an active fault as one which has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault was considered to be any fault that showed evidence of surface displacement during Quaternary time (last 1.6 million years). Because of the large number of potentially active faults in California, the State Geologist adopted additional definitions and criteria in an effort to limit zoning to only those faults with a relatively high potential for surface rupture. Thus, the term sufficiently active was defined as a fault for which there was evidence of Holocene surface displacement. This term was used in conjunction with the term well-defined, which relates to the ability to locate a Holocene fault as a surface or near-surface feature (CGS 2010a).

Major faults within the region with the greatest potential to affect the Project site include the Foothills Fault System, located approximately 11 miles east of the Project site, and the Great Valley Fault System, located approximately 43 miles west of the Project site (Wallace-Kuhl & Associates 2018). The Foothills

Fault System consists of a series of northwest-trending faults. Of this system, the Bear Mountains Fault Zone is considered to be potentially active. The nearest fault is Deadman Fault, approximately 11 miles east of the Project (Wallace-Kuhl & Associates 2018). This fault is a Late Quaternary Age (70,000 to 11,700 years) fault (CGS 2018).

The Great Valley Fault System consists of 14 recognized fault segments extending from Coalinga in the south to Rumsey Hills in the north. The Dunnigan Hills Fault is located approximately 32 miles west southwest of the Project site and is a Late Quaternary Age fault. The Willows Fault Zone is located approximately13 miles west southwest of the Project site is a Pre-Quaternary Age (older than 1.6 million years) fault (CGS 2018).

According to the geotechnical report completed by Wallace-Kuhl & Associates (2018) for the Proposed Project, the most intense earthquake ground shaking within 100 km (62 miles) of the site resulted from the 6.2-magnitude Vacaville-Winters earthquake of April 21, 1892, with an epicenter located approximately 40.4 miles southwest of the site.

4.6.2 Geology and Soils (VI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

i) The proposed project site is not located within an Alquist-Priolo Earthquake Zone (CGS 2010b, 2015). There would be no impact related to fault rupture.

ii) According to CGS's Earthquake Shaking Potential for California mapping, the Proposed Project site is located in an area which is distant from known, active faults and will experience lower levels of ground shaking less frequently. In most earthquakes, only weaker masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking in the area (CGS

2016). The Proposed Project includes the construction of buildings, light poles, parking lots, and other school related facilities, which may be affected by a seismic event. However, all structures would be required to comply with the 2016 California Building Code (CBC), including the required seismic mitigation standards. Because of the required compliance with the CBC seismic mitigation standards and the distance from active faults, the Proposed Project would have a less than significant impact related to strong ground shaking.

Liquefaction occurs when loose sand and silt saturated with water behaves like a liquid when shaken by an earthquake. Liquefaction can result in the following types of seismic-related ground failure:

- Loss of bearing strength – soils liquefy and lose the ability to support structures
- Lateral spreading – soils slide down gentle slopes or toward stream banks
- Flow failures – soils move down steep slopes with large displacement
- Ground oscillation – surface soils, riding on a buried liquefied layer, are thrown back and forth by shaking
- Flotation – floating of light buried structures to the surface
- Settlement – settling of ground surface as soils reconsolidate
- Subsidence – compaction of soil and sediment

Liquefaction potential has been found to be greatest where the groundwater level and loose sands occur within a depth of about 50 feet or less. The California Department of Water Resources (DWR) monitors depth to groundwater throughout the state. DWR provides contour mapping showing the depth to groundwater below surface on their Groundwater Information Center Interactive Map Application website tool (DWR 2018a). While data is somewhat limited for the area surrounding the Project site, as depth to groundwater only goes back to 2012 for the area, according to this application, between spring 2012 and fall 2017, depth to groundwater for the Project site remained steady at about 50 - 60 feet below ground surface (DWR 2018a). The geotechnical report determined that the potential for liquefaction occurring at the site was very low (Wallace-Kuhl & Associates 2018).

Due to the low potential for ground shaking, as discussed under Issue a) ii) above, and the depth to groundwater being 50 feet or more, the site would not be susceptible to liquefaction. Additionally, compliance with the general and special requirements of the CBC and other regulations, plans, and standards required by the Division of the State Architect regarding seismic safety, the Proposed Project would result in less than significant impacts with regard to seismic-related ground failure, including liquefaction.

iii) The Project site and surrounding area is relatively flat with no tall hillsides or other formations susceptible to landslides. As such, the potential for landslides would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

As shown in *Table 4.6-1*, the Project soils have a slight erosion potential. A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions. Construction activities during Project site development, such as grading, excavation, and soil hauling, would disturb soils and potentially expose them to wind and water erosion. Therefore, mitigation to reduce this potential is required.

The Project applicant will be required to prepare a stormwater pollution prevention plan (SWPPP) to comply with the Regional Water Quality Control Board's (RWQCB) General Construction Storm Water Permit. BMPs are included as part of the SWPPP and would be implemented to manage erosion and the loss of topsoil during construction-related activities (see *Hydrology and Water Quality (IX.) Environmental Checklist and Discussion*). Implementation of the BMPs would reduce soil erosion impacts to a less than significant impact.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐

As discussed previously, the Project site has little potential for landslides due to the site's underlying soils.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion and unconsolidated material or, more commonly, by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope, resulting in gravitationally driven movement. One indicator of potential lateral expansion is frost action. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing (NRCS 2018). As indicated in *Table 4.6-1*, the Web Soil Survey identifies the Project site as having soils with no frost action potential. Additionally, as discussed in Item a) iii) above, the Project site potential for liquefaction is low to non-existent due to the soil types and volcanic rock underlying the Project site. As such, the potential for impacts due to lateral spreading would be less than significant.

With the withdrawal of fluids, the pore spaces within the soils decrease, leading to a volumetric reduction. If that reduction is significant enough over an appropriately thick sequence of sediments, regional ground subsidence can occur. This typically only occurs within poorly lithified sediments and not within competent rock.[3] No oil, gas, or high-volume water extraction wells are known to be present in the Project area. According to the United States Geological Service (USGS), the Project site is not located in an area of land subsidence (USGS 2017). As such, the potential for impacts due to subsidence would be less than significant.

Collapse occurs when water is introduced to poorly cemented soils, resulting in the dissolution of the soil cementation and the volumetric collapse of the soil. In most cases, the soils are cemented with weak clay (argillic) sediments or soluble precipitates. This phenomenon generally occurs in granular sediments situated within arid environments. Collapsible soils will settle without any additional applied pressure when sufficient water becomes available to the soil. Water weakens or destroys bonding material between particles that can severely reduce the bearing capacity of the original soil. The collapse potential of these soils must be determined for consideration in the foundation design.

Based on the subsurface conditions encountered at the site during the geotechnical analysis, it was determined that settlement/collapse at the site due to subsidence was very unlikely, provided the recommendations of the geotechnical report were followed. As such, mitigation measure GEO-1 is required to ensure that the potential for impacts due to collapse would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐

Expansive soils are types of soil that shrink or swell as the moisture content decreases or increases. Structures built on these soils may experience shifting, cracking, and breaking damage as soils shrink and subside or expand. Expansive soils can be determined by a soil's linear extensibility. There is a direct relationship between linear extensibility of a soil and the potential for expansive behavior, with expansive soil generally having a high linear extensibility. Thus, granular soils typically have a low potential to be expansive, whereas clay-rich soils can have a low to high potential to be expansive. The shrink-swell potential is low if the soil has a linear extensibility of less than three percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. As shown in *Table 4.6-1*, linear extensibility values for the site are 5.0 percent. Soils with linear extensibility in that range correlate to soils having a moderate expansion potential.

The geotechnical report completed two expansion index tests on the Project site. Results indicate that the soils at the site have a low to medium expansion potential when tested in accordance with the American Society of Testing and Materials (ASTM) D4829 test method. Based on the results of the tests as well as observed subsurface conditions, the geotechnical report determined that soil expansion would not need

[3] The processes by which loose sediment is hardened to rock are collectively called lithification.

to be considered in design of the Project (Wallace-Kuhl & Associates 2018). Based on this information, the potential for impacts because of expansive soils would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

The Project would connect to the City's waste water collection and treatment plant. The Proposed Project would not use a septic system or other waste water disposal system.

4.6.3 Mitigation Measures

GEO-1: WPUSD shall implement the recommendations provided in the Geotechnical Engineering and Geologic Hazards Report Scott M. Leaman Elementary School (Wallace-Kuhl & Associates. 2018) regarding settlement/collapse at the site.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *WPUSD*

4.7 Greenhouse Gas Emissions

4.7.1 Environmental Setting

Greenhouse gases (GHGs) are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps more than 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

4.7.2 Greenhouse Gas Emissions (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Construction Impacts

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). The assessment of construction-generated GHG emissions is based on guidance from the PCAPCD. The PCAPCD 2017 CEQA Handbook includes guidance on assessing GHGs and climate change impacts as required under CEQA § 15183.5(b) and establishes thresholds of significance for impacts related to GHG emissions shown in *Table 4.7-1*.

The Project would be constructed in two distinct phases; however, due to uncertainties of timing surrounding the potential future expansion of the school and for the purposes of a conservative analysis, emissions modeling accounts for full buildout of the proposed school. See *Appendix C* for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis. Construction-generated GHG emissions associated the Proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Predicted maximum annual construction-generated emissions for the Proposed Project are summarized in *Table 4.7-1*.

Table 4.7-1. Construction-Related Greenhouse Gas Emissions

Construction Year	Carbon Dioxide Equivalents (CO_2e) (metric tons)
Construction	
Year 2019	453
Year 2020	493
Total	946
PCAPCD Potentially Significant Impact Threshold	*10,000*
Exceed PCAPCD Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to Appendix C for Model Data Outputs.
Notes: Building construction, paving, and architectural coating assumed to occur simultaneously.

As shown in *Table 4.7-1*, GHG emissions would remain below their respective threshold during Project construction. Construction-generated GHG emissions would be less than significant.

Operational Impacts

Operation of the Project would result in GHG emissions predominantly associated with motor vehicle use. *Table 4.7-2* summarizes all the direct and indirect annual GHG emissions levels associated with the Project.

Table 4.7-2. Operational-Related Greenhouse Gas Emissions

Emissions Source	CO2e (metric tons)
Area Source (landscaping, hearth)	0
Energy	68
Mobile	919
Waste	18
Water	6
Total	1,011
PCAPCD Screening Threshold	*1,100*
Exceed PCAPCD Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to Appendix C for Model Data Outputs.
Notes: Emissions projections account for a trip generation rate identified by WSP USA 2018 for Project buildout. Water consumption and solid waste generation are based on subsection 4.18 of this Initial Study.

As shown in *Table 4.7-2*, the increase in operational GHG emissions would be 1,011 metric tons of CO_2e per year as a result of the Project. The PCAPCD has a recommended screening threshold of 1,100 metric tons of CO_2e per year. As shown in *Table 4.7-2*, the Proposed Project would not surpass the PCAPCD numeric, screening threshold. PCAPCD thresholds were developed based on substantial evidence that such thresholds represent quantitative levels of GHG emissions, compliance with which means that the environmental impact of the GHG emissions will normally not be cumulatively considerable under CEQA. Compliance with such thresholds will be part of the solution to the cumulative GHG emissions problem, rather than hinder the state's ability to meet its goals of reduced statewide GHG emissions. Based on these findings, the project would not generate GHG emissions that would result in a significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

The City of Lincoln does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, the City is located in the greater Sacramento region and is a member of the Sacramento Area Council of Governments (SACOG). SACOG's Metropolitan Transportation Plan/Sustainable Communities Strategy 2016 (MTP/SCS) is the latest update of a long-range policy and planning program that establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035, and thus establishes an overall GHG target for the region applicable to these subsectors of the transportation sector. SACOG was tasked by CARB to achieve a 9 percent per capita reduction compared to 2012 vehicle emissions by 2020, and a 16 percent per capita reduction by 2035, which CARB confirmed the region would achieve by implementing its MTP/SCS (CARB 2013).

As shown in *Table 4.7-2*, GHG emissions from Project-related transportation sources is the most potent source of emissions, and therefore comparison to the MTP/SCS is an appropriate indicator of whether the Project is consistent with statewide GHG-reduction goals. Since the development site is classified as an "Established Community" in the MTP/SCS, it is included in an area where urban development is predicted by SACOG. While the MTP/SCS acknowledges it cannot predict land use on a parcel-by-parcel basis throughout the SACOG region, SACOG does account for growth in areas designated as "Established Communities" through 2036. Since the proposed new elementary school is located in an area classified as a "Established Community", it is consistent with the MTP/SCS and it can be assumed that regional mobile emissions will decrease in line with the goals of the MTP/SCS with implementation of the development. While the Project would generate GHG emissions, implementing SACOG's MTP/SCS will greatly reduce the regional GHG emissions from transportation, and the development will not obstruct the achievement of the MTP/SCS emission reduction targets. Since the development is consistent with SACOG's 2016 MTP/SCS, the development would not result in an increase in the severity of operational GHG emission-related impacts. This impact is less than significant.

4.7.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.8 Hazards and Hazardous Materials

4.8.1 Environmental Setting

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, Section 25501 as follows:

> "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

A hazardous material is defined in Title 22, Section 662601.10, of the CCR as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

The release of hazardous materials into the environment could potentially contaminate soils, surface water, and groundwater supplies.

Most hazardous materials regulation and enforcement in Placer County is managed by the Placer County Health and Human Services - Environmental Health Division, which refers large cases of hazardous materials contamination or violations to the Central Valley or Lahontan RWQCBs, depending on location, and the California Department of Toxic Substances Control (DTSC). It is not at all uncommon for other agencies to become involved when issues of hazardous materials arise, such as the PCAPCD and both the federal and state Occupational Safety and Health Administrations (OSHA).

Under Government Code § 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC (2018a) and SWRCB (2018) lists identified no open cases of hazardous waste violations within one mile of the Project site.

The Project site has been analyzed by Padre Associates, Inc. (2017 and 2018), for potential hazards and hazardous materials. This analysis determined that the site contained no environmental contamination.

On March 30, 2018 DTSC received the Preliminary Environmental Assessment (PEA) Report for the Proposed Project site. According to the PEA Report, all organochlorine pesticide concentrations were below the laboratory analytical reporting limits. Additionally, the site presents a normal distribution of arsenic concentrations in soil. Based on the statistical and graphical evaluation, arsenic concentrations identified in surface soil are representative of ambient concentrations. The PEA Report concludes that further investigation and remediation are not warranted and recommends no further action regarding the site (DTSC 2018b).

4.8.2 Hazards and Hazardous Materials (VIII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

The Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Schools do not generate significant amounts of hazardous materials, and only a minimal amount of routine day-to-day materials is stored onsite, such as materials used in routine cleaning of buildings or maintenance of landscaping. These materials would be used, stored, and disposed in accordance with existing regulations and product labeling and would not create a significant hazard to the public or to the environment.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

As discussed in Issue a), the Project would not result in the routine transport, use, disposal, handling, or emission of any hazardous materials that would create a significant hazard to the public or the environment. Potential construction-related hazards could be created during the course of Project construction at the site, given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

School operation would involve the routine transport, use, or disposal of hazardous materials in small quantities as they relate to hotel/commercial use. All hazardous materials on the site would be handled in accordance with city and state regulations. Because any hazardous materials used for operations would be in small quantities, long-term impacts associated with handling, storing, and disposing of hazardous materials from project operation would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

Other than the Proposed Project, the nearest public school to the Project site is Lincoln Crossing Elementary School, approximately 1.1 miles north of the Project site. None of the proposed new school uses would emit any hazardous emissions. There is a potential that common household hazardous materials may be stored in the proposed new buildings, including cleaning solutions, bleach, and lawn care materials. These materials would be stored, used, and disposed of in accordance with product label instructions and existing state and local regulations. Due to the commonplace nature of the substances to be used, the small amount to be stored, and compliance with existing standards and regulations, this impact is considered less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Under Government Code § 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC and SWRCB lists identified no open cases of hazardous waste violations on the project site. Therefore, the Project site and the Proposed Project are not on a parcel included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 (DTSC 2018; SWRCB 2018). As a result, this would not create a significant hazard to the public or to the environment and would have no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

The nearest airport to the Project site is the Lincoln Regional Airport, located approximately 3.5 miles northwest of the site. According to the Placer County Airport Land Use Compatibility Plan, the Proposed Project is located outside of all compatibility and influence zones (Placer County 2014). As such, the Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

The Proposed Project site is not located within the vicinity of a private airstrip and would not result in a safety hazard for people residing or working in the project area. The nearest identified airstrip is the Van Dyke airstrip located 10 miles west of the Project site. Therefore, no impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

The Lincoln General Plan provides a number of policies that address conformance with local emergency response programs and continued cooperation with emergency response service providers. For example, policies in the Health and Safety Element have been developed to ensure that all applicable disaster plans are updated regularly (see Policy HS-7.2) and a coordinated emergency response system is maintained with other agencies (see Policies HS-7.1 and HS-7.5). The Proposed Project does not include any actions that would impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. All construction activities would occur on-site and not impede the use of surrounding roadways in an emergency evacuation. The Project involves the development of an elementary school, and would not interfere with any emergency response or evacuation plans. Implementation of the Proposed Project would result in no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents), and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area to mass ratio and require less heat to reach the ignition point, while fuels such as trees have a lower surface area to mass ratio and require more heat to reach the ignition point.

The wildland fire season in the Sierra foothills typically lasts mid-June through early-October, although drought years or unusual weather may extend the period. Extreme weather conditions during periods of low humidity, low fuel moisture (percentage of water in vegetation), and high winds also contribute to the severity of any potential wildfires. Fires occurring during these times typically burn hot and fast, and are difficult to control unless initial suppression occurs immediately. Lincoln has a significant amount of dry range grass within the Planning Area that is susceptible to wildland fires that can move quickly if accompanied by a stiff breeze. In addition, there is a great potential for wildland fires in the more open hillside areas (City of Lincoln 2008a).

The California Department of Forestry and Fire protection (CAL FIRE) has designated the northeastern edge of the city as having a moderate wildland fire potential; however, this moderate rating does not extend to the Project site (CAL FIRE 2007) because the Project site is not located within a designated wildfire hazard area and is protected by the Lincoln Fire Department. The Project would have a less than significant impact in this area.

4.8.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.9 Hydrology and Water Quality

4.9.1 Environmental Setting

Regional Hydrology

The City is located on the predominately level alluvial plain that extends west from the foothills of the Sierra Nevada and lies within the Mediterranean subtropical climate zone that is typical of Central California. Winters are typically cool and wet. Summers are typically hot and dry. The primary river system in the Lincoln area includes the Auburn Ravine, Orchard Creek, Ingram Slough, Markham Ravine, and Pleasant Grove Creek, all of which originate east of the city and flow westward. Ingram Slough is located at the southernmost portion of the City and joins with Orchard Creek, south of the city. Orchard Creek flows near the southern edge of the City and ultimately flows into Auburn Ravine. Auburn Ravine, one of the largest streams in the area, generally flows west through the City to the East Side Canal, which then flows south to the Cross Canal and intersects the Sacramento River at Verona approximately 10 miles north of Sacramento (City of Lincoln 2006).

Surface Water

The City is located in the greater Sacramento River hydrologic region. The Sacramento River hydrologic region covers approximately 17.4 million acres (27,200 square miles). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Small areas of Alpine and Amador counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border, to the Sacramento-San Joaquin Delta (DWR 2003).

The City and the Project site are located within boundaries of the American River watershed. The American River watershed consists of four sub-watersheds; the Yuba River, Bear River, Upper American River and Lower American River. The City and Project site are within the Bear River sub-watershed (SRWP 2018a).

The Bear River watershed drains approximately 300 square miles. The Bear River originates about 20 miles west of the crest of the Sierra Nevada in northern Placer County within the boundaries of the Tahoe National Forest. The Bear River is fed by the Drum Canal from Spaulding Lake (located on the South Yuba River). Flowing out of the Drum Afterbay is the Middle Bear, which enters Dutch Flat Reservoir where the waters of the Boardman Canal enter after running through Alta Powerhouse. The Bear River continues to roughly parallel Interstate 80 (I-80). Just before the Bear River flows into Rollins Reservoir, it merges with Steephollow Creek, the largest tributary in the upper watershed. The Bear River discharges from Rollins Reservoir and flows southwest into Lake Combie near the community of Meadow Vista and near an area with heavy development pressure. The Bear River turns west and is fed by Wolf Creek and then enters into Camp Far West Reservoir, the largest water body in the Bear River Watershed. The Bear joins the Feather River south of Yuba City/ Marysville. The Bear River contains a large volume of mining sediment stored in its main channel that is subject to continual erosion. The high volume of mining sediment, in combination with restricting levees, has caused the Lower Bear channel to become deeply incised.

In highest rainfall years, winter flows average 3,400 - 5,600 cubic feet per second (cfs). In normal years, winter flows are 600–800 cfs. In the driest years, flows average only 20–65 cfs in winter months, down to 0 cfs in all other months. Bear River flow patterns are typical of foothill streams with high winter and spring flows and very low summer and fall flows. Bear River flows are regulated almost entirely by several storage reservoirs and numerous diversions (SRWP 2018b).

Groundwater

The Project site is underlain by the Sacramento Valley Groundwater Basin and the North American Subbasin. The North American Subbasin has a surface area of 351,000 acres (548 square miles). According to the 2003 California Groundwater Bulletin 118 Update, groundwater levels in southwestern Placer County and northern Sacramento County have generally decreased, with many wells experiencing declines at a rate of about 1.5 feet per year for the last 40 years or more. Some of the largest decreases have occurred in the area of the former McClellan Air Force Base. Groundwater levels in Sutter and northern Placer counties generally have remained stable, although some wells in southern Sutter County have experienced declines (DWR 2003). Since this publication, groundwater levels continue to decrease in the valley areas east of Lincoln from spring 2007 to spring 2017 from 10 - 30 feet, depending on location (DWR 2018c). However, in the immediate vicinity of the Project, DWR indicates an average increase of 10 feet in ground surface to groundwater surface between 2012 and 2017 (DWR 2018c).

The Lincoln Groundwater Management Plan (2003b) estimates the North American Subbasin total groundwater in storage to be 4.9 million acre-feet (AF). The 2003 Bulletin 118 estimated inflows include natural recharge at 83,800 AF and applied water recharge at 29,800 AF. There was no artificial recharge. Estimated outflows include urban extraction at 109,900 AF and agricultural extraction at 289,100 AF (DWR 2003). The Sustainable Groundwater Management Act (SGMA) directs DWR to identify groundwater basins and sub basins in conditions of critical overdraft. As defined in the SGMA, "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." The North American Groundwater Subbasin is not listed as a critically overdrafted basin (DWR 2016). DWR is currently working on an update to the Bulletin 118 groundwater report. However, more up-to-date information of the North American Subbasin in not available at this time.

Project Site Hydrology and Onsite Drainage

The Project site is located on relatively flat terrain situated at an elevational range of approximately 120 - 170 feet AMSL. Project hydrological features include 0.054 acre of vernal pools, 0.429 acre of seasonal wetlands, and 0.010 acre of seasonal wetland swales as identified in the Aquatic Resources Delineation prepared for the Project by ECORP Consulting (2018c). See *Appendix B* for the Aquatic Resources Delineation.

Lincoln experiences extreme seasonal variation in monthly rainfall. The rainy period of the year lasts for 8.2 months, from September 26 to June 1, with a sliding 31-day rainfall of at least 0.5 inch. The most rain falls during the 31 days centered on February 16, with an average total accumulation of 4.9 inches. The rainless period of the year lasts for 3.8 months, from June 1 to September 26. The least rain falls around July 30, with an average total accumulation of 0.0 inches (Weatherspark 2018).

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the Project area (Map No. 06061C0403F) shows that the Project site is in unshaded Zone X, meaning that the area is outside of the 0.2 percent annual chance (500-year) floodplain [FEMA 1998].

4.9.2 Hydrology and Water Quality (IX) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

All Project wastewater would be collected and treated by the City through their wastewater collection system and wastewater treatment plant. The Proposed Project would not violate any wastewater discharge requirements. No onsite collection and treatment would occur with implementation of the Proposed Project.

Additionally, in accordance with National Pollutant Discharge Elimination System (NPDES) regulations, the State of California requires that any construction activity affecting one acre or more obtain a General Construction Activity Stormwater Permit (General Permit) to minimize the potential effects of construction runoff on receiving water quality. Performance standards for obtaining and complying with the General Permit are described in NPDES General Permit No. CAS000002, Waste Discharge Requirements, Order No. 2009-0009-DWQ.

General Permit applicants are required to submit to the appropriate regional board Permit Registration Documents for the Project, which include a Notice of Intent (NOI), risk assessment, site map, signed certification statement, an annual fee, and a SWPPP. The SWPPP includes pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, and a detailed construction timeline. The SWPPP must also include implementation of BMPs to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges.

Examples of typical construction best management practices included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable 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; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters. SWPPP BMPs are recognized as effective methods to prevent or minimize the potential releases of pollutants into drainages, surface water, or groundwater. Strict SWPPP compliance, coupled with the use of appropriate BMPs, would reduce potential water quality impacts during construction activities.

Implementation of BMPs required as part of the SWPPP would ensure that the Proposed Project would not create or contribute to any violations of water quality standards or waste discharge requirements. There would be a less than significant impact.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	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 (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐

The City's water supply is provided by both surface water and groundwater. The City uses groundwater during periods where treated surface water is reduced as well as to manage seasonal summer maximum day and peak hour water demands. While the proportion of groundwater to total water use varies from year to year, groundwater made up approximately 12.5 percent on average of the total water supply in the City between 2006 and 2015 (City of Lincoln 2017). The City's Water Master Plan (WMP, City of Lincoln 2017) identifies various water demand factors depending on end use. The annual demand factor has been established at 2.57 AF per acre for schools and 3.73 AF per acre for parks. Using this demand factor and the site acreage, the estimated water demand for the Project would be 42.1 AF of water per year[4]. Using this factor and the average annual groundwater proportion of 12.5 percent, the Proposed Project's average annual groundwater demand would be approximately 5.3 AF.

As discussed previously, the North American Subbasin total groundwater in storage is estimated to be 4.9 million AF. The Project's groundwater demand of 5.3 AF per year represents 0.0001 percent of the total

[4] 2.57 AF per acre per year (for schools) X 9.4 acres for school site = 24.2 AF per year. 3.73 per acre per year (for parks) X 4.8 acres for park site = 17.9 AF per year. 24.2 AF per year + 17.9 AF per year = 42.1 AF per year.

groundwater in storage. Therefore, the Proposed Project would not substantially deplete groundwater supplies and would have a less than significant impact in this area.

Impervious surfaces on the Project site would include buildings, parking lots, playgrounds, and sidewalks. Approximately 50 percent of the 14.2-acre undeveloped site would be covered with impervious surfaces.

The City's Groundwater Management Plan (2003b) identifies the recharge potential in and around the city as follows:

> "The runoff characteristics and recharge potential of the soil throughout the Lincoln area have been investigated and mapped – providing a qualitative indication of the areal potential for deep percolation of surface water into the aquifer systems. Most of the soil cover across the North American Subbasin has been classified as having high runoff (low infiltration) potential, except in the vicinity of river and stream drainages. A fairly large area surrounding Auburn Ravine, as well as Coon Creek, has been classified as having soils with moderate to high runoff potential (low to moderate infiltration potential). DWR characterizes the soil cover across the area as having a dense subsoil that limits deep percolation of water applied at the surface; less dense soils occur in the vicinity of creeks such as Coon Creek and Auburn Ravine, providing better deep percolation and recharge. Boyle also identified the Markham Ravine drainage as a probable area of groundwater recharge and Spectrum-Gasch identified the Orchard Creek drainage, along with Auburn Ravine, as probable areas of significant recharge based on the inferred shallow depth to the upper aquifer zone in these areas."

Ingram Slough is adjacent to the Proposed Project site. As shown in *Table 4.6-1*, the Project site soils have a moderate runoff potential and therefore a moderate infiltration potential consistent with the City soil's percolation potential described in the Groundwater Management Plan. While drainage plans have not yet been completed, it is assumed that future runoff from the Project site from developed'/impervious areas would be directed into the onsite storm drainage system and into the City's storm drainage. For those pervious areas such as the play fields and the park area, stormwater drainage would flow off-site through natural drainages to the surrounding area, including Ingram Slough.

Because the soils on the Project site have a moderate recharge ability and the estimated seven acres of impervious surfaces (buildings, parking lots, play areas, and concrete surfaces) would represent 0.002 percent[5] of the total North American Groundwater Subbasin area, the Project would have a less than significant impact to groundwater recharge.

[5] The North American Groundwater Subbasin in 351,000 acres in size. Seven acres of Project impervious surfaces / 351,000 acres X 100 = 0.002%.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

No creeks, streams or rivers exist on the Project site. The Project site is located in an undeveloped area north of Ingram Slough. The proposed site improvements would not substantially alter the existing drainage pattern of the Project site in such a way to result in substantial erosion or siltation on- or offsite. Construction for the Proposed Project would occur north of and outside of Ingram Slough and include onsite stormwater conveyance facilities.

The Project construction activities would result in soil disturbances of at least one acre of total land area. As such, an NPDES Construction General Permit would be required prior to the start of construction.

Required elements of a SWPPP include

1. site description addressing the elements and characteristics specific to the site;
2. descriptions of BMPs for erosion and sediment controls;
3. BMPs for construction waste handling and disposal;
4. implementation of approved local plans;
5. proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and
6. non-stormwater management.

Excavation and grading activities associated with the Proposed Project will reduce vegetative cover and expose bare soil surfaces making these surfaces more susceptible to erosion and sediment transport. To comply with the requirements of the NPDES Construction General Permit AWA will be required to file a NOI with the State of California and submit a SWPPP defining BMPs for construction and post-construction related control of the Proposed Project site runoff and sediment transport. Requirements for the SWPPP include incorporation of both erosion and sediment control BMPs. SWPPP generally include the following applicable elements:

- diversion of offsite runoff away from the construction area;
- prompt revegetation of proposed landscaped areas;
- perimeter straw wattles or silt fences and/or temporary basins to trap sediment before it leaves the site;

- regular sprinkling of exposed soils to control dust during construction during the dry season;
- installation of a minor retention basin(s) to alleviate discharge of increased flows;
- specifications for construction waste handling and disposal;
- erosion control measures maintained throughout the construction period;
- preparation of stabilized construction entrances to avoid trucks from imprinting debris on city roadways;
- contained wash out and vehicle maintenance areas;
- training of subcontractors on general construction area housekeeping;
- construction scheduling to minimize soil disturbance during the wet weather season; and
- regular maintenance and storm event monitoring.

Note that the SWPPP is a "live" document and should be kept current by the person responsible for its implementation. Preparation of, and compliance with a required SWPPP would effectively prevent Proposed Project on-site erosion and sediment transport off-site. This will reduce potential runoff, erosion, and siltation associated with construction and operation of the Proposed Project. The effects of the Proposed Project on onsite and offsite erosion and siltation, therefore, would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d)	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 that would result in flooding on- or off-site?	☐	☐	☒	☐

As stated previously, there are no creeks, streams, or rivers on the Project site. Therefore, implementation of the Proposed Project would not result in the alteration of the course of a natural waterway nor substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The Proposed Project would involve changes to the amount of onsite impervious surfaces because of the impervious new structures. However, any stormwater flowing from these structures would be routed into Project drainage facilities and the City's stormwater drainage system. As such, the drainage pattern at the Project site, as well as surface runoff conditions after implementation of the Proposed Project, would not result in on- or off-site flooding. Therefore, the Proposed Project would have a less than significant impact on causing flooding on- or off-site.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

See discussion of Issues a) and c), above. The Proposed Project would involve changes to the amount of onsite impervious surfaces potentially increasing the amount of onsite runoff. However, any stormwater flowing from these structures would be routed into Project drainage facilities and the City's stormwater drainage system. On-site drainage systems would be designed to control the amount and flow of stormwater and negate the potential to exceed the City's existing storm drainage capacity.

Polluted runoff from the Project site during construction and operation could include sediment from soil disturbances, oil and grease from construction equipment, and gross pollutants such as trash and debris. Compliance with NPDES permit requirements would ensure that BMPs would be implemented during the construction phase to effectively minimize excessive soil erosion and sedimentation and eliminate non-stormwater discharge off-site. As required by law, BMPs would be included as part of the Proposed Project to ensure that potentially significant impacts are reduced to less than significant levels. Therefore, impacts associated with stormwater volumes and polluted runoff during the construction of the Proposed Project would be less than significant.

Activities associated with operation of the Proposed Project are not expected to generate substances that can degrade the quality of water runoff. While potential impacts could result from vehicles and other users at the Proposed Project site during school operation, all potential impacts to water quality would be reduced by stormwater pollution control measures and wastewater discharge BMPs required at the Project site as a part of Project development and school operation. Therefore, impacts during operation would be considered less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐

The proposed project would not otherwise result in degradation of water quality. Compliance with NPDES permit requirements, including SWPPP implementation, would ensure that potential water quality impacts are less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

No housing is proposed for the Project. There would be no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒

FEMA flood hazard maps (Map 06061C0403F) shows that the Project site is in unshaded Zone X. The Project site is not located within a flood zone. Therefore, implementation of The Proposed Project will not have an impact related to flooding.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
i) 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?	☐	☐	☒	☐

The Project site is not protected by levees from any flood hazard. Prior to the terrorist attacks of September 11, 2001, public information was available that provided structural ratings for dams throughout the nation. Since that time, this information, as well as, dam inundation areas have been classified and is not readily available. Dams are regulated by the Division of Safety of Dams of the DWR and are routinely inspected during their impoundment life, which includes monitoring for compliance with seismic stability standards.

The Placer County General Plan EIR identifies four dams in the County that may threaten life and property in the event of a dam failure. These include Folsom Lake Dikes 5 and 6, Lake Tahoe Dam, Camp Far West Dam, and Lake Combie Dam (Placer County 1994). While dam inundation information is not included in the EIR, location of the dam's outlet creeks/rivers indicate that inundation waters from any of these dams would not flow toward the Project area. Thus, dam failure is not considered a reasonably foreseeable event, and the Proposed Project would not affect dam operations. As such, the Proposed Project would have a less than significant impact from dam or levee failure.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
j)	Be subject to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

No large bodies of water exist near the Proposed Project site. The Project site is not located within a potential tsunami or seiche inundation area. Damage to the school campus due to a seiche, a seismic-induced wave generated in a restricted body of water would not occur. Additionally, the school campus is located in an area that is relatively flat. Therefore, no mudflows are anticipated at the site. No impact would occur.

4.9.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.10 Land Use and Planning

4.10.1 Environmental Setting

The City's General Plan identifies the Project site as being within the PF (Public Facilities) and the PR (Park and Recreation) land use designations and within the PUB (Public) and P (Park) zoning districts.

The General Plan classifies the purposes of the PF designation is to provide appropriate locations for private, quasi-public and public buildings and facilities owned by City, County, state, or federal agencies that serve the general public. Uses include but are not limited to wastewater treatment facilities, water tank, electrical substations, cemeteries, churches, educational facilities, community centers, (e.g., police and fire stations), and similar and compatible uses (City of Lincoln 2008b). The purpose of the PR designation is to provide for both public and private improved open space. The primary land uses in this designation include existing and future large neighborhood and regional parks, municipal golf courses, athletic fields, and open space areas adjacent to improved parks or trails.

Lincoln Municipal Code § 18.31.010 describes the PUB zoning district as an area to provide for public and quasi-public facilities for educational facilities, public buildings, cultural and institutional uses, general government operations, utility and public services, and facilities that serve the general public. Section 18.33.101 describes the P district as an area for park and recreational purposes designed to protect the physical, social, recreational, aesthetic, and economic resources of the city.

The use of the Project site as an elementary school and future park is consistent with the uses allowed for both the PF and PR land use designations as well as the PUB and P zoning districts.

The Project site is within the Lincoln Crossing Specific Plan, which includes a mixture of residential, commercial, open space and public uses. The 2003 Initial Study for an Amendment to the Lincoln Crossing Specific Plan EIR and Supplement, identifies the Project site as an area set aside for an elementary school and park.

4.10.2 Land Use and Planning (X) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Physically divide an established community?	☐	☐	☐	☒

The Proposed Project is located in a developed area of the City of Lincoln. The Project site is surrounded by existing residential uses as well as open space areas to the south. Development of the Project as a school and location of a future park is consistent with the intended uses of the LCSP. The Project would not divide an established community. As such, the Proposed Project would have no impact in this area.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

The City of Lincoln General Plan and zoning code identifies the site as being within land use designations PF and PR and within the PUB and P zoning districts. The Project’s proposed uses would be consistent with these land use designations. The Proposed Project is also consistent with the uses identified for the site by the LCSP as a school and park. As such, the Proposed Project would not conflict with applicable land use plans, policies, or regulations, and no impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

The Placer County Conservation Plan (PCCP) is currently in development and will provide guidelines for mitigation requirements and federal and state permitting to ensure compliance with federal and state environmental laws and regulations. However, the PCCP has not yet been adopted, therefore the Proposed Project would have no impact in this area.

4.10.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.11 Mineral Resources

4.11.1 Environmental Setting

The state-mandated Surface Mining and Reclamation Act of 1975 (SMARA) requires the identification and classification of mineral resources in areas within the State subject to urban development or other irreversible land uses that could otherwise prevent the extraction of mineral resources. These designations categorize land as Mineral Resource Zones (MRZ-1 through MRZ-4).

The City of Lincoln General Plan Background Report (2008a) provides information about the potential mineral resources in the City. According to this information, the General Plan Planning Area is designated as MRZ-4. Areas designated MRZ-4 when geologic information does not indicate the presence or absence of minerals. Although designated MRZ-4, mineral resources located within the City's Planning Area include clay deposits, granite deposits, and sand and gravel resources. Clay resource extraction operations are located north of Ninth Street, and are transported to the Gladding-McBean plant, where the materials are extracted and stockpiled for use in their clay products.

4.11.2 Mineral Resources (XI) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐

As discussed above, the mineral resources in the City are classified as having an unknown resource potential. There are identified clay deposits, granite deposits, and sand and gravel resources within the City's Planning Area. However, no operating mineral extraction activities occur on the Project site or in the vicinity of the site. The site is not identified by the City or the DOC as a site of known mineral resources. Additionally, development of the site would not lead to the loss of availability of any unknown mineral resources on the site. Therefore, the Project would have a less than significant impact in this area.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

The Project site is not identified as a mineral resource recovery site in the Lincoln General Plan or the LCSP. There would be no impact in this area.

4.11.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.12 Noise

4.12.1 Environmental Setting

Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in L_{dn}/CNEL).

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, and hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (USEPA 1971).

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the “line of sight” between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise but are less effective than solid barriers.

Existing Ambient Noise Measurements

In order to quantify existing ambient noise levels in the Project area, ECORP Consulting, Inc. conducted three short-term noise measurements on November 28, 2017 (see *Appendix D*). The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site. The 10-minute measurements were taken between 3:20 and 4:00 p.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. The average noise levels measured at each location are listed in *Table 4.12-1*. Noise monitoring equipment used for the ambient noise survey consisted of a Larson Davis LxT SE Sound Level Meter equipped with a 377B02 microphone and a PRMLxT1L preamplifier. The monitoring equipment complies with applicable requirements of the American National Standards Institute for Type I (precision) sound level meters.

Table 4.12-1. Existing Noise Measurements					
Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Time
1	Center of Project site	54.7	45.0	70.5	3:21 p.m.
2	Intersection of Caledon Circle and Brentford Circle	60.7	38.8	75.2	3:35 p.m.
3	Intersection of Alberton Circle and Brentford Circle	65.2	44.9	81.1	3:50 p.m.

Note: See *Appendix D* for noise measurement outputs.

As shown, the ambient recorded noise levels near the Project site ranged from 54.7 dBA to 65.2 dBA L_{eq}. The most common noise in the Project vicinity is produced by automotive vehicles (cars, trucks, buses, motorcycles). Traffic moving along streets and freeways produces a sound level that remains relatively constant and is part of the City's minimum ambient noise level. Vehicular noise varies with the volume, speed, and type of traffic. Slower traffic produces less noise than fast-moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, garbage, and construction vehicle activity, and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

Existing Roadway Noise Levels

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the project transportation impact analysis (see *Appendix D*). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by the California Department of Transportation (Caltrans). The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in *Table 4.12-2*.

Table 4.12-2. Existing Traffic Noise Levels at Project Roadway Segments Adjacent to Residential Land Uses	
Roadway Segment	CNEL at 100 Feet from Centerline of Roadway
Ferrari Ranch Road	
Northeast of Joiner Parkway	58.3
Joiner Parkway to Groveland Lane	60.2
65 Ramps to Caledon Circle (east intersection)	63.1
Caledon Circle (east intersection) to Sorrento Parkway	59.5
Sorrento Parkway to Caledon Circle (west intersection)	55.6
Caledon Circle (east intersection)	
Ferrari Ranch Road to School Site	53.9

Source: Traffic noise levels were calculated using the FHWA roadway noise prediction model based on traffic data within the Traffic Impact Analysis prepared by WSP USA (2018). Refer to Appendix D for noise modeling assumptions and results.

As depicted in *Table 4.12-2,* the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 53.9 to 63.1 dBA CNEL. CNEL is 24-hour average noise level with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. It should be noted that the modeled noise levels depicted in *Table 4.12-2* may differ from measured levels in *Table 4.12-1* because the measurements represent noise levels at different locations around the Project site and are also reported in different noise metrics (e.g., noise measurements are the L_{eq} values and traffic noise levels are reported in CNEL).

Vibration Fundamentals

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.12.2 Noise (XII.) Environmental Checklist and Discussion

		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

The City regulations do not apply to lands under the jurisdiction of the WPUSD, as public schools in California are owned by the state and are not subject to local regulations. However, generally WPUSD follows the local regulations when developing a project. As such, the Project-affected noise receptors in the vicinity are located in the City. Therefore, the noise analysis considers The City's noise regulations during Project implementation and apply them as best practices when deemed necessary. This approach would assure that Project noise levels greater than those allowed in the City would be mitigated as needed.

Construction Impacts

Construction of the Proposed Project is anticipated to begin in 2019 and be completed by fall 2020. Construction of future classrooms will be dependent on student enrollment trends and available funding. It is anticipated by WPUSD that the future classrooms will be completed around 2030. School will be in session for at least a portion of the construction period for this phase.

Construction of the Proposed Project would result in a temporary short-term increase of noise levels in the Project vicinity. The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction. The noise levels for various types of construction equipment that could be required during construction of the Proposed Project are provided in *Table 4.12-3*.

Table 4.12-3. Typical Noise Levels from Construction Equipment

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Air Compressor	80	76
Backhoe/Front End Loader	80	76
Compactor (Ground)	80	73
Concrete Mixer Truck	85	81
Concrete Mixer (Vibratory)	80	73
Concrete Pump Truck	82	75
Concrete Saw	90	83
Crane	85	77
Dozer/Grader/Excavator/Scraper	85	81
Drill Rig Truck	84	77
Generator	82	79
Gradall	85	81
Hydraulic Break Ram	90	80
Jackhammer	85	78
Impact Hammer/Hoe Ram (Mounted)	90	83
Pavement Scarifier/Roller	85	78
Paver	85	82
Pneumatic Tools	85	82
Pumps	77	74
Truck (Dump/Flat Bed)	84	80

Source: FTA 2006

During the construction phase of the Project, exterior noise levels resulting from construction could affect nearby sensitive receivers (residences north and west of the Project site, approximately 50 feet away). As shown in *Table 4.12-3*, L_{eq} noise levels associated with individual construction equipment used for typical construction projects can reach levels of up to approximately 83 dBA L_{eq} at a distance of 50 feet. The City does not have construction noise standards since construction noise is temporary, short-term, intermittent in nature, and would cease on completion of the Project. Furthermore, the City is a developing urban community and construction noise is generally accepted by urban residents as a reality within the urban environment. Additionally, construction activities would occur throughout the Project site and would not be concentrated at one point. Therefore, noise associated with construction activities will have a less than significant impact.

Operational Impacts

The Proposed Project anticipates a student capacity of approximately 650 students in the first few years of operation with an increase to 800 students by 2030. Based on the 2017/2018 WPUSD school calendar, the school year would begin in late August and end in early June. With holidays, weekends, and winter and spring break, the student school year would be approximately 180 days. Classes would generally start at 8:00 a.m. and end by 2:40 p.m. After-school activities are minimal and would extend the school day for a small number of students.

Exterior Recess Activities

Onsite noise generated by the Proposed Project would result primarily from school-related noise such as exterior recess activities which includes child vocalizations. Noise associated with vocalizations would be intermittent and infrequent, and such noise is not expected to constitute a significant impact since the facilities would only be used during the daytime, when the ambient noise level in the area is higher and sensitivity to noise is lower. Noise levels associated with exterior recess activities can generally be expected to range from 55 - 60 dB L_{eq} at 40 feet. The nearest Project playing surface is more than 200 feet from the closest residences to the north of the Project across Caledon Circle. Accounting for an attenuation rate of 6.0 per doubling of distance from the source (USEPA 1971), the resulting noise level at the nearest noise-sensitive receptor would be 41.5 dB L_{eq} to 46.5 dB L_{eq}. Per the City's General Plan, the maximum allowable noise exposure for single-family residences is 60 dBA. Therefore, the impacts associated with routine use would be less than significant.

Traffic

As per the City's General Plan, the maximum allowable noise exposure for schools, libraries, and low density, single family residences is 60 dBA. As shown in *Table 4.12-2*, there are two roadway segments in the Project vicinity (Ferrari Ranch Road from Joiner Parkway to Groveland Lane and Ferrari Ranch Road from the SR-65 ramps to Caledon Circle) that already exceed the 60-dBA standard without the Project. This analysis of traffic noise considers the increases in noise levels over the pre-Project noise conditions. Traffic as a source of noise is usually characterized by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 - 70 dBA range, and high above 70 dBA. People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 - 75 dBA) or dense urban or industrial areas (65 - 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.

- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

As shown, while a change of 1 dBA cannot be perceived by humans except in carefully controlled laboratory experiments, a 3-dBA change is considered a just-perceivable difference outside of the laboratory and a change in level of at least 5 dBA is required before any noticeable change in community response would be expected. For the purposes of evaluating traffic noise impacts, an increase of 3 dBA over the existing traffic noise levels as a result of the Project is considered a significant impact. Traffic noise levels for roadways primarily affected by the Proposed Project were calculated using the FHWA's Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise modeling was conducted for conditions with and without the Project, based on traffic volumes obtained from the Project's traffic analysis (WSP USA 2018). Predicted traffic noise levels are summarized in *Table 4.12-4*.

As depicted in *Table 4.12-4*, under the "Existing" scenario, noise levels would range from approximately 53.9 - 63.1 dBA CNEL, with the highest noise levels occurring on Ferrari Ranch Road between the SR-65 ramp and Caledon Circle. The "Existing With Project Phase 1" scenario noise levels would range from approximately 54.1 - 63.1 dBA with the highest noise levels also occurring along the same roadway segment. *Table 4.12-4* also compares the "Existing" scenario to the "Existing With Project Phase 1" scenario.

Table 4.12-4. Existing Plus Phase I Project Conditions Predicted Traffic Noise Levels

Roadway Segment	Existing (2018)	Existing Plus Project Phase 1 (2020)	
	dBA @ 100 Feet from Roadway Centerline	dBA @ 100 Feet from Roadway Centerline	Increase in dBA @ 100 feet from Roadway
Ferrari Ranch Road			
Northeast of Joiner Parkway	58.3	58.3	0.0
Joiner Parkway to Groveland Lane	60.2	60.2	0.0
65 Ramps to Caledon Circle (east intersection)	63.1	63.1	0.0
Caledon Circle (east intersection) to Sorrento Parkway	59.5	59.7	0.2
Sorrento Parkway to Caledon Circle (west intersection)	55.6	56.7	1.1
Caledon Circle (east intersection)			
Ferrari Ranch Road to School Site	53.9	54.1	0.2

Source: Traffic noise levels were calculated using the FHWA roadway noise prediction model based on traffic data within the Traffic Impact Analysis prepared by WSP USA (2018). Refer to *Appendix D* for noise modeling assumptions and results.
Notes: ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

As shown in *Table 4.12-4*, the Proposed Project would increase noise levels on the surrounding roadways by a maximum of 1.1 dBA. As previously described, outside of the laboratory, a 3-dBA change is considered a just-perceivable difference. Since the Proposed Project would not increase noise levels above 3 dBA along the roadway segments analyzed, a less than significant impact would occur.

The "Full Buildout No Project" and "Full Buildout With Project" scenarios were also compared for long-term conditions. Predicted traffic noise levels are summarized in *Table 4.12-5*. As depicted, under the "Full Buildout No Project" scenario noise levels would range from approximately from 53.9 - 65.3 dBA CNEL, with the highest noise levels occurring on Ferrari Ranch Road between the SR-65 ramp and Caledon Circle. The "Full Buildout With Project" scenario noise levels would range from approximately 54.3 - 65.3 dBA with the highest noise levels also occurring along the same roadway segment.

Table 4.12-5. Full Buildout Predicted Traffic Noise Levels

	Full Buildout No Project (2030)	Full Buildout With Project (2050)	
Roadway Segment	dBA @ 100 Feet from Roadway Centerline	dBA @ 100 Feet from Roadway Centerline	Increase in dBA @ 100 feet from Roadway
Ferrari Ranch Road			
Northeast of Joiner Parkway	60.2	60.2	0.0
Joiner Parkway to Groveland Lane	62.6	62.6	0.0
65 Ramps to Caledon Circle (east intersection)	65.3	65.3	0.0
Caledon Circle (east intersection) to Sorrento Parkway	63.4	63.6	0.2
Sorrento Parkway to Caledon Circle (west intersection)	62.3	62.4	0.1
Caledon Circle (east intersection)			
Ferrari Ranch Road to School Site	53.9	54.3	0.4

Source: Traffic noise levels were calculated using the FHWA roadway noise prediction model based on traffic data within the Traffic Impact Analysis prepared by WSP USA (2018). Refer to *Appendix D* for noise modeling assumptions and results.
Notes: ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

As shown in *Table 4.12-5*, traffic noise levels would result in a maximum increase of 0.4 dBA. Since the Proposed Project would not increase noise levels above 3 dBA along the roadway segments analyzed, a less than significant impact would occur.

		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒

Construction Impacts

Construction of the Proposed Project is anticipated to begin in 2019 and be completed by fall 2020. Construction of future classrooms will be dependent on student enrollment trends and available funding. It is anticipated by WPUSD that the future classroom will be completed around 2030. School will be in session for at least a portion of the construction period for this phase.

Construction operations have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. The ground vibration levels associated with various types of construction equipment are summarized in *Table 4.12-6*. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels.

Table 4.12-6. Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 50 Feet (inches per second)
Large Bulldozer	0.042
Caisson Drilling	0.042
Loaded Trucks	0.035
Jackhammer	0.016
Small Bulldozer/Tractor	0.001

Source: FTA 2006; Caltrans 2004

It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. The nearest structures to any of the construction areas are residences north and west of the Project site, approximately 50 feet away. Based on the vibration levels presented in *Table 4.12-6*, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.042 inches per second peak particle velocity at 50 feet.

The City does not regulate vibration associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans's (2004) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. Since predicted vibration levels at the nearest structures would not exceed recommended criteria and because the City does not regulate vibration associated with construction, there is no impact.

Operational Impacts

Once operational, the project would not be a source of groundborne vibration. Additionally, the City does not regulate vibration associated with operations. For these reasons, there is no impact.

		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

As discussed in Item a) *Operational Impacts* above, the noise associated with the would be less than 3 dBA. A less than significant impact would occur.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
	☐	☐	☒	☐

As described in Issue a) *Construction Impacts*, above, the City does not have construction noise standards. It should be noted that any construction noise would be temporary, short-term, intermittent in nature, and would cease on completion of the Project. Additionally, construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. Therefore, noise associated with construction activity will have a less than significant impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project Area to excessive noise levels?	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
	☐	☐	☐	☒

The nearest airport to the Project site is the Lincoln Regional Airport, located approximately 3.11 miles northwest of the Project site. The Project site is not located within an area covered by an airport land use plan or within two miles of a public or public use airport. Thus, no impact would occur with implementation of the Proposed Project.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the Project Area to excessive noise levels?	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
	☐	☐	☐	☒

The nearest private airstrip to the Project site is the Holsclaw STOL Strip, located approximately 7.7 miles southeast of the Project site. Therefore, there are no private airstrips located within the vicinity of the Project site. No impact would occur.

4.12.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.13 Population and Housing

4.13.1 Environmental Setting

The Project site is located in the City of Lincoln. U.S. Census data shows that the local population increased 9.8 percent in the City between 2010 and 2016, from 42,819 to 47,030 (U.S. Census 2017). According to the California Department of Finance (DOF), which provides estimated population and housing unit demographics by year throughout the state, the City had a population of 48,591 persons, there were 18,995 total housing units in the City, and a 4.3-percent vacancy rate as of January 1, 2018. The average household size was estimated to be 2.67 persons per household during the same time period. (DOF 2018).

4.13.2 Population and Housing (XIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

The Project site is located within an approved Specific Plan, and no new roads or extensions of existing roads are proposed. The Project does not include the construction of any new homes or businesses**.** The objective of the Proposed Project is to provide needed educational facilities for the City and would serve existing and future populations of the City. The new school facilities are being proposed to meet an existing need for these facilities in the WPUSD. Development of this Project would not increase population to the area. Therefore, direct or indirect increases in population growth would not occur as a result of the Proposed Project.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No residences would be displaced or removed as a result of The Proposed Project, and the Project would have no impact on existing housing.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

As discussed under Issue b), the Project would not involve the removal or relocation of any housing and would therefore not displace any people or necessitate the construction of any replacement housing.

4.13.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.14 Public Services

4.14.1 Environmental Setting

Public services include fire protection, police protection, parks and recreation, and schools. Generally, impacts in these areas are related to an increase in population from a residential development. Levels of service are generally based on a service-to-population ratio, except for fire protection, which is usually based on a response time. For example, the Lincoln General Plan Policy PFS-8.11 provides a Police Department staffing ratio of 1.8 officers per 1,000 population. Further, General Plan Policy OSC-7.1 establishes a parkland-to-population ratio of five acres/1,000 residents or nine acres per 1,000 residents for those projects with development agreements. Finally, Policy PFS-8.4 requires the City to strive to maintain a firefighting capability sufficient to maintain a fire response time of five minutes or less as a general guideline for service provision and locating new fire stations (City of Lincoln 2008b).

Police Services

The Lincoln Police Department (LPD) provides law enforcement services to the Project site. LPD has 32 employees with an additional 37 police volunteers (LPD 2016). LPD personnel are organized into two divisions: Operations and Support. The Operations Division comprises the Patrol, Investigations and Communications. The Support Division comprises the Records Property and Evidence, Citizen Volunteers, and Animal Control. The Chief of Police is responsible for overseeing the entire operation of the LPD, including all units and department functions (LPD 2017). The City's Police Station is located at 770 7th Street, approximately 2.3 miles northeast of the Project site.

Fire Services

The City of Lincoln Fire Department (LFD) provides fire protection and emergency medical services to the Project site. LFD responds to various emergency and non-emergency incidents including, but not limited to, all types of fire, medical emergencies, public assists, and hazardous situations. The City has three fire stations. The fire station closest to the Project site is Station #34 located at 126 Joiner Parkway, approximately 1.5 miles north of the site. Equipment at this station includes one Class A engine and one water tender (City of Lincoln 2008a).

Every fire service provider in the United States receives a protection classification rating from the Insurance Services Offices. This classification provides a numerical value for the agency's structural fire protection delivery, after considering each agency's dispatch services, water supply, apparatus, equipment, training and incident response. The LFD was most recently evaluated in September 2014, and improved its protection class rating to a four (LFD 2017).

Schools

The WPUSD provides most of the educational services for the City. The WPUSD has seven elementary schools (grades K-5), two middle schools (grades 6-8), one high school (grades 9-12), and one continuation high school. The District also operates the ATLAS Learning Academy, which serves grades K-12 (WPUSD 2018a). According to the California Department of Education, (DOE), the City also has three private schools (DOE 2017).

The WPUSD's 2014 School Facilities Master Plan indicates that, based on the City's General Plan growth, WPUSD anticipates a growth of more than 21,000 new students as a result of new development in the District (WPUSD 2014).

Parks

The City of Lincoln has 18 parks, ranging in size from 0.7 to 42 acres. The City will have approximately 178.3 acres of parkland with completion of the 15-acre Robert Jimenez Park, which is currently under construction. Based on the DOF 2018 estimated City population of 48,591, upon completion of the Robert Jimenez Park, the City's parkland-to-population ratio will be 3.67 acres of parks/1,000 population[6].

Other Public Facilities

The City operated, the Carnegie Library, located at 590 5th Street, until it was closed in 2011. Constructed in 1909, the building was added to the National Register of Historic Places (NRHP) in 1990 (#900001814). The Carnegie library continued to serve the community for over a hundred years, before closing (City of Lincoln 2018).

The Lincoln Public Library at Twelve Bridges was opened in 2007 to support the tremendous growth that Lincoln had experienced in the early 2000s. The Library is located at 485 Twelve Bridges Drive, approximately 1.2 miles from the Project site. The Library's collection consists of 100,000 books, movies, CDs, audiobooks, magazines, and e-books (City of Lincoln 2018).

[6] 178.3 acres of parks / (48,591/ 1,000) population = 3.67 acres of parks / 1,000 population.

4.14.2 Public Services (XIV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☒	☐
Fire Protection?	☐	☐	☒	☐
Police Protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other Public Facilities?	☐	☐	☒	☐

Fire Services

The Project site is located approximately 1.5 miles from Fire Station 34, within the General Plan Policy PFS-8.4 fire response time of five minutes or less. The Proposed Project would not result in an increase in population and thereby not require additional fire facilities to serve this population. The Proposed Project would not require any additional LFD facilities, equipment, and/or staff and is not anticipated to create an additional burden on exiting fire facilities. Therefore, the Project would have a less than significant impact in this area.

Police Services

The Proposed Project would not result in a significant increase in demand for police protection resulting in new or expanded police facilities. Police facilities and the need for expanded facilities are based on the staffing levels these facilities must accommodate. Police staffing levels are generally based on the population/police officer ratio, and an increase in population is usually the result of an increase in housing or employment. Because the Proposed Project would not increase the population of Lincoln, the Project would not result in the need for increase in police protection or police facilities. Therefore, the Proposed Project would have a less than significant impact in this area.

4.14.2.1 Schools

The purpose of the Proposed Project is the establishment of a new school facility. This development will not result in an increase of student population and will serve the existing and future residents of Lincoln.

The Proposed Project does not result in an increase in housing or population in the City, which would require additional educational facilities. Therefore, the Proposed Project would have no impact in this area.

Parks

As stated previously, the need for additional parkland is primarily based on an increase in population to an area. Given that the Proposed Project would not increase the City's population, the Project would not burden any parks in the surrounding area beyond capacity by generating additional recreational users. In addition, the Project would assist in the development of additional parkland in the City by providing grass and irrigation to the portion of the site reserved for a future park. Therefore, the Proposed Project would not require the construction or expansion of park and recreational facilities and would also not result in an increase in demand for parks and recreation facilities in the surrounding area. There would be no impact to parks as a result of construction of the Proposed Project.

Other Public Facilities

Construction of Twelve Bridges Library was completed in 2007 to serve the residents of the City. The Proposed Project does not result in an increase in housing or population in the City resulting in library use. Therefore, the Project would have a less than significant impacts on other public facilities.

4.14.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.15 Recreation

4.15.1 Environmental Setting

The City will have ±178.3 acres of parkland with completion of the 15-acre Robert Jimenez Park, currently under construction. Additionally, the City has numerous areas of open space and trails to provide recreational opportunities to City residents. The City also provides recreational facilities such as Civic Auditorium and the Communities Center, as well as, programs, classes and adult and youth sports leagues for the enjoyment of city residents.

4.15.2 Recreation (XV) Materials Checklist

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

As stated previously, the need for additional parkland is primarily based on an increase in population to an area. Given that the Proposed Project would not increase the City's population, the Project would not burden any parks in the surrounding area beyond capacity by generating additional recreational users. Therefore, the Proposed Project would not increase the use of park and recreational facilities resulting in substantial physical deterioration of the facility. There would be no impact to recreational facilities as a result of construction of the Proposed Project.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

The Proposed Project would result in additional playground facilities available for the elementary school's students. These improvements would not require the construction or expansion of additional off-campus recreational facilities. The environmental impacts of the Proposed Project are analyzed in this Initial Study and it has been determined through this analysis that the Proposed Project would not result in an adverse physical effect on the environment with implementation of the mitigation measures identified in this Initial Study. As such, the proposed project would have a less than significant impact in this issue area.

4.15.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.16 Transportation/Traffic

This section presents a summary of the transportation impact study (TIS) prepared by WSA USA (2018) for the Proposed Project. For the complete TIS, refer to *Appendix E* of this Initial Study. A forecast was made of the traffic likely to be generated from Phase 1 and the full buildout of the proposed Scott M. Leaman Elementary School Master Plan. An analysis was then performed of the seven intersections most likely to be impacted by the school. The TIS evaluated the potential impacts to traffic and circulation associated with development of the proposed project and recommended improvements to mitigate impacts considered significant in comparison to established regulatory thresholds.

4.16.1 Environmental Setting

Circulation

Important roadways in the vicinity of the Proposed Project include:

- SR-65 is a north-south state highway connecting I-80 in the Roseville area to SR-70 south of Marysville. It is a four-lane freeway from I-80 to east of Nelson Lane. It becomes a four- or two-lane highway from Nelson to the north.

- Ferrari Ranch Road is an east-west four-lane arterial that connects South Lincoln Crossing area to SR-65, Joiner Parkway, Lincoln Parkway, and SR-193. It consists of six lanes between SR-65 and Joiner Parkway, and it becomes a two-lane road near the Del Webb Sun City community.
- Joiner Parkway is a two-lane north-south roadway connecting the Lincoln Crossing and Del Webb Sun City communities and the City of Rocklin.

The TIS includes seven study intersections in the vicinity of the Proposed Project site in order to determine the impact the Project would have on those intersections. These intersections were chosen as those most affected by implementation of the Project. These intersections include:

1. Caledon Circle (W)/Ferrari Ranch Road
2. Sorrento Parkway/Ferrari Ranch Road
3. Caledon Circle (E)/Ferrari Ranch Road
4. SR-65 Southbound Ramps/Ferrari Ranch Road
5. SR-65 Northbound Ramps/Ferrari Ranch Road
6. Groveland Land/Ferrari Ranch Road
7. Joiner Parkway/Ferrari Ranch Road

Figure 7 indicates the study intersections that would be affected by the construction of the new elementary school.

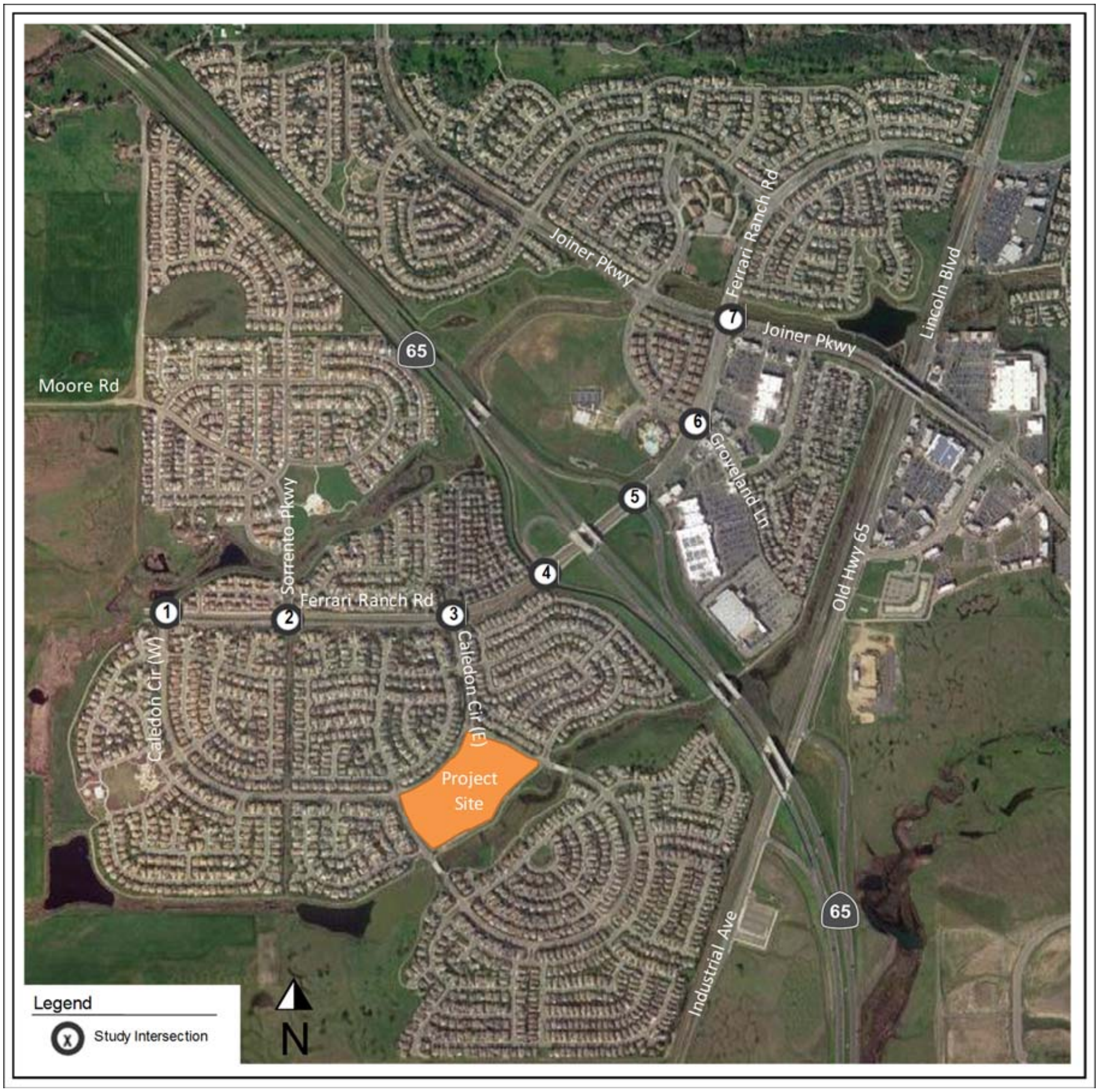


Figure 7. Study Intersections

Level of Service Methodology

Traffic operational conditions at intersections are described in terms of traffic Level of Service (LOS) which ranges from LOS A, which indicates that vehicles experience little delay in passing through the intersection, to LOS F, which indicates that vehicles are likely to encounter long queues and stop-and-go conditions. In the City of Lincoln, the Circular 212 Method is used for signalized intersections for non-state highways, while Highway Capacity Manual (HCM) 2010 is used for state highways and for unsignalized intersections. *Table 4.16-1* illustrates the LOS definitions for signaled and unsignalized intersections.

Table 4.16-1. LOS Definitions for Signalized Intersections (Except State Highways)

Level of Service	Description[1]	Signalized Intersections		Unsignalized Intersection[3]
		V/C Ratio[2]	Avg. Delay[3]	
A	Volume-to-capacity ratio is low and either the progression is exceptionally favorable, or the cycle length is short. If due to favorable progression, most vehicles arrive the green indication and travel through the intersection without stopping.	≤ 0.600	≤ 10	≤ 10
B	Volume-to-capacity ratio is low and either the progression is highly favorable, or the cycle length is short. More vehicles stop than with LOS A.	0.601-to-0.700	> 10 to 20	> 10 to 15
C	Progression is favorable, or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	0.701-to-0.800	> 20 to 35	> 15 to 25
D	Volume-to-capacity ratio is high and either progression is ineffective, or cycle length is long. Most vehicles stop, and individual cycle failures are noticeable.	0.801-to-0.900	> 35 to 55	> 25 to 35
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	0.901-to-1.000	> 55 to 80	> 35 to 50
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 1.000	> 80	> 50

Source: WSP (2018)
Notes:
1. The description is from the HCM 2010 chapter on signalized intersections. For signalized intersections the LOS is based on the average (second/vehicle) for all vehicles entering the intersection. For unsignalized intersections the LOS is based on the delay (second/vehicle) for the worst-performing approach.
2. V/C Ratios, Highway Capacity Manual 1985, Transportation Research Board
3. Highway Capacity Manual 2010, Transportation Research Board

Level of Service Standard and Impact Criteria

The minimum acceptable levels of service for traffic operations are defined in the Traffic Impact Study Guidelines of the City of Lincoln, adopted in June 2004. It states: "…Intersection level of service "C" shall be the peak hour design objective. A LOS worse than "C" shall not be acceptable unless the intersection is operating worse than LOS "C" prior to project construction or the City's General Plan identifies a LOS worse than "C" as being acceptable."

The SR-65 Corridor System Management Plan establishes a 20-year Concept LOS E for SR-65 near Proposed Project site. The City of Lincoln General Plan T-2.4 states that the City shall coordinate with Caltrans in order to strive to maintain a minimum LOS "D" for SR-65 and SR-193.

Based on these policies, *Table 4.16-2* summarizes the analysis method and target LOS for each study intersection.

Table 4.16-2. Analysis Method and Target LOS

ID	Intersection Name	Jurisdiction	Control Type	Analysis Method	Target LOS
1	Caledon Circle (W)/Ferrari Ranch Road	City of Lincoln	AWSC	HCM	C
2	Sorrento Parkway/Ferrari Ranch Road	City of Lincoln	AWSC	HCM	C
3	Caledon Circle (E)/Ferrari Ranch Road	City of Lincoln	Signal	Circular 212	C
4	SR 65 SB Ramps/Ferrari Ranch Road	Caltrans	Signal	HCM	D
5	SR 65 NB Ramps/Ferrari Ranch Road	Caltrans	Signal	HCM	D
6	Groveland Land/Ferrari Ranch Road	City of Lincoln	Signal	Circular 212	C
7	Joiner Pkwy/Ferrari Ranch Road	City of Lincoln	Signal	Circular 212	C

Source: WSP USA 2018

The following describes the significance criteria used to identity transportation-related project impacts. The significance criteria were taken from the City of Lincoln General Plan and Caltrans' criteria. This is consistent with previous environmental studies adopted by the City[78]:

- An intersection operates at an acceptable LOS under a no Project scenario and the addition of Project trips causes an unacceptable LOS.
- An intersection is already operating at an unacceptable LOS (without Project) and the addition of Project trips deteriorates by one grade or increases the volume-to-capacity ratio by at least 0.05 or the average vehicle delay by at least five seconds for City of Lincoln.
- An intersection is already operating at an unacceptable LOS (without Project) and the addition of project trips increases the average vehicle delay by one second or more for Caltrans.

Existing Conditions

Intersections

AM and PM peak period intersection turning movement counts were collected at the seven study intersections on midweek days in May 2018 when nearby schools were in session. The morning peak hour was found to be 7:15 to 8:15 a.m. while the afternoon peak hour was from 4:45 to 5:45 p.m. *Table 4.16-3* shows the existing AM and PM peak hour traffic volumes, lane configurations, and traffic control types for the study intersections (see *Appendix E* for raw traffic counts). The existing LOS operations for study intersections are summarized in *Table 4.16-1* (see *Appendix E* for detailed LOS). As shown, one intersection does not meet the LOS target under existing conditions, namely: Intersection #3: Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour

[7] City of Lincoln, 2009. Draft Environmental Impact Report for the Village 7 Specific Plan. June 2008. P. 4.3-30
[8] City of Lincoln, 2012. Draft Environmental Impact Report for the Village 1 Specific Plan. May 2012. P. 4.14-23

Table 4.16-3. Intersection LOS – Existing Conditions

ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour		PM Peak Hour	
				Delay or V/C	LOS	Delay or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	9.0	A	7.6	A
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	11.1	B	8.0	A
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	0.808	D	0.532	A
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	5.0	A	5.1	A
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	9.1	A	10.8	B
6	Groveland Land/Ferrari Ranch Road	Signal	C	0.748	C	0.670	B
7	Joiner Pkwy/Ferrari Ranch Road	Signal	C	0.271	A	0.323	A

Source: WSP 2018
Notes: BOLD denotes substandard condition

Roadways

The City provided roadway counts in the vicinity of the Proposed Project that were collected in October 2016. *Figure 8* displays these roadway counts along with intersection counts.

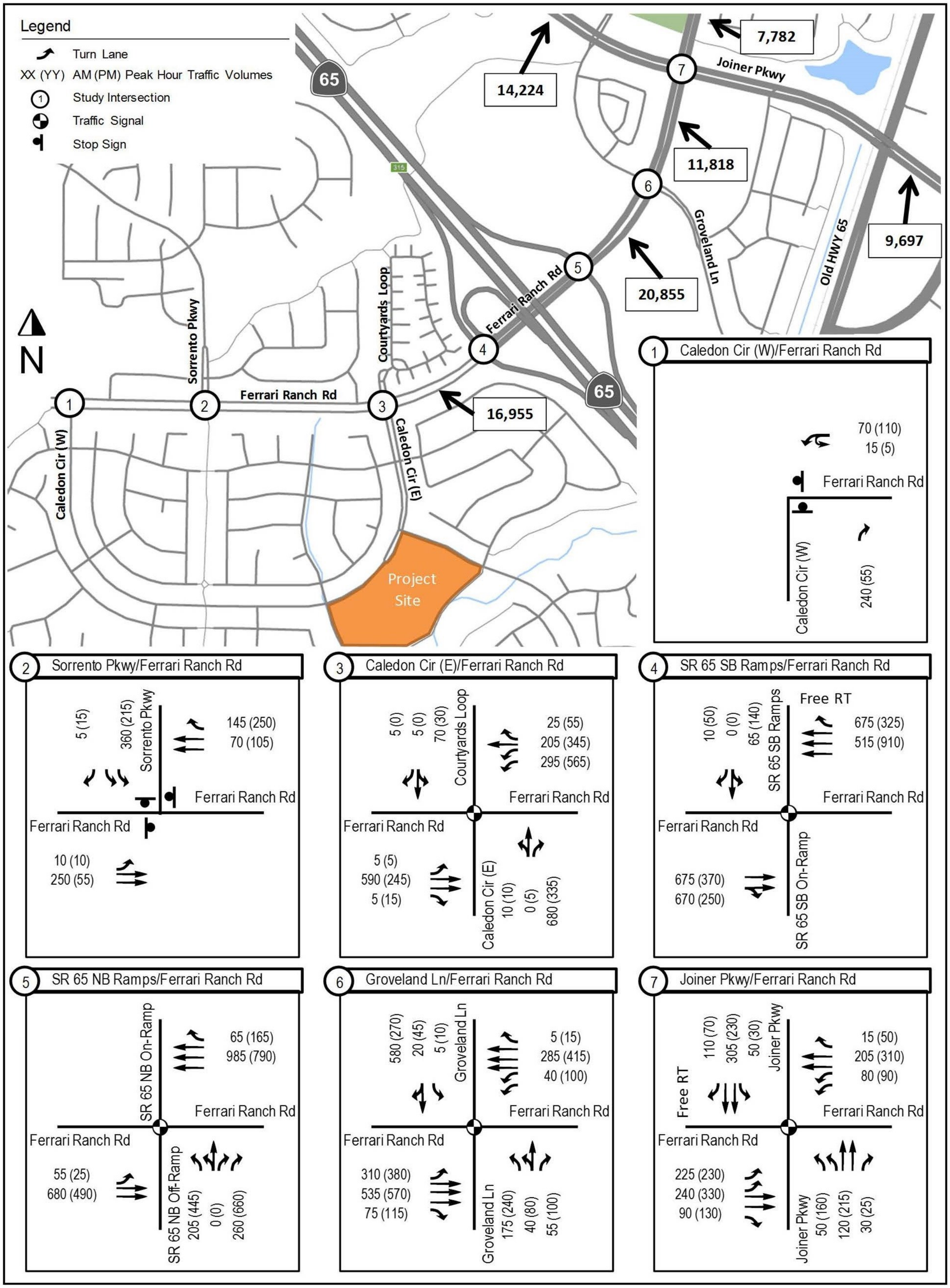
Transit Service

The study area is currently served by the Placer County Transit (PCT). PCT operates fixed route service between the following:

1. Alta, Colfax and Auburn;
2. Auburn and the Watt-I-80 Light Rail;
3. Dry Creek Road in North Auburn to Downtown Auburn; and
4. Lincoln, Rocklin, and Sierra College.

This service operates Monday through Friday, 5:00 a.m. to 9:00 p.m.; and on Saturdays from 8:00 a.m. to 7:00 p.m. The PCT Lincoln Circular provides connections to the Twelve Bridges Library and Ferrari Ranch Road from downtown Lincoln. The closest bus stop to the Project site would be the stop at the Ferrari Ranch Road/Caledon Circle intersection. In addition, the PCT School Tripper provides an AM and PM connection from the central Lincoln schools. The PCT School Tripper does not currently stop near the Project site, however, PCT reviews and updates transit service periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments, which may lead to either enhanced or reduced service where appropriate.

Traffic Volumes and Lane Configurations: Existing Conditions



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 8. Traffic Volumes and Lane Configurations—Existing Conditions
2017-225 Scott M. Leaman Elementary School

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Pedestrian and Bicycle Facilities

There are existing sidewalks on the streets surrounding the Project site. Currently, there are no sidewalks on the Project side of Brentford Circle and Caledon Circle adjacent of the site. As a part of development of the Project, sidewalks adjacent to the site will be constructed.

Bicycle facilities are provided throughout Lincoln, including Class I, II, and III facilities. Class I facilities are off-road, dedicated paths. Class II facilities are typically painted bicycle lanes that share right-of-way with automobiles. Class III facilities are designated bicycle routes, with bikes and vehicles sharing the roadways with minimal striping. Currently, Class II bike lanes, exist on all major roads in the Project vicinity including Brentford Circle and Caledon Circle adjacent of the site.

Cumulative Year (2050) No-Project Conditions

Traffic volumes for the Cumulative (2030) No-Project Conditions were developed by manually adding the traffic from the full buildout of the Village 5 and Village 7 to the existing counts. In addition, the following roadway improvement associated with Village 7 development was included: Extend Ferrari Ranch Road from the current end to the Village 7.

It is assumed that the westbound lane configurations at the intersection of Caledon Circle (E)/Ferrari Ranch Road will be reconfigured to be two westbound through lanes by utilizing an unused westbound left-turn pocket. The resulting Cumulative No-Project intersection turning movement volumes are shown in Appendix E, and the corresponding LOS is shown in Table 4.16-4 (see Appendix E for detailed worksheets). The target LOS would not be met at the following five locations:

- Intersection #1, Caledon Circle (W)/Ferrari Ranch Road, during AM peak hour
- Intersection #2, Sorrento Parkway/Ferrari Ranch Road, during both AM and PM peak hours
- Intersection #3, Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour
- Intersection #4, SR 65 SB Ramps/Ferrari Ranch Road, during AM peak hour
- Intersection #6, Groveland Lane/Ferrari Ranch Road, during both AM and PM peak hours

Table 4.16-4. Intersection LOS – Cumulative No-Project Conditions

ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour		PM Peak Hour	
				Delay or V/C	LOS	Delay or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	76.8	F	19.2	C
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	80.1	F	33.8	D
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	1.137	F	0.655	B
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	64.3	E	12.8	B
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	13.4	B	14.8	B
6	Groveland Land/Ferrari Ranch Road	Signal	C	0.864	D	0.869	D
7	Joiner Pkwy/Ferrari Ranch Road	Signal	C	0.379	A	0.559	A

Source: WSP USA 2018
Notes: BOLD denotes substandard condition

4.16.2 Transportation/Traffic (XVII.) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐

WPUSD expects to open the proposed elementary school in fall 2020. The approved project list was obtained from the City's Current Development Projects web page[9]. Given proximity to the Proposed Project, Village 7 was a potential approved project, however, the City staff did not expect any development before fall 2020. Therefore, the open year traffic would be similar to the existing conditions, given that the Southern Lincoln Crossing area has been built out and has limited access.

In order to determine the potential for impact on the local roadways, the TIS analyzed the following four scenarios:

- Existing Conditions
- Existing Plus Phase 1 Conditions
- Cumulative Year (2030) No-Project Conditions
- Cumulative Year (2030) Plus Full Buildout Conditions

The traffic impact for the Existing Conditions, and the Cumulative Year (2030) No-Project Conditions scenarios were described previously. Identification of the remaining Project related scenarios are provided below.

4.16.3 Project Trip Generation and Distribution

Project trip generations for opening day and buildout are summarized in *Table 4.16-5* based on the latest ITE Trip Generation Manual[10]. The assumed trip distribution of the Proposed Project is provided in *Appendix E*.

[9] http://www.lincolnca.gov/about-lincoln/current-development-projects. Published in April 2017.

[10] ITE Trip Generation Manual, 10th Edition

Table 4.16-5. Vehicle Trips Generated by the Project

Land Use	Daily		AM Peak Hour					PM Peak Hour				
	Rate	Vehicle Trip	Rate	In	Out	Vehicle Trip		Rate	In	Out	Vehicle Trip	
						In	Out				In	Out
Elem School Opening Day (650 Students)[1]	1.89	1,229	0.67	54%	46%	235	201	0.17	48%	52%	53	58
Elem School Buildout (800 Students)[2]	1.89	1,512	0.67	54%	46%	289	247	0.17	48%	52%	65	71

Source: WSP USA 2018

The proposed elementary school is within Lincoln Crossing (North) Elementary School service boundary. The Lincoln Crossing North Elementary School is currently overcrowded. According to WPUSD Demographics Study[11], of the 997 elementary students within this school boundary, 647 students were accepted to this school and 350 sent to other schools, and no one from other school boundaries attends Lincoln Crossing North Elementary School due to the school capacity.

Once the proposed elementary school is opened, the 350 students who were sent to other elementary schools would likely be reassigned to their local elementary school. Students living in the Northern Lincoln Crossing area who currently attend Lincoln Crossing North Elementary will likely continue to go their designated neighborhood school while those students attending Lincoln Crossing North Elementary who live in the Southern Lincoln Crossing area may or may not switch to their designated neighborhood elementary.

According to the 2016 American Community Survey, the City had an average of 0.315 elementary students per house (WSP USA 2018). The 2,325 houses in the Southern Lincoln Crossing area are therefore expected to have approximately 732 elementary students. As it is more than the opening year capacity, The TIS assumed that all students will come from the southern Lincoln Crossing area (none will come from outside areas).

Existing Plus Phase 1 Conditions

Traffic volumes for the Opening Year Plus Phase 1 was developed by adding the Proposed Project traffic to the existing counts. The resulting Existing Plus Phase 1 intersection LOS is shown in *Table 4.16-6* (see *Appendix E* for traffic volumes and detailed worksheets). The target LOS would not be met at one location: Intersection #3: Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour

This is the same intersection that would not meet the target LOS under Existing Conditions:

[11] WPUSD Demographic Study 2017/18, December 2017

Table 4.16-6. Intersection LOS – Opening Year Plus Phase 1 Conditions

ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour		PM Peak Hour	
				Delay or V/C	LOS	Delay or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	10.6	B	7.7	A
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	11.7	B	8.2	A
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	0.815	D	0.536	A
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	5.0	A	5.1	A
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	9.1	A	10.8	B
6	Groveland Land/Ferrari Ranch Road	Signal	C	0.748	C	0.670	B
7	Joiner Pkwy/Ferrari Ranch Road	Signal	C	0.271	A	0.323	A

Source: WSP USA 2018
Notes: BOLD denotes substandard condition

Table 4.16-7 summarizes the results of the intersection impact analysis based on the City's significance thresholds. As shown, Phase 1 of the Project would have no significant traffic impacts. Although the Caledon Circle (E)/Ferrari Ranch Road intersection would not meet the target LOS under both Existing and Existing Plus Phase 1 Conditions, the increase in the volume-to-capacity ratio caused by the Project was less than 0.05 with Phase 1, so the Project's impact is less than significant.

Table 4.16-7. Determination of Intersection Impacts for Opening Year Plus Phase 1

ID	Intersection Name	Control Type	AM Peak Hour			PM Peak Hour		
			No Project LOS	Plus Project LOS	Project has Impact?	No Project LOS	Plus Project LOS	Project has Impact?
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	A	B	No	A	A	No
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	B	B	No	A	A	No
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	D	D	No	A	A	No
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	A	A	No	A	A	No
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	A	A	No	B	B	No
6	Groveland Land/Ferrari Ranch Road	Signal	C	C	No	B	B	No
7	Joiner Pkwy/Ferrari Ranch Road	Signal	A	A	No	A	A	No

Source: WSP USA 2018
Notes: BOLD denotes substandard condition

Cumulative Year Plus Full Buildout Conditions

Traffic volumes for the Cumulative Plus Full Buildout was developed by manually overlaying the Proposed Project traffic to the Cumulative No-Project traffic. Both Village 5 and Village 7 developments will both have their own elementary school at each development. However, development of an elementary school may be delayed as experienced in the South Lincoln Crossing area. Therefore, additional school capacity of 150 at the buildout conditions was assumed to come from the west of the intersection #1, Caledon Circle (W)/Ferrari Ranch Road. The resulting Cumulative Plus Full Buildout intersection LOS is shown in Error! Reference source not found. (see Appendix E for detailed worksheets and cumulative traffic volumes). The target LOS would not be met at the following five locations:

- Intersection #1, Caledon Circle (W)/Ferrari Ranch Road, during AM peak hour
- Intersection #2, Sorrento Parkway/Ferrari Ranch Road, during both AM and PM peak hours
- Intersection #3, Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour
- Intersection #4, SR 65 SB Ramps/Ferrari Ranch Road, during AM peak hour
- Intersection #6, Groveland Lane/Ferrari Ranch Road, during both AM and PM peak hours

These are the same intersections that would not meet the target LOS under the Cumulative No-Project conditions.

Table 4.16-8. Intersection LOS – Cumulative Year Plus Full Buildout Conditions

ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour		PM Peak Hour	
				Delay or V/C	LOS	Delay or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	75.0	F	19.6	C
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	79.6	F	34.8	D
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	1.147	F	0.662	B
4	SR-65 SB Ramps/Ferrari Ranch Road	Signal	D	64.3	E	12.8	B
5	SR-65 NB Ramps/Ferrari Ranch Road	Signal	D	13.4	B	14.8	B
6	Groveland Land/Ferrari Ranch Road	Signal	C	0.864	D	0.869	D
7	Joiner Pkwy/Ferrari Ranch Road	Signal	C	0.379	A	0.569	A

Source: WSP USA 2018
Notes: BOLD denotes substandard condition

Table 4.16-9 summarizes the results of the intersection impact analysis based on the significance thresholds. As shown, full build-out of the Project would not result in any significant traffic impacts. Although the target LOS would not be met at these intersections under both Cumulative No-Project and Plus Full Buildout Conditions, the Project would increase the average vehicle delay by less than 5 seconds or the Volume-to-Capacity ratio by less than 0.05, so the Project's impacts would be less than significant.

Table 4.16-9. Determination of Intersection Impacts for Cumulative Plus Full Buildout

ID	Intersection Name	Control Type	AM Peak Hour			PM Peak Hour		
			No Project LOS	Plus Project LOS	Project has Impact?	No Project LOS	Plus Project LOS	Project has Impact?
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	F	F	No	C	C	No
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	F	F	No	D	D	No
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	F	F	No	B	B	No
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	E	E	No	B	B	No
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	B	B	No	B	B	No
6	Groveland Land/Ferrari Ranch Road	Signal	D	D	No	D	D	No
7	Joiner Pkwy/Ferrari Ranch Road	Signal	A	A	No	A	A	No

Source: WSP USA2018
Notes: BOLD denotes substandard condition

Conclusion

Based on the above analysis, no significant impacts in both Existing Plus Phase 1 and Cumulative Year Plus Buildout conditions were identified. As such, the Project's impact on area roadways, is less than significant and no mitigation is necessary.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐

The counties of Placer County, Sutter, Sacramento Yolo, and El Dorado as well as the cities within each county, including the City of Lincoln, are part of the SACOG MTP/SCS which is the congestion management plan for the SACOG area. Much of the plan is based on growth forecasts for the SACOG area.

The Project is also located within the Placer County Transportation Planning Agency's 2036 Regional Transportation Plan (RTP). The 2036 RTP is designed to be a blueprint for the systematic development of a balanced, comprehensive, multi-modal transportation system, including but not limited to, regional roadways, public transit, passenger rail, aviation, goods movement, active transportation facilities, transportation systems management, transportation safety and security, and intelligent transportation systems. The RTP also serves as the locally developed transportation plan for the MTP/SCS discussed above.

The Project site is located within an approved Specific Plan and is identified as the location of a future school. The Project does not propose new roads or extensions of existing roads. The Project does not include the construction of any new homes or businesses**.** The objective of the Proposed Project is to provide needed educational facilities for the City and would serve existing and future populations of the City. The new school facilities are being proposed to meet an existing need for these facilities in the WPUSD. Development of this Project would not increase population to the area and therefore, the Proposed Project would not conflict with the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy. As such, the Project would not be inconsistent with any adopted local or regional transportation plans. Therefore, the Proposed Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

The Proposed Project is the construction of a new elementary school to serve existing and future residents in the area. The Project does not include the construction of any new homes or businesses. Development of this Project would not increase population to the area. Because the Proposed Project would not directly or indirectly result in an increase in population to the area, the Project would not increase air traffic levels. Therefore, the Project would have no impact in this area.

The nearest airport to the Project site is the Lincoln Regional Airport located approximately 3.5 miles northwest of the site. According to the Placer County Airport Land Use Compatibility Plan, the Proposed Project is located outside of all compatibility and influence zones (Placer County 2014). As such, the Project would not result in a change to air traffic patterns. Therefore, the Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

No modifications to roadway features are proposed as part of the Project. The Project would construct two new driveways connecting the Project site to Caledon Circle and Brentford Circle. These driveway/roadway interfaces would be required to be located and constructed according to City roadway standards. Therefore, the Project would have a less than significant impact in this area.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Result in inadequate emergency access?	☐	☐	☒	☐

The Project design provides four access points, two from Caledon Circle and two from Brentford Circle. The Project's emergency access would require approval by the State Fire Marshall as well as the LFD. Therefore, the Project would have a less than significant impact regarding emergency access.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

The Proposed Project is the construction of a new elementary school. The streets surrounding the Project site have been developed and include Class II bike lanes and sidewalks. Additionally, there is an existing pedestrian/bicycle path adjacent to the site's southern border. The Project would not result in a change in these facilities. The Project would be required to install sidewalks along the site parameter as a part of the development of the school facility. As such, the Project would not result in any changes to existing public transit, bicycle, or pedestrian facilities nor would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. The Project would have a less than significant impact in this area.

4.16.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.17 Tribal Cultural Resources

4.17.1 Environmental Setting

Prior to the arrival of Euro-Americans in the region, indigenous groups speaking more than 100 different languages and occupying a variety of ecological settings inhabited California. Kroeber (1925, 1936), and others (i.e., Murdock 1960; Driver 1961), recognized the uniqueness of California's indigenous groups and classified them as belonging to the California culture area. Kroeber (1925) further subdivided California into four subculture areas: Northwestern, Northeastern, Southern, and Central.

When the first European explorers entered the regions between 1772 and 1821, an estimated 100,000 people, about 1/3 of the state's native population, lived in the Central Valley (Moratto 1984:171). At least seven distinct languages of Penutian stock were spoken among these populations: Wintu, Nomlaki, Konkow, River Patwin, Nisenan, Miwok, and Yokuts. Common linguistic roots and similar cultural and technological characteristics indicate that these groups shared a long history of interaction (Rosenthal et al. 2007). The Central area (as defined by Kroeber 1925) encompasses the current Project Area and includes the Nisenan or Southern Maidu.

Ethnographically, the Project Area is in the southwestern portion of the territory occupied by the Penutian-speaking Nisenan. Nisenan inhabited the drainages of the Yuba, Bear, and American rivers, and also the lower reaches of the Feather River, extending from the east banks of the Sacramento River on the west to the mid to high elevations of the western flank of the Sierra Nevada to the east (Wilson and Towne 1978). The territory extended from the area surrounding the current City of Oroville on the north to a few miles south of the American River in the south. The Sacramento River bounded the territory on the west, and in the east, it extended to a general area located within a few miles of Lake Tahoe.

As a language group, Nisenan (meaning "from among us" or "of our side") are members of the Maiduan Family of the Penutian stock and are generally divided into three groups based on dialect differences: Northern Hill (mountain) Nisenan in the Yuba River drainage; the Valley Nisenan along the Sacramento River; and the Southern Hill (foothills) Nisenan along the American River (Beals 1933; Kroeber 1925; Wilson and Towne 1978). Individual and extended families "owned" hunting and gathering grounds, and trespassing was discouraged (Kroeber 1925; Wilson and Towne 1978). Residence was generally patrilocal, but couples actually had a choice in the matter (Wilson and Towne 1978).

The basic social and economic group for the Nisenan was the family or household unit. The nuclear and/or extended family formed a corporate unit. These basic units were combined into distinct village or hamlet groups, each largely composed of consanguine relatives (Beals 1933; Littlejohn 1928). Lineage groups were important political and economic units that combined to form tribelets, which were the largest sociopolitical unit identified for Nisenan (Wilson and Towne 1978). Each tribelet had a chief or headman who exercised political control over all villages within it. Villages typically included family dwellings, acorn granaries, a sweathouse, and a dance house, owned by the chief. The role of chief seems to have been an advisory role with little direct authority (Beals 1933) but with the support of the shaman and the elders, the word of the chief became virtually the law (Wilson and Towne 1978). Tribelets assumed the name of the head village where the chief resided (Beals 1933; Levy 1978).

The office of tribelet chief was hereditary, with the chieftainship being the property of a single patrilineage within the tribelet. Tribelet populations of Valley Nisenan were as large as 500 persons (Wilson and Towne 1982:6), while foothill and mountain tribelets ranged between 100 and 300 persons (Littlejohn 1928:21; Levy 1978:410). Each tribelet owned a bounded tract of land and exercised control over its natural resources (Littlejohn 1928). Beals (1933:359) estimated that Nisenan tribelet territories averaged approximately 10 miles along each boundary, or 100 square miles, with foothill territories tending to encompass more area than mountain territories. Littlejohn (1928) noted that in many instances, these boundaries were indicated by piles of stones. Regardless, Nisenan groups tended to stay within their village areas except during the summer season when groups of people would sojourn into the mountains to hunt and gather (Littlejohn 1928).

Nisenan practiced seasonal transhumance, a subsistence strategy involving moving from one area or elevation to another to harvest plants, fish, and hunt game across contrasting ecosystems that were in relatively close proximity to each other. Valley Nisenan generally did not range beyond the valley and lower foothills, while foothill and mountain groups ranged across a more extensive area that included jointly shared territory whose entry was subject to traditional understandings of priority of ownership and current relations between the groups (d'Azevedo 1963).

During most of the year, Nisenan usually lived in permanent villages located below about 2,500 feet that generally had a southern exposure, were surrounded by an open area, and were located above, but close to watercourses (Littlejohn 1928). The rather large uninhabited region between the 3,000-foot contour and the summit of the Sierra Nevada was considered "open ground" which was only used by communities living along its edge (Littlejohn 1928:20). Beals (1933) noted that permanent villages in the foothills and mountains were usually located on high ground between rivers. Valley villages were also usually located on raised areas to avoid flooding. Littlejohn (1928) stated that at one time there were settlements located on every small stream within Nisenan territory, but permanent villages were not located in steep, dark, narrow canyons of large rivers, or at altitudes where deep snows persisted throughout the winter. In fact, permanent occupation sites above 3,500 feet were only located in protected valleys (Littlejohn 1928).

The availability of resources influenced the location of Nisenan permanent villages, since they acquired a proportion of their food resources from the general area surrounding them (Littlejohn 1928; Wilson and Towne 1978). Other essential and critical food resources were obtained during the summer, when small base camps were established at higher altitudes in proximity to a water source. Individuals would stage expeditions to acquire natural, faunal, and plant resources from these camps (Littlejohn 1928; Wilson and Towne 1978).

Communally organized Nisenan task groups exploited a wide variety of resources. Communal hunting drives were undertaken to obtain deer, quail, rabbits, and grasshoppers. Bears were hunted in the winter when their hides were at their best condition. Runs of salmon in the spring and fall provided a regular supply of fish, while other fish such as suckers, pike, whitefish, and trout were obtained with snares, fish traps, or with various fish poisons such as soaproot (Beals 1933; Faye 1923; Wilson and Towne 1978). Birds were caught with nooses or large nets, and were also occasionally shot with bow and arrow. Game was prepared by roasting, baking, or drying. In addition, salt was obtained from a spring near modern-day Rocklin (Wilson and Towne 1978).

Acorns were gathered in the fall and stored in granaries for use during the rest of the year. Although acorns were the staple of the Nisenan diet, they also harvested roots like wild onion and "Indian potato," which were eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use (Wilson and Towne 1978). Buckeye, pine nuts, hazelnuts, and other edible nuts further supplemented the diet. Key resources such as acorns, salmon, and deer were ritually managed through ceremonies to facilitate successful exploitation and equitable distribution of resources (Beals 1933; Swezey 1975; Swezey and Heizer 1977).

Trade was important with goods traveling to and from the coast and valleys and into the Sierra Nevada and beyond to the east. Coastal items like shell beads, salmon, salt, and Foothill pine nuts were traded for resources from the mountains and farther inland, such as bows and arrows, deer skins, and sugar pine nuts. In addition, obsidian was imported from the north (Wilson and Towne 1978).

Nisenan built residential dwellings, ceremonial structures, semi-subterranean sweat lodges, and menstruation huts (Wilson and Towne 1978). The typical hill and mountain dwelling was the conical bark house made by overlapping three or four layers of bark with no interior support. A thatched house was used at lower elevations, consisting of a conical framework of poles that was covered by brush, grass, or tules. Semi-subterranean earth lodge roundhouses were also built by hill and mountain groups and used for ceremonial gatherings, assemblies, local feasts, and for housing visitors (Beals 1933; Levy 1978).

Flaked and ground stone tools were common among the Nisenan and included knives, arrow and spear points, club heads, arrow straighteners, scrapers, rough cobble and shaped pestles, bedrock mortars, grinding stones (metates), pipes, charms, and short spears (Barrett 1917; Beals 1933; Voegelin 1942; Wilson and Towne 1978). Beals (1933:341) also noted that certain colored stone points were considered lucky, and could be traded for four or five other projectile points. In addition, obsidian was highly valued and imported. Nisenan informants stated that obsidian only came from a place to the north, outside of Nisenan territory (Littlejohn 1928:32). Littlejohn (1928) also noted that soapstone was used for bowl mortars, although informants of Wilson and Towne (1978) claimed that neither they nor their ancestors made mortars.

Wood was used for a variety of tools and weapons, including both simple and sinew-backed bows, arrow shafts and points, looped stirring sticks, flat-bladed mush paddles, pipes, and hide preparation tools (Wilson and Towne 1978). Cordage was made from plant material, and was used to construct fishing nets and braided and twined tumplines. Soaproot brushes were commonly used during grinding activities to collect meal or flour. Specialized food processing and cooking techniques included the grinding and leaching of ground acorn and buckeye meal; burning of umbelliferae, a plant with cabbage-like leaves, to obtain salt; and roasting various foods in earth ovens (Wilson and Towne 1978; d'Azevedo 1986). Both hill and valley groups used the bedrock mortar and pestle (both rough cobble and shaped) to grind acorns, pine nuts, seeds, other plant foods, and meat. A soaproot brush was used to sweep ground meal into mortar cups and collect flour. Fist-sized, heated stones were used to cook or warm liquid-based foods such as acorn gruel and pine nut meal. Whole acorns were stored in granaries, and pine nuts were stored in large pine bough covered caches (Wilson and Towne 1978).

Nisenan groups managed many wild plants, primarily by controlled burning which removed underbrush and encouraged growth of edible grasses, seed producing plants, and other useful plant resources (e.g., basketry materials) (Blackburn and Anderson 1993). The use of fire for environmental modification and as an aid in hunting is frequently mentioned in the ethnographic literature relating to the Nisenan. Littlejohn (1928) noted that the lower foothills in the valley oak zone were thickly covered with herbaceous vegetation that was annually burned by the Nisenan to remove and limit its growth while facilitating the growth of oaks for harvesting acorns. The annual fires destroyed seedlings, but did not harm established oak trees. Beals (1933) also noted that the Nisenan regularly burned the land, primarily for the purpose of driving game, and consequently created much more open stands of timber than currently exist in the area. Beals (1933:363) informants stated that before their traditional burning regimes were halted by Euro-Americans, "it was often a mile or more between trees on the ridges." In addition to removing underbrush, improving travel conditions, and facilitating plant growth, burning may also have improved areas of deer forage, potentially altering migratory patterns of deer populations by lessening their need to seek fresh forage on a seasonal basis (Matson 1972).

Nisenan used baskets for a variety of tasks, including storage, cooking, serving and processing foods, traps, cradles, hats, cages, seed beaters, and winnowing trays. Basket manufacturing techniques included both twining and coiling, and baskets were decorated with a variety of materials and designs. Other woven artifacts include tule matting and netting made of milkweed, sage fibers, or wild hemp (Wilson and Towne 1978).

Like most indigenous cultures, Nisenan groups had a holistic epistemology; a theorem of holistic knowledge in which any subject is a composite of all other subjects, and every aspect of knowledge is interconnected. The Nisenan world contained many ineffable supernatural beings and spirits, and believed that all natural objects were endowed with potential supernatural powers (Beals 1933).

Stories about world creation and human origins vary amongst different ethnographic accounts as well as amongst different groups. Some expressed the idea that the world has always existed, but in different forms; some told that everything was made by someone, and that all birds and animals were once human; others told of a flood that killed the first people because they were bad (Kroeber 1929). In creation stories there was a culture hero, usually who created earth, and Coyote the trickster, who introduced death and conflict to a once utopian existence (Beals 1933; Kroeber 1929).

Ethnographic accounts of specific religious practices were stymied by several factors, including reluctance on behalf of Nisenan groups to discuss their religion, many variations in cultural practices, and disease epidemics during contact period. However, certain central themes were identified by Gifford (1927:220-223), who divided Nisenan religious ceremonies into three chronological strata: indigenous dances (early); northern-influenced dances of the *Kuksu* or god-impersonating cult performed in dance houses; and a *Kuksu* religious revival circa 1870 adapted to the Ghost Dance religion.

The Kuksu cult was the major religious system in Central California, and was practiced by the Nisenan in various forms. Cult membership was reserved for initiated few, who danced disguised as the spirits of deities (Heizer 1962). Other religious ceremonies included a mourning ceremony, an annual ritual for the dead performed in the fall in which dancers covered their faces with ash and wailed and cried around a central brush pyre (Gifford 1927). This ceremony was observed and documented among mountain groups, but little is known about whether valley and foothills groups performed similar rites (Wilson and Towne 1978). Other ceremonial dances included a *Kamin* dance celebrated in late March to mark the beginning of spring; the *Weda* or Flower dance of late April; a *Dappe* or Coyote Dance; and a *Nemulsa* or "Big Festival" to which people came from a distance to celebrate (Gifford 1927:233-238).

The Nisenan had two types of doctors or shamans, curing and religious, both of whom performed their rituals publicly in the village dance house (Wilson and Towne 1978). The curing shamans could be of either sex, and possessed certain charms and medicines. They diagnosed feeling and sucked out the area of pain to remove the offending object (such as dead fly, a small bone, a blood clot), which was displayed, and then buried immediately. Curing shamans were only paid if they cured the afflicted patient (Wilson and Towne 1978). The religious shaman, or *oshpe*, represented the supernatural and was a dominant figure in dance house rituals. He gained control over spirits by dreams or esoteric encounters, and it was believed he could conjure up spirits and voices of the deceased (Wilson and Towne 1978).

The Spanish arrived on the central California coast in 1769. Early contact with the first Spanish explorers to enter California was limited to the peripheries of Nisenan territory; they occurred mainly to the south on lands of the Miwok which had been explored by José Canizares in 1776, with only ephemeral explorations into Nisenan lands. There are no records of Nisenan groups being removed to the missions. They did, however, receive escapees from the missions, as well as pressure of displaced Miwok populations on their southern borders. The first known occupation by Euro-Americans was marked by American and Hudson Bay Company fur trappers in the late 1820s establishing camps in Nisenan territories. This occupation was thought to have been peaceful (Wilson and Towne 1978).

In 1833 a deadly epidemic (probably malaria) swept through the Sacramento Valley and had a devastating effect on Nisenan populations. Entire villages were lost, and surviving Nisenan retreated into the hills. An estimated 75 percent of their population was wiped out, and only a handful were left to face the gold miners and settlers who were soon to follow (Cook 1955:322). Captain John Sutter settled in Nisenan territory in 1839, and through force and persuasion he coerced most of the remaining Valley Nisenan to be on peaceful terms (Wilson and Towne 1978).

The mountain Nisenan groups encountered Europeans in their territory, but were not adversely affected by the epidemics and early settlers. The discovery of gold, however, led to their territory being overrun within a matter of a few years. James Marshal's 1848 gold discovery was in the middle of Nisenan territory, and thousands of miners were soon living in the area. This dynamic led to widespread killing, destruction, and persecution of the Nisenan and their culture. The few survivors were relegated to working in agriculture, logging, ranching, or domestic pursuits (Wilson and Towne 1978). A native culture resurgence occurred around 1870 with influence from the Ghost Dance revival, but by 1890s the movement had all but ended in dissolution. By the time of the Great Depression, it was said that no living Nisenan could remember a time before White contact (Wilson and Towne 1978:396).

The turn of the twentieth century was fraught with deplorable conditions for the surviving Nisenan populations, marked by low educational attainment, high unemployment, poor housing and sanitation, and prevalence of alcoholism. The 1960 U.S. census (California State Advisory Commission of Indian Affairs 1966 as cited in Wilson and Towne 1978:396) reported 1,321 Native Americans resided in the counties originally held as Nisenan territory, but none had tribal affiliation. Sacramento County listed 802 Native Americans, of which only four were known descendants of the Valley Nisenan. El Dorado, Placer, Yuba, and Nevada counties had several Nisenan families in the 1970s descended from mountain groups and could speak the language and retained knowledge of traditional lifeways (Wilson and Towne 1978).

A few people still practiced Nisenan customs through the turn of the twenty-first century, but the old ways have been largely lost. Despite the hardships on their people through the past few centuries, many modern Native American populations participate in pan-Indian activities and celebrations. Nisenan descendants continue to be active in social movements and organizations that seek to improve the Native American situation in the dominant America culture.

4.17.2 Tribal Consultation

ECORP contacted the California NAHC on September 22, 2017 to request a search of the Sacred Lands File for the APE. This search can determine whether or not Sacred Lands have been recorded by California Native American tribes within the APE, because the Sacred Lands File is populated by members of the Native American community who have knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding tribal cultural resources. The search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the project area (ECORP 2018b).

AB 52 requires that prior to the release of a CEQA document for a project, an agency begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if: (1) the California Native American tribe requested to the lead agency, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe and (2) the California Native American tribe responds, in writing, within 30 days of receipt of the formal notification, and requests the consultation. While WPUSD did receive one notification request by the Torres-Martinez Desert Cahuilla Indians, this request was later retracted by the Tribe as the WPUSD is not within their geographical area. The WPUSD has not received any other formal notification requests by any California Native American tribes. As such, the consultation responsibilities required by AB 52 have been met by the WPUSD for the Proposed Project.

4.17.3 Tribal Cultural Resources (XVII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☒	☐	☐

No known cultural resources or significant archaeological resources have been identified within the Project area. The site has not been identified as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe. However, unanticipated, and accidental discovery of California Native American tribal cultural resources are possible during project implementation, especially during excavation, and have the potential to impact unique cultural resources. As such, mitigation measure CUL-1 has been included to reduce the potential for impacts to tribal cultural resources to a less than significant level.

4.16.5 Mitigation Measures

Implement mitigation measure CUL-1.

4.18 Utilities and Service Systems

4.18.1 Environmental Setting

The City of Lincoln Public Services Department is responsible for water, wastewater, storm drainage and solid waste collection services for the city, including the Project site.

Water Service

The City of Lincoln receives surface water deliveries through the Placer County Water Agency (PCWA) water system. The City's water supplies that are delivered through the PCWA system include PCWA's surface water rights, Nevada Irrigation District's (NID) surface water rights, and Pacific Gas & Electric Company's water supplies that are contracted to both PCWA and NID. All of these surface water rights encompass the vast majority of the City's potable water supplies (City of Lincoln 2017). The water supplies originate in the Yuba/Bear River watershed as well as the American River watershed and are delivered to PCWA's Foothill Water Treatment Plant for transformation into potable water assets. From the Foothill Water Treatment Plant, potable water is delivered to the Lincoln Metering Station on the City's outer perimeter (City of Lincoln 2017).

PCWA currently delivers approximately 116,500 AF per year within its Western Water System, including the City of Lincoln (PCWA 2016). The City of Lincoln is the largest retail customer of wholesale treated water from PCWA, receiving about 90 percent of the wholesale treated water currently sold by PCWA. The City has a renewable contract with the PCWA for treated surface water. Lincoln is located in PCWA's Lower Zone 1 area. The Lower Zone 1 water treatment plants (WTPs) are the Foothill and Sunset plants which have capacities of 58 million gallons per day (mgd) and 8 mgd respectively (PCWA 2016).

The City also uses groundwater to augment its surface water supply. The City of Lincoln currently operates five wells. The total production is limited to about 10 percent of annual City demand, but wells are operated primarily in the summer to help balance water pressures and peak demands. The wells are generally located on the western side of the City in the more productive groundwater aquifer (City of Lincoln 2017).

The City's anticipates needing approximately 67 mgd of water capacity and an annual total of approximately 37,000 AF of water. Approximately 57 mgd of capacity will be needed to meet potable demands while the remaining 10 mgd of capacity will be needed to meet non-potable demands which may be derived from separate non-potable systems (raw water or recycled water). The potable supplies will be derived from PCWA's facilities, NID's facilities, and groundwater (City of Lincoln 2017).

The water supply available to the City is identified in the City's 2017 Water Master Plan (WMP) and is based on three water supply condition scenarios: average/normal water year, single dry-water year, and multiple dry-water years. As shown in *Table 4.18-1*, the City has adequate water supply to meet projected demand through 2040 for all scenarios.

Table 4.18-1. City of Lincoln Water Supply and Demand

	Water Supply and Demand by Year (acre feet)				
	2020	2025	2030	2035	2040
Normal Year Scenario					
Supply	12,291	13,478	15,296	17,113	20,336
Demand	12,291	13,478	15,296	17,113	20,336
Supply/Demand Difference	0	0	0	0	0
Single Dry Year Scenario					
Supply	12,905	14,152	15,908	17,627	20,947
Demand	12,905	14,152	15,908	17,627	20,947
Supply/Demand Difference	0	0	0	0	0
Multiple Dry Years Scenario (3rd Year shown)					
Supply	10,324	11,322	12,726	14,101	16,757
Demand	10,324	11,322	12,726	14,101	16,757
Supply/Demand Difference	0	0	0	0	0

Source: Lincoln 2017, Tables 7-1, 7-2 and 7-3.

The City has a complex retail water delivery system. The main infrastructure features of the City's retail water system include the following items:

- one five-million-gallon (mg) tank at Catta Verdera South,
- one 3-mg tank at Reservoir 1,
- the Catta Verdera temporary booster pump station, and
- the City's five active wells.

Less prominent components include:

- one City meter at the 5-mg tank,
- one altitude valve and City meter at the 3-mg tank,
- one each 5-and 3-mg tank bypass,
- nine pressure-reducing stations located closer to the eastern areas in the City,
- five pipeline crossings under SR-65,
- three Auburn Ravine pipeline crossings, and
- seven railroad track pipeline crossings.

The City also has five major transmission mains:

- one 30-inch pipeline at the 5-mg tank,
- one 18-inch pipeline at Twelve Bridges Drive South,
- a 20-inch pipeline at the 3-mg tank near Oaktree Lane,
- the 24-inch Twelve Bridges pipeline, and
- the 24-inch Oak Tree Lane pipeline.

In addition, the City has

- an emergency backup intertie with PCWA's system on its southern border,
- a Del Webb backup meter,
- the Nicolaus Road and Q Street altitude valves, and
- the abandoned 1.5 mg tank at the 3-mg tank location.

The City also manages 1,998 fire hydrants (Lincoln 2017).

Wastewater

The Lincoln Wastewater Treatment and Reclamation Facility (WWTRF) provides secondary and tertiary treatment of municipal wastewater from throughout the City. The facilities consist of an influent pump station, headworks screening and flow measurement, oxidation ditches, secondary clarifiers, maturation ponds, filtration facilities, dissolved air flotation separators, ultraviolet light disinfection facilities, solids handling facilities, effluent reaeration and pumping, a pipeline to an outfall in Auburn Ravine, effluent and emergency storage, and several land disposal fields. Effluent may be discharged into the Auburn Ravine near the WWTRF or is used for onsite reclamation of fodder crops or for offsite reclamation at varying municipal, commercial and industrial facilities throughout the City (City of Lincoln 2008a).

In 2016, an expansion to the WWTRF was completed, which increased the average dry weather flow (ADWF) capacity from 4.2 to 5.9 mgd. Of the existing 5.9 mgd of ADWF capacity, approximately 4.7 mgd of ADWF is used. Plans are presently underway to further expand the WWTRF to a rated capacity of 7.2 or 8.0 mgd. The next expansion is anticipated to be completed by 2021 (Raney 2017).

Table 4.18-2 identifies the unit wastewater flow factors used to determine the potential need for future wastewater expansion in the City's General Plan.

Table 4.18-2. Summary of Wastewater Unit Flow Factors

Land use	Flow/Unit
Commercial	1,600 gallons per day per acre (minimum)
Industrial	2,000 gallons per day per acre (minimum)
Public	1,000 gallons per day per acre (minimum)
Residential	250 gallons per day per acre (minimum)

Source: Lincoln 2008b, Appendix G, Table 2

Based on the General Plan's 50-year build-out land use projections and the flow factors shown above, the ADWF from the City at General Plan buildout is estimated at 26.4 mgd. An additional 8 mgd from the Placer Nevada Wastewater Authority communities are estimated during the same horizon. The total ADWF to be conveyed to and treated by the WWTRF is approximately 34.4 mgd, with a total peak wet weather flow of 120 mgd (Lincoln 2008b).

Storm Drainage

At a citywide level, the drainage system consists of a combination of valley gutters, underground pipes, and drop inlets. Drainage within the urban portions of the City discharges into both the Auburn and Markham ravines. The City depends on its creeks, ravines and sloughs to collect and convey storm runoff to the west, toward the cross-canal collection system ultimately discharging into the Sacramento River. Typically, these streams originally had wide floodplains that stored large volumes of runoff. Over time, some areas of these streams were confined by development and other earth-moving activities, limiting both the stream's capacity and the floodplain benefits associated with periodic flooding. The streams do, however, remain the backbone of the storm drain system and runoff collected within the City. The primary channels that drain the City include:

- Auburn Ravine, including the following tributaries: Orchard Creek and Ingram Slough
- Markham Ravine, including the following tributaries: Clay Creek, Markham Ravine South (draining the central Lincoln areas), and Markham Ravine Central (main branch)
- Coon Creek

The Proposed Project site is located within the Auburn Ravine watershed and drainage system. The Auburn Ravine watershed includes several smaller tributaries south of the City, including Ingram Slough which is adjacent to the Proposed Project. Ingram Slough is directly south of Auburn Ravine, and generally occurs as a dual threaded system with northern and southern reaches. Occasionally, the reaches combine and separate throughout the system. East of SR-65, the Northern Reach is a larger system than the southern reach. Upstream of SR-65, the two reaches combine to pass through a single bridge, and are separated again west of SR-65, where the southern reach, which is the portion of Ingram Slough adjacent to the Project site, has the larger conveyance capacity. Much of Ingram Slough has been reconstructed from the pre-development condition manmade irrigation ditch, to a larger capacity, more natural appearing channel feature, with lakes, wetlands, and grassy areas. Ingram Slough discharges into Orchard Creek just east of Fiddyment Road (Lincoln 2008a).

Solid Waste

The Lincoln Department of Public Services manages solid waste and green waste collection and disposal in the city. As shown in *Table 4.18-3*, the majority of the City's solid waste is disposed of at the Western Regional Landfill. According to the figures published by the California Department of Resources Recycling and Recovery (CalRecycle, 2018a), in 2016, the Western Regional Landfill received approximately 91.1 percent of Lincoln's solids waste, or 26,806 tons. As of June 2005, the Western Regional Landfill had a remaining capacity of 29 million cubic yards and a cease operation date of January 1, 2058 (CalRecycle 2018c).

Table 4.18-3. Solid Waste Disposal Facilities Used by the City of Lincoln

	Solid Waste Disposal (tons/year)			Landfill Information		
Destination Facility	2014	2015	2016	Remaining Capacity (cubic yards)	Remaining Capacity Date	Cease Operation Date
Azusa Land Reclamation Co. Landfill	0	0	3	51,512,201	9/30/12	1/1/2045
Fink Road Landfill	4	9	0	7,184,701	3/1/2017	12/1/2023
Forward Landfill, Inc.	12	7	39	22,100,000	12/31/2012	1/1/2020
L and D Landfill	36	100	53	4,100,000	5/31/2005	1/1/2023
North County Landfill & Recycling	2	0	1	35,400,000	12/31/2009	12/31/2048
Potrero Hills Landfill	24	32	22	13,872,000	1/1/2006	2/14/2048
Recology Hay Road	20	28	47	30,433,000	7/28/2010	1/1/2077
Recology Ostrom Road LF Inc.	29	2,364	1,684	39,223,000	6/1/2007	12/31/2066
Sacramento County Landfill (Kiefer)	203	353	479	112,900,000	9/12/2005	1/1/2064
Vasco Road Sanitary Landfill	1	3	2	7,379,000	10/31/2016	12/31/2023
Western Regional Landfill	21,711	23,371	23,806	29,093,819	6/30/2005	1/1/2058
Yolo County Central Landfill	0	5	0	n/a	n/a	1/1/2081
Yearly Total	22,041	26,273	26,135			
Average per Resident (lbs/day)	2.7	3.1	3.0			
Average per Employee (lbs/day)	18.4	20.3	19.2			

Source: CalRecycle 2018a, 2018b, and 2018c

4.18.2 Utilities and Service Systems (XVIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

The Proposed Project would connect to the City's existing wastewater collection treatment system, which includes the WWTRF. The wastewater treatment plant is currently in compliance with all wastewater standards and treatment requirements of the Central Valley RWQCB. The Proposed Project would not result in an increase of wastewater generation, to the point of requiring new wastewater facilities or the exceedance of existing treatment requirements. See discussion under Item b) below. As such, the development of the Proposed Project would not result in the city or the WWTRF exceeding the wastewater standards of the Central Valley RWQCB and would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

Water

The City's WMP (2017) identifies various water demand factors depending on end use. The annual demand factor has been established at 2.57 AF per acre for schools and 3.73 AF per acre for parks. Using this demand factor and the site acreage, the estimated water demand for the Project would be 42.1 AF of water per year[12] or 37,585 gallons per day (gpd)[13] .

Water treatment for the City is provided by PCWA's Foothill WTP. The Foothill WTP has a capacity of 58 mgd. Using the City's water demand factor, the Project's use of 37,585 gpd of water represents 0.07 percent of the Foothill WTP daily treatment capacity. As such, implementation of the Proposed Project would not require the expansion of the Foothill WTP.

There is a 10-inch water transmission main located in Caledon Circle as well as a 12-inch line in Brentford Circle adjacent to the Project site. According to the City's WMP, these water transmission lines are

[12] 2.57 AF per acre per year (for schools) X 9.4 acres for school site = 24.2 AF per year. 3.73 per acre per year (for parks) X 4.8 acres for park site = 17.9 AF per year. 24.2 AF per year + 17.9 AF per year = 42.1 AF per year.

[13] There are 325,851 gallons of water in an acre-foot. 42.1 AF per year X 325,851 gallons = 13,718,327 gallons per year. 13,718,327 gallons per year / 365 days per year = 37,584 gallons per day.

adequately sized for current water system operation as well as planned future city growth (City of Lincoln 2017). All on-site water infrastructure would be installed by the Proposed Project.

Therefore, the Project would have a less than significant impact to the city's and PCWA's water treatment or conveyance facilities.

Wastewater

At full completion of the Project, student capacity of the elementary school would be 800 persons Wastewater collection and treatment for the Proposed Project would be provided by the City. In the City of Lincoln, projected wastewater flow estimates of a project are based on area, as shown in *Table 4.18-2*. *Table 4.18-4* summarizes the projected sanitary sewer flow resulting from the Proposed Project based on the City of Lincoln sewer generation factors.

Table 4.18-4. Proposed Project Sanitary Sewer Generation

Land Use / Unit Count	Flow/ Unit	Project Acreage	Total Project Flow[1]
Public	1,000 gallons per day per acre	9.4	9,400 gpd

Source: Lincoln 2008b, Appendix G, Table 2
Note: 1) Wastewater flow estimates for the area of the project site set aside for a future park are not included in this estimate as the project is not developing the park.

In 2016, an expansion to the WWTRF was completed, which increased the ADWF capacity from 4.2 to 5.9 mgd. Of the existing 5.9 mgd of ADWF capacity, approximately 4.7 mgd of ADWF is used. Using the City's wastewater flow estimates, at full buildout, the Proposed Project would generate approximately 0.009 mgd of wastewater. This estimate would not result in an increase wastewater flow beyond existing capacity of the WWTRF. As such, although the Project would generate the additional demand for wastewater collection, conveyance, and treatment, the 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. Therefore, the Project would have a less than significant impact to the city's wastewater treatment facilities.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

Implementation of the Proposed Project would increase the amount of impervious surface on the Project site, which would result in an increase in stormwater runoff. While final stormwater drainage improvements for the site have not been determined at this time, the school would also be connected to the City of Lincoln's existing storm drain system.

Projects in Lincoln are subject to the West Placer Storm Water Quality Design Manual, which was developed cooperatively between Placer County, the Town of Loomis, and the cities of Roseville, Lincoln, and Auburn, to provide a consistent approach to address storm water management within the West Placer region (Placer County 2016). In addition to meeting the requirements of the West Placer Storm Water Quality Design Manual, the Proposed Project would be obligated to meet the requirements of the City of Lincoln's Municipal Code Chapter 8.60, pertaining to post-development peak storm water runoff discharge rates not exceeding pre-development rates. Chapter 8.60 of the City's Municipal Code incorporates the requirements of the City's NPDES Phase II Small MS4 General Permit. The Phase II Small MS4 General Permit requires that the peak post-project stormwater runoff from the Project site be equal to or less than the peak pre-Project stormwater runoff from the Project site. Therefore, the Proposed Project would have a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

The City's WMP (2017) identifies various water demand factors depending on end use. The annual demand factor has been established at 2.57 AF per acre for schools and 3.73 AF per acre for parks. Using this demand factor and the site acreage, the estimated water demand for the Project would be 42.1 AF of water per year.

As shown in *Table 4.18-1*, the city has adequate water supply through 2040. The water demand factors shown in *Table 4.18-1* are based on future population growth in the City including those future residents served by WPUSD. The demand for 42.1 AF per year of water from the Proposed Project would not increase the water demand in the city beyond the water supply identified in the 2017 WMP. The Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) 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?	☐	☐	☒	☐

Wastewater collection and treatment for the Project would be provided by the City. The City-generated wastewater is treated at the WWTRF. Capacity at the WWTRF is 5.9 mgd of ADWF capacity and approximately 4.7 mgd of ADWF is used. At full buildout, the Proposed Project would generate approximately 0.009 mgd of wastewater and not result in an increase beyond existing capacity of the

WWTRF. As such, although the Project would generate the additional demand for wastewater collection, conveyance, and treatment, the WWTRF would provide sufficient capacity to serve the Project. The impact is less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

According to CalRecycle (2018d), the estimated solid waste generation rates for educational facilities is 0.5 pounds per student per day. Based on this information and an anticipated 800 student capacity at full buildout of the Project, the school would produce approximately 400 pounds per day (lbs/day). Assuming a nine-month school year, no school during the weekends, half days, and the winter and spring breaks, WPUSD has 180 student days per year (WPUSD 2018b). The total estimated solid waste during the Scott M. Leaman Elementary School year would amount to 36 tons annually.[14]

As shown in *Table 4.18-3*, the Western Regional Landfill, which is the City's main disposal site for solid waste disposal, has projected adequate capacity through 2058. This landfill is permitted up to 1,900 tons per day (CalRecycle 2018c). The Proposed Project's daily solid waste of 400 lbs/day represents 0.01 percent of the maximum permitted daily tonnage at the landfill.[15] As such, the Proposed Project would not substantially increase solid waste in the City and existing landfills have sufficient capacity to accommodate the relatively minor amounts of waste that would be generated by the Proposed Project. This is a less than significant impact.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

The Proposed Project is required to comply with all state and federal statutes regarding solid waste. This impact is considered less than significant.

4.18.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

[14] 400 lbs/day X 180 days / 2000 lbs/ ton = 36 tons per year.
[15] 400 lbs/day X 2,000 lbs/ ton / 1,900 tons/day X 100 percent = 0.011 percent.

4.19 Mandatory Findings of Significance

4.19.1 Mandatory Findings of Significance (XIX.) Environmental Checklist and Discussion

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to degrade the quality of the environment, 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, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

As discussed in *Sections 4.4 Biological Resources* and *4.5 Cultural Resources*, the Proposed Project would have potential impacts to these resources. However, with implementation of mitigation measures proposed in the relevant sections of this Initial Study, these potential impacts would be reduced to a level that is considered less than significant.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐

Implementation of the Proposed Project, in conjunction with other approved or pending projects in the region, has the potential to result in cumulatively considerable impacts to the physical environment. However, with implementation of mitigation measures proposed in the relevant subsections of this Initial Study, these potential impacts would be reduced to a level that is considered less than significant.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Direct and indirect impacts to human beings would be less than significant with the implementation of mitigation measures listed in this Initial Study.

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LIST OF APPENDICES

APPENDIX A

Air Quality Study

Lincoln Crossing South Elementary School

Placer-Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	800.00	Student	9.40	53,270.00	0
Parking Lot	67.00	Space	0.60	26,800.00	0
Other Non-Asphalt Surfaces	28.13	1000sqft	0.65	28,129.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	74
Climate Zone	2			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Year 2020 CO2 Intensity Factor

Land Use - Project site = 9.4 acres. 800 students anticipated at buildout

Construction Phase - Building construction, paving, & painting assumed to occur simultaneously

Mobile Land Use Mitigation -

Vehicle Trips - Trip generation per Transportation Impact Study

Fleet Mix - 2% of Project traffic attributable to heavy-duty trucks

Water And Wastewater -

Solid Waste - Solid waste tons per Initial Study

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	10/30/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	9/4/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	7/11/2018	7/11/2019
tblConstructionPhase	PhaseEndDate	10/2/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	5/30/2018	5/30/2019
tblConstructionPhase	PhaseStartDate	10/3/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	7/12/2018	7/12/2019
tblConstructionPhase	PhaseStartDate	5/31/2018	5/31/2019
tblConstructionPhase	PhaseStartDate	9/5/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	5/17/2018	5/17/2019
tblFleetMix	HHD	0.05	0.02
tblFleetMix	LDA	0.49	0.51
tblLandUse	LandUseSquareFeet	66,882.70	53,270.00
tblLandUse	LotAcreage	1.54	9.40
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblSolidWaste	SolidWasteGenerationRate	146.00	36.00
tblVehicleTrips	WD_TR	1.29	1.89

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.1547	54.5684	36.3565	0.0639	18.2141	2.3913	20.6055	9.9699	2.2000	12.1699	0.0000	6,309.152 3	6,309.152 3	1.9472	0.0000	6,357.833 1
2020	5.7534	37.1918	35.7409	0.0637	0.6887	1.9936	2.6824	0.1854	1.8660	2.0515	0.0000	6,162.646 0	6,162.646 0	1.3979	0.0000	6,197.592 7
Maximum	**6.1547**	**54.5684**	**36.3565**	**0.0639**	**18.2141**	**2.3913**	**20.6055**	**9.9699**	**2.2000**	**12.1699**	**0.0000**	**6,309.152 3**	**6,309.152 3**	**1.9472**	**0.0000**	**6,357.833 1**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.1547	54.5684	36.3565	0.0639	18.2141	2.3913	20.6055	9.9699	2.2000	12.1699	0.0000	6,309.152 3	6,309.152 3	1.9472	0.0000	6,357.833 1
2020	5.7534	37.1918	35.7409	0.0637	0.6887	1.9936	2.6824	0.1854	1.8660	2.0515	0.0000	6,162.646 0	6,162.646 0	1.3979	0.0000	6,197.592 7
Maximum	**6.1547**	**54.5684**	**36.3565**	**0.0639**	**18.2141**	**2.3913**	**20.6055**	**9.9699**	**2.2000**	**12.1699**	**0.0000**	**6,309.152 3**	**6,309.152 3**	**1.9472**	**0.0000**	**6,357.833 1**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Energy	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Mobile	3.1044	11.4745	29.7556	0.0916	7.0893	0.0946	7.1839	1.8981	0.0891	1.9871		9,228.5703	9,228.5703	0.3476		9,237.2604
Total	**4.4268**	**11.6108**	**29.9614**	**0.0924**	**7.0893**	**0.1052**	**7.1945**	**1.8981**	**0.0997**	**1.9978**		**9,391.3663**	**9,391.3663**	**0.3513**	**2.9800e-003**	**9,401.0358**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Energy	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Mobile	3.1044	11.4745	29.7556	0.0916	7.0893	0.0946	7.1839	1.8981	0.0891	1.9871		9,228.5703	9,228.5703	0.3476		9,237.2604
Total	**4.4268**	**11.6108**	**29.9614**	**0.0924**	**7.0893**	**0.1052**	**7.1945**	**1.8981**	**0.0997**	**1.9978**		**9,391.3663**	**9,391.3663**	**0.3513**	**2.9800e-003**	**9,401.0358**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/17/2019	5/30/2019	5	10	
2	Grading	Grading	5/31/2019	7/11/2019	5	30	
3	Building Construction	Building Construction	7/12/2019	9/3/2020	5	300	
4	Paving	Paving	7/12/2019	9/3/2020	5	300	
5	Architectural Coating	Architectural Coating	7/12/2019	9/3/2020	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 1.25

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 79,905; Non-Residential Outdoor: 26,635; Striped Parking Area: 3,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Scrapers	2	8.00	367	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	45.00	18.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0763	0.0434	0.5866	1.5300e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		152.2195	152.2195	4.1400e-003		152.3229
Total	**0.0763**	**0.0434**	**0.5866**	**1.5300e-003**	**0.1479**	**9.6000e-004**	**0.1488**	**0.0392**	**8.8000e-004**	**0.0401**		**152.2195**	**152.2195**	**4.1400e-003**		**152.3229**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.452 9	3,766.452 9	1.1917		3,796.244 5
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**	**0.0000**	**3,766.452 9**	**3,766.452 9**	**1.1917**		**3,796.244 5**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0763	0.0434	0.5866	1.5300e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		152.2195	152.2195	4.1400e-003		152.3229
Total	**0.0763**	**0.0434**	**0.5866**	**1.5300e-003**	**0.1479**	**9.6000e-004**	**0.1488**	**0.0392**	**8.8000e-004**	**0.0401**		**152.2195**	**152.2195**	**4.1400e-003**		**152.3229**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0848	0.0482	0.6518	1.7000e-003	0.1643	1.0700e-003	0.1654	0.0436	9.8000e-004	0.0446		169.1328	169.1328	4.6000e-003		169.2477
Total	**0.0848**	**0.0482**	**0.6518**	**1.7000e-003**	**0.1643**	**1.0700e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**169.1328**	**169.1328**	**4.6000e-003**		**169.2477**

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0848	0.0482	0.6518	1.7000e-003	0.1643	1.0700e-003	0.1654	0.0436	9.8000e-004	0.0446		169.1328	169.1328	4.6000e-003		169.2477
Total	**0.0848**	**0.0482**	**0.6518**	**1.7000e-003**	**0.1643**	**1.0700e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**169.1328**	**169.1328**	**4.6000e-003**		**169.2477**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0780	2.2796	0.4379	5.3500e-003	0.1219	0.0139	0.1358	0.0351	0.0133	0.0484		559.8384	559.8384	0.0275		560.5256
Worker	0.1908	0.1085	1.4665	3.8200e-003	0.3697	2.4000e-003	0.3721	0.0981	2.2100e-003	0.1003		380.5488	380.5488	0.0103		380.8073
Total	**0.2688**	**2.3881**	**1.9044**	**9.1700e-003**	**0.4916**	**0.0163**	**0.5079**	**0.1332**	**0.0155**	**0.1487**		**940.3872**	**940.3872**	**0.0378**		**941.3329**

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0780	2.2796	0.4379	5.3500e-003	0.1219	0.0139	0.1358	0.0351	0.0133	0.0484		559.8384	559.8384	0.0275		560.5256
Worker	0.1908	0.1085	1.4665	3.8200e-003	0.3697	2.4000e-003	0.3721	0.0981	2.2100e-003	0.1003		380.5488	380.5488	0.0103		380.8073
Total	**0.2688**	**2.3881**	**1.9044**	**9.1700e-003**	**0.4916**	**0.0163**	**0.5079**	**0.1332**	**0.0155**	**0.1487**		**940.3872**	**940.3872**	**0.0378**		**941.3329**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0647	2.1090	0.3841	5.3100e-003	0.1219	9.2400e-003	0.1312	0.0351	8.8400e-003	0.0439		555.5244	555.5244	0.0253		556.1575
Worker	0.1748	0.0961	1.3205	3.7000e-003	0.3697	2.3500e-003	0.3720	0.0981	2.1600e-003	0.1002		368.3981	368.3981	9.0500e-003		368.6243
Total	**0.2395**	**2.2051**	**1.7046**	**9.0100e-003**	**0.4916**	**0.0116**	**0.5032**	**0.1332**	**0.0110**	**0.1442**		**923.9225**	**923.9225**	**0.0344**		**924.7817**

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0647	2.1090	0.3841	5.3100e-003	0.1219	9.2400e-003	0.1312	0.0351	8.8400e-003	0.0439		555.5244	555.5244	0.0253		556.1575
Worker	0.1748	0.0961	1.3205	3.7000e-003	0.3697	2.3500e-003	0.3720	0.0981	2.1600e-003	0.1002		368.3981	368.3981	9.0500e-003		368.6243
Total	**0.2395**	**2.2051**	**1.7046**	**9.0100e-003**	**0.4916**	**0.0116**	**0.5032**	**0.1332**	**0.0110**	**0.1442**		**923.9225**	**923.9225**	**0.0344**		**924.7817**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4597**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0636	0.0362	0.4889	1.2700e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		126.8496	126.8496	3.4500e-003		126.9358
Total	**0.0636**	**0.0362**	**0.4889**	**1.2700e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**126.8496**	**126.8496**	**3.4500e-003**		**126.9358**

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4597**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0636	0.0362	0.4889	1.2700e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		126.8496	126.8496	3.4500e-003		126.9358
Total	**0.0636**	**0.0362**	**0.4889**	**1.2700e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**126.8496**	**126.8496**	**3.4500e-003**		**126.9358**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3618**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0583	0.0320	0.4402	1.2300e-003	0.1232	7.8000e-004	0.1240	0.0327	7.2000e-004	0.0334		122.7994	122.7994	3.0200e-003		122.8748
Total	**0.0583**	**0.0320**	**0.4402**	**1.2300e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.2000e-004**	**0.0334**		**122.7994**	**122.7994**	**3.0200e-003**		**122.8748**

3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3618**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0583	0.0320	0.4402	1.2300e-003	0.1232	7.8000e-004	0.1240	0.0327	7.2000e-004	0.0334		122.7994	122.7994	3.0200e-003		122.8748
Total	**0.0583**	**0.0320**	**0.4402**	**1.2300e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.2000e-004**	**0.0334**		**122.7994**	**122.7994**	**3.0200e-003**		**122.8748**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**1.9634**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0382	0.0217	0.2933	7.6000e-004	0.0739	4.8000e-004	0.0744	0.0196	4.4000e-004	0.0201		76.1098	76.1098	2.0700e-003		76.1615
Total	**0.0382**	**0.0217**	**0.2933**	**7.6000e-004**	**0.0739**	**4.8000e-004**	**0.0744**	**0.0196**	**4.4000e-004**	**0.0201**		**76.1098**	**76.1098**	**2.0700e-003**		**76.1615**

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**1.9634**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0382	0.0217	0.2933	7.6000e-004	0.0739	4.8000e-004	0.0744	0.0196	4.4000e-004	0.0201		76.1098	76.1098	2.0700e-003		76.1615
Total	**0.0382**	**0.0217**	**0.2933**	**7.6000e-004**	**0.0739**	**4.8000e-004**	**0.0744**	**0.0196**	**4.4000e-004**	**0.0201**		**76.1098**	**76.1098**	**2.0700e-003**		**76.1615**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**1.9392**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0350	0.0192	0.2641	7.4000e-004	0.0739	4.7000e-004	0.0744	0.0196	4.3000e-004	0.0200		73.6796	73.6796	1.8100e-003		73.7249
Total	**0.0350**	**0.0192**	**0.2641**	**7.4000e-004**	**0.0739**	**4.7000e-004**	**0.0744**	**0.0196**	**4.3000e-004**	**0.0200**		**73.6796**	**73.6796**	**1.8100e-003**		**73.7249**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**1.9392**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0350	0.0192	0.2641	7.4000e-004	0.0739	4.7000e-004	0.0744	0.0196	4.3000e-004	0.0200		73.6796	73.6796	1.8100e-003		73.7249
Total	**0.0350**	**0.0192**	**0.2641**	**7.4000e-004**	**0.0739**	**4.7000e-004**	**0.0744**	**0.0196**	**4.3000e-004**	**0.0200**		**73.6796**	**73.6796**	**1.8100e-003**		**73.7249**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.1044	11.4745	29.7556	0.0916	7.0893	0.0946	7.1839	1.8981	0.0891	1.9871		9,228.5703	9,228.5703	0.3476		9,237.2604
Unmitigated	3.1044	11.4745	29.7556	0.0916	7.0893	0.0946	7.1839	1.8981	0.0891	1.9871		9,228.5703	9,228.5703	0.3476		9,237.2604

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	1,512.00	0.00	0.00	2,381,334	2,381,334
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,512.00	0.00	0.00	2,381,334	2,381,334

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Elementary School	9.50	7.30	7.30	65.00	30.00	5.00	63	25	12
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.514840	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.020000	0.001467	0.001229	0.006102	0.000783	0.001333
Other Non-Asphalt Surfaces	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Parking Lot	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
NaturalGas Unmitigated	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Elementary School	1382.1	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1355**	**0.1138**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**		**162.6001**	**162.6001**	**3.1200e-003**	**2.9800e-003**	**163.5664**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Elementary School	1.3821	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1355**	**0.1138**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**		**162.6001**	**162.6001**	**3.1200e-003**	**2.9800e-003**	**163.5664**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Unmitigated	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1395					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6500e-003	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Total	**1.3076**	**8.5000e-004**	**0.0920**	**1.0000e-005**		**3.3000e-004**	**3.3000e-004**		**3.3000e-004**	**3.3000e-004**		**0.1959**	**0.1959**	**5.3000e-004**		**0.2090**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1395					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6500e-003	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Total	**1.3076**	**8.5000e-004**	**0.0920**	**1.0000e-005**		**3.3000e-004**	**3.3000e-004**		**3.3000e-004**	**3.3000e-004**		**0.1959**	**0.1959**	**5.3000e-004**		**0.2090**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Lincoln Crossing South Elementary School

Placer-Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	800.00	Student	9.40	53,270.00	0
Parking Lot	67.00	Space	0.60	26,800.00	0
Other Non-Asphalt Surfaces	28.13	1000sqft	0.65	28,129.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	74
Climate Zone	2			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Year 2020 CO2 Intensity Factor

Land Use - Project site = 9.4 acres. 800 students anticipated at buildout

Construction Phase - Building construction, paving, & painting assumed to occur simultaneously

Mobile Land Use Mitigation -

Vehicle Trips - Trip generation per Transportation Impact Study

Fleet Mix - 2% of Project traffic attributable to heavy-duty trucks

Water And Wastewater -

Solid Waste - Solid waste tons per Initial Study

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	10/30/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	9/4/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	7/11/2018	7/11/2019
tblConstructionPhase	PhaseEndDate	10/2/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	5/30/2018	5/30/2019
tblConstructionPhase	PhaseStartDate	10/3/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	7/12/2018	7/12/2019
tblConstructionPhase	PhaseStartDate	5/31/2018	5/31/2019
tblConstructionPhase	PhaseStartDate	9/5/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	5/17/2018	5/17/2019
tblFleetMix	HHD	0.05	0.02
tblFleetMix	LDA	0.49	0.51
tblLandUse	LandUseSquareFeet	66,882.70	53,270.00
tblLandUse	LotAcreage	1.54	9.40
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblSolidWaste	SolidWasteGenerationRate	146.00	36.00
tblVehicleTrips	WD_TR	1.29	1.89

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.1496	54.5807	36.2292	0.0635	18.2141	2.3913	20.6055	9.9699	2.2000	12.1699	0.0000	6,290.6007	6,290.6007	1.9469	0.0000	6,339.2720
2020	5.7485	37.2509	35.6115	0.0629	0.6887	1.9939	2.6826	0.1854	1.8662	2.0517	0.0000	6,082.0263	6,082.0263	1.3999	0.0000	6,117.0242
Maximum	**6.1496**	**54.5807**	**36.2292**	**0.0635**	**18.2141**	**2.3913**	**20.6055**	**9.9699**	**2.2000**	**12.1699**	**0.0000**	**6,290.6007**	**6,290.6007**	**1.9469**	**0.0000**	**6,339.2720**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	6.1496	54.5807	36.2292	0.0635	18.2141	2.3913	20.6055	9.9699	2.2000	12.1699	0.0000	6,290.6007	6,290.6007	1.9469	0.0000	6,339.2720
2020	5.7485	37.2509	35.6115	0.0629	0.6887	1.9939	2.6826	0.1854	1.8662	2.0517	0.0000	6,082.0263	6,082.0263	1.3999	0.0000	6,117.0242
Maximum	**6.1496**	**54.5807**	**36.2292**	**0.0635**	**18.2141**	**2.3913**	**20.6055**	**9.9699**	**2.2000**	**12.1699**	**0.0000**	**6,290.6007**	**6,290.6007**	**1.9469**	**0.0000**	**6,339.2720**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Energy	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Mobile	2.4502	12.2157	29.4501	0.0837	7.0893	0.0955	7.1848	1.8981	0.0899	1.9880		8,431.2220	8,431.2220	0.3567		8,440.1394
Total	**3.7727**	**12.3520**	**29.6559**	**0.0845**	**7.0893**	**0.1061**	**7.1954**	**1.8981**	**0.1006**	**1.9986**		**8,594.0180**	**8,594.0180**	**0.3604**	**2.9800e-003**	**8,603.9148**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Energy	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Mobile	2.4502	12.2157	29.4501	0.0837	7.0893	0.0955	7.1848	1.8981	0.0899	1.9880		8,431.2220	8,431.2220	0.3567		8,440.1394
Total	**3.7727**	**12.3520**	**29.6559**	**0.0845**	**7.0893**	**0.1061**	**7.1954**	**1.8981**	**0.1006**	**1.9986**		**8,594.0180**	**8,594.0180**	**0.3604**	**2.9800e-003**	**8,603.9148**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/17/2019	5/30/2019	5	10	
2	Grading	Grading	5/31/2019	7/11/2019	5	30	
3	Building Construction	Building Construction	7/12/2019	9/3/2020	5	300	
4	Paving	Paving	7/12/2019	9/3/2020	5	300	
5	Architectural Coating	Architectural Coating	7/12/2019	9/3/2020	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 1.25

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 79,905; Non-Residential Outdoor: 26,635; Striped Parking Area: 3,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Scrapers	2	8.00	367	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	45.00	18.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0738	0.0545	0.5298	1.3600e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		135.5231	135.5231	3.7900e-003		135.6179
Total	**0.0738**	**0.0545**	**0.5298**	**1.3600e-003**	**0.1479**	**9.6000e-004**	**0.1488**	**0.0392**	**8.8000e-004**	**0.0401**		**135.5231**	**135.5231**	**3.7900e-003**		**135.6179**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0738	0.0545	0.5298	1.3600e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		135.5231	135.5231	3.7900e-003		135.6179
Total	**0.0738**	**0.0545**	**0.5298**	**1.3600e-003**	**0.1479**	**9.6000e-004**	**0.1488**	**0.0392**	**8.8000e-004**	**0.0401**		**135.5231**	**135.5231**	**3.7900e-003**		**135.6179**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.019 5	6,140.019 5	1.9426		6,188.585 4
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.019 5**	**6,140.019 5**	**1.9426**		**6,188.585 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0820	0.0605	0.5887	1.5100e-003	0.1643	1.0700e-003	0.1654	0.0436	9.8000e-004	0.0446		150.5812	150.5812	4.2200e-003		150.6866
Total	**0.0820**	**0.0605**	**0.5887**	**1.5100e-003**	**0.1643**	**1.0700e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**150.5812**	**150.5812**	**4.2200e-003**		**150.6866**

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0820	0.0605	0.5887	1.5100e-003	0.1643	1.0700e-003	0.1654	0.0436	9.8000e-004	0.0446		150.5812	150.5812	4.2200e-003		150.6866
Total	**0.0820**	**0.0605**	**0.5887**	**1.5100e-003**	**0.1643**	**1.0700e-003**	**0.1654**	**0.0436**	**9.8000e-004**	**0.0446**		**150.5812**	**150.5812**	**4.2200e-003**		**150.6866**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0823	2.3097	0.5283	5.1700e-003	0.1219	0.0142	0.1362	0.0351	0.0136	0.0487		541.2415	541.2415	0.0310		542.0161
Worker	0.1846	0.1361	1.3245	3.4000e-003	0.3697	2.4000e-003	0.3721	0.0981	2.2100e-003	0.1003		338.8077	338.8077	9.4900e-003		339.0448
Total	**0.2669**	**2.4458**	**1.8529**	**8.5700e-003**	**0.4916**	**0.0166**	**0.5082**	**0.1332**	**0.0158**	**0.1490**		**880.0491**	**880.0491**	**0.0405**		**881.0609**

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0823	2.3097	0.5283	5.1700e-003	0.1219	0.0142	0.1362	0.0351	0.0136	0.0487		541.2415	541.2415	0.0310		542.0161
Worker	0.1846	0.1361	1.3245	3.4000e-003	0.3697	2.4000e-003	0.3721	0.0981	2.2100e-003	0.1003		338.8077	338.8077	9.4900e-003		339.0448
Total	**0.2669**	**2.4458**	**1.8529**	**8.5700e-003**	**0.4916**	**0.0166**	**0.5082**	**0.1332**	**0.0158**	**0.1490**		**880.0491**	**880.0491**	**0.0405**		**881.0609**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	2.1309	0.4657	5.1300e-003	0.1219	9.5000e-003	0.1314	0.0351	9.0900e-003	0.0442		536.8926	536.8926	0.0286		537.6085
Worker	0.1690	0.1204	1.1829	3.2900e-003	0.3697	2.3500e-003	0.3720	0.0981	2.1600e-003	0.1002		327.9711	327.9711	8.2200e-003		328.1767
Total	**0.2376**	**2.2513**	**1.6486**	**8.4200e-003**	**0.4916**	**0.0119**	**0.5034**	**0.1332**	**0.0113**	**0.1444**		**864.8638**	**864.8638**	**0.0369**		**865.7852**

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	2.1309	0.4657	5.1300e-003	0.1219	9.5000e-003	0.1314	0.0351	9.0900e-003	0.0442		536.8926	536.8926	0.0286		537.6085
Worker	0.1690	0.1204	1.1829	3.2900e-003	0.3697	2.3500e-003	0.3720	0.0981	2.1600e-003	0.1002		327.9711	327.9711	8.2200e-003		328.1767
Total	**0.2376**	**2.2513**	**1.6486**	**8.4200e-003**	**0.4916**	**0.0119**	**0.5034**	**0.1332**	**0.0113**	**0.1444**		**864.8638**	**864.8638**	**0.0369**		**865.7852**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4597**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0615	0.0454	0.4415	1.1300e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		112.9359	112.9359	3.1600e-003		113.0149
Total	**0.0615**	**0.0454**	**0.4415**	**1.1300e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**112.9359**	**112.9359**	**3.1600e-003**		**113.0149**

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4597**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0615	0.0454	0.4415	1.1300e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		112.9359	112.9359	3.1600e-003		113.0149
Total	**0.0615**	**0.0454**	**0.4415**	**1.1300e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**112.9359**	**112.9359**	**3.1600e-003**		**113.0149**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3618**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0401	0.3943	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.2000e-004	0.0334		109.3237	109.3237	2.7400e-003		109.3922
Total	**0.0563**	**0.0401**	**0.3943**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.2000e-004**	**0.0334**		**109.3237**	**109.3237**	**2.7400e-003**		**109.3922**

3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3618**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0563	0.0401	0.3943	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.2000e-004	0.0334		109.3237	109.3237	2.7400e-003		109.3922
Total	**0.0563**	**0.0401**	**0.3943**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.2000e-004**	**0.0334**		**109.3237**	**109.3237**	**2.7400e-003**		**109.3922**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**1.9634**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0272	0.2649	6.8000e-004	0.0739	4.8000e-004	0.0744	0.0196	4.4000e-004	0.0201		67.7615	67.7615	1.9000e-003		67.8090
Total	**0.0369**	**0.0272**	**0.2649**	**6.8000e-004**	**0.0739**	**4.8000e-004**	**0.0744**	**0.0196**	**4.4000e-004**	**0.0201**		**67.7615**	**67.7615**	**1.9000e-003**		**67.8090**

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**1.9634**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0272	0.2649	6.8000e-004	0.0739	4.8000e-004	0.0744	0.0196	4.4000e-004	0.0201		67.7615	67.7615	1.9000e-003		67.8090
Total	**0.0369**	**0.0272**	**0.2649**	**6.8000e-004**	**0.0739**	**4.8000e-004**	**0.0744**	**0.0196**	**4.4000e-004**	**0.0201**		**67.7615**	**67.7615**	**1.9000e-003**		**67.8090**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**1.9392**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0241	0.2366	6.6000e-004	0.0739	4.7000e-004	0.0744	0.0196	4.3000e-004	0.0200		65.5942	65.5942	1.6400e-003		65.6354
Total	**0.0338**	**0.0241**	**0.2366**	**6.6000e-004**	**0.0739**	**4.7000e-004**	**0.0744**	**0.0196**	**4.3000e-004**	**0.0200**		**65.5942**	**65.5942**	**1.6400e-003**		**65.6354**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.6970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**1.9392**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0241	0.2366	6.6000e-004	0.0739	4.7000e-004	0.0744	0.0196	4.3000e-004	0.0200		65.5942	65.5942	1.6400e-003		65.6354
Total	**0.0338**	**0.0241**	**0.2366**	**6.6000e-004**	**0.0739**	**4.7000e-004**	**0.0744**	**0.0196**	**4.3000e-004**	**0.0200**		**65.5942**	**65.5942**	**1.6400e-003**		**65.6354**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.4502	12.2157	29.4501	0.0837	7.0893	0.0955	7.1848	1.8981	0.0899	1.9880		8,431.222 0	8,431.222 0	0.3567		8,440.139 4
Unmitigated	2.4502	12.2157	29.4501	0.0837	7.0893	0.0955	7.1848	1.8981	0.0899	1.9880		8,431.222 0	8,431.222 0	0.3567		8,440.139 4

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	1,512.00	0.00	0.00	2,381,334	2,381,334
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,512.00	0.00	0.00	2,381,334	2,381,334

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Elementary School	9.50	7.30	7.30	65.00	30.00	5.00	63	25	12
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.514840	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.020000	0.001467	0.001229	0.006102	0.000783	0.001333
Other Non-Asphalt Surfaces	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Parking Lot	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
NaturalGas Unmitigated	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Elementary School	1382.1	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1355**	**0.1138**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**		**162.6001**	**162.6001**	**3.1200e-003**	**2.9800e-003**	**163.5664**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Elementary School	1.3821	0.0149	0.1355	0.1138	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.6001	162.6001	3.1200e-003	2.9800e-003	163.5664
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0149**	**0.1355**	**0.1138**	**8.1000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**		**162.6001**	**162.6001**	**3.1200e-003**	**2.9800e-003**	**163.5664**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Unmitigated	1.3076	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1395					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6500e-003	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Total	**1.3076**	**8.5000e-004**	**0.0920**	**1.0000e-005**		**3.3000e-004**	**3.3000e-004**		**3.3000e-004**	**3.3000e-004**		**0.1959**	**0.1959**	**5.3000e-004**		**0.2090**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1395					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1594					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6500e-003	8.5000e-004	0.0920	1.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		0.1959	0.1959	5.3000e-004		0.2090
Total	**1.3076**	**8.5000e-004**	**0.0920**	**1.0000e-005**		**3.3000e-004**	**3.3000e-004**		**3.3000e-004**	**3.3000e-004**		**0.1959**	**0.1959**	**5.3000e-004**		**0.2090**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

Biological Resources Studies

Aquatic Resources Delineation

Lincoln Crossing South Elementary

Placer County, California

Prepared For:

Western Placer Unified School District

June 18, 2018

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP Consulting, Inc. has assisted public and private land owners with environmental regulation compliance since 1987. We offer full service capability, from initial baseline environmental studies through environmental planning review, permitting negotiation, liaison to obtain legal agreements, mitigation design, and monitoring and compliance reporting.

Citation: ECORP Consulting, Inc. 2018. Aquatic Resources Delineation for Lincoln Crossing South Elementary. Placer County, California. Prepared for Western Placer Unified School District. June 18, 2018.

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LIST OF ACRONYMS AND ABBREVIATIONS

CARI	California Aquatic Resource Inventory
CFR	Code of Federal Register
CWA	Clean Water Act
FR	Federal Register
NRCS	Natural Resources Conservation Service
OHWM	Ordinary high water mark
ORM	Operations and Maintenance Business Information Link Regulatory Module
PJD	Preliminary Jurisdictional Determination
Project	Lincoln Crossing South Elementary Project
SFEI	San Francisco Estuary Institute
TNW	Traditional Navigable Waters
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

1.0 INTRODUCTION

On behalf of Western Placer Unified School District, ECORP Consulting, Inc. conducted an aquatic resources delineation for the ±14.2-acre Lincoln Crossing South Elementary Project (Project) located in the City of Lincoln, Placer County, California. The Project site is located south of Caledon Circle, east and west of Brentford Circle, and north of the south fork of Ingram Slough (*Figure 1. Location and Vicinity*). The Project site corresponds to a portion of Section 28, Township 12 North, and Range 6 East (Mount Diablo and Base Meridian) of the "Roseville, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS 1992). The approximate center of the Project site is located at 38.863848° latitude and -121.311405° longitude within the Upper Coon-Upper Auburn Watershed (Hydrologic Unit Code #18020161, Natural Resources Conservation Service [NRCS], USGS, and U.S. Environmental Protection Agency [USEPA] 2016). Driving directions to the Project site are included as Attachment A.

This report describes aquatic resources identified within the Project site that may be regulated by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the federal Clean Water Act (CWA). The information presented in this report provides data required by the USACE Sacramento District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2016a). The aquatic resource boundaries depicted in this report represent a calculated estimation of the jurisdictional area within the Project site and are subject to modification following the USACE verification process.

The purpose of this report is to provide adequate information to USACE for the issuance of a Preliminary Jurisdictional Determination (PJD).

2.0 REGULATORY SETTING

2.1 Waters of the United States

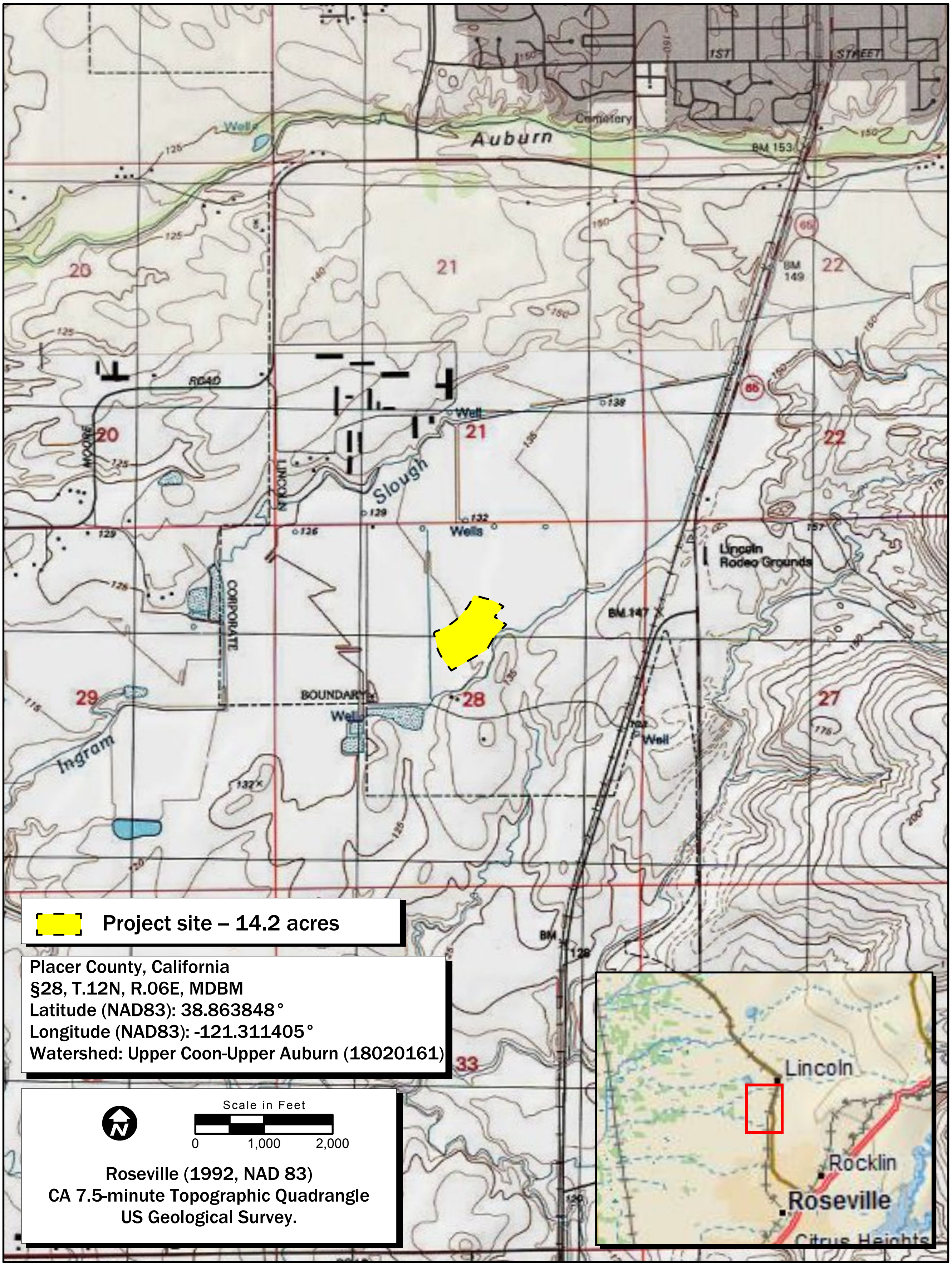
This report describes aquatic resources, including wetlands that may be regulated by USACE under Section 404 of the federal CWA.

2.1.1 Wetlands

Wetlands are "those areas that are inundated or saturated by surface 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" [51 Federal Register (FR) 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993]. Wetlands can be perennial or intermittent.

2.1.2 Other Waters

Other waters are nontidal, perennial, and intermittent watercourses and tributaries to such watercourses [51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, August 25, 1993]. The limit of USACE jurisdiction for nontidal watercourses (without adjacent wetlands) is defined in 33 Code of Federal Regulations (CFR) 328.4(c)(1) as the "ordinary high-water mark" (OHWM).



Location: N:\2017\2017-225 Lincoln Crossing South Elementary\MAPS\Location_Vicinity\LCSE_LnV_20180511.aprx ()-JSwager 5/11/2018

Map Date: 5/11/2018
iService Layer Credits: DeLorme World Basemap: Copyright:© 2018 Garmin
USA_Topo_Maps: Copyright:© 2013 National Geographic Society, i-cubed

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ENVIRONMENTAL CONSULTANTS

Figure 1. Location and Vicinity

2017-225 Lincoln Crossing South Elementary

The OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

2.2 Clean Water Act

The USACE regulates discharge of dredged or fill material into Waters of the U.S. under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to the following: placement of fill necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines [33 CFR § 328.2(f)]. In addition, Section 401 of the CWA (33 U.S. Code 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetlands, over 0.5 acre of impact, may require an individual permit. Projects that only minimally affect wetlands, less than 0.5 acre of impact, may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board.

2.3 Jurisdictional Assessment

Pursuant to the USEPA and USACE memorandum regarding CWA jurisdiction, issued following the United States Supreme Court's decision in the consolidated cases Rapanos v. United States and Carabell v. United States (herein referred to as Rapanos), the agencies will assert jurisdiction over the following waters: Traditional Navigable Waters (TNW), all wetlands adjacent to TNW, nonnavigable tributaries of TNW that are "relatively permanent" waters (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally), and wetlands that directly abut such tributaries (USEPA and USACE 2008).

Waters requiring a significant nexus determination by the USACE and USEPA to establish jurisdiction include nonnavigable tributaries that are not relatively permanent, wetlands adjacent to nonnavigable tributaries that are not relatively permanent, and wetlands adjacent to but do not directly abut a relatively permanent nonnavigable tributary (USEPA and USACE 2008). The jurisdictional determination is a fact-based evaluation to establish whether a water has a significant nexus with TNW. The significant nexus analysis will assess the flow characteristics and functions of the nonnavigable tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNW (USEPA and USACE 2008).

3.0 METHODS

This aquatic resources delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Region Supplement) (USACE 2008). The boundaries of aquatic resources were delineated through standard field methods (e.g., paired sample set analyses). Field data were recorded on Wetland Determination Data Forms - Arid West Region (Attachment B). A color aerial photograph collected by ECORP on April 12, 2018 (1″=150′ scale, ECORP 2018) was used to assist with mapping and ground-truthing. *Munsell Soil Color Charts* (Kollmorgen Instruments Company 1990) and the Web Soil Survey (NRCS 2018a) were used to aid in identifying hydric soils in the field. The Jepson Manual, 2nd Edition (Baldwin et al. 2012) was used for plant nomenclature and identification.

Field surveys were conducted on March 29, 2018 by ECORP biologists Clay DeLong and Jason Peters. Mr. DeLong and Mr. Peters walked the entire ±14.2-acre Project site to determine the location and extent of aquatic resources within the Project site. Paired locations were sampled to evaluate whether or not the vegetation, hydrology, and soils data supported an aquatic resource determination. At each paired location, one point was located such that it was within the estimated aquatic resource area, and the other point was situated outside the limits of the estimated aquatic resource area. Additional non-paired locations were sampled to document marginal areas that were determined not to be aquatic resources because they lacked hydrophytic vegetation, hydric soils, and/or wetland hydrology. Aquatic resources within the Project site were recorded in the field using a post-processing capable global positioning system unit with sub-meter accuracy (Trimble GeoXT).

3.1 Routine Determinations for Wetlands

To be determined a wetland, the following three criteria must be met:

- A majority of dominant vegetation species are wetland-associated species;
- Hydrologic conditions exist that result in periods of flooding, ponding, or saturation during the growing season; and
- Hydric soils are present.

3.1.1 Vegetation

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanent or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (Environmental Laboratory 1987). The definition of wetlands includes the phrase "a prevalence of vegetation typically adapted for life in saturated soil conditions." Prevalent vegetation is characterized by the dominant plant species comprising the plant community (Environmental Laboratory 1987). The dominance test is the basic hydrophytic vegetation indicator and was applied at each sampling point location. The "50/20 rule" was used to select the dominant plant species from each stratum of the community. The rule states that for each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of coverage and cumulatively totaled) that immediately exceed 50 percent of the total coverage for the stratum, plus any additional species that individually comprise 20 percent or more of the total cover in the stratum (HQUSACE 1992, USACE 2008).

Dominant plant species observed at each sampling point were then classified according to their indicator status (probability of occurrence in wetlands, Table 1), *North American Digital Flora: National Wetland Plant List* (Lichvar et al. 2016). If the majority (more than 50 percent) of the dominant vegetation on a site are classified as obligate (OBL), facultative wetland (FACW), or facultative (FAC), the site was considered to be dominated by hydrophytic vegetation.

Table 1. Classification of Wetland-Associated Plant Species[1]

Plant Species Classification	Abbreviation	Probability of Occurring in Wetland
Obligate	OBL	Almost always occur in wetlands
Facultative Wetland	FACW	Usually occur in wetlands, but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative Upland	FACU	Usually occur in non-wetlands, but may occur in wetlands
Upland	UPL	Almost never occur in wetlands
Plants That Are Not Listed (assumed upland species)	N/L	Does not occur in wetlands in any region.

[1]Source: Lichvar et al. 2016

In instances where indicators of hydric soil and wetland hydrology were present, but the plant community failed the dominance test, the vegetation was re-evaluated using the Prevalence Index. The Prevalence Index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is given a numeric code (OBL=1, FACW=2, FAC=3, FACU=4, and UPL=5) and weighting is by abundance (percent cover). If the plant community failed the Prevalence Index, the presence/absence of plant morphological adaptations to prolonged inundation or saturation in the root zone was evaluated.

3.1.2 Soils

A hydric soil is defined as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2003). Indicators that a hydric soil is present include, but are not limited to, histosols, histic epipedon, hydrogen sulfide, depleted below dark surface, sandy redox, loamy gleyed matrix, depleted matrix, redox dark surface, redox depressions, and vernal pools.

At each sampling point a soil pit was excavated to the depth needed to document an indicator, to confirm the absence of indicators, or until refusal at each sampling point. The soil was then examined for hydric soil indicators. Soil colors were determined while the soil was moist using the *Munsell Soil Color Charts*

(Kollmorgen Instruments Company 1990). Hydric soils are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. These processes and the features in the soil that develop can be identified by looking at the color and texture of the soils.

3.1.3 Hydrology

Wetlands, by definition, are seasonally or perennially inundated or saturated at or near (within 12 inches of) the soil surface. Primary indicators of wetland hydrology include, but are not limited to: visual observation of saturated soils, visual observation of inundation, surface soil cracks, inundation visible on aerial imagery, water-stained leaves, oxidized rhizospheres along living roots, aquatic invertebrates, water marks (secondary indicator in riverine environments), drift lines (secondary indicator in riverine environments), and sediment deposits (secondary indicator in riverine environments). The occurrence of one primary indicator is sufficient to conclude that wetland hydrology is present. If no primary indicators are observed, two or more secondary indicators are required to conclude wetland hydrology is present. Secondary indicators include, but are not limited to: drainage patterns, crayfish burrows, FAC-neutral test, and shallow aquitard. The occurrence of at least one primary indicator or two secondary indicators is required to confirm the presence of wetland hydrology.

4.0 RESULTS

4.1 Existing Site Conditions

The Project site is located within relatively flat terrain situated at an elevational range of approximately 125 to 130 feet above mean sea level in the Sacramento Valley Subregion of the Great Central Valley floristic region of California (Baldwin et al. 2012). The average winter low temperature in the vicinity of the Project site is 37.8˚F and the average summer high temperature is 92.6˚F. Average annual precipitation is approximately 22.75 inches, which falls as rain (National Oceanic and Atmospheric Administration [NOAA] 2018a).

The Project site is surrounded by residential development to the north, east, and west. The Project site is bordered to the south by a paved bike trail and Ingram Slough, a semi-natural perennial creek. Prior to 2003, the Project site was used as irrigated pasture. In the fall of 2003, the Project site was graded but left undeveloped and fallow. Since the grading in 2003, the western 2/3 of the Project site has been routinely plowed while the eastern 1/3 of the Project site has been routinely mowed. The eastern portion of the Project site is characterized by annual grassland vegetation, and is dominated by brome fescue (*Festuca bromoides*), soft brome (*Bromus hordeaceus*), subterranean clover (*Trifolium subterraneum*), and broad leaf filaree (*Erodium botrys*).

As a result of the recent disturbance and routine maintenance, the western portion of the Project site is characterized by a ruderal vegetation community. The western portion of the Project site was sparsely vegetated during the March 29, 2018 survey due to recent tillage. Dominant plant species in upland portions of this area included Italian ryegrass (*Festuca perennis*), toad rush (*Juncus bufonius*), and hyssop loosestrife (*Lythrum hyssopifolia*). These species are typically associated with seasonal wetland habitats, but were common throughout the disturbed western portion of the Project site, including both wetland and upland locations. This is likely the result of long-term and recent soil disturbance and compaction. Soil compaction increases bulk density and disrupts soil structure, leading to decreased water infiltration and drainage (Brady and Weil 2002). These conditions likely favor plant species adapted to prolonged anaerobic soil conditions. Sampling points 5N and 6N demonstrate the effect of recent disturbance on the upland plant communities within the Project site.

Sampling point 5N was collected within the recently disturbed western portion of the Project site. Sampling point 6N was collected approximately five feet to the northeast of sampling point 5N, within the relatively undisturbed eastern portion of the site. These two locations have substantially similar local relief, slope, and landscape position. Despite these similar conditions, the vegetation at sampling point 5N (disturbed location) is strongly hydrophytic (dominance test = 100%, prevalence index = 2.3), while the vegetation at sampling point 6N (undisturbed location) is characteristic of uplands (dominance test = 0%, prevalence index = 4.0). These results indicate that vegetation is an unreliable parameter for the identification of wetlands within the western portion of the Project site. Thus, probable wetlands were identified in the field using observations of topography, wetland hydrology, and hydric soils.

This aquatic resources delineation was conducted in the spring, during the blooming season for most grassland plant species. The survey was also conducted at an appropriate time of the year to observe wetland hydrology. During the 2017-2018 water year prior to the field survey (October 1, 2017 to March 29, 2018), 14.7 inches of precipitation were recorded in the vicinity of the Project site (NOAA 2018b). Precipitation recorded for the 2017-2018 water year through March 29, 2018 was approximately 77 percent of the historic October-through-March average (NOAA 2018b). The most recent significant precipitation event prior to the survey occurred from March 21 to March 22, with a total of 1.92 inches of rain occurring over two days.

4.1.1 California Aquatic Resource Inventory

According to the California Aquatic Resources Inventory (CARI, San Francisco Estuary Institute SFEI 2017), there is one feature mapped within the Project site (*Figure 2. California Aquatic Resources Inventory*). This feature is mapped as fluvial unnatural, and roughly corresponds to Ingram Slough, which does not occur within the Project site (NRCS 2018a).

4.1.2 Soils

According to the Web Soil Survey (NRCS 2018a), one soil unit, or type, has been mapped within the Project site (*Figure 3. Natural Resources Conservation Service Soil Types*):

- 162 – Kilaga loam

Kilaga loam is partially composed of unnamed components that are considered hydric when occurring in drainageways. Xerofluvents, frequently flooded (194), is partially composed of unnamed components that are considered hydric when occurring in drainageways (NRCS 2018b).

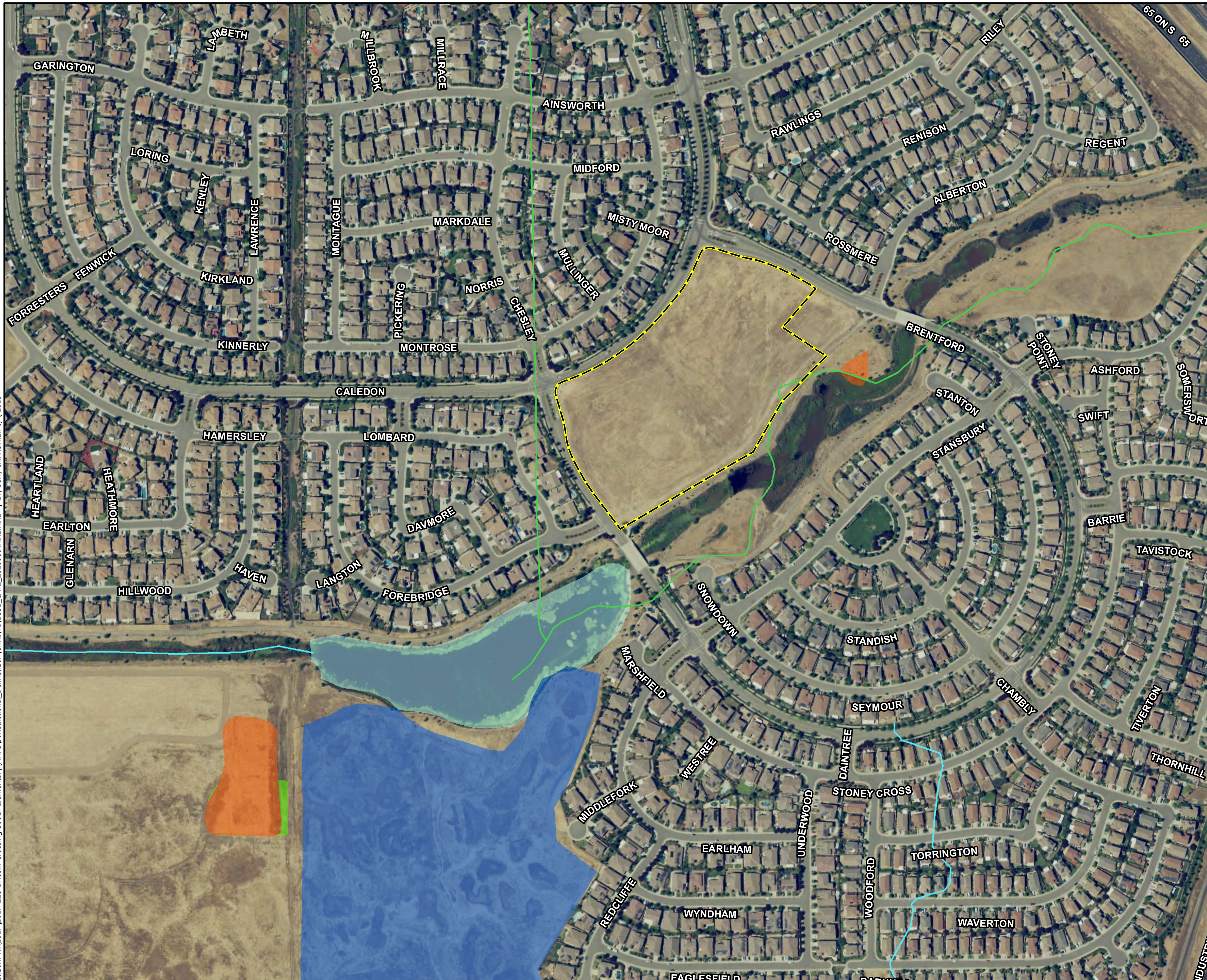

Figure 2. California Aquatic Resources Inventory

Map Features

- Project Boundary - 14.2 acres

CARI Stream Type

- Fluvial Natural
- Fluvial Unnatural

CARI Wetland Type

- Depressional
- Depressional Perennial Unnatural
- Lacustrine Unnatural
- Vernal Pool System

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

ECORP Consulting, Inc.
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Location: N:\2017\2017-225 Lincoln Crossing South Elementary\MAPS\Jurisdictional_Delineation\CARI\v1\LCSE_CARI_20180604mxd.mxd (KIT/CCH)-chinkelman 6/4/2018

2017-225 Lincoln Crossing South Elementary

Scale in Feet
0 400

Photo Source: NAIP 2016

Map Date: 6/4/2018

Location: N:\2017\2017-225 Lincoln Crossing South Elementary\MAPS\Soils_and_Geology\Soils\LCSE_Soils_20170921.mxd (KIT/CCH)-chinkelman 6/4/2018

Map Date: 6/4/2018
Photo Source: NAIP 2016

Figure 3. Natural Resources Conservation Service Soil Types

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-225 Lincoln Crossing South Elementary

4.2 Aquatic Resources

A total of 0.504 acres of aquatic resources have been mapped within the Project site (Table 2). The wetland determination data forms are included in Attachment B, and a list of plant species observed within the Project site is included as Attachment C. A discussion of the aquatic resources is presented below, and the aquatic resources delineation map is presented in . *Aquatic Resources Delineation*.

Representative site photographs are included as Attachment D. The USACE Operations and Maintenance Business Information Link Regulatory Module (ORM) aquatic resources table of potential Waters of the U.S. is included in Attachment E.

Table 2. Aquatic Resources

Type	Acreage[1]
Wetlands	
Seasonal wetland	0.439
Seasonal wetland swale	0.010
Vernal pool	0.054
Total	0.504

[1]Acreages represent a calculated estimation and are subject to modification following the USACE verification process.

4.2.1 Wetlands

Seasonal Wetland

Seasonal wetlands are ephemerally wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short and they are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. Eight seasonal wetlands were mapped within the Project site. All of these features occur within the disturbed western portion of the Project site. Sampling points 1W and 3W were collected within seasonal wetlands. Seasonal wetlands within the Project site were dominated by toad rush and Italian ryegrass. Hydrophytic vegetation was also present at uplands adjacent to on-site seasonal wetlands. However, while there was virtually no presence of upland-associated plant species within seasonal wetlands, upland-associated plant species were common, though not dominant within uplands.

The soil matrix from the surface to a depth of 12 inches within the seasonal wetland at sampling point 1W was apparently a mixture of two previously stratified layers colored 7.5YR 4/3 and 7.5YR 4/1. These matrices included 10 percent redox features colored 5YR 4/6. Soils at sampling point 1W were determined to be hydric based on the presence of hydric soil indicator Redox Depressions (F8). The soil matrix color from the surface to a depth of 5 inches within the seasonal wetland at sampling point 3W was 10YR 4/2 with 30 percent redox concentrations colored 5YR 3/4.

Figure 4.
Aquatic Resources Delineation

Map Features

Project Boundary - 14.2 acres

Reference Coordinate

Three Criteria Sample Points

Upland Point

Waters Point

Aquatic Resources (0.504 acres) [1] *

Wetland Type

Seasonal Wetland - 0.439 ac.

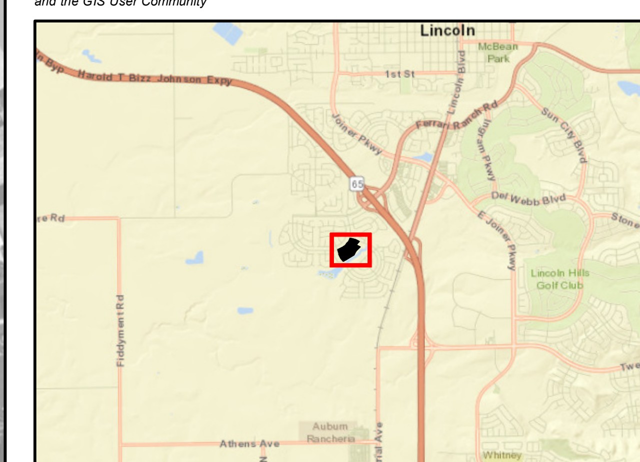
Seasonal Wetland Swale - 0.010 ac.

Vernal Pool - 0.054 ac.

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



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ENVIRONMENTAL CONSULTANTS

2017-225 Lincoln Crossing South Elementary

Scale in Feet
0 150

Photo Source: UAS 04/12/2018
Boundary Source: Placer County GIS Parcels
Delineator(s): Clay DeLong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

Map Date: 6/6/2018

From a depth of five to eight inches the matrix color was 7.5YR 3/4 with no redox features. Soils at sampling point 3W were determined to be hydric based on the presence of hydric soil indicator Depleted Matrix (F3). Wetland hydrology indicators observed within the on-site seasonal wetlands included Surface Water (A1), Saturation (A3), and Biotic Crust (B12). Wetland hydrology indicators were not observed at upland locations adjacent to seasonal wetlands.

Seasonal Wetland Swale

Seasonal wetland swales are generally linear wetland features that convey precipitation runoff and support a predominance of hydrophytic vegetation, but do not exhibit an OHWM. These are typically inundated for short periods during and immediately after rain events, but usually maintain soil saturation for longer periods during the wet season. One seasonal wetland swale occurs in the southwestern portion of the Project site. This feature was lined with burlap netting and straw wattles, and was unvegetated during the March 29, 2018 field survey. This feature was saturated during the field survey, and would likely have hydrophytic vegetation and hydric soils under normal circumstances, based on its landscape position and hydrology.

Vernal Pool

Vernal pools are topographic basins within the grassland community that are typically underlain with an impermeable or semi-permeable hardpan layer. They are generally inundated through the wet season and are dry by late spring through the following wet season. One vernal pool occurs within the central portion of the Project site. Sampling point 7W was collected within vernal pool VP-1. VP-1 was dominated by Carter's buttercup (*Ranunculus bonariensis*). Other common species present within VP-1 included creeping spikerush (*Eleocharis macrostachya*), and vernal pool hairgrass (*Deschampsia danthonioides*). Uplands adjacent to VP-1 were dominated by subterranean clover and broad leaf filaree.

The soil matrix color from the surface to a depth of eight inches within VP-1 at sampling point 7W was 7.5YR 4/2 with 10 percent redox concentrations colored 5YR 4/4. Soils at sampling point 7W were determined to be hydric based on the presence of hydric soil indicators Depleted Matrix (F3) and Redox Depressions (F8). Wetland hydrology indicators observed within VP-1 included Surface Water (A1), High Water Table (A2), Saturation (A3), and Aquatic Invertebrates (B13). Wetland hydrology indicators were not observed at upland locations adjacent to VP-1.

5.0 JURISDICTIONAL ASSESSMENT

Per Regulatory Guidance Letter 16-01, an applicant may request a PJD "in order to move ahead expeditiously to obtain a Corps permit authorization where the requestor determin*es that it is in his or her best interest to do so … even where initial indications are that the aquatic resources on a parcel may not be jurisdictional*" (USACE 2016b). A significant nexus evaluation is not necessary to obtain a PJD. The following information on connectivity of wetlands and other waters in the Project site to TNW is provided should an Approved Jurisdictional Determination be necessary.

The seasonal wetlands and vernal pool within the Project site flow directly or indirectly (via sheet flow) into seasonal wetland swale SWS-1. SWS-1 flows into a ditch offsite, which flows directly into Ingram Slough. Ingram Slough is a relatively permanent tributary to the Sacramento River via Orchard Creek, Auburn Ravine, and the Natomas Cross Canal. The USACE Sacramento District has identified the Sacramento River as a TNW. Therefore, the aquatic resources within the Project site likely have a significant nexus (affecting the chemical, physical, or biological integrity) with downstream TNW, and are likely subject to regulation under Section 404 of the CWA.

6.0 CONCLUSION

A total of 0.504 acres of aquatic resources have been mapped within the Project site. This acreage represents a calculated estimation of the extent of aquatic resources within the Project site, and is subject to modification following USACE review and/or the verification process. The placement of dredged or fill material into jurisdictional features would require a permit pursuant to Section 404 of the CWA and certification or waiver in compliance with Section 401 of the CWA.

7.0 REFERENCES

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USGS. 1992. 7.5-Minute Quadrangle Map, Roseville, California. USGS.

LIST OF ATTACHMENTS

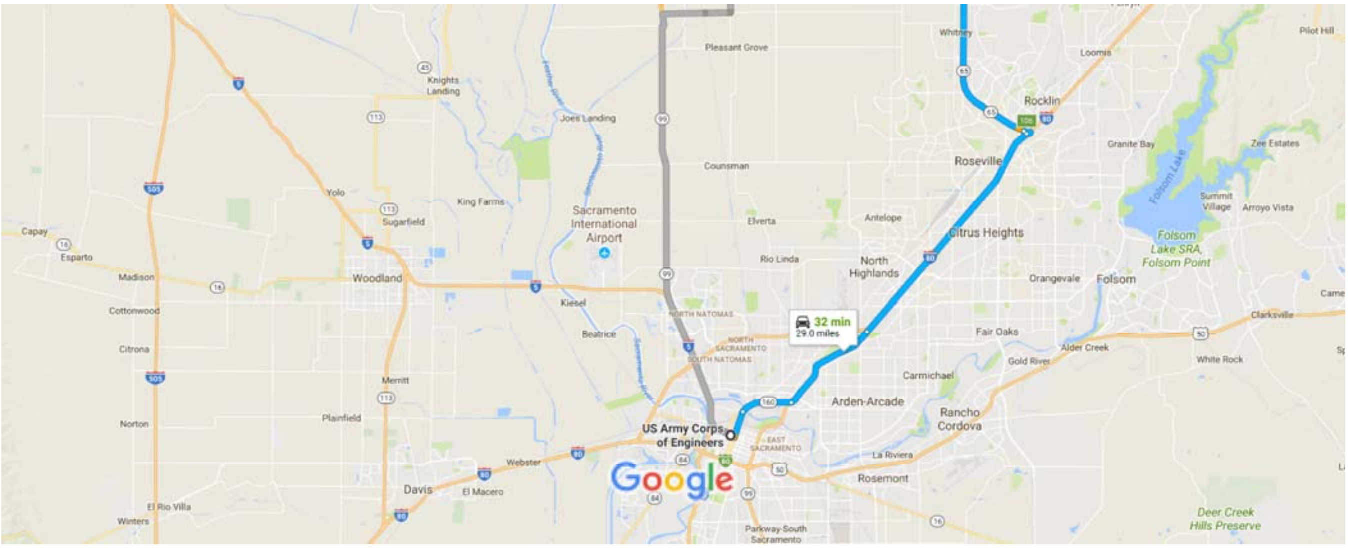
ATTACHMENT A

Driving Directions to Project Site

Google Maps

US Army Corps of Engineers to Brentford Cir & Caledon Cir

Drive 29.0 miles, 32 min



Map data ©2017 Google United States 2 mi

US Army Corps of Engineers

1325 J St, Sacramento, CA 95814

Take 16th St to CA-160 N/N Sacramento Fwy

4 min (1.4 mi)

1. Head east on J St toward 14th St

0.1 mi

2. Continue straight to stay on J St

404 ft

3. Use the left 2 lanes to turn left onto 16th St

1.2 mi

Take I-80BL E, I-80 E and CA-65 N to Ferrari Ranch Rd in Lincoln. Take exit 315 from CA-65 N

25 min (27.1 mi)

4. Continue onto CA-160 N/N Sacramento Fwy

2.2 mi

5. Use any lane to merge onto I-80BL E

4.7 mi

6. Use the left 3 lanes to merge onto I-80 E toward Reno

11.2 mi

7. Use the right 2 lanes to take exit 106 for CA-65 toward Lincoln/Marysville

0.6 mi

8. Continue onto CA-65 N

8.0 mi

9. Use the middle lane to take exit 315 for Ferrari Ranch Rd

0.3 mi

Continue on Ferrari Ranch Rd. Drive to Caledon Cir

2 min (0.6 mi)

10. Use the left 2 lanes to turn left onto Ferrari Ranch Rd

0.4 mi

11. Use the left 3 lanes to turn left onto Caledon Cir

0.2 mi

Brentford Cir & Caledon Cir

Lincoln, CA 95648

ATTACHMENT B

Wetland Determination Data Forms - Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 1W

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C Lat: 38.863274409 Long: -121.312038132 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

Seasonal wetland in recently tilled/graded field. Area is a slight depression with standing water.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5'x5')			
1. Juncus bufonius	10	Yes	FACW
2. Lythrum hyssopifilia	2	No	OBL
3. Polygonum aviculare	1	No	FAC
4.			
5.			
6.			
7.			
8.			
= Total Cover	13		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 87 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

SOIL

Sampling Point: 1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/3	60	5YR 4/6	10	C	M	Clay loam	
0-12	7.5YR 4/1	30					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
✓ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil is highly disturbed. Two matrix colors are present and are mixed throughout the soil column.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

✓ Surface Water (A1)
___ High Water Table (A2)
✓ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0
Water Table Present? Yes ___ No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0-12

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 2N

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR): C Lat: 38.863255445 Long: -121.312110463 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	✓	
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

Upland adjacent to seasonal wetland in recently tilled/graded field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5'x5')			
1. Festuca perennis	10	Yes	FAC
2. Lythrum hyssopifilia	1	No	OBL
3. Vicia villosa	1	No	NL
4. Trifolium hirtum	1	No	NL
5. Acmispon americanus	1	No	NL
6. Juncus bufonius	1	No	FACW
7.			
8.			
= Total Cover	15		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 85 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 2N

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 4/3	100						Gravelly clay
3-12	7.5YR 3/4	100						Gravelly clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

Soil is highly disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______
Water Table Present? Yes ___ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 3W

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): C Lat: 38.862950063 Long: -121.312605763 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	

Remarks:

Seasonal wetland in recently tilled/graded field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5'x5')			
1. Festuca perennis	20	Yes	FAC
2. Lythrum hyssopifilia	1	No	OBL
3. Juncus bufonius	5	No	FACW
4.			
5.			
6.			
7.			
8.			
= Total Cover	26		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 74 % Cover of Biotic Crust 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

SOIL

Sampling Point: 3W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 4/2	70	5YR 3/4	30	C	M	Clay	
5-8	7.5YR 3/4	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil is highly disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✓ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 4N

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): C Lat: 38.862997879 Long: -121.312606447 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	✓	
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✓

Remarks:

Upland adjacent to seasonal wetland in recently tilled/graded field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5'x5')			
1. Festuca perennis	25	Yes	FAC
2. Lythrum hyssopifilia	1	No	OBL
3. Juncus bufonius	5	No	FACW
4. Eriodium botrys	1	No	FACU
5. Raphanus sativus	1	No	NL
6.			
7.			
8.			
= Total Cover	33		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 67 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

SOIL

Sampling Point: 4N

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 3/4	100						Gravelly clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

Soil is highly disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______

Water Table Present? Yes ___ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 5N

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C Lat: 38.863852373 Long: -121.310594570 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

Upland sampling point within recently tilled/graded portion of the site, immediately adjacent to undisturbed portion. Paired with sampling point 6N to demonstrate effect of tillage/grading on vegetation community. Other than recent disturbance, the two locations are substantially similar.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5'x5')			
1. Festuca perennis	5	Yes	FAC
2. Lythrum hyssopifilia	3	Yes	OBL
3. Juncus bufonius	5	Yes	FACW
4. Eriodium botrys	1	No	FACU
5. Polygonum aviculare	1	No	FAC
6.			
7.			
8.			
= Total Cover	15		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 85 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	5	x 2 =	10
FAC species	6	x 3 =	18
FACU species	1	x 4 =	4
UPL species		x 5 =	
Column Totals:	15 (A)		35 (B)

Prevalence Index = B/A = 2.3

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 5N

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/3	80	5YR 4/6	10	C	M		Sandy clay
			10YR 5/1	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

Soil is highly disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 6N

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): C Lat: 38.863874539 Long: -121.310568749 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

Upland sampling point within undisturbed portion of the site, immediately adjacent to tilled/graded portion. Paired with sampling point 5N to demonstrate effect of tillage/grading on vegetation community. Other than recent disturbance, the two locations are substantially similar.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5'x5')			
1. Festuca bromoides	60	Yes	FACU
2. Bromus hordeaceus	10	No	FACU
3. Hordeum marinum	5	No	FAC
4. Erodium botrys	10	No	FACU
5. Lupinus bicolor	3	No	NL
6. Trifolium hirtum	3	No	NL
7.			
8.			
= Total Cover	91		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 9 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	80	x 4 =	320
UPL species	6	x 5 =	30
Column Totals:	91 (A)		365 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 6N

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 3/2	100						Sandy clay
1-4	7.5YR 5/1	99	7.5YR 4/6	1	C	M		Sandy clay
4-10	7.5YR 4/3	98	7.5YR 4/6	1	C	M		Sandy clay
			7.5YR 5/1	1	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______

Water Table Present? Yes ___ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 7W

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C Lat: 38.864047742 Long: -121.310777635 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

Vernal pool in undisturbed portion of site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Ranunculus bonariensis	50	Yes	OBL
2. Eleocharis macrostachya	15	No	OBL
3. Deschampsia danthonioides	15	No	FACW
4. Plagiobothrys stipitatus	1	No	FACW
5.			
6.			
7.			
8.			
	81 = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 19 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

SOIL

Sampling Point: 7W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/2	90	5YR 4/4	10	C	M		Sandy clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ✓ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ______ Depth (inches): 0-2

Water Table Present? Yes ✓ No ______ Depth (inches): 0-8

Saturation Present? (includes capillary fringe) Yes ✓ No ______ Depth (inches): 0-8

Wetland Hydrology Present? **Yes** ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lincoln Crossing South Elementary City/County: Lincoln/Placer County Sampling Date: 3/29/2018

Applicant/Owner: Western Placer Unified School District State: CA Sampling Point: 8N

Investigator(s): Clay DeLong, Jason Peters Section, Township, Range: S28, T12N, R6E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): C Lat: 38.864025576 Long: -121.310749439 Datum: NAD83

Soil Map Unit Name: Kilaga loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

Upland adjacent to vernal pool in undisturbed portion of site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5'x5')			
1. Trifolium subterraneum	65	Yes	NL
2. Castilleja campestris ssp. campestris	10	No	FACW
3. Erodium botrys	20	Yes	FACU
4. Festuca bromoides	5	No	FACU
5. Lupinus bicolor	1	No	NL
6.			
7.			
8.			
= Total Cover	101		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 8N

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/3	75	5YR 4/4	10	C	M		Sandy clay
			7.5YR 4/1	15	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ____________

Water Table Present? Yes ______ No ✓ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

ATTACHMENT C

Plant Species Observed On-Site

Lincoln Crossing South Elementary:

Plant Species Observed On-Site (March 29, 2018)

An asterisk (*) indicates a non-native species.

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS
BORAGINACEAE	**BORAGE FAMILY**	
Amsinckia menziesii	Rancher's fireweed	NL
Plagiobothrys stipitatus	Slender popcorn-flower	FACW
BRASSICACEAE	**MUSTARD FAMILY**	
*Raphanus sativus**	Purple wild radish	NL
CYPERACEAE	**SEDGE FAMILY**	
Eleocharis macrostachya	Creeping spikerush	OBL
FABACEAE	**LEGUME FAMILY**	
Acmispon americanus	Spanish clover	NL
Lupinus bicolor	Bicolored lupine	NL
Lupinus nanus	Sky lupine	NL
*Medicago polymorpha**	Bur clover	FACU
*Trifolium hirtum**	Rose clover	NL
*Trifolium subterraneum**	Subterranean clover	NL
*Vicia villosa**	Winter vetch	NL
GERANIACEAE	**GERANIUM FAMILY**	
*Erodium botrys**	Broad leaf filaree	FACU
JUNCACEAE	**RUSH FAMILY**	
Juncus bufonius	Toad rush	FACW
LYTHRACEAE	**LOOSESTRIFE FAMILY**	
*Lythrum hyssopifolia**	Hyssop loosestrife	OBL
OROBANCHACEAE	**BROOMRAPE FAMILY**	
Castilleja campestris ssp. *campestris*	Field owl's-clover	FACW
Triphysaria eriantha	Butter and eggs	NL
PLANTAGINACEAE	**PLANTAIN FAMILY**	
Callitriche marginata	Winged water-starwort	OBL
Plantago erecta	Plantain	NL
*Plantago lanceolata**	English plantain	FAC
Veronica peregrina ssp. *xalapensis*	Purslane speedwell	OBL
POACEAE	**GRASS FAMILY**	
*Bromus diandrus**	Ripgut brome	NL

Lincoln Crossing South Elementary:

Plant Species Observed On-Site (March 29, 2018)

An asterisk (*) indicates a non-native species.

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS
POACEAE	**GRASS FAMILY**	
*Bromus hordeaceus**	Soft brome	FACU
Deschampsia danthonioides	Vernal pool hairgrass	FACW
*Festuca bromoides**	Brome fescue	FACU
*Festuca perennis**	Italian Ryegrass	FAC
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley	FAC
Hordeum murinum ssp. *glaucum**	Barley	FACU
POLYGONACEAE	**BUCKWHEAT FAMILY**	
Polygonum aviculare ssp. *depressum**	Prostrate knotweed	FAC
*Rumex pulcher**	Fiddle dock	FAC
RANUNCULACEAE	**BUTTERCUP FAMILY**	
Ranunculus bonariensis var. *trisepalus*	Carter's buttercup	OBL

ATTACHMENT D

Representative Site Photographs

Photo 1. Seasonal wetland SW-7, view east from intersection of Caledon Circle and Forebridge Lane, March 29, 2018.

Photo 2. Seasonal wetland SW-7, view southeast toward SWS-1, March 29, 2018.

Photo 3. Seasonal wetland SW-5, view east, March 29, 2018.

Photo 4. Seasonal wetland SW-5, view north, March 29, 2018.

Photo 5. Seasonal wetland swale SWS-1, view north from southern Project boundary, March 29, 2018.

Photo 6. Boundary between disturbed and undisturbed portions of Project showing location of sampling points 5N and 6N, view north, March 29, 2018.

Photo 7. Vernal Pool VP-1, view west, March 29, 2018.

Photo 8. Upland area in eastern portion of Project site, view northwest, March 29, 2018.

ATTACHMENT E

USACE ORM Aquatic Resources Table

Waters_Name	State	Cowardin Code	HGM Code	Meas Type	Amount	Units	Waters Type	Latitude	Longitude	Local Waterway
SW-5	CALIFORNIA	PEM		Area	0.01980812	ACRE	DELINEATE	38.86330513	-121.3120782	
SW-7	CALIFORNIA	PEM		Area	0.32665509	ACRE	DELINEATE	38.86273741	-121.3122246	
SWS-1	CALIFORNIA	PEM		Area	0.01030581	ACRE	DELINEATE	38.86249665	-121.3122112	
SW-8	CALIFORNIA	PEM		Area	0.01939667	ACRE	DELINEATE	38.86303895	-121.3110474	
VP-1	CALIFORNIA	PEM		Area	0.05418213	ACRE	DELINEATE	38.86404854	-121.310817	
SW-2	CALIFORNIA	PEM		Area	0.00886715	ACRE	DELINEATE	38.86376794	-121.3125857	
SW-1	CALIFORNIA	PEM		Area	0.01693576	ACRE	DELINEATE	38.86389996	-121.3126946	
SW-3	CALIFORNIA	PEM		Area	0.01344105	ACRE	DELINEATE	38.86364839	-121.3124451	
SW-4	CALIFORNIA	PEM		Area	0.02487034	ACRE	DELINEATE	38.86358111	-121.3122065	
SW-6	CALIFORNIA	PEM		Area	0.00942237	ACRE	DELINEATE	38.8630776	-121.3119695	

ATTACHMENT F

Wetland Delineation Shape File (to be included with USACE submittal only)

Biological Resources Assessment

Lincoln Crossing South Elementary

Placer County, California

Prepared For:

Western Placer Unified School District

July 27, 2018

30 YEARS
ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

ECORP Consulting, Inc. has assisted public and private land owners with environmental regulation compliance since 1987. We offer full service capability, from initial baseline environmental studies through environmental planning review, permitting negotiation, liaison to obtain legal agreements, mitigation design, and construction monitoring and reporting.

Citation: ECORP Consulting, Inc. 2018. Biological Resources Assessment for the Lincoln Crossing South Elementary Project, Placer County, California. Prepared for Western Placer Unified School District. July.

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LIST OF ACRONYMS AND ABBREVIATIONS

BA	Biological assessment
BCC	Birds of conservation concern
BO	Biological opinion
BRA	Biological resource assessment
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Lincoln’s
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act’s
dbh	Diameter-at-breast-height
ESA	Endangered Species Act
MBTA	Migratory Bird Treaty Act
MSL	Mean sea level
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
PCCP	Placer County Conservation Plan
Project	Twelve Bridges High School
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SSC	Species of special concern
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
WBWG	Western Bat Working Group

1.0 INTRODUCTION

At the request of the Western Placer Unified School District (District), ECORP Consulting, Inc. has conducted a biological resource assessment (BRA) for the proposed Lincoln Crossing South Elementary (Project) located in Placer County, California. The purpose of the assessment was to collect information on the biological resources present within the Project, and to determine any potential biological constraints to Project activities.

1.1 Project Location

The ±14.2-acre Project is located in Lincoln, California. The Project is bordered by Brentford Circle to the west, Caledon Circle to the north, Brentford Circle to the east, and the south fork of Ingram Slough to the south. The site corresponds to a portion of Section 28, Township 12 North, and Range 06 East (Mount Diablo Base and Meridian) of the "Roseville, California" 7.5-minute quadrangle (U.S. Geological Service [USGS] 1992) (*Figure 1. Location and Vicinity*). The approximate center of the site is located at latitude 38.863848˚ and longitude -121.311405˚ within the Upper Coon-Upper Auburn Watershed (Hydrologic Unit Code #18020161, Natural Resources Conservation Service [NRCS], USGS, and U.S. Environmental Protection Agency [USEPA] 2018).

1.2 Project Description

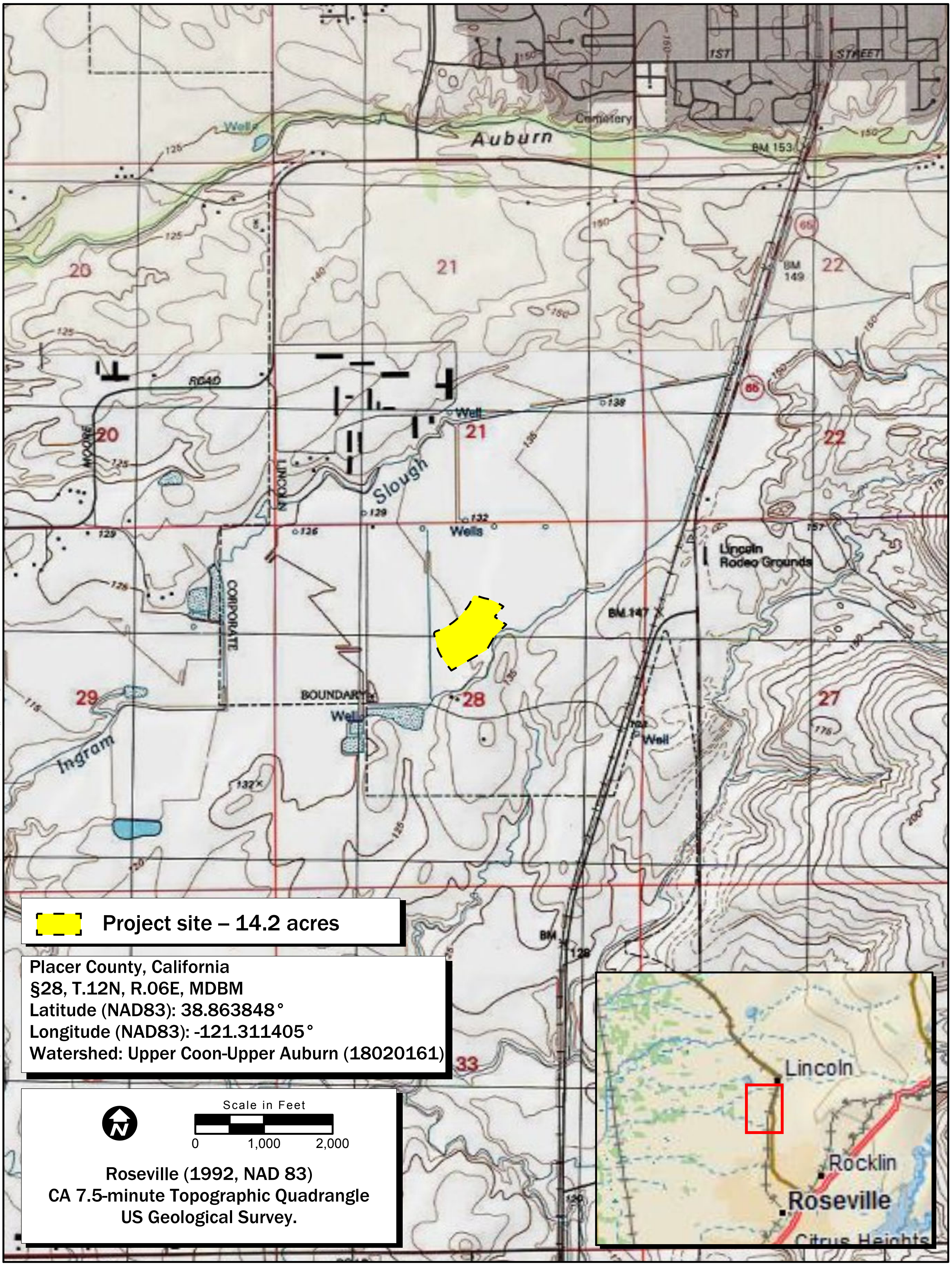
The District is proposing to build a new elementary school within the Project site.

1.3 Biological Setting

The Project site is located within the city of Lincoln, California at an elevation of approximately 130 feet above mean sea level. Prior to 2003, the Project site was an irrigated pasture. In fall 2003, the Project site was mass-graded, but left undeveloped and fallow. Since the grading in 2003, the western 2/3 of the Project site has been routinely plowed while the eastern 1/3 of the Project site has been routinely mowed. As a result of the disturbance and routine maintenance, the Project site now contains a ruderal vegetation community. The southern fork of the Ingram Slough is located along the southern border the Project site. Scattered ephemeral wetland features (e.g., seasonal wetlands and a vernal pool) exist throughout the ruderal community. Waters that flow from the Project site are tributary to Ingram Slough, a tributary to Orchard Creek. The immediate surrounding area is primarily made up of residential development, with the exception of the slough that runs along the southern boundary of the Project site.

1.4 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for the occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Project site. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols; the conclusions and recommendations presented in this report are based upon a literature review, database queries, and limited site reconnaissance.



Project site – 14.2 acres

Placer County, California
§28, T.12N, R.06E, MDBM
Latitude (NAD83): 38.863848°
Longitude (NAD83): -121.311405°
Watershed: Upper Coon-Upper Auburn (18020161)

Scale in Feet
0 1,000 2,000

Roseville (1992, NAD 83)
CA 7.5-minute Topographic Quadrangle
US Geological Survey.

Location: N:\2017\2017-225 Lincoln Crossing South Elementary\MAPS\Location_Vicinity\LCSE_LnV_20180511.aprx ()-JSwager 5/11/2018

Map Date: 5/11/2018
iService Layer Credits: DeLorme World Basemap: Copyright:© 2018 Garmin
USA_Topo_Maps: Copyright:© 2013 National Geographic Society, i-cubed

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Location and Vicinity

2017-225 Lincoln Crossing South Elementary

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- are identified as a species of special concern by the California Department of Fish and Wildlife (CDFW);
- are birds identified as birds of conservation concern by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" [California Rare Plant Rank (CRPR) 1, 2, 3, and 4];
- Are plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, § 1900 et seq.); or
- Are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

ESA protects plants and animals that are listed as endangered or threatened by USFWS and the National Marine Fisheries Service (NMFS). Section 9 of ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of ESA, federal agencies are required to consult with USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan (HCP) is developed.

Section 7

Section 7 of ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. If direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

Section 10

When no discretionary action is being taken by a federal agency but a project may result in the take of listed species, an incidental take permit under Section 10 of the federal ESA is necessary. The purpose of the incidental take permit is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an incidental take permit under section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

Critical Habitat and Essential Habitat

Critical Habitat is defined in Section 3 of ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and

2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior
- Food, water, air, light, minerals, or other nutritional or physiological requirements
- Cover or shelter

- Sites for breeding, reproduction, or rearing (or development) of offspring
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species

Excluded essential habitat is defined as areas that were found to be essential habitat for the survival of a species and assumed to contain at least one of the primary constituent elements for the species but were excluded from the Critical Habitat designation. The USFWS has stated that any action within the excluded essential habitat that triggers a federal nexus will be required to undergo the Section 7(a)(1) process, and the species covered under the specific Critical Habitat designation would be afforded protection under Section 7(a)(2) of ESA.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR Part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. The USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

2.1.4 Federal Clean Water Act

The federal Clean Water Act's (CWA's) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the United States (U.S.) without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water 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" (33 CFR 328.3 7b). The USEPA also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State or Local Regulations

2.2.1 California Fish and Game Code

California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) generally parallels the main provisions of ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code §§ 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code §§ 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

Birds of Prey

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting native birds.

California Streambed Alteration Notification/Agreement

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Agreement (SAA) application be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions and, if necessary, submits proposed for measures to protect affected fish and wildlife resources to the applicant. The final proposal that is mutually agreed-upon by CDFW and the applicant is the SAA. Often, projects that require an SAA also require a permit from USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA overlap.

2.2.2 Species of Special Concern

Species of special concern (SSC) are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal or California ESAs, or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the State or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role
- The species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status

SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened or endangered species are considered "significant" under CEQA.

2.2.3 California Plant Ranks

The CNPS maintains the Inventory of Rare and Endangered Plants of California (CNPS 2018), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, nongovernmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of one to three, with one being the most threatened and three being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20-80 percent occurrences threatened/ moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank, and differences in Threat Ranks do not constitute additional or different protection (CNPS 2018). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

2.2.4 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination

System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 [e]). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.2.5 California Environmental Quality Act

In accordance with the CEQA Guidelines' § 15380 a species not protected on a federal or State list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal and California ESAs and §§ 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW.

CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant, and are particularly relevant to SSCs. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant and require lead agencies to prepare an Environmental Impact Report to thoroughly analyze and evaluate the impacts. Assessment of "impact significance" to populations of non-listed species (i.e., SSCs) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, § 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;

- have a substantial adverse effect on federally protected Waters of the U.S. including wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and 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 policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional or state HCP.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.6 Local Tree Ordinances

City of Lincoln – Oak Tree Preservation (Code of Ordinances Chapter 18.69)

The City of Lincoln's (City's) policy is to preserve all oak trees possible through its development review process. The City also acknowledges individual rights to develop private property and may therefore regulate the preserve of oak trees located within the City limits. The planning commission, the City Council and/or the design review committee, shall utilize the guidelines in Chapter 18.69 in reviewing applications for projects including but not limited to re-zonings, subdivision maps, parcel maps, development permits, conditional use permits, design review board approvals, and variances and shall impose conditions of approval on such projects consistent with said guidelines.

The City is currently in the process of creating a more detailed ordinance for the regulation of tree preservation. Due to the fact that the current Lincoln Oak Tree Preservation Ordinance is silent on certain tree-related definitions, including diameter-at-breast-height (dbh) requirements and accounting for multi-stemmed trees, it is recommended that tree preservation regulations set forth by Placer County be followed. A discussion of the Placer County Tree Preservation Article (Article 12.16) is presented below.

Placer County Tree Preservation (Article 12.16)

The Placer County Code, specifically the Tree Preservation Article (Article 12.16), requires tree permits for all development activities (except those that qualify under an exemption) within the protected zone of any protected tree on public or private land; it does not allow for any person, firm, corporation, or county agency to harm, destroy, kill or remove any protected tree unless authorized by a tree permit or as permitted pursuant to approval of a discretionary project.

The Tree Preservation Article is applicable to all native trees, landmark trees, riparian zone trees, and certain commercial firewood operations, except as exempted, with a single main stem or trunk at least six inches dbh, or a multiple trunk with an aggregate of at least 10 inches dbh. Foothill pines are exempt from this article. In addition, certain plants commonly found as "brush", such as manzanita, are not considered to be trees in this article regardless of size.

2.3 Habitat Management Plan and Habitat Conservation Plan

2.3.1 Placer County Conservation Plan

The Placer County Conservation Plan (PCCP) is currently in development and will provide guidelines for mitigation requirements and federal and State permitting to ensure compliance with federal and State environmental laws and regulations. Should the PCCP be approved prior to the approval of the Project, the guidelines and mitigation requirements provided in the PCCP will be adopted.

3.0 METHODS

3.1 Literature Review

Prior to conducting the field portion of the assessment, the following species lists were queried to determine the special-status species that had been documented within or in the vicinity of the site (Attachment A):

- CDFW CNDDB for the "Roseville, California" and surrounding eight 7.5-minute USGS quadrangles (CDFW 2018a)
- USFWS Resource Report List Federal Endangered and Threatened Species that may be affected by the Project (USFWS 2018)
- CNPS electronic *Inventory of Rare and Endangered Plants of California* for the "Roseville, California" 7.5-minute USGS quadrangle, and the eight surrounding USGS topographic quadrangles (CNPS 2018)

Additional background information was reviewed regarding the documented or potential occurrence of special-status species within or near the site from the following sources:

- The Status of Rare, Threatened, and Endangered Plants and Animals of California 2000-2004 (California Department of Fish and Game [CDFG] 2005)
- California Bird Species of Special Concern (Shuford and Gardali 2008)
- Amphibian and Reptile Species of Special Concern in California (Thompson, Wright, and Shaffer 2016)
- Mammalian Species of Special Concern in California (Williams 1986)

- California's Wildlife, Volumes I-III (Zeiner, et al. 1988, 1990a, 1990b)
- A Guide to Wildlife Habitats of California (Mayer and Laudenslayer Jr., eds. 1988)

3.2 Site Reconnaissance

ECORP Biologists Clay DeLong and Jason Peters conducted the site assessment on March 29, 2018. The Project site was systematically surveyed on foot using a Trimble Global Positioning System unit with sub-meter accuracy, topographic maps, and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the site with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring onsite were characterized and the following biological resource information was collected:

- Potential Waters of the U.S.,
- Plant and animal species directly observed,
- Estimates of impacts to the existing oak woodland (if present),
- Animal evidence (e.g., scat, tracks),
- Active bird nests,
- Burrows and any other special habitat features, and
- Representative site photographs (Attachment B).
- Additional surveys for special-status plant species were conducted by ECORP biologist Krissy Walker-Berry on April 25 and June 13, 2018. These determinate-level field surveys were conducted in accordance with guidelines promulgated by USFWS (USFWS 2000), CDFW (CDFW 2018b), and CNPS (CNPS 2001). Ms. Walker-Berry walked meandering transects throughout the survey area to ensure complete coverage of all suitable habitat for all target species.

In addition, soil types were identified using the NRCS Web Soil Survey (NRCS 2018a), and wetland designations were provided from the California Aquatic Resources Inventory (San Francisco Estuary Institute [SFEI] 2016).

3.3 Special-Status Species Considered for the Project

Based on species occurrence information from the CNDDB, the literature review, and observations in the field, a list of special-status plant and animal species that have the potential to occur within the Project site was generated (Table 1). Only special-status species as defined in Section 1.5 were included in this analysis. Each of these species' potential to occur onsite was assessed based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the project boundary based on documented occurrences within the CNDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the project boundary.

- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur in the vicinity based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur in the vicinity based on CNDDB records and other documentation.

4.0 RESULTS

4.1 Site Characteristics and Land Use

The Project site occurs in residential development area of Lincoln, California. The southern border of the site is located along the bank of the southern fork of Ingram Slough. The Project site consists annual grassland and ruderal vegetation and a number of ephemeral wetlands. A full list of plants observed on site is included in Attachment C.

4.2 Plant Communities

The eastern portion of the Project site is characterized by annual grassland vegetation, and is dominated by brome fescue (*Festuca bromoides*), soft brome (*Bromus hordeaceus*), subterranean clover (*Trifolium subterraneum*), and broad leaf filaree (*Erodium botrys*).

As a result of the recent disturbance and routine maintenance, the western portion of the Project site is characterized by a ruderal vegetation community. The western portion of the Project site was sparsely vegetated during the March 29, 2018 survey due to recent tillage. Dominant plant species in upland portions of this area included Italian ryegrass (*Festuca perennis*), toad rush (*Juncus bufonius*), and hyssop loosestrife (*Lythrum hyssopifolia*). These species are typically associated with seasonal wetland habitats, but were common throughout the disturbed western portion of the Project site, including both wetland and upland locations. This is likely the result of long-term and recent soil disturbance and compaction. There are no trees or shrubs present on the Project site.

4.3 Wildlife

Wildlife species observed within the Project site during the March 9, 2018 reconnaissance survey are listed in Table 1.

Table 1. Wildlife Observed Onsite

Common Name	Scientific Name
Birds	
Canada Goose	*Branta canadensis*
Mallard	*Anas platyrhynchos*
Rock Dove	*Columba livia*
Killdeer	*Charadrius vociferus*
Cliff Swallow	*Petrochelidon pyrrhonota*
Savannah Sparrow	*Passerculus sandwichensis*
Brewer's Blackbird	*Euphagus cyanocephalus*

4.4 Soils and Topography

According to the Soil Survey of Placer County, California (NRCS 2018a), one soil unit, or type, has been mapped within the Project site (*Figure 2. Natural Resource Conservation Service Soil Types*): 162 – Kilaga loam

Kilaga loam is partially composed of unnamed components that are considered hydric when occurring in drainageways. Xerofluvents, frequently flooded (194), is partially composed of unnamed components that are considered hydric when occurring in drainageways (NRCS 2018b).

4.5 Potential Waters of the U.S.

A total of 0.504 acre of potential Waters of the U.S. have been mapped within the Project site (ECORP 2018). This included 0.439 acre of seasonal wetland, 0.054 acre of vernal pool, and 0.010 acre of seasonal wetland swale. A discussion of the wetlands is presented below, and an aquatic resources delineation map is presented in Figure 3. Potential Waters of the U.S. These acreages represent a calculated estimation and are subject to modification following the USACE verification process.

4.5.1 Seasonal Wetland

Seasonal wetlands are ephemerally wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short and they are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. Eight seasonal wetlands were mapped within the Project site. All of these features occur within the disturbed western portion of the Project site. Seasonal wetlands within the Project site were dominated by toad rush and Italian ryegrass. Hydrophytic vegetation was also present at uplands adjacent to onsite seasonal wetlands. However, while there was virtually no presence of upland-associated plant species within seasonal wetlands, upland-associated plant species were common, though not dominant within uplands.

4.5.2 Vernal Pool

Vernal pools are topographic basins within the grassland community that are typically underlain with an impermeable or semi-permeable hardpan layer. They are generally inundated through the wet season and are dry by late spring through the following wet season. One vernal pool occurs within the central portion of the Project site. This feature was dominated by Carter's buttercup (*Ranunculus bonariensis*). Other common species present within VP-1 included creeping spikerush (*Eleocharis macrostachya*), and vernal pool hairgrass (*Deschampsia danthonioides*).

4.5.3 Seasonal Wetland Swale

Seasonal wetland swales are generally linear wetland features that convey precipitation runoff and support a predominance of hydrophytic vegetation, but do not exhibit an ordinary high-water mark. These are typically inundated for short periods during and immediately after rain events, but usually maintain soil saturation for longer periods during the wet season. One seasonal wetland swale occurs in the southwestern portion of the Project site. This feature was lined with burlap netting and straw wattles, and was unvegetated during the March 29, 2018 field survey.

Location: N:\2017\2017-225 Lincoln Crossing South Elementary\MAPS\Soils_and_Geology\Soils\LCSE_Soils_20170921.mxd (KIT/CCH)-chinkelman 6/4/2018

Map Date: 6/4/2018
Photo Source: NAIP 2016

Figure 2. Natural Resources Conservation Service Soil Types

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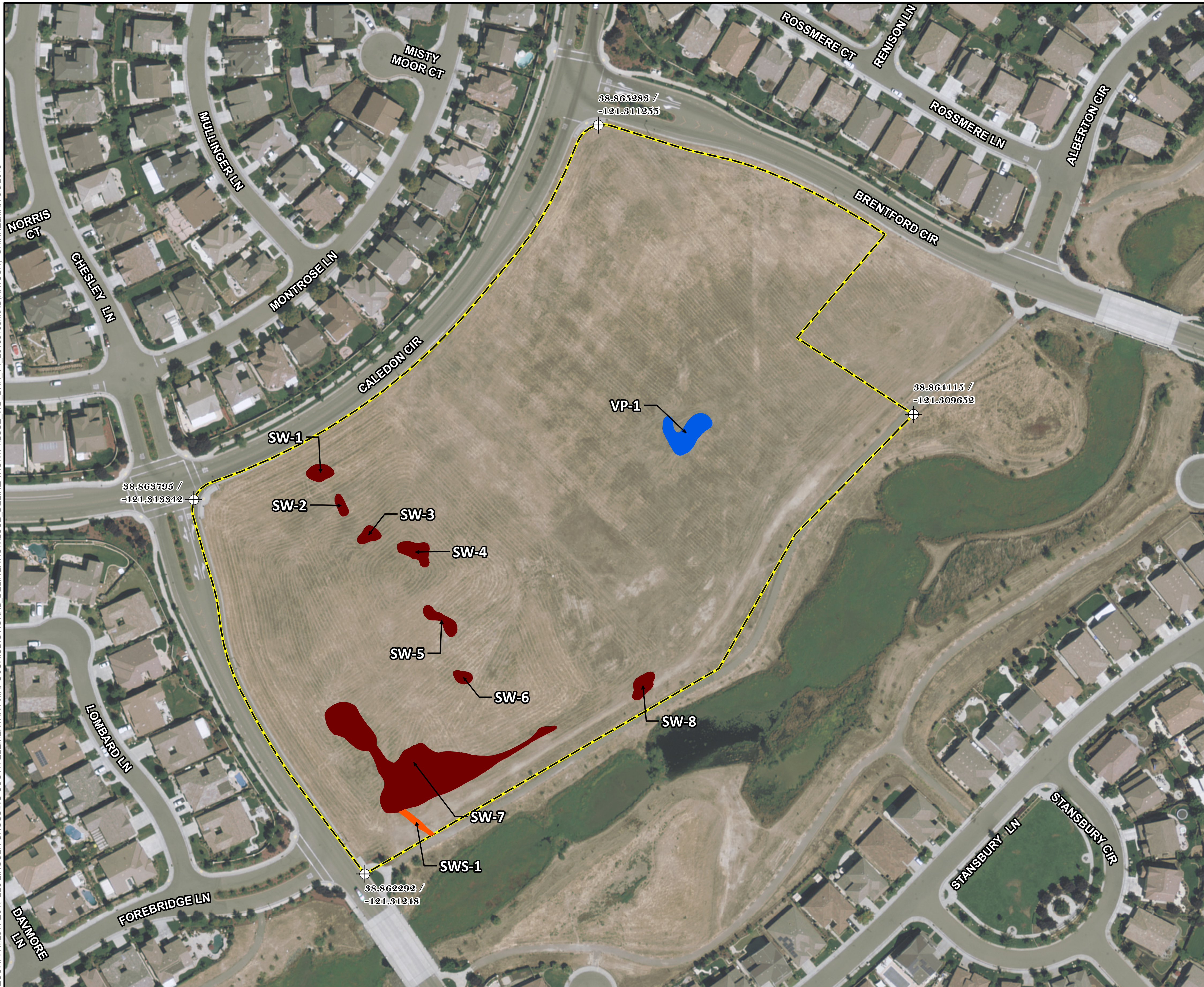
2017-225 Lincoln Crossing South Elementary

Figure 3.
Potential Waters of the U.S.



Map Features

Project Boundary - 14.2 acres

Reference Coordinate

Aquatic Resources (0.504 acres) [1] *

Wetland Type

Seasonal Wetland - 0.439 ac.

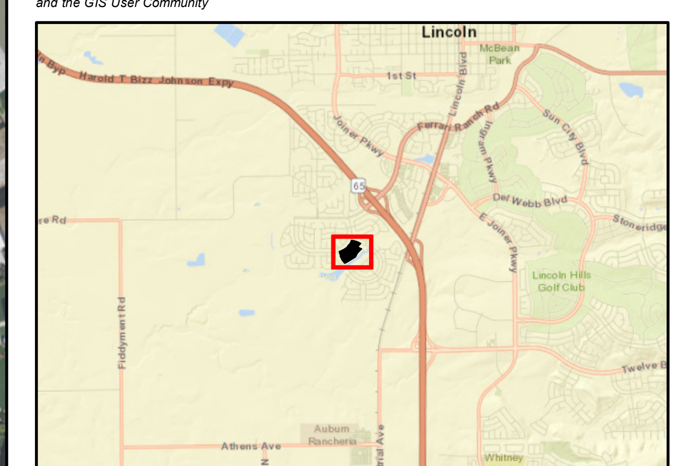
Seasonal Wetland Swale - 0.010 ac.

Vernal Pool - 0.054 ac.

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

** The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ECORP Consulting, Inc.
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2017-225 Lincoln Crossing South Elementary

Scale in Feet
0 150

Photo Source: USGS 2013
Boundary Source: Placer County GIS Parcels
Delineator(s): Clay DeLong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

Map Date: 6/5/2018

ECORP: N:\2017\2017-225 LINCOLN CROSSING SOUTH ELEMENTARY\MAPS\JURISDICTIONAL_DELINEATION\LCSE_DELINEATION\V1\LCSE_WD_BRA_V1_20180403.MXD (KIT/CCH) -CHINKELMAN 6/5/2018

This feature was saturated during the field survey, and would likely have hydrophytic vegetation and hydric soils under normal circumstances, based on its landscape position and hydrology.

4.6 Evaluation of Potentially Occurring Special-Status Species

A list of the plant and wildlife species identified in the literature search as potentially occurring within the Project site is included in Table 2. In addition, species that did not appear in the literature search but are known to co-occur with species that did appear were also included in Table 2. Included in this table are the listing status for each species, a brief habitat description, and a determination on the potential to occur in the Project site. Following the table is a brief description of each species with potential to occur onsite.

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Plants						
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	-	-	1B.2	Sometimes on serpentine soils in chaparral, cismontane woodland, and Valley and foothill grassland (295' - 5,102').	March-June	Absent – not observed during plant surveys conducted in 2018 (ECORP 2018)
Hispid Bird's-beak *Chloropyron molle* ssp. *hispidum*	-	-	1B.1	Alkaline soils in meadows and seeps, playas, and Valley and foothill grasslands (3' - 509').	June - September	Absent - no suitable habitat onsite
Brandegee's clarkia *Clarkia biloba* ssp. *brandegeeae*	-	-	4.2	Chaparral, cismontane woodlands, and lower montane coniferous forest often along roadcuts (246' - 3,002').	May - July	Absent - no suitable habitat onsite
Dwarf downingia *Downingia pusilla*	-	-	2B.2	Mesic areas in Valley and foothill grassland, and vernal pools. Species appears to have an affinity for slight disturbance (i.e., scraped depressions, ditches, etc.) (Baldwin et al. 2012, CDFW 2018a) (3' - 1,460').	March - May	Absent – not observed during plant surveys conducted in 2018 (ECORP 2018)
Stinkbells *Fritillaria agrestis*	-	-	4.2	Clay and sometimes serpentinite soils in chaparral, cismontane woodland, Pinyon and juniper woodland, and Valley and foothill grassland (33' - 5,102').	March-June	Absent – not observed during plant surveys conducted in 2018 (ECORP 2018)

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status ESA	Status CESA/ NPPA	Status Other	Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
Boggs Lake hedge-hyssop *Gratiola heterosepala*	-	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (33' - 7,792').	April - August	Absent - no suitable habitat onsite
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	-	-	1B.2	Mesic areas in Valley and foothill grassland. Species has an affinity for slight disturbance such as farmed fields (USFWS 2005b) (98' - 751').	March - May	Absent – not observed during plant surveys conducted in 2018 (ECORP 2018)
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	-	-	1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, Valley and foothill grassland, and vernal pools (115' - 4,101').	March - June	Absent – not observed during plant surveys conducted in 2018 (ECORP 2018)
Legenere *Legenere limosa*	-	-	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005a) (3' - 2,887').	April - June	Absent – not observed during plant surveys conducted in 2018 (ECORP 2018)
Pincushion navarretia *Navarretia myersii* ssp. *myersii*	-	-	1B.1	Often acidic soils in vernal pools (66' - 1,083').	April - May	Absent - no suitable habitat onsite
Adobe navarretia *Navarretia nigelliformis* ssp. *nigelliformis*	-	-	4.2	Clay and sometimes serpentinite soils in vernally mesic Valley and foothill grasslands and sometimes in vernal pools (328' - 3,281').	April - June	Absent – not observed during plant surveys conducted in 2018 (ECORP 2018)
Sacramento Orcutt grass *Orcuttia viscida*	FE	CE	1B.1	Vernal pools (98' - 328').	April - September	Absent - no suitable habitat onsite
Slender Orcutt grass *Orcuttia tenuis*	FT	CE	1B.1	Vernal pools, often gravelly (115' - 5,774').	May - October	Absent - no suitable habitat onsite
Sanford's arrowhead *Sagittaria sanfordii*	-	-	1B.2	Shallow marshes and freshwater swamps (0' - 2,133').	May - November	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Invertebrates						
Conservancy fairy shrimp *Branchinecta conservatio*	FE	-	-	Large turbid vernal pools.	November-April	Absent - no suitable habitat onsite
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	-	-	Vernal pools/wetlands.	November-April	Potential to occur
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	-	-	Occurs in association with blue elderberry (*Sambucus nigra* ssp. *cerulea*) in the Central Valley.	Any season	Absent - no suitable habitat onsite
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	-	-	Vernal pools/wetlands.	November-April	Absent – no suitable habitat onsite. Ephemeral wetlands onsite do not pond long enough to support this species. The site history of irrigated pasture as well as recent disturbances and surrounding development also preclude presence of this species.
Fish						
Delta smelt *Hypomesus transpacificus*	FT	CE	-	Occurs in the Sacramento-San Joaquin Delta and seasonally within the Suisun Bay, Carquinez Strait and San Pablo Bay	N/A	Absent - no suitable habitat onsite
Steelhead (CA Central Valley ESU) *Oncorhynchus mykiss irideus*	FT	-	-	Undammed rivers, streams, creeks	N/A	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Amphibians						
California red-legged frog *Rana draytonii*	FT	-	SSC	Lowlands and foothills in a variety of aquatic, riparian, and upland environments. Breeding adults are often associated with areas of dense, shrubby riparian vegetation and deep (greater than 2 feet) still or slow-moving water (Hayes and Jennings 1988). Requires 11-20 weeks of permanent water for larval development.	May 1-November 1	Absent - no suitable habitat onsite
Western spadefoot *Spea hammondii*	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Low potential to occur
Reptiles						
Northern Western pond turtle *Actinemys marmorata*	-	-	SSC	The only extant freshwater turtle in California. The northwestern and southwestern subspecies intergrade in central California. This turtle requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-October	Low potential to occur
Giant garter snake *Thamnophis gigas*	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	May 1-October 1	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status: ESA	Status: CESA/ NPPA	Status: Other	Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
Birds						
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT	CE	BCC	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernadine and Riverside County), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America.	June 15 - August 15	Absent - no suitable habitat onsite
Black swift (nesting) *Cypseloides niger*	-	-	BCC, SSC	In California, nests from Cascade-Sierra Nevada region south to Tulare and Mono counties.; coastal ranges (Santa Cruz south to San Luis Obispo counties.), San Gabriel, San Bernardino, and San Jacinto Mountains. Nests on ledges or shallow caves on steep rock faces, usually behind waterfalls. Winter range, unknown, but thought to be northern and western South America, and West Indies.	May-September	Absent - no suitable habitat onsite
Costa's hummingbird *Calypte costae*	-	-	BCC	In California, breeds in coastal scrub and chaparral communities from Santa Barbara County, south into Baja California; from Mexico north into Mojave Desert scrub of Eastern Sierra Nevada;	February-June	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status: ESA	Status: CESA/ NPPA	Status: Other	Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
Rufous hummingbird (nesting) *Selasphorus rufus*	-	-	BCC	Breeds in extreme northwestern California north into British Columbia and Alaska. Winters in coastal Southern California south into Mexico. Nesting habitat includes secondary succession communities and openings, mature forests, parks and residential area.	April-July	Absent - no suitable habitat onsite
California black rail *Laterallus jamaicensis coturniculus*	-	CT	BCC, CFP	Salt marsh, shallow freshwater marsh, wet meadows, and flooded grassy vegetation. In California, primarily found in coastal and Bay-Delta communities, but also in Sierran foothills (Butte, Yuba, Nevada, Placer counties)	March-July	Absent - no suitable habitat onsite
Whimbrel *Numenius phaeopus*	-	-	BCC	Nesting occurs in Alaska and northern Canada; winters in coastal Oregon, California, south to Central America; wintering habitat includes tidal mudflats, coral reefs, lagoons, marshes, swamps, estuaries, sandy beaches, and rocky shores.	October-March	Absent - no suitable habitat onsite
Long-billed curlew (nesting) *Numenius americanus*	-	-	BCC	Breeds east of the Cascades in Washington, Oregon, northeastern California (Siskiyou, Modoc, Lassen counties), east-central California (Inyo County), through Great Basin region into Great Plains. Winters in California, Texas, and Louisiana. Wintering habitat includes tidal mudflats and estuaries, wet pastures, sandy beaches, salt marsh, managed wetlands, evaporation ponds, sewage ponds, and grasslands.	September-March (wintering)	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Marbled godwit *Limosa fedoa*	-	-	BCC	Nests in Montana, North and South Dakota, Minnesota, into Canada. Winter range along Pacific Coast from British Columbia south to Central America, with small numbers wintering in interior California. Wintering habitat includes coastal mudflats, meadows, estuaries, sandy beaches, sandflats, and salt ponds.	August-April (Migrant/Wintering in CA)	Absent - no suitable habitat onsite
Short-billed dowitcher *Limnodromus griseus*			BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons	Wintering/migrant period: late-August-May	Absent - no suitable habitat onsite
Double-crested cormorant (nesting colony) *Phalacrocorax auritus*	-	-	WL	Nests near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open coastlines and typically forages in shallow water. Non-nesters are found in many coastal and inland waters.	April-August	Absent - no suitable habitat onsite
Osprey (nesting) *Pandion haliaetus*	-	-	WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. The nest in large trees, snags, cliffs, transmission/communication towers, artificial nest platforms, channel markers/buoys.	March-September	Absent - no suitable habitat onsite
White-tailed kite *Elanus leucurus*	-	-	CFP	Breeding occurs within trees in low elevation grassland, agricultural, wetland, oak woodland, riparian, savannah, and urban habitats.	March-June	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status ESA	Status CESA/ NPPA	Status Other	Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
Cooper's hawk (nesting) *Accipiter cooperii*	-	-	CDFW WL	Nests in trees in riparian woodlands in deciduous, mixed and evergreen forests, as well as urban landscapes	March-July	Absent - no suitable nesting habitat onsite
Swainson's hawk *Buteo swainsoni*	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Absent – although nests exist within 10 miles, the Project site is too small, too surrounded by development, and too disturbed to provide foraging habitat
Burrowing owl *Athene cunicularia*	-	-	SSC, BCC	Breeds in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	March-August	Absent – no suitable habitat onsite
California spotted owl *Strix occidentalis occidentalis*	-	-	BCC, SSC	Found in the southern Cascade Range and northern Sierra Nevada from Pit River, Shasta County, south to Tehachapi Mountains, Kern County, in the coastal ranges from Monterey County to Santa Barbara County, in Transverse and Peninsular Ranges south to northern Baja California. At lower elevations, they breed in hardwood forests and coniferous forests at higher elevations. They use forests with greater complexity and structure.	March-September (breeding)	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Lewis' woodpecker *Melanerpes lewis*	-	-	BCC	In California, breeds in Siskiyou and Modoc counties, Warmer Mountains, inner coast ranges from Tehama to San Luis Obispo counties, San Bernardino Mountains, and Big Pine Mountain (Inyo County); nesting habitat includes open ponderosa pine forest, open riparian woodland, logged/burned forest, and oak woodlands. Does not breed on the west side of Sierran crest (Beedy and Pandalfino 2013).	April-September (breeding); September-March (winter in Central Valley).	Absent - no suitable habitat onsite
White headed woodpecker *Picoides albolarvatus*	-	-	BCC	Resident from south-central British Columbia to southern California. Nests in montane forests primarily located low in large-diameter conifers, snags, and stumps.	April-June	Absent - no suitable habitat onsite
Nuttall's woodpecker *Picoides nuttallii*	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent - no suitable habitat onsite
Merlin *Falco columbarius*	-	-	WL	Breeds in Oregon, Washington north into Canada. Winters in southern Canada to South America, including California. Breeds near forest openings, fragmented woodlots, and riparian areas. Wintering habitat includes wide variety, open forests, grasslands, tidal flats, plains, and urban settings.	September-April (wintering in the Central Valley); does not breed in California	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Yellow-billed magpie *Pica nuttallii*	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County.; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings.	April-June	Absent - no suitable habitat onsite
Purple martin *Progne subis*	-	-	SSC	In California, breeds along coast range, Cascade-northern Sierra Nevada region and isolated population in Sacramento. Nesting habitat includes montane forests, Pacific lowlands with dead snags; the isolated Sacramento population nests in weep holes under elevated highways/bridges. Winters in South America.	April-August	Absent - no suitable habitat onsite
Bank swallow *Riparia riparia*	-	CT	-	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.	May-July	Absent - no suitable habitat onsite
Oak titmouse *Baeolophus inornatus*	-	-	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree)	March-July	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status: ESA	Status: CESA/NPPA	Status: Other	Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
California thrasher *Toxostoma redivivum*	-	-	BCC	Resident and endemic to coastal and Sierra Nevada-Cascade foothill areas of California. Nests are usually well hidden in dense shrubs, including scrub oak, California lilac, and chamise.	February-June	Absent - no suitable habitat onsite
Lawrence's goldfinch *Spinus lawrencei*	-	-	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g., small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water.	March-September	Absent - no suitable habitat onsite
Spotted Towhee *Pipilo maculatus clementae*	-	-	BCC	In California, resident from northern California to southern California throughout the entire state with the exception of desert regions. Nests commonly on the ground or elevated near the ground at the edges of thickets or close to isolated woody plants, next to a log, or at the base of grass clumps.	March-August	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status			Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
	ESA	CESA/ NPPA	Other			
Black-chinned sparrow *Spizella atrogularis*	-	-	BCC	In California, breeds in inner Coast Ranges, Transverse Range, and Peninsular Range, west slope of Sierra Nevada from Kern County to Mariposa County and mountains of southeastern California. Nesting habitat includes moderately dense tall brush on rugged mountain slopes with rocky outcrops and scattered large trees. Prefers young stands with openings.	April-August	Absent - no suitable habitat onsite
Grasshopper sparrow *Ammodramus savannarum*	-	-	SSC	In California, breeding range includes most coastal counties south to Baja California; western Sacramento Valley and western edge of Sierra Nevada region. Nests in moderately open grasslands and prairies with patchy bare ground. Avoids grasslands with extensive shrub cover; more likely to occupy large tracts of habitat than small fragments; removal of grass cover by grazing often detrimental.	May-July	Absent - no suitable habitat onsite
Song sparrow ("Modesto population") *Melospiza melodia*	-	-	SSC, BCC	Resident in central and southwest California, including Central Valley; nests in marsh, scrub habitat	April-June	Absent - no suitable habitat onsite
Tricolored blackbird *Agelaius tricolor*	-	CT	BCC, SSC	Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	April-June	Absent – although a nearby nesting colony exists, the Project site is too small, too surrounded by development, and too disturbed to provide foraging habitat

Table 2. Potentially Occurring Special-Status Species

Common Name Scientific Name	Status: ESA	Status: CESA/ NPPA	Status: Other	Habitat Description	Approximate Survey Dates	Potential to Occur Onsite
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent - no suitable habitat onsite
Mammals						
Pallid bat *Antrozous pallidus*	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (Western Bat Working Group [WBWG] 2005).	April-September	Absent - no suitable habitat onsite
Townsend's big-eared bat *Corynorhinus townsendii townsendii*	-	-	SSC	Distribution is strongly correlated with the availability of caves and cave-like roosting habitat, including abandoned mines; habitat associations include coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types (WBWG) 2018).	April-September	Absent - no suitable habitat onsite
Silver-haired bat *Lasionycteris noctivagans*	-	-	SSC	Coastal and montane coniferous forest, Valley foothill woodlands, pinyon-juniper woodlands, and Valley foothill and montane riparian communities, generally below 9,000 feet (Barbour and Davis 1969)	April-September	Absent - no suitable habitat onsite
American badger *Taxidea taxus*	-	-	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Year-round resident (breeds summer-early fall)	Absent - no suitable habitat onsite

Table 2. Potentially Occurring Special-Status Species						
	Status					
Common Name Scientific Name	ESA	CESA/ NPPA	Other	Habitat Description	Approximate Survey Dates	Potential to Occur Onsite

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
BCC	U. S. Fish and Wildlife Service Bird of Conservation Concern (USFWS 2008)
FE	ESA listed, Endangered
FT	ESA listed, Threatened
CE	California ESA or NPPA listed, Endangered
CT	California ESA or NPPA listed, Threatened
CFP	California Fish and Game Code Fully Protected Species (§3511-birds, §4700-mammals, §5050-reptiles/amphibians)
SSC	CDFW Species of Special Concern
WL	CDFW Watch List Species
1B	Rare, Threatened, or Endangered in CA and elsewhere
2B	Rare, Threatened, or Endangered in CA, common elsewhere
4	Plants of Limited Distribution/Watch List
0.1	Seriously threatened in California (over 80% of occurrences threatened)
0.2	Moderately threatened in California (20-80% occurrences threatened)

4.6.1 Plants

A total of 14 special-status plant species were identified as having the potential to occur in the Project site based on the literature review (Table 1). However, upon further analysis and after the site visit, seven species have been determined to be absent from the site due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining three species that have the potential to occur within the Project site are presented below.

Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in chaparral, cismontane woodlands, Valley and foothill grassland, and occasionally on serpentine soils (CNPS 2018). Big-scale balsamroot blooms from March through June and is known to occur at elevations ranging from 295 to 5,102 feet above MSL (CNPS 2018). Big-scale balsamroot is endemic to California; the current range of this species includes Alameda, Amador, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Shasta, Solano, Sonoma, Tehama, and Tuolumne counties (CNPS 2018).

There are two CNDDB occurrences of big-scale balsamroot within five miles of the Project site (CDFW 2018a). The annual grassland within the Project site provides marginally suitable habitat for this species. Big-scale balsamroot was not observed during special-status plant surveys conducted in 2018.

Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not listed pursuant to either the federal or California ESAs, but has been identified by the CNPS as a List 2B.2 species. This species is an herbaceous annual that occurs in vernal pools and mesic areas in Valley and foothill grasslands (CNPS 2018). Dwarf downingia also appears to have an affinity for slight disturbance since it has been found in manmade features such as tire ruts, scraped depressions, stock ponds, and roadside ditches (Baldwin et al. 2012, CDFW 2018a). This species blooms from March through May and is known to occur at elevations ranging from 3 to 1,460 feet above MSL (CNPS 2018). The current range of this species in California includes Amador, Fresno, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (CNPS 2018).

There are eight CNDDB occurrences of dwarf downingia within five miles of the Project site (CDFW 2018a). The various aquatic features within the Project site provide suitable habitat for this species. Dwarf downingia was not observed during special-status plant surveys conducted in 2018.

Stinkbells

Stinkbells (*Fritillaria agrestis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is a perennial bulbiferous herb that occurs in clay, sometimes serpentine areas in chaparral, cismontane woodland, pinyon and juniper woodland, and Valley and foothill grassland (CNPS 2018). Stinkbells bloom from March to June and is known to occur at elevations ranging from 33 to 5,102 feet above MSL (CNPS 2018). The current range of this species in California includes Alameda, Contra Costa, Fresno, Kern, Mendocino, Merced, Monterey, Mariposa, Placer, Sacramento, Santa Barbara, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Stanislaus, Tuolumne, Ventura, and Yuba counties, and is considered to be extirpated from Santa Cruz and San Mateo counties (CNPS 2018).

There are no CNDDB occurrences of stinkbells within five miles of the Project site (CDFW 2018a). The annual grassland with the Project site provides marginal habitat for this species. Stinkbells was not observed during special-status plant surveys conducted in 2018.

Ahart's Dwarf Rush

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in mesic areas in Valley and foothill grasslands (CNPS 2018). This species also appears to have an affinity for slight disturbance since it has been found on farmed fields and gopher turnings (USFWS 2005b). Ahart's dwarf rush blooms from March through May and is known to occur at elevations ranging from 98 to 751 feet above MSL (CNPS 2018, USFWS 2005b). Ahart's dwarf rush is endemic to California; the current range of this species includes Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties (CNPS 2018).

There is one CNDDB occurrences of Ahart's dwarf rush within five miles of the Project site (CDFW 2018a). The various aquatic features within the Project site provide suitable habitat for this species. Ahart's dwarf rush was not observed during special-status plant surveys conducted in 2018.

Red Bluff Dwarf Rush

Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernally mesic areas in chaparral, cismontane woodland, meadows, seeps, Valley and foothill grasslands, and vernal pools (CNPS 2018). Red Bluff dwarf rush blooms from March through June and is known to occur at elevations ranging from 115 to 4,101 feet above MSL (CNPS 2018). Red Bluff dwarf rush is endemic to California; the current range of this species includes Butte, Placer, Shasta, and Tehama counties (CNPS 2018).

There is one CNDDB occurrences of Red Bluff dwarf rush within five miles of the Project site (CDFW 2018a). The various aquatic features within the Project site provide marginally habitat for this species. Red Bluff dwarf rush was not observed during special-status plant surveys conducted in 2018.

Legenere

Legenere (*Legenere limosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in a variety of seasonally inundated environments including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005a). Legenere blooms from April through June and is known to occur at elevations ranging from 3 to 2,887 feet above MSL (CNPS 2018). Legenere is endemic to California; the current range of this species includes Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, San Joaquin, Shasta, San Mateo, Solano, Sonoma, Stanislaus, Tehama and Yuba counties and is believed to be extirpated from Stanislaus County (CNPS 2018).

There are three CNDDB occurrences of legenere within five miles of the Project site (CDFW 2018a). The various aquatic features within the Project site provide marginal habitat for this species. Legenere was not observed during special-status plant surveys conducted in 2018.

Adobe Navarretia

Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*) is not listed as endangered pursuant to either the federal and California ESAs and is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in clay and sometimes serpentinite substrates in mesic areas, valley and foothill grassland, and sometimes in vernal pools (CNPS 2018). Adobe navarretia blooms between April and June and is known to occur at elevations ranging from 328 to 3,281 feet above MSL (CNPS 2018). Adobe navarretia is endemic to California; its current range includes Alameda, Butte, Contra Costa, Colusa, Fresno, Kern, Merced, Monterey, Placer, Sutter and Tulare counties (CNPS 2018).

There are no CNDDB occurrences of adobe navarretia within five miles of the Project site (CDFW 2018a). The vernal pool within the Project site is marginally habitat for this species. Adobe navarretia was not observed during special-status plant surveys conducted in 2018.

4.6.2 Invertebrates

A total of four special-status invertebrate species were identified as having potential to occur in the Project site based on the literature review (Table 1). However, upon further analysis and after the site visit, three species were considered to be absent from the site due to the lack of suitable habitat. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining species that has the potential to occur within the Project site are presented below.

Vernal pool fairy shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened in accordance with the federal ESA. Vernal pool fairy shrimp may occur in seasonal ponds, vernal pools, and swales during the wet season, which generally occurs from December through May. This species can be found in a variety of pool sizes, ranging from less than 0.001 to more than 24.5 acres (Eriksen and Belk 1999). The shrimp hatch from cysts when colder water (10˚C [50˚F] or less) fills the pool and mature in as few as 18 days under optimal conditions (Eriksen and Belk 1999). At maturity, mating takes place and cysts are dropped. Vernal pool fairy shrimp occur in disjunct patches dispersed across California's Central Valley from Shasta County to Tulare County, the central and southern Coast Ranges from northern Solano County to Ventura County, and three areas in Riverside County (USFWS 2003).

There are 32 CNDDB occurrences of vernal pool fairy shrimp within five miles of the Project site and five occurrences within one mile of the Project site (CDFW 2018a). The vernal pool and seasonal wetlands within the Project site provide suitable habitat for this species.

4.6.3 Fish

A total of two special-status fish species were identified as having potential to occur in the Project site based on the literature review (Table 1). However, upon further analysis and after the site visit, both of the species were considered to be absent from the site due to the lack of suitable habitat. No further discussion of these species is provided within this assessment.

4.6.4 Amphibians

A total of two special-status amphibians were identified as having potential to occur in the Project site based on the literature review (Table 1). However, upon further analysis and after the site visit, California red-legged frog has been determined to be absent from the site due to the lack of suitable habitat and that the Project site is outside of the current known range of the species. No further discussion of this species is provided within this assessment. A brief description of western spadefoot (*Spea hammondii*), which has the potential to occur within the Project site is presented below.

Western spadefoot

Western spadefoot is not listed pursuant to either the federal or California ESAs; however, it is designated as an SSC. Necessary habitat components of western spadefoot include suitable underground retreats and breeding ponds. Suitable breeding sites include temporary rain pools, such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages (Thompson, Wright, and Shaffer 2016). Western spadefoot spend most of their adult life within underground burrows or other suitable refugia such as rodent burrows. In California, western spadefoot are known to occur from the Redding area in Shasta County southward to northwestern Baja California, at elevations below 4,475 feet (Thompson, Wright, and Shaffer 2016).

There are no CNDDB occurrences of western spadefoot within five miles of the Project site (CDFW 2018a). The various aquatic features within the Project site provide suitable breeding habitat for this species.

4.6.5 Reptiles

Two special-status reptiles were identified as having the potential to occur in the Project site based on the literature review (Table 1). However, upon further analysis and after the site visit, Giant garter snake has been determined to be absent from the site due to the lack of suitable habitat. No further discussion of this species is provided in this analysis. A brief description of northern western pond turtle (*Actinemys marmorata*) which has the potential to occur within the Project site is presented below.

Northern western pond turtle

The northern western pond turtle is not listed pursuant to either the federal or California ESAs; however, it is designated as an SSC. Northern western pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams (Jennings and Hayes 1994). This species is primarily aquatic; however, they typically leave aquatic habitats in the fall to reproduce and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles and hatchlings require shallow edge water with relatively dense submergent or short emergent vegetation in which to forage.

Northern western pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, with substrates that typically have high clay or silt fractions (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet (200m) of the aquatic sites; however, nests have been documented as far as 1,310 feet (400m) from the aquatic habitat.

There is one CNDDB occurrence of northern western pond turtle within five miles of the Project site (CDFW 2018a). Although there is no suitable aquatic habitat onsite, there is suitable habitat just south of the Project site in Ingram Slough. The ruderal grassland habitat within the Project site provides suitable nesting habitat for this species.

4.6.6 Birds

A total of 32 special-status bird species were identified as having the potential to occur within the Project site based on the literature review (Table 1). However, upon further analysis and after the site visit, all of these species were determined to be absent from the site due to the lack of suitable habitat. No further discussion of these species is provided in this analysis.

4.6.7 Mammals

Three special-status mammal species were identified as having the potential to occur within the Project site based on the literature review (Table 1). However, upon further analysis and after the site visit all three species were considered to be absent from the site due to the lack of suitable habitat. No further discussion of these species is provided in this analysis.

4.7 Wildlife Movement/Corridors

The Project site is bordered by residential development to the west, north, and east. The Ingram Slough corridor to the south provides a potential corridor for the movement of wildlife but this area is not expected to be impacted by Project site development.

5.0 RECOMMENDATIONS

5.1 Waters of the U.S.

A total of 0.504 acre of Waters of the U.S. has been mapped within the Project site (See Section 4.5). A request for a jurisdictional determination for the Project site has been submitted to USACE for verification. The following mitigation measures are recommended to minimize potential impacts to Waters of the U.S.:

- A permit authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no net loss of wetland function and values. An application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. within the Project site is proposed at a 1:1 ratio for direct impacts, however final mitigation requirements will be developed in consultation with USACE.
- A Water Quality Certification or waiver pursuant to Section 401 of the CWA must be obtained for Section 404 permit actions.

5.2 Placer County Tree Preservation (Article 12.16)

There are no trees present within the Project site.

5.3 Special-status Species

There is suitable habitat within the Project site for seven special-status plants, two special-status invertebrates, one special-status amphibian, and one special-status reptile. A brief discussion of recommendations is presented below for each group.

5.3.1 Plants

- No special-status plant species were observed during protocol-level special-status plant surveys conducted in 2018.

5.3.2 Invertebrates

Suitable habitat for one special-status invertebrate, vernal pool fairy shrimp, is present within the Project site. The following mitigation measure is recommended to minimize potential impacts to the aforementioned species:

- Prior to Project activities or impacts to any features that provide suitable habitat (vernal pools, seasonal wetlands, and seasonal wetland swales) for the aforementioned listed large branchiopod, Section 7 consultation will take place with USFWS to establish mitigation, avoidance, and/or minimization measures.

5.3.3 Amphibians

There is marginally suitable habitat for one special-status amphibian (western spadefoot) within the Project site. The following mitigation measure is recommended to minimize potential impacts to western spadefoot:

- The Project Applicant shall retain a biologist to conduct a preconstruction western spadefoot survey within 48 hours of the initiation of construction activity within suitable habitat for western spadefoot. If no western spadefoot individuals are found during the preconstruction survey, the biologist shall document the findings in a letter report, and no further mitigation shall be required. If individuals are found, the biologist shall consult with CDFW to determine appropriate avoidance measures.

5.3.4 Reptiles

Suitable upland habitat for one special-status reptile (northern western pond turtle) is present within the southern portion of the Project site. The following mitigation measure is recommended to minimize potential impacts to Western pond turtle:

- The Project Applicant shall retain a biologist to conduct a preconstruction northern western pond turtle survey in conjunction with the western spadefoot pre-construction survey within 48 hours of the initiation of construction activity within suitable habitat for northern western pond turtle. If no northern western pond turtle individuals are found during the preconstruction survey, the biologist shall document the findings in a letter report, and no further mitigation shall be required. If individuals are found, the qualified biologist shall consult with CDFW to determine appropriate avoidance measures.

5.3.5 Special-status Birds and MBTA-Protected Birds

There is no potentially suitable nesting habitat within the Project site for any special-status birds.

However, all native birds, and their active nests, are protected under the California Fish and Game Code and the federal MBTA. As such, to ensure that there are no impacts to protected active nests, the following mitigation measures are recommended:

- Conduct a pre-construction nesting bird survey of all suitable habitat on the Project site within 14 days of the commencement of construction during the nesting season (February 1-August 31). Surveys should be conducted in all publicly accessible areas supporting suitable nesting habitat within 500 feet of the Project site for Swainson's hawk, 300 feet of the Project for other nesting raptors, including burrowing owl, and 100 feet of the Project site for other birds protected under the MBTA. If active nests are found, a no-disturbance buffer around the nest shall be established.

The buffer distance shall be established by a biologist in consultation with CDFW or the CEQA lead agency. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. No further measures are necessary once the young are independent of the nest.

5.3.6 Mammals

There is no potential habitat within the Project site for any special-status mammal species.

5.4 Placer County Conservation Plan

The PCCP will provide guidelines for mitigation requirements and federal and State permitting to ensure compliance with federal and State environmental laws and regulations. In the event that the PCCP is approved prior to the approval of the Project, the guidelines and mitigation requirements provided in the PCCP will be adopted.

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LIST OF ATTACHMENTS

ATTACHMENT A

Database Searches

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Roseville (3812173) OR Gold Hill (3812182) OR Lincoln (3812183) OR Sheridan (3812184) OR Pleasant Grove (3812174) OR Rocklin (3812172) OR Rio Linda (3812164) OR Citrus Heights (3812163) OR Folsom (3812162))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Alkali Seep Alkali Seep	CTT45320CA	None	None	G3	S2.1	
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Andrena subapasta An andrenid bee	IIHYM35210	None	None	G1G2	S1S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Chloropyron molle ssp. hispidum hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T1	S1	1B.1
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 49

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

13 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812184, 3812183, 3812182, 3812174, 3812173, 3812172, 3812164 3812163 and 3812162;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	1B.1	S1	G2T1
Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	annual herb	May-Jul	4.2	S4	G4G5T4
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	1B.2	S1	G2T1
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	1B.1	S2	G2T2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	1B.1	S2	G2T2
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	Apr-Jun	4.2	S3	G4T3
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	Apr-Jul (Sep)	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct (Nov)	1B.2	S3	G3

Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 21 September 2017].

Search the Inventory

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The Calflora Database

The California Lichen Society

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: September 21, 2017
Consultation Code: 08ESMF00-2017-SLI-3327
Event Code: 08ESMF00-2017-E-09159
Project Name: Lincoln Crossing South Elementary

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2017-SLI-3327

Event Code: 08ESMF00-2017-E-09159

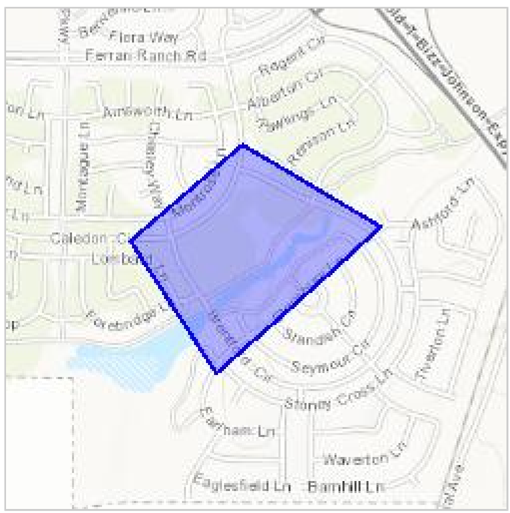
Project Name: Lincoln Crossing South Elementary

Project Type: DEVELOPMENT

Project Description: Lincoln, Ca. About 16 acres. 2018-2019.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.86326962866548N121.31119780697622W



Counties: Placer, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead *Oncorhynchus (=Salmo) mykiss* Population: Northern California DPS There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1007	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

There are no critical habitats within your project area under this office's jurisdiction.

ATTACHMENT B

Representative Site Photographs

Photo 1. Seasonal wetland SW-7, view east from intersection of Caledon Circle and Forebridge Lane, March 29, 2018.

Photo 2. Seasonal wetland SW-7, view southeast toward SWS-1, March 29, 2018.

Photo 3. Seasonal wetland SW-5, view east, March 29, 2018.

Photo 4. Seasonal wetland SW-5, view north, March 29, 2018.

Photo 5. Seasonal wetland swale SWS-1, view north from southern Project boundary, March 29, 2018.

Photo 6. Boundary between disturbed and undisturbed portions of Project view north, March 29, 2018.

Photo 7. Vernal Pool VP-1, view west, March 29, 2018.

Photo 8. Upland area in eastern portion of Project site, view northwest, March 29, 2018.

ATTACHMENT C

Plant Species Observed Onsite (March 29, 2018)

Lincoln Crossing South Elementary:

Plant Species Observed On-Site (March 29, 2018)

An asterisk (*) indicates a non-native species.

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS
BORAGINACEAE	**BORAGE FAMILY**	
Amsinckia menziesii	Rancher's fireweed	NL
Plagiobothrys stipitatus	Slender popcorn-flower	FACW
BRASSICACEAE	**MUSTARD FAMILY**	
*Raphanus sativus**	Purple wild radish	NL
CYPERACEAE	**SEDGE FAMILY**	
Eleocharis macrostachya	Creeping spikerush	OBL
FABACEAE	**LEGUME FAMILY**	
Acmispon americanus	Spanish clover	NL
Lupinus bicolor	Bicolored lupine	NL
Lupinus nanus	Sky lupine	NL
*Medicago polymorpha**	Bur clover	FACU
*Trifolium hirtum**	Rose clover	NL
*Trifolium subterraneum**	Subterranean clover	NL
*Vicia villosa**	Winter vetch	NL
GERANIACEAE	**GERANIUM FAMILY**	
*Erodium botrys**	Broad leaf filaree	FACU
JUNCACEAE	**RUSH FAMILY**	
Juncus bufonius	Toad rush	FACW
LYTHRACEAE	**LOOSESTRIFE FAMILY**	
*Lythrum hyssopifolia**	Hyssop loosestrife	OBL
OROBANCHACEAE	**BROOMRAPE FAMILY**	
Castilleja campestris ssp. *campestris*	Field owl's-clover	FACW
Triphysaria eriantha	Butter and eggs	NL
PLANTAGINACEAE	**PLANTAIN FAMILY**	
Callitriche marginata	Winged water-starwort	OBL
Plantago erecta	Plantain	NL
*Plantago lanceolata**	English plantain	FAC
Veronica peregrina ssp. *xalapensis*	Purslane speedwell	OBL
POACEAE	**GRASS FAMILY**	
*Bromus diandrus**	Ripgut brome	NL

Lincoln Crossing South Elementary:

Plant Species Observed On-Site (March 29, 2018)

An asterisk (*) indicates a non-native species.

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS
POACEAE	**GRASS FAMILY**	
*Bromus hordeaceus**	Soft brome	FACU
Deschampsia danthonioides	Vernal pool hairgrass	FACW
*Festuca bromoides**	Brome fescue	FACU
*Festuca perennis**	Italian Ryegrass	FAC
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley	FAC
Hordeum murinum ssp. *glaucum**	Barley	FACU
POLYGONACEAE	**BUCKWHEAT FAMILY**	
Polygonum aviculare ssp. *depressum**	Prostrate knotweed	FAC
*Rumex pulcher**	Fiddle dock	FAC
RANUNCULACEAE	**BUTTERCUP FAMILY**	
Ranunculus bonariensis var. *trisepalus*	Carter's buttercup	OBL

APPENDIX C

Greenhouse Gas Emissions Study

Lincoln Crossing South Elementary School

Placer-Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	800.00	Student	9.40	53,270.00	0
Parking Lot	67.00	Space	0.60	26,800.00	0
Other Non-Asphalt Surfaces	28.13	1000sqft	0.65	28,129.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	74
Climate Zone	2			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Year 2020 CO2 Intensity Factor

Land Use - Project site = 9.4 acres. 800 students anticipated at buildout

Construction Phase - Building construction, paving, & painting assumed to occur simultaneously

Mobile Land Use Mitigation -

Vehicle Trips - Trip generation per Transportation Impact Study

Fleet Mix - 2% of Project traffic attributable to heavy-duty trucks

Water And Wastewater - Water use per Initial Study

Solid Waste - Solid waste tons per Initial Study

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	PhaseEndDate	10/30/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	9/4/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	7/11/2018	7/11/2019
tblConstructionPhase	PhaseEndDate	10/2/2019	9/3/2020
tblConstructionPhase	PhaseEndDate	5/30/2018	5/30/2019
tblConstructionPhase	PhaseStartDate	10/3/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	7/12/2018	7/12/2019
tblConstructionPhase	PhaseStartDate	5/31/2018	5/31/2019
tblConstructionPhase	PhaseStartDate	9/5/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	5/17/2018	5/17/2019
tblFleetMix	HHD	0.05	0.02
tblFleetMix	LDA	0.49	0.51
tblLandUse	LandUseSquareFeet	66,882.70	53,270.00
tblLandUse	LotAcreage	1.54	9.40
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblSolidWaste	SolidWasteGenerationRate	146.00	36.00
tblVehicleTrips	WD_TR	1.29	1.89
tblWater	IndoorWaterUseRate	1,939,392.00	1,894,284.00
tblWater	OutdoorWaterUseRate	4,987,008.00	4,871,016.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.4709	3.5477	2.8455	5.0400e-003	0.2641	0.1868	0.4508	0.1154	0.1741	0.2895	0.0000	450.0914	450.0914	0.1107	0.0000	452.8599
2020	0.5068	3.2961	3.1458	5.5800e-003	0.0584	0.1764	0.2348	0.0158	0.1652	0.1809	0.0000	490.1824	490.1824	0.1123	0.0000	492.9888
Maximum	**0.5068**	**3.5477**	**3.1458**	**5.5800e-003**	**0.2641**	**0.1868**	**0.4508**	**0.1154**	**0.1741**	**0.2895**	**0.0000**	**490.1824**	**490.1824**	**0.1123**	**0.0000**	**492.9888**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.4709	3.5477	2.8455	5.0400e-003	0.2641	0.1868	0.4508	0.1154	0.1741	0.2895	0.0000	450.0909	450.0909	0.1107	0.0000	452.8595
2020	0.5068	3.2961	3.1458	5.5800e-003	0.0584	0.1764	0.2348	0.0158	0.1652	0.1809	0.0000	490.1819	490.1819	0.1123	0.0000	492.9883
Maximum	**0.5068**	**3.5477**	**3.1458**	**5.5800e-003**	**0.2641**	**0.1868**	**0.4508**	**0.1154**	**0.1741**	**0.2895**	**0.0000**	**490.1819**	**490.1819**	**0.1123**	**0.0000**	**492.9883**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	**5-17-2019**	**8-16-2019**	1.7422	1.7422
6	**8-17-2019**	**11-16-2019**	1.5375	1.5375
7	**11-17-2019**	**2-16-2020**	1.4743	1.4743
8	**2-17-2020**	**5-16-2020**	1.3812	1.3812
9	**5-17-2020**	**8-16-2020**	1.4111	1.4111
10	**8-17-2020**	**9-30-2020**	0.2761	0.2761
		Highest	1.7422	1.7422

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2378	8.0000e-005	8.2800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	4.0000e-005	0.0000	0.0171
Energy	2.7200e-003	0.0247	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	67.6749	67.6749	4.5900e-003	1.3400e-003	68.1881
Mobile	0.3294	1.5546	3.6521	0.0111	0.8817	0.0123	0.8941	0.2370	0.0116	0.2486	0.0000	1,015.1207	1,015.1207	0.0408	0.0000	1,016.1396
Waste						0.0000	0.0000		0.0000	0.0000	7.3077	0.0000	7.3077	0.4319	0.0000	18.1045
Water						0.0000	0.0000		0.0000	0.0000	0.6010	3.5909	4.1919	0.0621	1.5300e-003	6.2004
Total	**0.5700**	**1.5794**	**3.6811**	**0.0113**	**0.8817**	**0.0142**	**0.8960**	**0.2370**	**0.0135**	**0.2505**	**7.9086**	**1,086.4025**	**1,094.3112**	**0.5393**	**2.8700e-003**	**1,108.6496**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2378	8.0000e-005	8.2800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	4.0000e-005	0.0000	0.0171
Energy	2.7200e-003	0.0247	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	67.6749	67.6749	4.5900e-003	1.3400e-003	68.1881
Mobile	0.3178	1.4660	3.3833	0.0100	0.7901	0.0112	0.8013	0.2123	0.0105	0.2229	0.0000	918.1542	918.1542	0.0381	0.0000	919.1064
Waste						0.0000	0.0000		0.0000	0.0000	7.3077	0.0000	7.3077	0.4319	0.0000	18.1045
Water						0.0000	0.0000		0.0000	0.0000	0.6010	3.5909	4.1919	0.0621	1.5300e-003	6.2004
Total	**0.5584**	**1.4908**	**3.4123**	**0.0102**	**0.7901**	**0.0131**	**0.8032**	**0.2123**	**0.0125**	**0.2248**	**7.9086**	**989.4360**	**997.3447**	**0.5367**	**2.8700e-003**	**1,011.6164**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.04**	**5.61**	**7.30**	**9.42**	**10.39**	**7.94**	**10.36**	**10.39**	**7.91**	**10.26**	**0.00**	**8.93**	**8.86**	**0.49**	**0.00**	**8.75**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/17/2019	5/30/2019	5	10	
2	Grading	Grading	5/31/2019	7/11/2019	5	30	
3	Building Construction	Building Construction	7/12/2019	9/3/2020	5	300	
4	Paving	Paving	7/12/2019	9/3/2020	5	300	
5	Architectural Coating	Architectural Coating	7/12/2019	9/3/2020	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 1.25

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 79,905; Non-Residential Outdoor: 26,635; Striped Parking Area: 3,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Scrapers	2	8.00	367	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	45.00	18.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.5000e-004	2.6100e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6302	0.6302	2.0000e-005	0.0000	0.6306
Total	**3.4000e-004**	**2.5000e-004**	**2.6100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6302**	**0.6302**	**2.0000e-005**	**0.0000**	**0.6306**

3.2 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.5000e-004	2.6100e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6302	0.6302	2.0000e-005	0.0000	0.6306
Total	**3.4000e-004**	**2.5000e-004**	**2.6100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6302**	**0.6302**	**2.0000e-005**	**0.0000**	**0.6306**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5520	83.5520	0.0264	0.0000	84.2129
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.1301**	**0.0357**	**0.1658**	**0.0540**	**0.0329**	**0.0868**	**0.0000**	**83.5520**	**83.5520**	**0.0264**	**0.0000**	**84.2129**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.6900e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3700e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.1005	2.1005	6.0000e-005	0.0000	2.1020
Total	**1.1400e-003**	**8.2000e-004**	**8.6900e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3700e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.1005**	**2.1005**	**6.0000e-005**	**0.0000**	**2.1020**

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5519	83.5519	0.0264	0.0000	84.2128
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.1301**	**0.0357**	**0.1658**	**0.0540**	**0.0329**	**0.0868**	**0.0000**	**83.5519**	**83.5519**	**0.0264**	**0.0000**	**84.2128**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	8.2000e-004	8.6900e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3700e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.1005	2.1005	6.0000e-005	0.0000	2.1020
Total	**1.1400e-003**	**8.2000e-004**	**8.6900e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3700e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.1005**	**2.1005**	**6.0000e-005**	**0.0000**	**2.1020**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1452	1.2964	1.0556	1.6600e-003		0.0793	0.0793		0.0746	0.0746	0.0000	144.5891	144.5891	0.0352	0.0000	145.4697
Total	**0.1452**	**1.2964**	**1.0556**	**1.6600e-003**		**0.0793**	**0.0793**		**0.0746**	**0.0746**	**0.0000**	**144.5891**	**144.5891**	**0.0352**	**0.0000**	**145.4697**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9000e-003	0.1426	0.0295	3.2000e-004	7.2300e-003	8.6000e-004	8.0900e-003	2.0900e-003	8.3000e-004	2.9200e-003	0.0000	30.7985	30.7985	1.6200e-003	0.0000	30.8391
Worker	0.0105	7.5800e-003	0.0802	2.1000e-004	0.0217	1.5000e-004	0.0219	5.7800e-003	1.4000e-004	5.9200e-003	0.0000	19.3773	19.3773	5.3000e-004	0.0000	19.3906
Total	**0.0154**	**0.1502**	**0.1097**	**5.3000e-004**	**0.0290**	**1.0100e-003**	**0.0300**	**7.8700e-003**	**9.7000e-004**	**8.8400e-003**	**0.0000**	**50.1759**	**50.1759**	**2.1500e-003**	**0.0000**	**50.2297**

3.4 Building Construction - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1452	1.2963	1.0556	1.6600e-003		0.0793	0.0793		0.0746	0.0746	0.0000	144.5889	144.5889	0.0352	0.0000	145.4695
Total	**0.1452**	**1.2963**	**1.0556**	**1.6600e-003**		**0.0793**	**0.0793**		**0.0746**	**0.0746**	**0.0000**	**144.5889**	**144.5889**	**0.0352**	**0.0000**	**145.4695**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9000e-003	0.1426	0.0295	3.2000e-004	7.2300e-003	8.6000e-004	8.0900e-003	2.0900e-003	8.3000e-004	2.9200e-003	0.0000	30.7985	30.7985	1.6200e-003	0.0000	30.8391
Worker	0.0105	7.5800e-003	0.0802	2.1000e-004	0.0217	1.5000e-004	0.0219	5.7800e-003	1.4000e-004	5.9200e-003	0.0000	19.3773	19.3773	5.3000e-004	0.0000	19.3906
Total	**0.0154**	**0.1502**	**0.1097**	**5.3000e-004**	**0.0290**	**1.0100e-003**	**0.0300**	**7.8700e-003**	**9.7000e-004**	**8.8400e-003**	**0.0000**	**50.1759**	**50.1759**	**2.1500e-003**	**0.0000**	**50.2297**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1876	1.6980	1.4911	2.3800e-003		0.0989	0.0989		0.0930	0.0930	0.0000	204.9748	204.9748	0.0500	0.0000	206.2250
Total	**0.1876**	**1.6980**	**1.4911**	**2.3800e-003**		**0.0989**	**0.0989**		**0.0930**	**0.0930**	**0.0000**	**204.9748**	**204.9748**	**0.0500**	**0.0000**	**206.2250**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.8700e-003	0.1895	0.0374	4.6000e-004	0.0104	8.3000e-004	0.0112	3.0100e-003	7.9000e-004	3.8000e-003	0.0000	43.9723	43.9723	2.1500e-003	0.0000	44.0262
Worker	0.0138	9.6500e-003	0.1034	3.0000e-004	0.0313	2.1000e-004	0.0315	8.3200e-003	1.9000e-004	8.5200e-003	0.0000	26.9930	26.9930	6.7000e-004	0.0000	27.0096
Total	**0.0197**	**0.1991**	**0.1408**	**7.6000e-004**	**0.0417**	**1.0400e-003**	**0.0427**	**0.0113**	**9.8000e-004**	**0.0123**	**0.0000**	**70.9653**	**70.9653**	**2.8200e-003**	**0.0000**	**71.0357**

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1876	1.6980	1.4911	2.3800e-003		0.0989	0.0989		0.0930	0.0930	0.0000	204.9746	204.9746	0.0500	0.0000	206.2248
Total	**0.1876**	**1.6980**	**1.4911**	**2.3800e-003**		**0.0989**	**0.0989**		**0.0930**	**0.0930**	**0.0000**	**204.9746**	**204.9746**	**0.0500**	**0.0000**	**206.2248**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.8700e-003	0.1895	0.0374	4.6000e-004	0.0104	8.3000e-004	0.0112	3.0100e-003	7.9000e-004	3.8000e-003	0.0000	43.9723	43.9723	2.1500e-003	0.0000	44.0262
Worker	0.0138	9.6500e-003	0.1034	3.0000e-004	0.0313	2.1000e-004	0.0315	8.3200e-003	1.9000e-004	8.5200e-003	0.0000	26.9930	26.9930	6.7000e-004	0.0000	27.0096
Total	**0.0197**	**0.1991**	**0.1408**	**7.6000e-004**	**0.0417**	**1.0400e-003**	**0.0427**	**0.0113**	**9.8000e-004**	**0.0123**	**0.0000**	**70.9653**	**70.9653**	**2.8200e-003**	**0.0000**	**71.0357**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0895	0.9375	0.9019	1.4000e-003		0.0507	0.0507		0.0467	0.0467	0.0000	125.9224	125.9224	0.0398	0.0000	126.9184
Paving	3.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0898**	**0.9375**	**0.9019**	**1.4000e-003**		**0.0507**	**0.0507**		**0.0467**	**0.0467**	**0.0000**	**125.9224**	**125.9224**	**0.0398**	**0.0000**	**126.9184**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4900e-003	2.5300e-003	0.0267	7.0000e-005	7.2400e-003	5.0000e-005	7.2900e-003	1.9300e-003	5.0000e-005	1.9700e-003	0.0000	6.4591	6.4591	1.8000e-004	0.0000	6.4635
Total	**3.4900e-003**	**2.5300e-003**	**0.0267**	**7.0000e-005**	**7.2400e-003**	**5.0000e-005**	**7.2900e-003**	**1.9300e-003**	**5.0000e-005**	**1.9700e-003**	**0.0000**	**6.4591**	**6.4591**	**1.8000e-004**	**0.0000**	**6.4635**

3.5 Paving - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0895	0.9375	0.9019	1.4000e-003		0.0507	0.0507		0.0467	0.0467	0.0000	125.9222	125.9222	0.0398	0.0000	126.9182
Paving	3.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0898**	**0.9375**	**0.9019**	**1.4000e-003**		**0.0507**	**0.0507**		**0.0467**	**0.0467**	**0.0000**	**125.9222**	**125.9222**	**0.0398**	**0.0000**	**126.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4900e-003	2.5300e-003	0.0267	7.0000e-005	7.2400e-003	5.0000e-005	7.2900e-003	1.9300e-003	5.0000e-005	1.9700e-003	0.0000	6.4591	6.4591	1.8000e-004	0.0000	6.4635
Total	**3.4900e-003**	**2.5300e-003**	**0.0267**	**7.0000e-005**	**7.2400e-003**	**5.0000e-005**	**7.2900e-003**	**1.9300e-003**	**5.0000e-005**	**1.9700e-003**	**0.0000**	**6.4591**	**6.4591**	**1.8000e-004**	**0.0000**	**6.4635**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1201	1.2448	1.2967	2.0200e-003		0.0666	0.0666		0.0613	0.0613	0.0000	177.2498	177.2498	0.0573	0.0000	178.6829
Paving	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1205**	**1.2448**	**1.2967**	**2.0200e-003**		**0.0666**	**0.0666**		**0.0613**	**0.0613**	**0.0000**	**177.2498**	**177.2498**	**0.0573**	**0.0000**	**178.6829**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-003	3.2200e-003	0.0345	1.0000e-004	0.0104	7.0000e-005	0.0105	2.7700e-003	6.0000e-005	2.8400e-003	0.0000	8.9977	8.9977	2.2000e-004	0.0000	9.0032
Total	**4.6000e-003**	**3.2200e-003**	**0.0345**	**1.0000e-004**	**0.0104**	**7.0000e-005**	**0.0105**	**2.7700e-003**	**6.0000e-005**	**2.8400e-003**	**0.0000**	**8.9977**	**8.9977**	**2.2000e-004**	**0.0000**	**9.0032**

3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1201	1.2448	1.2967	2.0200e-003		0.0666	0.0666		0.0613	0.0613	0.0000	177.2495	177.2495	0.0573	0.0000	178.6827
Paving	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1205**	**1.2448**	**1.2967**	**2.0200e-003**		**0.0666**	**0.0666**		**0.0613**	**0.0613**	**0.0000**	**177.2495**	**177.2495**	**0.0573**	**0.0000**	**178.6827**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-003	3.2200e-003	0.0345	1.0000e-004	0.0104	7.0000e-005	0.0105	2.7700e-003	6.0000e-005	2.8400e-003	0.0000	8.9977	8.9977	2.2000e-004	0.0000	9.0032
Total	**4.6000e-003**	**3.2200e-003**	**0.0345**	**1.0000e-004**	**0.0104**	**7.0000e-005**	**0.0105**	**2.7700e-003**	**6.0000e-005**	**2.8400e-003**	**0.0000**	**8.9977**	**8.9977**	**2.2000e-004**	**0.0000**	**9.0032**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1044					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0164	0.1129	0.1132	1.8000e-004		7.9200e-003	7.9200e-003		7.9200e-003	7.9200e-003	0.0000	15.7025	15.7025	1.3300e-003	0.0000	15.7357
Total	**0.1208**	**0.1129**	**0.1132**	**1.8000e-004**		**7.9200e-003**	**7.9200e-003**		**7.9200e-003**	**7.9200e-003**	**0.0000**	**15.7025**	**15.7025**	**1.3300e-003**	**0.0000**	**15.7357**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0900e-003	1.5200e-003	0.0160	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1800e-003	0.0000	3.8755	3.8755	1.1000e-004	0.0000	3.8781
Total	**2.0900e-003**	**1.5200e-003**	**0.0160**	**4.0000e-005**	**4.3500e-003**	**3.0000e-005**	**4.3800e-003**	**1.1600e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.8755**	**3.8755**	**1.1000e-004**	**0.0000**	**3.8781**

3.6 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1044					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0164	0.1129	0.1132	1.8000e-004		7.9200e-003	7.9200e-003		7.9200e-003	7.9200e-003	0.0000	15.7025	15.7025	1.3300e-003	0.0000	15.7357
Total	**0.1208**	**0.1129**	**0.1132**	**1.8000e-004**		**7.9200e-003**	**7.9200e-003**		**7.9200e-003**	**7.9200e-003**	**0.0000**	**15.7025**	**15.7025**	**1.3300e-003**	**0.0000**	**15.7357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0900e-003	1.5200e-003	0.0160	4.0000e-005	4.3500e-003	3.0000e-005	4.3800e-003	1.1600e-003	3.0000e-005	1.1800e-003	0.0000	3.8755	3.8755	1.1000e-004	0.0000	3.8781
Total	**2.0900e-003**	**1.5200e-003**	**0.0160**	**4.0000e-005**	**4.3500e-003**	**3.0000e-005**	**4.3800e-003**	**1.1600e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**3.8755**	**3.8755**	**1.1000e-004**	**0.0000**	**3.8781**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1502					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0214	0.1490	0.1621	2.6000e-004		9.8200e-003	9.8200e-003		9.8200e-003	9.8200e-003	0.0000	22.5963	22.5963	1.7500e-003	0.0000	22.6400
Total	**0.1716**	**0.1490**	**0.1621**	**2.6000e-004**		**9.8200e-003**	**9.8200e-003**		**9.8200e-003**	**9.8200e-003**	**0.0000**	**22.5963**	**22.5963**	**1.7500e-003**	**0.0000**	**22.6400**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7600e-003	1.9300e-003	0.0207	6.0000e-005	6.2500e-003	4.0000e-005	6.3000e-003	1.6600e-003	4.0000e-005	1.7000e-003	0.0000	5.3986	5.3986	1.3000e-004	0.0000	5.4019
Total	**2.7600e-003**	**1.9300e-003**	**0.0207**	**6.0000e-005**	**6.2500e-003**	**4.0000e-005**	**6.3000e-003**	**1.6600e-003**	**4.0000e-005**	**1.7000e-003**	**0.0000**	**5.3986**	**5.3986**	**1.3000e-004**	**0.0000**	**5.4019**

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1502					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0214	0.1490	0.1621	2.6000e-004		9.8200e-003	9.8200e-003		9.8200e-003	9.8200e-003	0.0000	22.5963	22.5963	1.7500e-003	0.0000	22.6400
Total	**0.1716**	**0.1490**	**0.1621**	**2.6000e-004**		**9.8200e-003**	**9.8200e-003**		**9.8200e-003**	**9.8200e-003**	**0.0000**	**22.5963**	**22.5963**	**1.7500e-003**	**0.0000**	**22.6400**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7600e-003	1.9300e-003	0.0207	6.0000e-005	6.2500e-003	4.0000e-005	6.3000e-003	1.6600e-003	4.0000e-005	1.7000e-003	0.0000	5.3986	5.3986	1.3000e-004	0.0000	5.4019
Total	**2.7600e-003**	**1.9300e-003**	**0.0207**	**6.0000e-005**	**6.2500e-003**	**4.0000e-005**	**6.3000e-003**	**1.6600e-003**	**4.0000e-005**	**1.7000e-003**	**0.0000**	**5.3986**	**5.3986**	**1.3000e-004**	**0.0000**	**5.4019**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3178	1.4660	3.3833	0.0100	0.7901	0.0112	0.8013	0.2123	0.0105	0.2229	0.0000	918.1542	918.1542	0.0381	0.0000	919.1064
Unmitigated	0.3294	1.5546	3.6521	0.0111	0.8817	0.0123	0.8941	0.2370	0.0116	0.2486	0.0000	1,015.1207	1,015.1207	0.0408	0.0000	1,016.1396

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	1,512.00	0.00	0.00	2,381,334	2,133,843
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,512.00	0.00	0.00	2,381,334	2,133,843

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Elementary School	9.50	7.30	7.30	65.00	30.00	5.00	63	25	12
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Elementary School	0.514840	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.020000	0.001467	0.001229	0.006102	0.000783	0.001333
Other Non-Asphalt Surfaces	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Parking Lot	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	40.7546	40.7546	4.0800e-003	8.4000e-004	41.1078
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	40.7546	40.7546	4.0800e-003	8.4000e-004	41.1078
NaturalGas Mitigated	2.7200e-003	0.0247	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9203	26.9203	5.2000e-004	4.9000e-004	27.0803
NaturalGas Unmitigated	2.7200e-003	0.0247	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9203	26.9203	5.2000e-004	4.9000e-004	27.0803

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	504467	2.7200e-003	0.0247	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9203	26.9203	5.2000e-004	4.9000e-004	27.0803
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.7200e-003**	**0.0247**	**0.0208**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9203**	**26.9203**	**5.2000e-004**	**4.9000e-004**	**27.0803**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	504467	2.7200e-003	0.0247	0.0208	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9203	26.9203	5.2000e-004	4.9000e-004	27.0803
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.7200e-003**	**0.0247**	**0.0208**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9203**	**26.9203**	**5.2000e-004**	**4.9000e-004**	**27.0803**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	300443	39.5208	3.9500e-003	8.2000e-004	39.8633
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	9380	1.2339	1.2000e-004	3.0000e-005	1.2446
Total		**40.7546**	**4.0700e-003**	**8.5000e-004**	**41.1078**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	300443	39.5208	3.9500e-003	8.2000e-004	39.8633
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	9380	1.2339	1.2000e-004	3.0000e-005	1.2446
Total		**40.7546**	**4.0700e-003**	**8.5000e-004**	**41.1078**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2378	8.0000e-005	8.2800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	4.0000e-005	0.0000	0.0171
Unmitigated	0.2378	8.0000e-005	8.2800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	4.0000e-005	0.0000	0.0171

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0255					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2116					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.8000e-004	8.0000e-005	8.2800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	4.0000e-005	0.0000	0.0171
Total	**0.2378**	**8.0000e-005**	**8.2800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0160**	**0.0160**	**4.0000e-005**	**0.0000**	**0.0171**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0255					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2116					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.8000e-004	8.0000e-005	8.2800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	4.0000e-005	0.0000	0.0171
Total	**0.2378**	**8.0000e-005**	**8.2800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0160**	**0.0160**	**4.0000e-005**	**0.0000**	**0.0171**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.1919	0.0621	1.5300e-003	6.2004
Unmitigated	4.1919	0.0621	1.5300e-003	6.2004

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	1.89428 / 4.87102	4.1919	0.0621	1.5300e-003	6.2004
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.1919**	**0.0621**	**1.5300e-003**	**6.2004**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	1.89428 / 4.87102	4.1919	0.0621	1.5300e-003	6.2004
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.1919**	**0.0621**	**1.5300e-003**	**6.2004**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.3077	0.4319	0.0000	18.1045
Unmitigated	7.3077	0.4319	0.0000	18.1045

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	36	7.3077	0.4319	0.0000	18.1045
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.3077**	**0.4319**	**0.0000**	**18.1045**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	36	7.3077	0.4319	0.0000	18.1045
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.3077**	**0.4319**	**0.0000**	**18.1045**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX D

Noise Study

Existing Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2016-225
Project Name: Lincoln Crossing South Elementary School

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: WSP (2018)
Community Noise Descriptor: L_{dn}: ____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition: Existing

Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	Distance to Contour: 65 CNEL	Distance to Contour: 60 CNEL	Distance to Contour: 55 CNEL	Calc Dist
Ferrari Ranch Road													
Northeast of Joiner Parkway	4	0	5,580	45	0.5	1.8%	0.1%	58.3	-	-	77	165	100
Joiner Parkway to Groveland Lane	6	0	8,280	45	0.5	1.8%	0.1%	60.2	-	-	103	221	100
65 Ramps to Caledon Circle (east)	5	0	16,830	45	0.5	1.8%	0.1%	63.1	-	75	162	349	100
Caledon Circle (east) to Sorrento Parkway	4	0	7,380	45	0.5	1.8%	0.1%	59.5	-	-	92	199	100
Sorrento Parkway to Caledon Circle (west)	4	0	3,015	45	0.5	1.8%	0.1%	55.6	-	-	51	109	100
Caledon Circle (east intersection)													
Ferrari Ranch Road to School Site	4	0	8,955	25	0.5	1.8%	0.1%	53.9	-	-	-	85	100

Existing + Project
(Year 2020)
Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2016-225
Project Name: Lincoln Crossing South Elementary School

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: WSP (2018)
Community Noise Descriptor: L_{dn}: ______ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition: Existing + Project Year 2020 Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Distance from Centerline of Roadway CNEL at 100 Feet	Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
Ferrari Ranch Road													
Northeast of Joiner Parkway	4	0	5,580	45	0.5	1.8%	0.1%	58.3	-	-	77	165	100
Joiner Parkway to Groveland Lane	6	0	8,280	45	0.5	1.8%	0.1%	60.2	-	-	103	221	100
65 Ramps to Caledon Circle (east)	5	0	16,830	45	0.5	1.8%	0.1%	63.1	-	75	162	349	100
Caledon Circle (east) to Sorrento Parkway	4	0	7,740	45	0.5	1.8%	0.1%	59.7	-	44	95	205	100
Sorrento Parkway to Caledon Circle (west)	4	0	3,915	45	0.5	1.8%	0.1%	56.7	-	-	60	130	100
Caledon Circle (east intersection)													
Ferrari Ranch Road to School Site	4	0	9,405	25	0.5	1.8%	0.1%	54.1	-	-	-	88	100

Cumulative No Project
Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2016-225
Project Name: Lincoln Crossing South Elementary School

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: WSP (2018)
Community Noise Descriptor: L_{dn}: ______ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition: Cumulative NO Project

Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	Distance to Contour: 65 CNEL	Distance to Contour: 60 CNEL	Distance to Contour: 55 CNEL	Calc Dist
Ferrari Ranch Road													
Northeast of Joiner Parkway	4	0	8,640	45	0.5	1.8%	0.1%	60.2	-	48	102	221	100
Joiner Parkway to Groveland Lane	6	0	14,490	45	0.5	1.8%	0.1%	62.6	-	69	149	321	100
65 Ramps to Caledon Circle (east)	5	0	27,900	45	0.5	1.8%	0.1%	65.3	-	105	227	488	100
Caledon Circle (east) to Sorrento Parkway	4	0	18,450	45	0.5	1.8%	0.1%	63.4	-	79	170	366	100
Sorrento Parkway to Caledon Circle (west)	4	0	14,085	45	0.5	1.8%	0.1%	62.3	-	66	142	306	100
Caledon Circle (east intersection)													
Ferrari Ranch Road to School Site	4	0	8,955	25	0.5	1.8%	0.1%	53.9	-	-	-	85	100

Cumulative + Project
(Year 2030)
Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2016-225
Project Name: Lincoln Crossing South Elementary School

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: WSP (2018)
Community Noise Descriptor: L_{dn}: ______ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition: Cumulative + Project Year 2030

Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Centerline of Roadway: CNEL at 100 Feet	Distance to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
Ferrari Ranch Road													
Northeast of Joiner Parkway	4	0	8,640	45	0.5	1.8%	0.1%	60.2	-	48	102	221	100
Joiner Parkway to Groveland Lane	6	0	14,490	45	0.5	1.8%	0.1%	62.6	-	69	149	321	100
65 Ramps to Caledon Circle (east)	5	0	27,900	45	0.5	1.8%	0.1%	65.3	-	105	227	488	100
Caledon Circle (east) to Sorrento Parkway	4	0	19,260	45	0.5	1.8%	0.1%	63.6	-	81	175	376	100
Sorrento Parkway to Caledon Circle (west)	4	0	14,490	45	0.5	1.8%	0.1%	62.4	-	67	145	311	100
Caledon Circle (east intersection)													
Ferrari Ranch Road to School Site	4	0	9,855	25	0.5	1.8%	0.1%	54.3	-	-	-	90	100

APPENDIX E

Traffic Study

DRAFT LINCOLN CROSSING SOUTH ELEMENTARY SCHOOL

TRANSPORTATION IMPACT STUDY

Prepared for
Western Placer Unified School District
600 Sixth Street, Suite 400
Lincoln, CA 95648

Prepared by
WSP USA
2150 River Plaza Drive, Suite 400
Sacramento, CA 95833

August 2018

EXECUTIVE SUMMARY

A forecast was made of the traffic likely to be generated from Phase 1 and, separately, the full buildout of the proposed Lincoln Crossing South Elementary School. An analysis was then performed of the seven intersections most likely to be impacted by the school. The analysis found that there would be no significant transportation impacts for either Phase 1 or Full Buildout of the school.

Table of Contents

EXHIBITS

APPENDICES

1 INTRODUCTION

1.1 BACKGROUND

The proposed Lincoln Crossing South Elementary School (the Project) is located in the Lincoln Crossing Specific Plan area. In 1992, the City of Lincoln approved the Lincoln Crossing Specific Plan (LCSP), which was later revised in 2001 and then again in 2003. Areas were set aside in the LCSP for future educational uses. The 1992 and 2001 versions of the Specific Plan identified an area for an elementary school located on what is now Caledon Circle. This area was north of the area identified for this use in the 2003 Specific Plan. The proposed Project site is consistent with the elementary school site location in the 2003 Specific Plan (i.e. the current plan).

1.2 PURPOSE OF STUDY

The Western Placer Unified School District (WPUSD) has commenced an initial study to identify and assess the anticipated environmental impacts of the Lincoln Crossing South Elementary School Master Plan (Project or Proposed Project) to satisfy the requirements of the California Environmental Quality Act (CEQA). The purpose of this Transportation Impact Study (TIS) is to support that CEQA document by analyzing and disclosing potential off-site traffic and transportation impacts of the proposed Lincoln Crossing South Elementary School in the City of Lincoln, CA.

1.3 SCOPE OF THE STUDY

As shown in Exhibit 1, the proposed project is located in South Lincoln Crossing area west of SR 65 in the City of Lincoln. It is surrounded by Caledon Circle to the north, Brentford Circle to the both east and west, and a trail extended from Alberton Circle. Exhibit 1 shows the location of the study intersections.

Exhibit 1 Study Intersections

This study analyzed the following four scenarios:

- Existing Conditions
- Existing Plus Phase 1 Conditions
- Cumulative (2030) No-Project Conditions
- Cumulative (2030) Plus Full Buildout Conditions

1.4 LEVEL OF SERVICE METHODOLOGY

Traffic operational conditions at intersections are described in terms of traffic Level of Service (LOS) which ranges from LOS A, which indicates that vehicles experience little delay in passing through the intersection, to LOS F, which indicates that vehicles are likely to encounter long queues and stop-and-go conditions. In the City of Lincoln, the Circular 212 Planning Method is used for signalized intersections for non-state highways, while Highway Capacity Manual (HCM) 6 is used for state highways and for unsignalized intersections.

Exhibit 2 Intersection LOS Definitions

Level of Service	Description	Signalized Intersections		Unsignalized[2]
		V/C Ratio[1]	Avg. Delay[2]	
A	Volume-to-capacity ratio is low and either the progression is exceptionally favorable or the cycle length is short. If due to favourable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤ 0.600	≤ 10	≤ 10
B	Volume-to-capacity ratio is low and either the progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	0.601-to-0.700	> 10 to 20	> 10 to 15
C	Progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e. one or more queued vehicles are not able to depart as a result of insuffucient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	0.701-to-0.800	> 20 to 35	> 15 to 25
D	Volume-to-capacity ratio is high and either progression is ineffective or cycle length is long. Most vehicles stop and individual cycle failures are noticeable.	0.801-to-0.900	> 35 to 55	> 25 to 35
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	0.901-to-1.000	> 55 to 80	> 35 to 50
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 1.000	> 80	> 50

Source: 1. V/C Ratios, *Highway Capacity Manual 1985*, Transportation Research Board
2. *Highway Capacity Manual 6*, Transportation Research Board

Note: The description is from the HCM 6 chapter on signalized intersections. For signalized intersections the LOS is based on the average (second/vehicle) for all vehicles entering the intersection. For unsignalized intersections the LOS is based on the delay (second/vehicle) for the worst-performing approach.

1.5 LEVEL OF SERVICE STANDARD AND IMPACT CRITERIA

The minimum acceptable levels of service for traffic operations are defined in the Traffic Impact Study Guidelines of the City of Lincoln, adopted in June 2004. It states:

> *"…Intersection level of service "C" shall be the peak hour design objective. A LOS worse than "C" shall not be acceptable unless the intersection is operating worse than LOS "C" prior to project construction or the City's General Plan identifies a LOS worse than "C" as being acceptable*."

The SR 65 Corridor System Management Plan (CSMP) establishes a 20-year Concept LOS E for SR 65 near proposed project site. The City of Lincoln General Plan T-2.4 states that the City shall coordinate with Caltrans in order to strive to maintain a minimum LOS "D" for SR 65 and SR 193.

Based on these policies, Exhibit 3 summarizes the analysis method and target LOS for each study intersection.

Exhibit 3 Analysis Method and Target LOS

ID	Intersection Name	Jurisdiction	Control Type	Analysis Method	Target LOS
1	Caledon Circle (W)/Ferrari Ranch Road	City of Lincoln	AWSC	HCM	C
2	Sorrento Parkway/Ferrari Ranch Road	City of Lincoln	AWSC	HCM	C
3	Caledon Circle (E)/Ferrari Ranch Road	City of Lincoln	Signal	Circular 212	C
4	SR 65 SB Ramps/Ferrari Ranch Road	Caltans	Signal	HCM	D
5	SR 65 NB Ramps/Ferrari Ranch Road	Caltans	Signal	HCM	D
6	Groveland Lane/Ferrari Ranch Road	City of Lincoln	Signal	Circular 212	C
7	Joiner Parkway/Ferrari Ranch Road	City of Lincoln	Signal	Circular 212	C

The following describes the significance criteria used to identity transportation-related project impacts. The significance criteria were taken from the City of Lincoln General Plan and Caltrans' criteria. This is consistent with previous environmental studies adopted by the City of Lincoln[1][2]:

- An intersection operates at an acceptable LOS under a no project scenario and the addition of project trips causes an unacceptable LOS.
- An intersection is already operating at an unacceptable LOS (without project) and the addition of project trips deteriorates by one grade or increases the volume-to-capacity ratio by at least 0.05 or the average vehicle delay by at least five seconds for City of Lincoln.
- An intersection is already operating at an unacceptable LOS (without project) and the addition of project trips increases the average vehicle delay by one second or more for Caltrans.

1.6 FUTURE FORECASTING

The Western Placer Unified School District (WPUSD) expects to open the proposed elementary school in fall 2020. The approved project list was obtained from the City's Current Development Projects web page[3]. Given proximity to the proposed project, Village 7 was a potential approved project, however, the City of Lincoln staff did not expect any development before fall 2020. Therefore, the open year traffic would be similar to the existing conditions, given that the Southern Lincoln Crossing area has been buildout and has a limited access.

In review of recent EIRs in the City of Lincoln, Village 5 Specific Plan[4] included both full buildout of Village 5 and Village 7 in its 2035 scenario. The amount of development by 2030 in these specific plan areas will be dictated by the housing market demand. For the purpose of this project, the full buildout of Village 5 and Village 7 developments were assumed in the 2030 No-Project scenario to be conservative.

A forecast of traffic from the proposed Village 5 project was derived from data used in the EIR for the Village 5 Specific Plan by taking the difference in traffic volume between its Cumulative Plus Village 5 traffic forecasts minus the Cumulative No Project forecasts. Future traffic from Village 7 was derived the same way from data in the EIR for the Village 7 Specific Plan. Due to the absence of Cumulative AM peak hour forecasts, the AM peak hour trip distribution was estimated by combination of reversing Cumulative PM peak hour forecasts and applying the ratio between in and out project trips of AM and PM peak hours.

The Cumulative No-Project forecasts for this study was developed by manually adding trips from the full buildout of the Village 5 and Village 7 to the existing counts. The Cumulative Plus Project traffic was prepared by adding the proposed project traffic to the Cumulative No-Project forecasts.

[1] City of Lincoln, 2009. Draft Environmental Impact Report for the Village 7 Specific Plan. June 2008. P. 4.3-30
[2] City of Lincoln, 2012. Draft Environmental Impact Report for the Village 1 Specific Plan. May 2012. P. 4.14-23
[3] http://www.lincolnca.gov/about-lincoln/current-development-projects. Published in April 2017.
[4] City of Lincoln, 2015 Draft Environmental Impact Report for the Village 5 Specific Plan. August 2016.

2 TRANSPORTATION SETTING

2.1 EXISTING LAND USE

The proposed project is located in the South Lincoln Crossing area west of SR 65 Lincoln Bypass (see Exhibit 1). As the aerial photo shows, the proposed project site is currently vacant and the surrounding area has been fully developed with residential housing, neighborhood parks, and wetlands.

2.2 EXISTING ROADWAY SYSTEM

Important roadways in the vicinity of the proposed project include:

- State Route 65 (SR 65) is a north-south state highway connecting I-80 in Roseville area to SR 70 south of Marysville. It is a four-lane freeway from I-80 to east of Nelson Lane. It becomes a four- or two-lane highway from Nelson to the north.
- Ferrari Ranch Road is an east-west 4-lane arterial that connects South Lincoln Crossing area to SR 65, Joiner Parkway, Lincoln Parkway, and SR 193. It is six lanes between SR 65 and Joiner Parkway, and it becomes two lane road near Del Webb community.
- Joiner Parkway is a two-lane north-south roadway connecting Lincoln crossing community, Del Webb community, and the City of Rocklin.

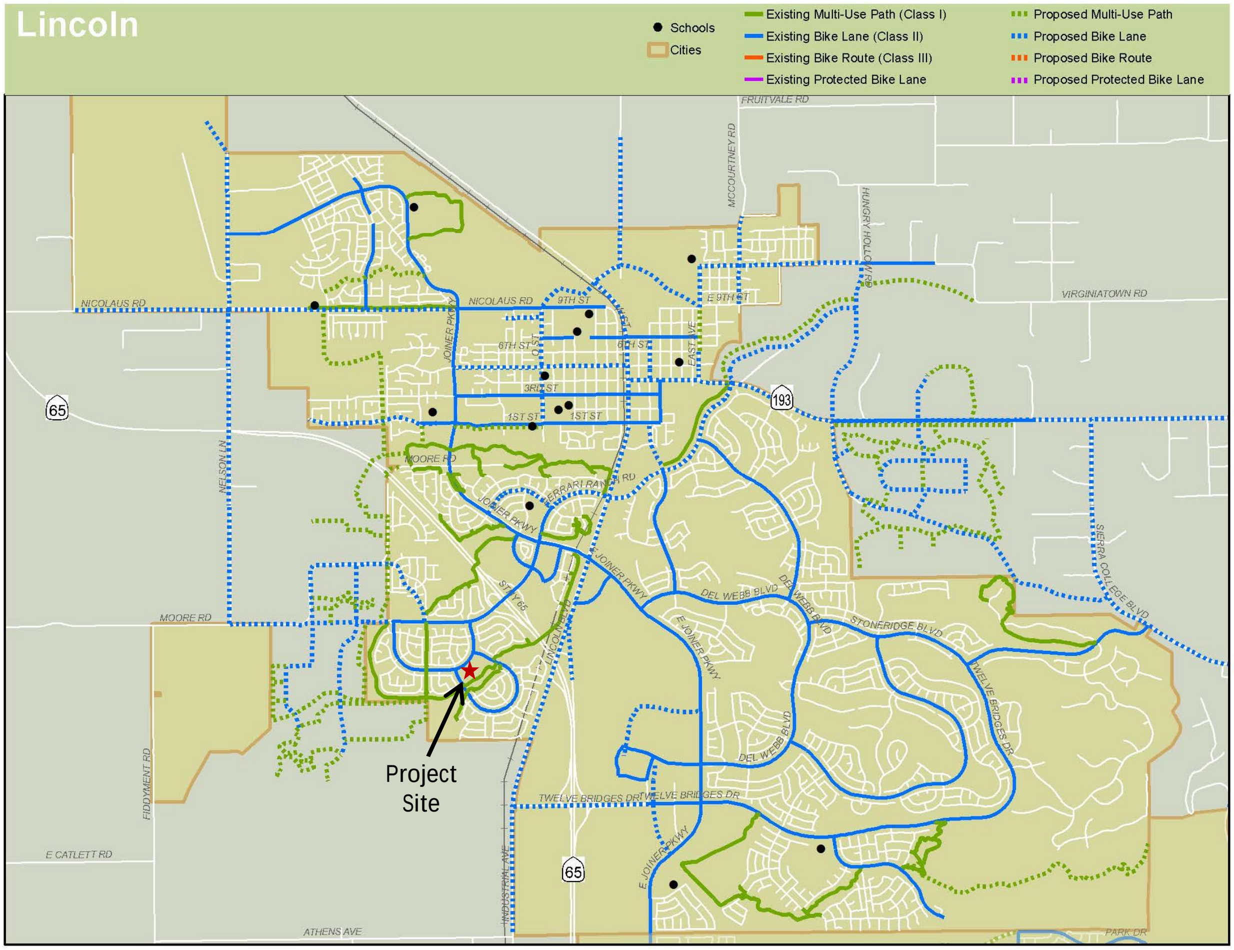
2.3 EXISTING PEDESTRIAN FACILITIES

The most nearby streets have sidewalks on both sides, and crosswalks and pedestrian signals are provided at the major intersections.

2.4 EXISTING AND PLANNED BICYCLE FACILITIES

Exhibit 4 shows existing and planned bicycle network in the City of Lincoln. Class II bike lanes, which are designated for use by bicycles by striping or signs, exist on all major roads in the project vicinity.

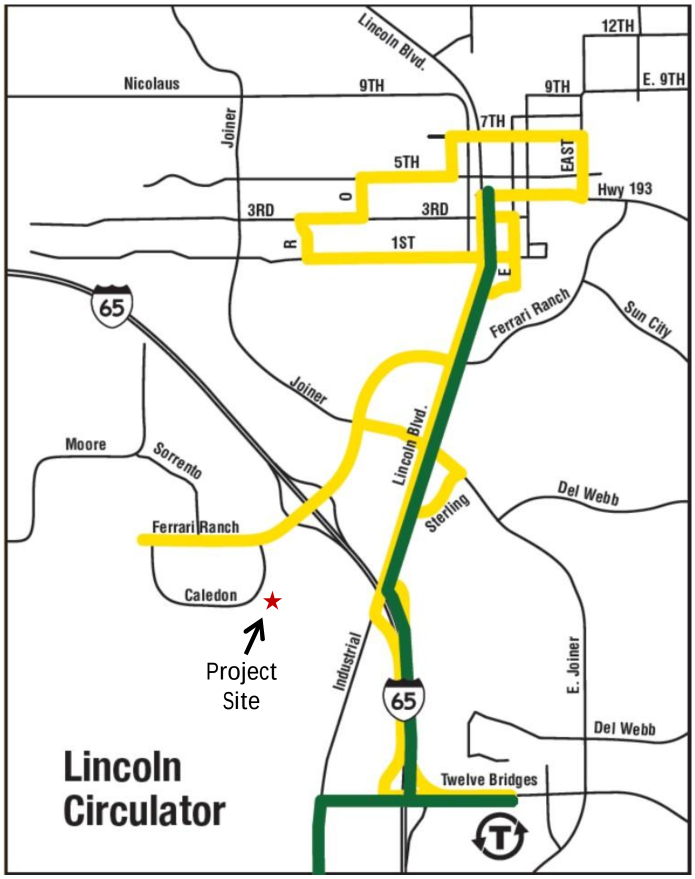
Exhibit 4   Existing and Planned Bike Lanes (Source: SACOG, 2015)



2.5 EXISTING TRANSIT FACILITIES

Exhibit 5 shows transit service routes in the City of Lincoln. The Lincoln Circular route in yellow connects Ferrari Ranch Road in South Lincoln Crossing to several points throughout the City of Lincoln. Placer County Transit also provides dial-a-ride service in Lincoln and Rocklin areas.

Exhibit 5 Existing Transit Service



3 EXISTING CONDITIONS

3.1 ROADWAY

The City of Lincoln provided roadway counts in the vicinity of the proposed elementary school that were collected in October 2016. Exhibit 7 displays these roadway counts along with intersection counts.

3.2 INTERSECTIONS

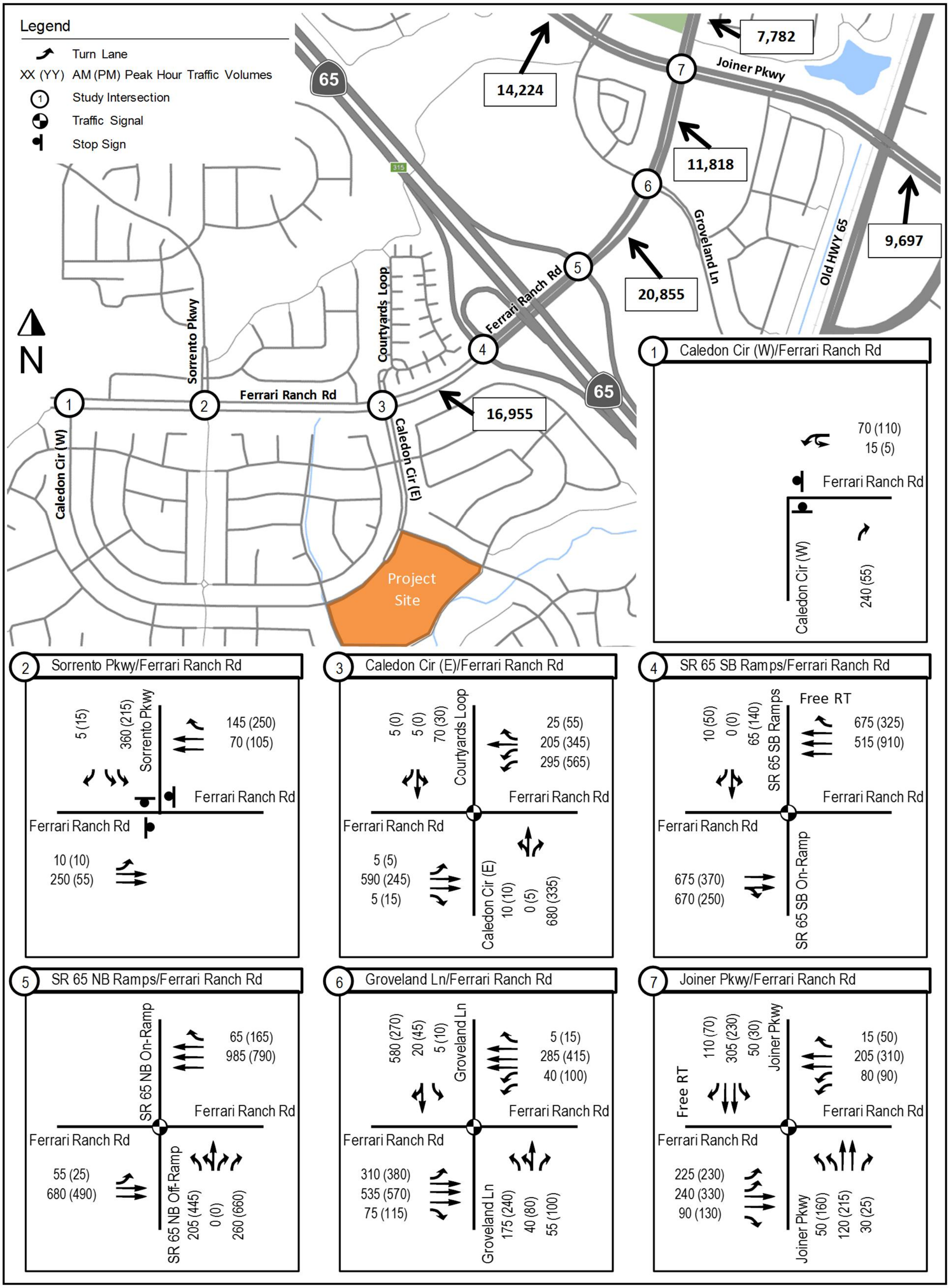
AM and PM peak period intersection turning movement counts were collected at the seven study intersections on midweek days in May 2018 when nearby schools were in session. The morning peak hour was found to be 7:15 to 8:15 a.m. while the afternoon peak hour was from 4:45 to 5:45 p.m. Exhibit 7 shows the existing AM and PM peak hour traffic volumes, lane configurations, and traffic control types for the study intersections (see Appendix A for the traffic counts). The existing LOS operations for study intersections are summarized in Exhibit 6 (see Appendix B for detailed LOS calculation worksheets). As shown, one intersection does not meet the LOS target under existing conditions, namely:

- Intersection #3: Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour

Exhibit 6 Intersection LOS: Existing Conditions

ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour		PM Peak Hour	
				Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	9.0	A	7.6	A
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	11.1	B	8.0	A
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	0.808	**D**	0.532	A
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	5.0	A	5.1	A
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	9.1	A	10.8	B
6	Groveland Lane/Ferrari Ranch Road	Signal	C	0.748	C	0.670	B
7	Joiner Parkway/Ferrari Ranch Road	Signal	C	0.271	A	0.323	A

Exhibit 7 Traffic Volumes and Lane Configurations: Existing Conditions



4 EXISTING PLUS PHASE 1 CONDITIONS

4.1 PROJECT DESCRIPTION

The proposed project would create a new elementary school on a currently vacant parcel (APN 327-010-014-000) owned by WPUSD and one owned by the City of Lincoln (APN 327-010-012-000). Actual school development would occur only on the WPUSD 9.4 acre parcel while WPUSD would also improve 4.8 acres of the city-owned parcel with grass and irrigation.

Exhibit 8 shows the campus site plan. The school has been designed to accommodate an anticipated school enrollment of 650 students with future expansion potential to accommodate 150 more students for a total of 800. Actual construction of future expansion will be contingent upon enrollment trends and funding.

Exhibit 8 Elementary School Campus Master Plan

4.2 TRIP GENERATION AND DISTRIBUTION

Project trip generations for opening day and potential future expansion were summarized in Exhibit 9 using the latest ITE Trip Generation Manual[5].

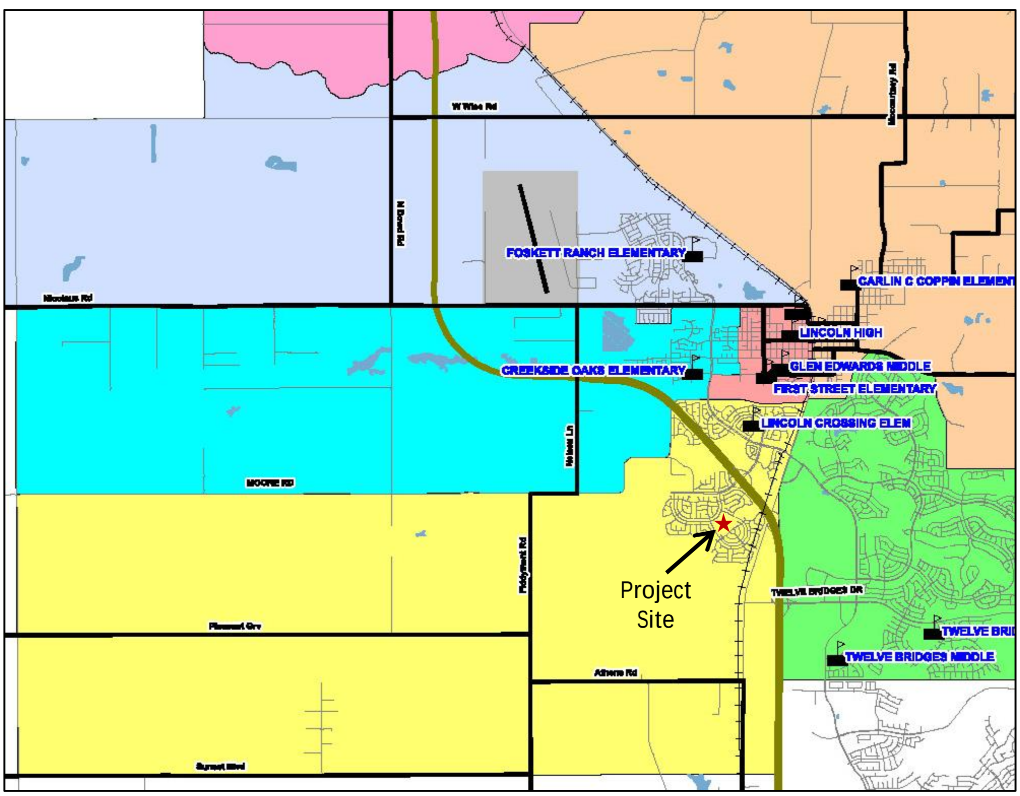
Exhibit 9 Vehicle-Trips Generated by Project

Land Use	Daily		AM Peak Hour					PM Peak Hour				
	Rate	Vehicle Trip	Rate	In (%)	Out (%)	Vehicle Trip In	Vehicle Trip Out	Rate	In (%)	Out (%)	Vehicle Trip In	Vehicle Trip Out
Elementary School Opening Day (650 Students)[1]	1.89	1,229	0.67	54%	46%	235	201	0.17	48%	52%	53	58
Elementary School Buildout (800 Students)[1]	1.89	1,512	0.67	54%	46%	289	247	0.17	48%	52%	65	71

Sources:
1. Trip rates for Code #520, ITE Trip Generation Manual, 10th Edition

Exhibit 10 shows the current elementary school boundary near the City of Lincoln. As shown, the proposed elementary school is within Lincoln Crossing (North) Elementary School. The Lincoln Crossing North Elementary School is currently overcrowded. According to WPUSD Demographics Study[6], of the 997 elementary students within this school boundary, 647 students were accepted to this school and 350 sent to other schools, and no one from other school boundaries attends it due to the school capacity.

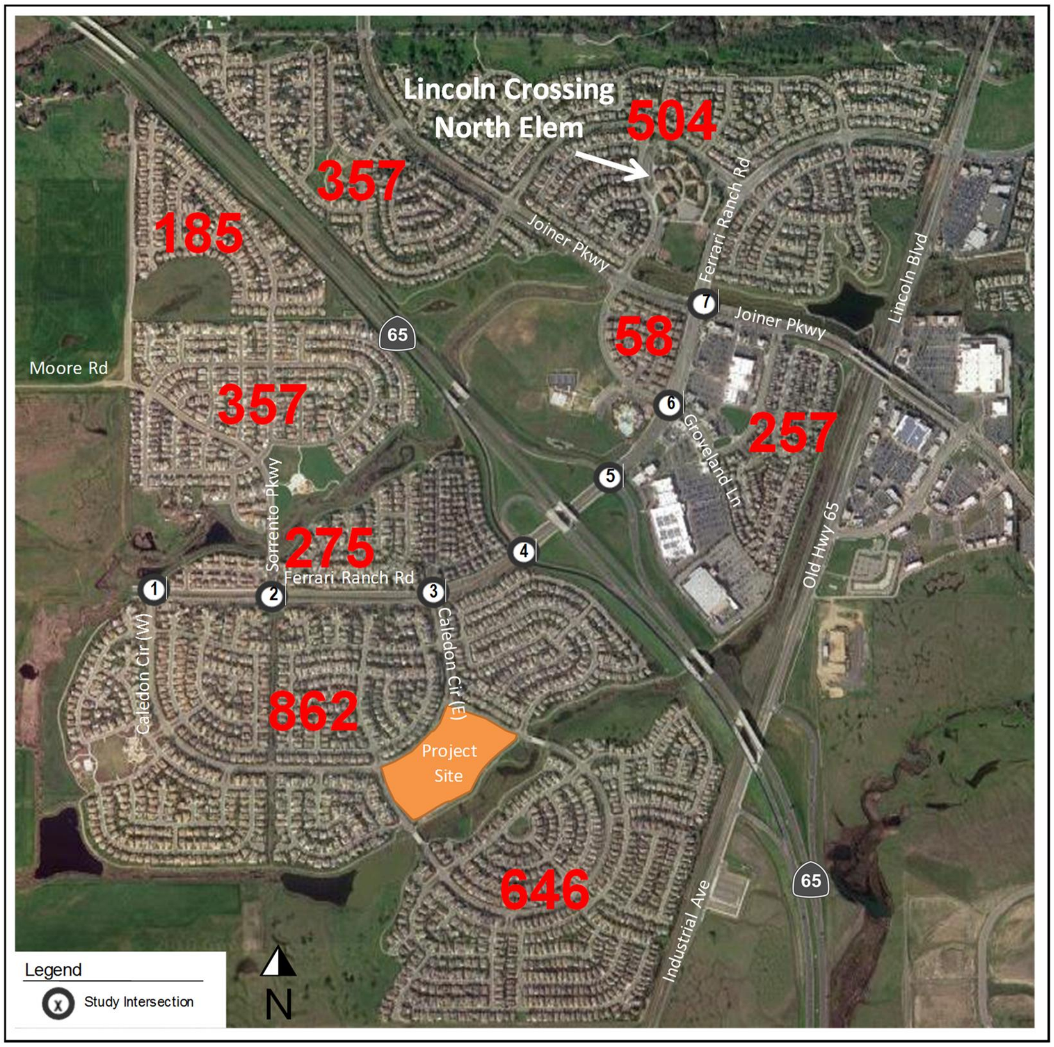
Exhibit 10 Current Elementary School Boundary



[5] ITE Trip Generation Manual, 10th Edition
[6] Western Placer Unified School District Demographic Study 2017/18, December 2017

Exhibit 11 shows house rooftop counts within the Lincoln Crossing area. There are 2,325 houses (66%) in the southwest of the SR 65 (Southern Lincoln Crossing area) while 1,176 houses (34%) in the northeast (Northern Lincoln Crossing area) of it.

Exhibit 11 House Allocation in Lincoln Crossing Area



Once the proposed elementary school is opened, the 350 students who were sent to other elementary schools would likely be re-assigned to their local elementary school. Students living in Northern Lincoln Crossing area who currently attend Lincoln Crossing North Elementary will likely continue to go their designated neighborhood school while those students attending Lincoln Crossing North Elementary who live in the Southern Lincoln Crossing area may or may not switch to their designated neighborhood elementary.

Exhibit 12 summarizes the estimated elementary students per house according to the 2016 American Community Survey. The houses in the active adult community, Sun City Lincoln Hills, were removed from the total for this calculation since no school-age children live there. The survey found an average of 0.315 elementary students per house. The 2,325 houses in Southern Lincoln Crossing area are therefore expected to have approximately 732 elementary students. As it is more than the opening year capacity, we assumed that all students will come from Southern Lincoln Crossing area (none will come from outside areas).

Exhibit 12 Estimated Students per House

City	Total Housing Units	Houses in Sun City Lincoln Hills	Remainder Houses	Age 5 to 9 Population	Estimated Elementary Students Per House
Lincoln	17,961	6,783	11,178	3,523	0.315
Source: American Community Survey, 2016					

The trip distribution of the proposed project was developed based on the location of the houses that will be served by the school. Exhibit 13 presents the assumed trip distribution of the proposed project.

Exhibit 13 Distribution of Project Trips

4.3 INTERSECTIONS

Traffic volumes for the Existing Plus Phase 1 were developed by manually adding the proposed project traffic to the existing counts. The resulting Existing Plus Phase 1 traffic volumes are shown in Exhibit 16. The corresponding intersection LOS is shown in Exhibit 14 (see Appendix C for detailed worksheets). The target LOS would not be met at one location. This is the same intersection that would not meet the target LOS under Existing Conditions:

- Intersection #3: Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour

Exhibit 14 Intersection LOS: Existing Plus Phase 1 Conditions

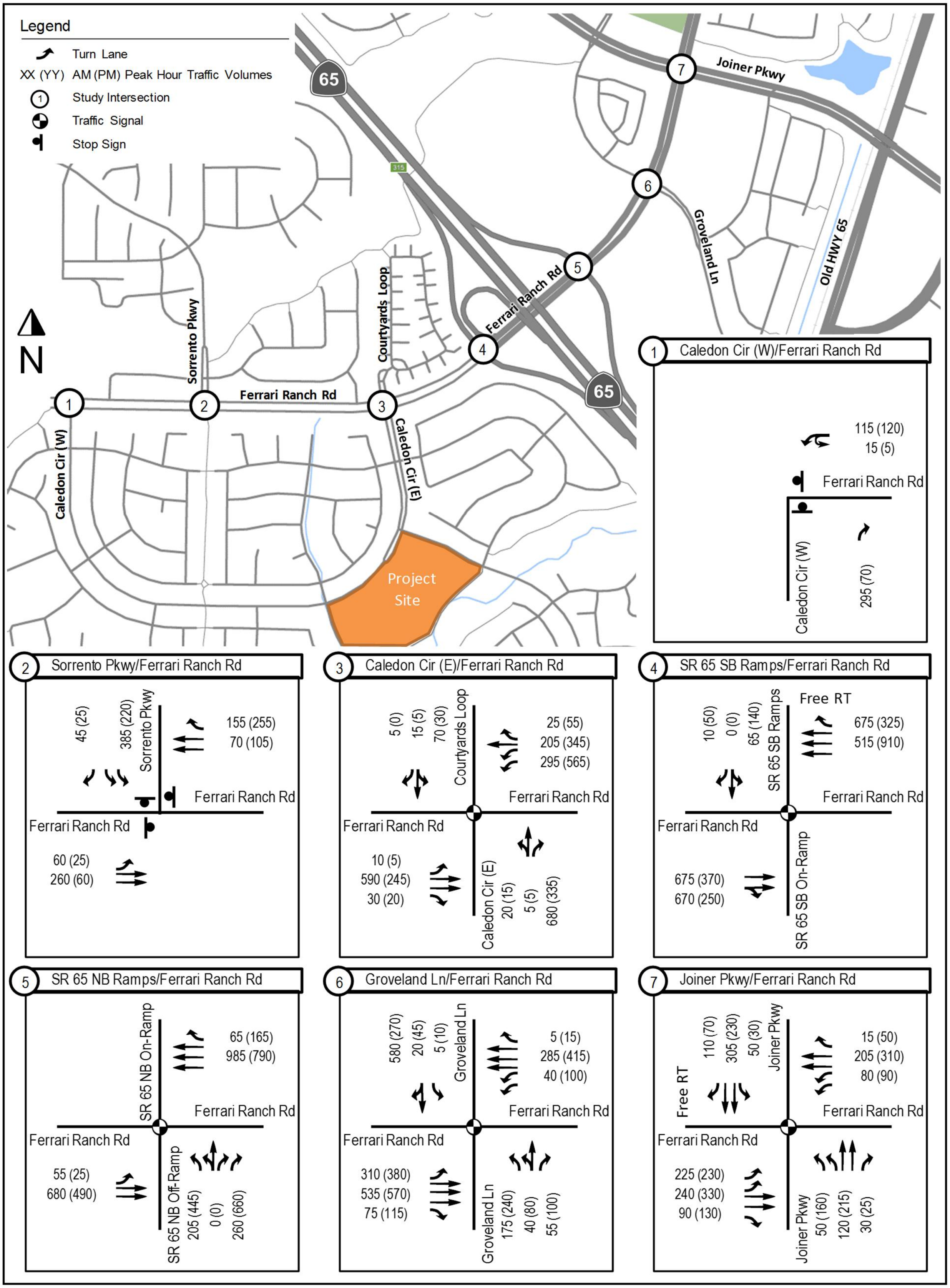
ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour				PM Peak Hour			
				No Project		Plus Phase 1		No Project		Plus Phase 1	
				Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	9.0	A	10.6	B	7.6	A	7.7	A
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	11.1	B	11.7	B	8.0	A	8.2	A
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	0.808	**D**	0.815	**D**	0.532	A	0.536	A
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	5.0	A	5.0	A	5.1	A	5.1	A
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	9.1	A	9.1	A	10.8	B	10.8	B
6	Groveland Lane/Ferrari Ranch Road	Signal	C	0.748	C	0.748	C	0.670	B	0.670	B
7	Joiner Parkway/Ferrari Ranch Road	Signal	C	0.271	A	0.271	A	0.323	A	0.323	A

Exhibit 15 summarizes the results of the intersection impact analysis based on the City's significance thresholds. As shown, Phase 1 of the Project would have no significant traffic impacts. Although the Caledon Circle (E)/Ferrari Ranch Road intersection would not meet the target LOS under both Existing and Existing Plus Phase 1 Conditions, the increase in the volume-to-capacity ratio caused by the Project was less than 0.05 with the Phase 1, so the Project's impact is less than significant.

Exhibit 15 Determination of Intersection Impacts for Existing Plus Phase 1

ID	Intersection Name	Control Type	LOS Standard	Existing Scenarios					
				AM Peak Hour			PM Peak Hour		
				No Project LOS	Plus Phase 1 LOS	Project Has Impact?	No Project LOS	Plus Phase 1 LOS	Project Has Impact?
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	A	B	No	A	A	No
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	B	B	No	A	A	No
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	**D**	**D**	No	A	A	No
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	A	A	No	A	A	No
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	A	A	No	B	B	No
6	Groveland Lane/Ferrari Ranch Road	Signal	C	C	C	No	B	B	No
7	Joiner Parkway/Ferrari Ranch Road	Signal	C	A	A	No	A	A	No

Exhibit 16 Traffic Volumes and Lane Configurations: Existing Plus Phase 1 Conditions



5 CUMULATIVE NO-PROJECT CONDITIONS

5.1 INTERSECTIONS

Traffic volumes for the Cumulative (2030) No-Project Conditions were developed by manually adding the traffic from the full buildout of the Village 5 and Village 7 to the existing counts. In addition, the following roadway improvement associated with Village 7 development was included:

- Extend Ferrari Ranch Road from the current end to the Village 7

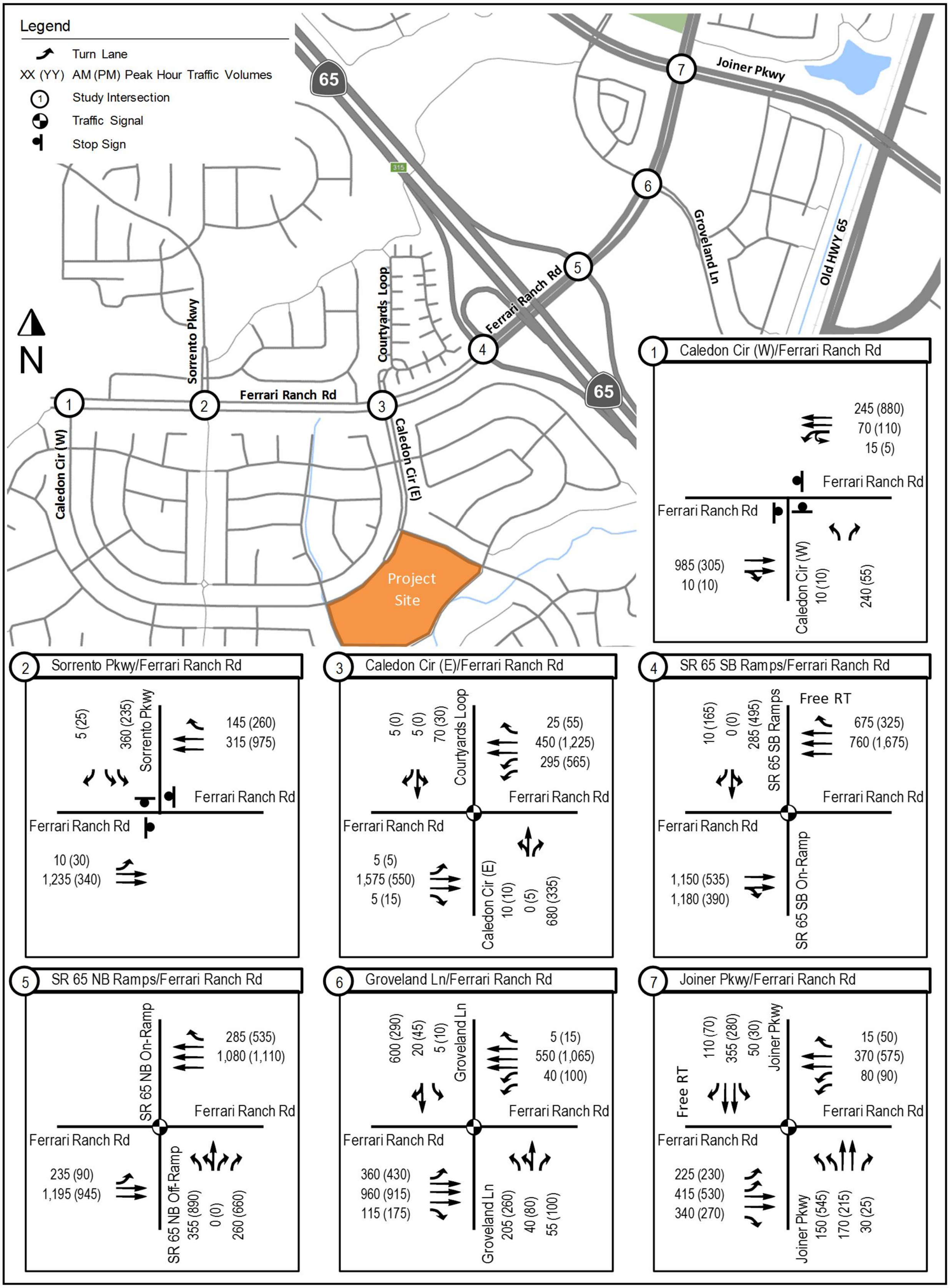
We assumed that the westbound lane configurations at the intersection of Caledon Circle (E)/Ferrari Ranch Road will be re-configured to be two westbound through lanes by utilizing an unused westbound left-turn pocket. The resulting Cumulative No-Project intersection turning movement volumes are shown in Exhibit 18, and the corresponding LOS is shown in Exhibit 17 (see Appendix D for detailed worksheets). The target LOS would not be met at the following five locations:

- Intersection #1, Caledon Circle (W)/Ferrari Ranch Road, during AM peak hour
- Intersection #2, Sorrento Parkway/Ferrari Ranch Road, during both AM and PM peak hours
- Intersection #3, Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour
- Intersection #4, SR 65 SB Ramps/Ferrari Ranch Road, during AM peak hour
- Intersection #6, Groveland Lane/Ferrari Ranch Road, during both AM and PM peak hours

Exhibit 17 Intersection LOS: Cumulative No-Project Conditions

ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour		PM Peak Hour	
				Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	76.8	**F**	19.2	C
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	80.1	**F**	33.8	**D**
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	1.137	**F**	0.655	B
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	64.3	**E**	12.8	B
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	13.4	B	14.8	B
6	Groveland Lane/Ferrari Ranch Road	Signal	C	0.864	**D**	0.869	**D**
7	Joiner Parkway/Ferrari Ranch Road	Signal	C	0.379	A	0.569	A

Exhibit 18 Traffic Volumes and Lane Configurations: Cumulative No-Project Conditions



6 CUMULATIVE PLUS FULL BUILDOUT CONDITIONS

6.1 INTERSECTIONS

Traffic volumes for the Cumulative Plus Full Buildout was developed by manually overlaying the proposed project traffic to the Cumulative No-Project traffic. Both Village 5 and Village 7 developments will both have their own elementary school at each development. However, development of an elementary school may be delayed as experienced in the South Lincoln Crossing area. Therefore, additional school capacity of 150 at the buildout conditions was assumed to come from the west of the intersection #1, Caledon Circle (W)/Ferrari Ranch Road. The resulting Cumulative Plus Full Buildout traffic volumes are shown in Exhibit 21, and the corresponding intersection LOS is shown in Exhibit 19 (see Appendix E for detailed worksheets). The target LOS would not be met at the following five locations:

- Intersection #1, Caledon Circle (W)/Ferrari Ranch Road, during AM peak hour
- Intersection #2, Sorrento Parkway/Ferrari Ranch Road, during both AM and PM peak hours
- Intersection #3, Caledon Circle (E)/Ferrari Ranch Road, during AM peak hour
- Intersection #4, SR 65 SB Ramps/Ferrari Ranch Road, during AM peak hour
- Intersection #6, Groveland Lane/Ferrari Ranch Road, during both AM and PM peak hours

These are the same intersections that would not meet the target LOS under the Cumulative No-Project conditions.

Exhibit 19 Intersection LOS: Cumulative Plus Full Buildout Conditions

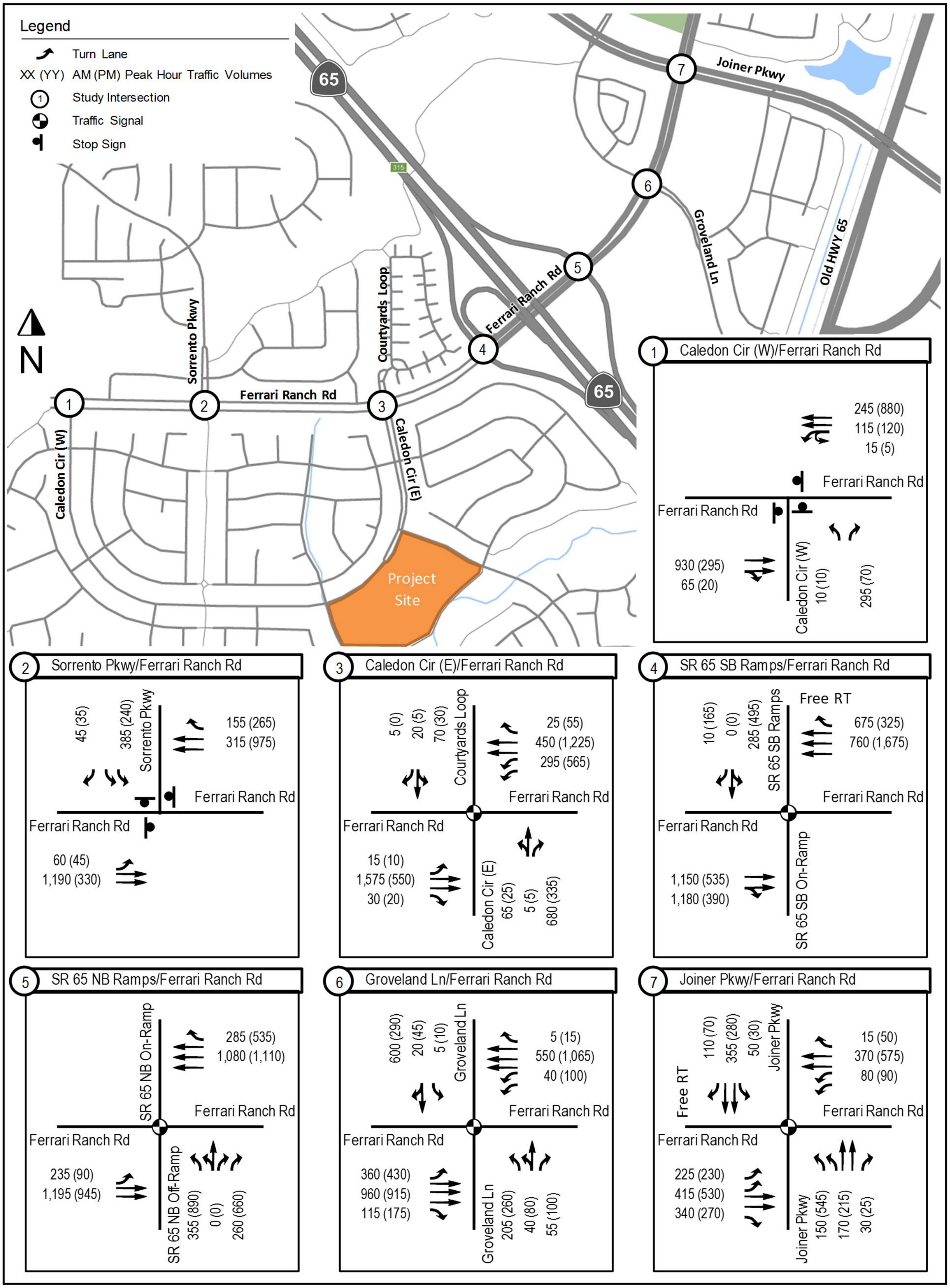
ID	Intersection Name	Control Type	LOS Standard	AM Peak Hour				PM Peak Hour			
				No Project		Plus Phase 1		No Project		Plus Phase 1	
				Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS	Delay (sec) or V/C	LOS
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	76.8	**F**	75.0	**F**	19.2	C	19.6	C
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	80.1	**F**	79.6	**F**	33.8	**D**	34.8	**D**
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	1.137	**F**	1.147	**F**	0.655	B	0.662	B
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	64.3	**E**	64.3	**E**	12.8	B	12.8	B
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	13.4	B	13.4	B	14.8	B	14.8	B
6	Groveland Lane/Ferrari Ranch Road	Signal	C	0.864	**D**	0.864	**D**	0.869	**D**	0.869	**D**
7	Joiner Parkway/Ferrari Ranch Road	Signal	C	0.379	A	0.379	A	0.569	A	0.569	A

Exhibit 20 summarizes the results of the intersection impact analysis based on the significance thresholds. As shown, full build-out of the Project would not result in any significant traffic impacts. Although the target LOS would not be met at these intersections under both Cumulative No-Project and Plus Full Buildout Conditions, the Project would increase the average vehicle delay by less than 5 seconds or the Volume-to-Capacity ratio by less than 0.05, so the Project's impacts would be less than significant.

Exhibit 20 Determination of Intersection Impacts for Cumulative Plus Full Buildout

ID	Intersection Name	Control Type	LOS Standard	Cumulative Scenarios					
				AM Peak Hour			PM Peak Hour		
				No Project LOS	Plus Phase 1 LOS	Project Has Impact?	No Project LOS	Plus Phase 1 LOS	Project Has Impact?
1	Caledon Circle (W)/Ferrari Ranch Road	AWSC	C	**F**	**F**	No	C	C	No
2	Sorrento Parkway/Ferrari Ranch Road	AWSC	C	**F**	**F**	No	**D**	**D**	No
3	Caledon Circle (E)/Ferrari Ranch Road	Signal	C	**F**	**F**	No	B	B	No
4	SR 65 SB Ramps/Ferrari Ranch Road	Signal	D	**E**	**E**	No	B	B	No
5	SR 65 NB Ramps/Ferrari Ranch Road	Signal	D	B	B	No	B	B	No
6	Groveland Lane/Ferrari Ranch Road	Signal	C	**D**	**D**	No	**D**	**D**	No
7	Joiner Parkway/Ferrari Ranch Road	Signal	C	A	A	No	A	A	No

Exhibit 21 Traffic Volumes and Lane Configurations: Cumulative Plus Full Buildout Conditions



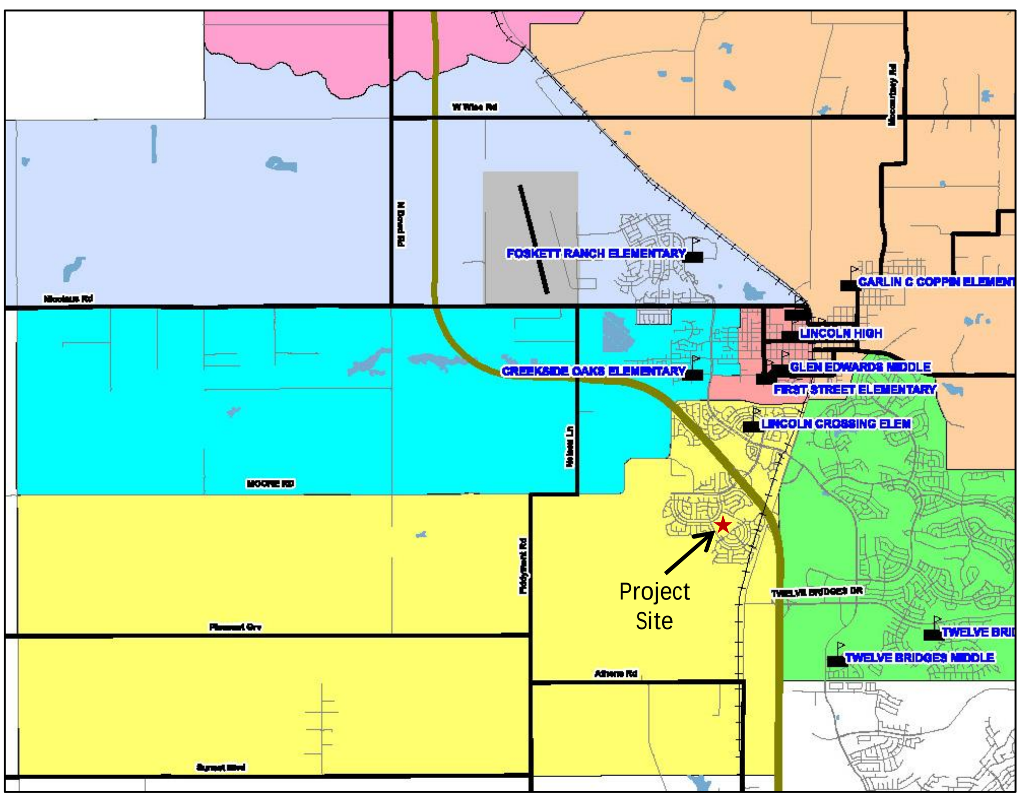
7 VMT

7.1 QUALITATIVE VMT ANALYSIS

Readers may be aware that, as a result of Senate Bill 743 (Steinberg, 2013), CEQA analysis of traffic impacts is likely to change at some point in the future from LOS-based to being based on changes to regional vehicle miles of travel (VMT). This change will not take effect before January 1, 2020 at the earliest, so the LOS approach that is the primary focus of the current study is in accordance with current state law. Nevertheless, given the interest in VMT as an indicator of project effects a qualitative VMT analysis has been included in this traffic study for informational purposes (only).

Exhibit 22 shows the current elementary school boundaries in the project vicinity. There is one elementary school in the Northern Lincoln Crossing area north of SR 65 serving both the Northern and Southern Lincoln Crossing areas. The school is already over its capacity. For the 997 elementary students within its school boundary, it accepted 647 students, and the remaining students were sent to other schools outside of their designated school boundary.

Exhibit 22 Elementary School Locations in the City of Lincoln



The proposed Project is intended to serve students residing in the South Lincoln Crossing area and potentially the portion of unincorporated Placer County west of the site. If the Project were not built, then students residing in these areas would need to be driven to the existing schools such as Lincoln Crossing North Elementary School, Creekside Oaks Elementary School, or First Street Elementary School, which would be further from their homes. Since the Project would shorten trips to school, and some student will be able to switch from being driven to school to walking to school, implementation of the Project can be reasonably expected to reduce regional VMT.

8 RECOMMENDED MITIGATION MEASURES

The analysis found that there are no significant impacts in both Existing Plus Phase 1 and Cumulative Plus Full Buildout conditions.

Appendix A

TRAFFIC COUNTS

National Data & Surveying Services

Intersection Turning Movement Count

Location: Caledon Cir & Ferrari Ranch Rd
City: Lincoln
Control: 3-Way Stop (NB/EB/WB)

Project ID: 18-07214-007
Date: 5/23/2018

Total

NS/EW Streets:	Caledon Cir				Caledon Cir				Ferrari Ranch Rd				Ferrari Ranch Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	0	1	0	0	0	0	0	0	2	0	0	2	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	25	0	0	0	0	0	0	0	0	0	3	0	0	3	31
7:15 AM	0	0	43	0	0	0	0	0	0	0	0	0	12	0	0	5	60
7:30 AM	0	0	110	1	0	0	0	0	0	0	0	0	13	0	0	7	131
7:45 AM	0	0	66	0	0	0	0	0	0	0	0	0	16	0	0	2	84
8:00 AM	0	0	21	0	0	0	0	0	0	0	0	0	31	0	0	2	54
8:15 AM	0	0	18	0	0	0	0	0	0	0	0	0	16	0	0	4	38
8:30 AM	0	0	24	0	0	0	0	0	0	0	0	0	8	0	0	2	34
8:45 AM	0	0	14	0	0	0	0	0	0	0	0	0	13	1	0	6	34
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	321	1	0	0	0	0	0	0	0	0	112	1	0	31	466
APPROACH %'s :	0.00%	0.00%	99.69%	0.31%									77.78%	0.69%	0.00%	21.53%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	240	1	0	0	0	0	0	0	0	0	72	0	0	16	329
PEAK HR FACTOR :	0.000	0.000	0.545	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.581	0.000	0.000	0.571	0.628
	0.543												0.667				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	0	1	0	0	0	0	0	0	2	0	0	2	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	19	0	0	0	0	0	0	0	0	0	24	0	0	3	46
4:15 PM	0	0	16	0	0	0	0	0	0	0	0	0	26	0	0	1	43
4:30 PM	0	0	11	0	0	0	0	0	0	0	0	0	21	0	0	3	35
4:45 PM	1	0	17	0	0	0	0	0	0	1	0	0	22	0	0	1	42
5:00 PM	0	0	8	0	0	0	0	0	0	0	0	0	31	0	0	2	41
5:15 PM	0	0	15	0	0	0	0	0	0	0	0	0	26	0	0	1	42
5:30 PM	0	0	13	0	0	0	0	0	0	0	0	0	31	0	0	1	45
5:45 PM	0	0	18	0	0	0	0	0	0	0	0	0	24	0	0	1	43
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	117	0	0	0	0	0	0	1	0	0	205	0	0	13	337
APPROACH %'s :	0.85%	0.00%	99.15%	0.00%					0.00%	100.00%	0.00%	0.00%	94.04%	0.00%	0.00%	5.96%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	54	0	0	0	0	0	0	0	0	0	112	0	0	5	171
PEAK HR FACTOR :	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.903	0.000	0.000	0.625	0.950
	0.750												0.886				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sorrento Pkwy & Ferrari Ranch Rd
City: Lincoln
Control: 3-Way Stop (SB/EB/WB)

Project ID: 18-07214-006
Date: 5/23/2018

Total

NS/EW Streets:	Sorrento Pkwy				Sorrento Pkwy				Ferrari Ranch Rd				Ferrari Ranch Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	0	0	0	2	0	1	0	1	2	0	0	0	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	61	0	1	0	2	26	0	0	0	5	20	0	115
7:15 AM	0	0	0	0	88	0	1	0	3	40	0	0	0	13	23	0	168
7:30 AM	0	0	0	0	111	0	1	1	5	106	0	1	0	10	25	0	260
7:45 AM	0	0	0	0	100	0	2	0	2	80	0	0	0	15	38	1	238
8:00 AM	0	0	0	0	59	0	1	0	1	24	0	0	0	32	60	0	177
8:15 AM	0	0	0	0	32	0	0	0	0	25	0	0	0	22	47	0	126
8:30 AM	0	0	0	0	42	0	2	0	0	25	0	0	0	7	22	0	98
8:45 AM	0	0	0	0	29	0	3	0	1	17	0	0	0	16	31	0	97
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	522	0	11	1	14	343	0	1	0	120	266	1	1279
APPROACH %'s :					97.75%	0.00%	2.06%	0.19%	3.91%	95.81%	0.00%	0.28%	0.00%	31.01%	68.73%	0.26%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	358	0	5	1	11	250	0	1	0	70	146	1	843
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.806	0.000	0.625	0.250	0.550	0.590	0.000	0.250	0.000	0.547	0.608	0.250	0.811
					0.805				0.585				0.590				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	2	0	1	0	1	2	0	0	0	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	43	0	5	0	1	20	0	1	0	21	66	1	158
4:15 PM	0	0	0	0	46	0	1	0	0	20	0	0	0	28	55	0	150
4:30 PM	0	0	0	0	37	0	4	0	2	9	0	0	0	26	68	0	146
4:45 PM	0	0	0	0	63	0	4	0	1	18	0	0	0	22	55	0	163
5:00 PM	0	0	0	0	48	0	5	0	3	8	0	0	0	27	67	0	158
5:15 PM	0	0	0	0	49	0	0	0	2	13	0	0	0	33	72	0	169
5:30 PM	0	0	0	0	56	0	6	0	2	15	0	0	0	22	57	0	158
5:45 PM	0	0	0	0	55	0	6	0	1	16	0	0	0	26	60	0	164
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	397	0	31	0	12	119	0	1	0	205	500	1	1266
APPROACH %'s :					92.76%	0.00%	7.24%	0.00%	9.09%	90.15%	0.00%	0.76%	0.00%	29.04%	70.82%	0.14%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	208	0	17	0	8	52	0	0	0	108	256	0	649
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.929	0.000	0.708	0.000	0.667	0.813	0.000	0.000	0.000	0.818	0.889	0.000	0.960
					0.907				0.882				0.867				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Caledon Cir/Courtyards Loop & Ferrari Ranch Rd
City: Lincoln
Control: Signalized

Project ID: 18-07214-005
Date: 5/23/2018

Total

NS/EW Streets:	Caledon Cir/Courtyards Loop				Caledon Cir/Courtyards Loop				Ferrari Ranch Rd				Ferrari Ranch Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	1	2	1	0	2	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	0	96	0	8	0	0	0	0	87	1	0	21	18	1	0	237
7:15 AM	6	0	161	0	15	0	2	0	0	123	0	1	27	28	4	2	369
7:30 AM	4	0	195	0	27	1	1	0	1	205	1	0	36	30	5	0	506
7:45 AM	1	0	214	0	18	1	0	0	1	184	1	0	78	52	8	1	559
8:00 AM	1	0	111	0	10	0	0	0	0	78	2	0	150	95	7	0	454
8:15 AM	0	0	80	0	7	0	0	0	0	64	1	0	75	66	5	1	299
8:30 AM	3	0	91	0	11	0	0	0	0	68	1	0	56	28	5	1	264
8:45 AM	0	0	70	0	12	1	1	0	0	42	2	0	49	44	2	1	224
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	0	1018	0	108	3	4	0	2	851	9	1	492	361	37	6	2912
APPROACH %'s :	1.93%	0.00%	98.07%	0.00%	93.91%	2.61%	3.48%	0.00%	0.23%	98.61%	1.04%	0.12%	54.91%	40.29%	4.13%	0.67%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	12	0	681	0	70	2	3	0	2	590	4	1	291	205	24	3	1888
PEAK HR FACTOR :	0.500	0.000	0.796	0.000	0.648	0.500	0.375	0.000	0.500	0.720	0.500	0.250	0.485	0.539	0.750	0.375	0.844
	0.806				0.647				0.721				0.519				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	0.5	1	0	1	2	1	0	2	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	52	0	7	0	0	0	0	57	4	0	108	92	10	4	336
4:15 PM	4	0	80	0	7	1	1	0	3	58	5	0	122	80	8	0	369
4:30 PM	2	0	89	0	8	0	0	0	0	48	0	0	119	92	4	0	362
4:45 PM	2	1	90	0	3	0	0	0	0	72	7	0	133	77	14	4	403
5:00 PM	2	0	83	0	9	0	0	0	0	53	3	0	129	86	10	1	376
5:15 PM	3	0	81	1	12	0	0	0	0	57	4	1	159	105	19	0	442
5:30 PM	0	1	82	0	6	0	0	0	0	62	3	0	133	75	11	4	377
5:45 PM	2	0	91	0	12	0	0	0	2	68	2	0	116	86	8	3	390
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	2	648	1	64	1	1	0	5	475	28	1	1019	693	84	16	3055
APPROACH %'s :	2.54%	0.30%	97.01%	0.15%	96.97%	1.52%	1.52%	0.00%	0.98%	93.32%	5.50%	0.20%	56.24%	38.25%	4.64%	0.88%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	7	2	336	1	30	0	0	0	0	244	17	1	554	343	54	9	1598
PEAK HR FACTOR :	0.583	0.500	0.933	0.250	0.625	0.000	0.000	0.000	0.000	0.847	0.607	0.250	0.871	0.817	0.711	0.563	0.904
	0.930				0.625				0.829				0.848				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR-65 SB Ramps & Ferrari Ranch Rd
City: Lincoln
Control: Signalized

Project ID: 18-07214-004
Date: 5/23/2018

Total

NS/EW Streets:	SR-65 SB Ramps				SR-65 SB Ramps				Ferrari Ranch Rd				Ferrari Ranch Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	0	0	0	0.5	0.5	1	0	0	1.5	0.5	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	17	0	3	0	0	69	113	0	0	32	149	0	383
7:15 AM	0	0	0	0	11	0	0	0	0	133	180	0	0	62	147	0	533
7:30 AM	0	0	0	0	15	0	4	0	0	211	214	0	0	73	177	0	694
7:45 AM	0	0	0	0	23	0	4	0	0	228	182	0	0	128	189	0	754
8:00 AM	0	0	0	0	14	0	3	0	0	113	95	0	0	253	152	0	630
8:15 AM	0	0	0	0	25	0	4	0	0	62	92	0	0	138	146	0	467
8:30 AM	0	0	0	0	33	0	3	0	0	60	106	0	0	86	126	0	414
8:45 AM	0	0	0	0	34	0	8	0	0	46	84	0	0	96	112	0	380
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	172	0	29	0	0	922	1066	0	0	868	1198	0	4255
APPROACH %'s :					85.57%	0.00%	14.43%	0.00%	0.00%	46.38%	53.62%	0.00%	0.00%	42.01%	57.99%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	63	0	11	0	0	685	671	0	0	516	665	0	2611
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.685	0.000	0.688	0.000	0.000	0.751	0.784	0.000	0.000	0.510	0.880	0.000	0.866
					0.685				0.798				0.729				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0.5	0.5	1	0	0	1.5	0.5	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	35	0	6	0	0	68	60	0	0	209	68	0	446
4:15 PM	0	0	0	0	26	0	11	0	0	81	52	0	0	197	83	0	450
4:30 PM	0	0	0	0	42	0	12	0	0	95	59	0	0	195	81	0	484
4:45 PM	0	0	0	0	42	0	14	0	0	99	59	0	0	228	89	0	531
5:00 PM	0	0	0	0	38	0	6	0	0	89	61	0	0	211	80	0	485
5:15 PM	0	0	0	0	32	0	11	0	0	85	57	0	0	272	79	0	536
5:30 PM	0	0	0	0	29	0	17	0	0	95	72	0	0	214	83	0	510
5:45 PM	0	0	0	0	27	0	7	0	0	107	52	0	0	197	85	0	475
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	271	0	84	0	0	719	472	0	0	1723	648	0	3917
APPROACH %'s :					76.34%	0.00%	23.66%	0.00%	0.00%	60.37%	39.63%	0.00%	0.00%	72.67%	27.33%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	141	0	48	0	0	368	249	0	0	925	331	0	2062
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.839	0.000	0.706	0.000	0.000	0.929	0.865	0.000	0.000	0.850	0.930	0.000	0.962
					0.844				0.924				0.895				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR-65 NB Ramps & Ferrari Ranch Rd
City: Lincoln
Control: Signalized

Project ID: 18-07214-003
Date: 5/23/2018

Total

NS/EW Streets:	SR-65 NB Ramps				SR-65 NB Ramps				Ferrari Ranch Rd				Ferrari Ranch Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1.5	0.5	2	0	0	0	0	0	1	2	0	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	0	24	0	0	0	0	0	19	70	0	0	0	156	17	0	305
7:15 AM	23	0	50	0	0	0	0	0	16	112	0	1	0	194	22	0	418
7:30 AM	42	0	60	0	0	0	0	0	12	222	0	0	0	216	13	0	565
7:45 AM	76	0	67	0	0	0	0	0	16	236	0	1	0	250	17	0	663
8:00 AM	62	0	82	0	0	0	0	0	5	112	0	0	0	351	13	0	625
8:15 AM	47	0	58	0	0	0	0	0	5	88	0	0	0	226	14	0	438
8:30 AM	39	0	69	0	0	0	0	0	7	80	0	0	0	182	22	0	399
8:45 AM	47	0	63	0	0	0	0	0	4	84	0	0	0	143	18	0	359
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	355	0	473	0	0	0	0	0	84	1004	0	2	0	1718	136	0	3772
APPROACH %'s :	42.87%	0.00%	57.13%	0.00%					7.71%	92.11%	0.00%	0.18%	0.00%	92.66%	7.34%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	227	0	267	0	0	0	0	0	38	658	0	1	0	1043	57	0	2291
PEAK HR FACTOR :	0.747	0.000	0.814	0.000	0.000	0.000	0.000	0.000	0.594	0.697	0.000	0.250	0.000	0.743	0.838	0.000	0.864
	0.858								0.689				0.755				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1.5	0.5	2	0	0	0	0	0	1	2	0	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	84	0	150	0	0	0	0	0	3	93	0	0	0	199	30	0	559
4:15 PM	94	0	184	0	0	0	0	0	6	112	0	0	0	178	27	0	601
4:30 PM	94	0	178	0	0	0	0	0	1	108	0	0	0	184	31	0	596
4:45 PM	108	0	159	0	0	0	0	0	10	157	0	0	0	181	48	0	663
5:00 PM	120	0	171	0	0	0	0	0	5	109	0	0	0	192	44	0	641
5:15 PM	132	0	186	0	0	0	0	0	1	125	0	0	0	193	35	0	672
5:30 PM	87	0	143	0	0	0	0	0	6	109	0	1	0	225	37	0	608
5:45 PM	103	0	152	0	0	0	0	0	5	139	0	0	0	185	32	0	616
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	822	0	1323	0	0	0	0	0	37	952	0	1	0	1537	284	0	4956
APPROACH %'s :	38.32%	0.00%	61.68%	0.00%					3.74%	96.16%	0.00%	0.10%	0.00%	84.40%	15.60%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	447	0	659	0	0	0	0	0	22	500	0	1	0	791	164	0	2584
PEAK HR FACTOR :	0.847	0.000	0.886	0.000	0.000	0.000	0.000	0.000	0.550	0.796	0.000	0.250	0.000	0.879	0.854	0.000	0.961
	0.869								0.783				0.911				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Groveland ln & Ferrari Ranch Rd
City: Lincoln
Control: Signalized

Project ID: 18-07214-002
Date: 5/23/2018

Total

NS/EW Streets:	Groveland ln				Groveland ln				Ferrari Ranch Rd				Ferrari Ranch Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	1.5	0.5	1	0	1	1	0	0	1	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	47	6	6	0	0	2	111	0	18	57	16	1	2	42	0	2	310
7:15 AM	35	10	5	0	1	0	113	0	50	97	16	1	4	44	2	1	379
7:30 AM	48	6	16	0	1	4	131	0	82	156	20	0	9	59	1	0	533
7:45 AM	48	10	18	0	3	7	151	0	112	177	20	2	11	57	1	0	617
8:00 AM	46	14	16	0	2	7	187	0	63	104	20	2	12	126	1	2	602
8:15 AM	65	6	17	0	1	6	118	0	34	77	22	1	17	65	0	3	432
8:30 AM	53	10	18	0	1	2	92	0	17	89	14	2	17	44	2	1	362
8:45 AM	42	8	18	0	1	6	82	0	31	82	19	5	7	46	0	2	349
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	384	70	114	0	10	34	985	0	407	839	147	14	79	483	7	11	3584
APPROACH %'s :	67.61%	12.32%	20.07%	0.00%	0.97%	3.30%	95.72%	0.00%	28.93%	59.63%	10.45%	1.00%	13.62%	83.28%	1.21%	1.90%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	207	36	67	0	7	24	587	0	291	514	82	5	49	307	3	5	2184
PEAK HR FACTOR :	0.796	0.643	0.931	0.000	0.583	0.857	0.785	0.000	0.650	0.726	0.932	0.625	0.721	0.609	0.750	0.417	0.885
	0.881				0.788				0.717				0.645				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1.5	0.5	1	0	1	1	0	0	1	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	49	16	26	0	3	12	53	0	83	120	27	3	36	91	0	5	524
4:15 PM	58	13	27	0	1	9	63	0	83	148	22	10	29	80	2	1	546
4:30 PM	47	16	29	0	5	11	73	0	83	150	23	8	24	87	7	4	567
4:45 PM	36	21	23	0	2	15	70	0	83	154	34	10	24	91	4	5	572
5:00 PM	92	23	31	0	5	8	61	0	94	146	21	4	35	87	2	4	613
5:15 PM	62	17	18	0	0	8	68	0	93	146	33	4	14	108	3	2	576
5:30 PM	52	18	26	0	3	16	72	0	86	123	26	8	11	106	4	6	557
5:45 PM	88	20	18	0	4	16	60	0	88	148	26	3	27	102	2	4	606
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	484	144	198	0	23	95	520	0	693	1135	212	50	200	752	24	31	4561
APPROACH %'s :	58.60%	17.43%	23.97%	0.00%	3.61%	14.89%	81.50%	0.00%	33.16%	54.31%	10.14%	2.39%	19.86%	74.68%	2.38%	3.08%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	294	78	93	0	12	48	261	0	361	563	106	19	87	403	11	16	2352
PEAK HR FACTOR :	0.799	0.848	0.750	0.000	0.600	0.750	0.906	0.000	0.960	0.951	0.803	0.594	0.621	0.933	0.688	0.667	0.959
	0.796				0.882				0.950				0.957				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Joiner Pkwy & Ferrari Ranch Rd
City: Lincoln
Control: Signalized

Project ID: 18-07214-001
Date: 5/23/2018

Total

NS/EW Streets:	Joiner Pkwy				Joiner Pkwy				Ferrari Ranch Rd				Ferrari Ranch Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	2	2	1	0	1	2	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	6	5	0	8	39	8	0	14	32	19	0	8	22	4	0	170
7:15 AM	11	8	2	0	7	51	13	0	28	59	14	0	12	28	2	0	235
7:30 AM	10	25	4	0	14	86	26	0	63	62	25	0	14	40	5	0	374
7:45 AM	7	46	7	1	12	66	25	1	76	68	27	0	18	52	4	0	410
8:00 AM	19	40	16	0	17	100	47	0	57	52	24	0	36	85	3	0	496
8:15 AM	19	15	5	0	11	55	11	0	29	52	19	0	15	48	3	0	282
8:30 AM	13	23	3	0	8	37	16	0	23	45	21	0	12	44	6	0	251
8:45 AM	15	15	2	1	6	55	6	0	16	42	28	0	12	37	5	0	240
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	99	178	44	2	83	489	152	1	306	412	177	0	127	356	32	0	2458
APPROACH %'s :	30.65%	55.11%	13.62%	0.62%	11.45%	67.45%	20.97%	0.14%	34.19%	46.03%	19.78%	0.00%	24.66%	69.13%	6.21%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	55	126	32	1	54	307	109	1	225	234	95	0	83	225	15	0	1562
PEAK HR FACTOR :	0.724	0.685	0.500	0.250	0.794	0.768	0.580	0.250	0.740	0.860	0.880	0.000	0.576	0.662	0.750	0.000	0.787
	0.713				0.718				0.810				0.651				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	2	2	1	0	1	2	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	36	36	5	0	7	63	8	1	47	63	31	0	17	84	11	0	409
4:15 PM	31	49	7	1	7	62	14	0	45	69	32	0	21	68	11	0	417
4:30 PM	40	40	6	1	14	44	20	0	59	69	40	0	18	67	10	0	428
4:45 PM	33	56	4	1	9	54	16	0	48	86	31	0	21	71	7	0	437
5:00 PM	40	51	5	1	10	58	15	0	59	94	34	0	26	71	15	0	479
5:15 PM	40	57	10	0	3	62	19	1	70	79	40	0	32	89	14	0	516
5:30 PM	45	49	7	0	8	54	18	0	52	72	23	0	10	81	14	0	433
5:45 PM	36	46	4	3	7	53	18	0	50	83	49	0	29	73	15	0	466
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	301	384	48	7	65	450	128	2	430	615	280	0	174	604	97	0	3585
APPROACH %'s :	40.68%	51.89%	6.49%	0.95%	10.08%	69.77%	19.84%	0.31%	32.45%	46.42%	21.13%	0.00%	19.89%	69.03%	11.09%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	161	203	26	4	28	227	70	1	231	328	146	0	97	314	58	0	1894
PEAK HR FACTOR :	0.894	0.890	0.650	0.333	0.700	0.915	0.921	0.250	0.825	0.872	0.745	0.000	0.758	0.882	0.967	0.000	0.918
	0.921				0.959				0.933				0.869				

Appendix B

INTERSECTION LOS WORKSHEETS

FOR EXISTING CONDITIONS

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	0	15	70	0	0	240
Future Vol, veh/h	0	0	15	70	0	0	240
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	0	24	111	0	0	381
Number of Lanes	0	0	0	1	0	0	1

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	9	9
HCM LOS	A	A

Lane	NBLn1	WBLn1
Vol Left, %	0%	100%
Vol Thru, %	0%	0%
Vol Right, %	100%	0%
Sign Control	Stop	Stop
Traffic Vol by Lane	240	85
LT Vol	0	85
Through Vol	0	0
RT Vol	240	0
Lane Flow Rate	381	135
Geometry Grp	1	1
Degree of Util (X)	0.39	0.184
Departure Headway (Hd)	3.686	4.902
Convergence, Y/N	Yes	Yes
Cap	979	737
Service Time	1.694	2.902
HCM Lane V/C Ratio	0.389	0.183
HCM Control Delay	9	9
HCM Lane LOS	A	A
HCM 95th-tile Q	1.9	0.7

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	250	70	145	360	5
Future Vol, veh/h	10	250	70	145	360	5
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	309	86	179	444	6
Number of Lanes	1	2	2	1	2	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	10.2	8.7	13.1
HCM LOS	B	A	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	125	125	35	35	145	180	180	5
LT Vol	10	0	0	0	0	0	180	180	0
Through Vol	0	125	125	35	35	0	0	0	0
RT Vol	0	0	0	0	0	145	0	0	5
Lane Flow Rate	12	154	154	43	43	179	222	222	6
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.024	0.278	0.203	0.08	0.08	0.209	0.393	0.393	0.006
Departure Headway (Hd)	6.997	6.49	4.733	6.672	6.672	4.203	6.372	6.372	3.444
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	511	552	756	536	536	850	564	564	1035
Service Time	4.744	4.237	2.479	4.421	4.421	1.951	4.105	4.105	1.177
HCM Lane V/C Ratio	0.023	0.279	0.204	0.08	0.08	0.211	0.394	0.394	0.006
HCM Control Delay	9.9	11.7	8.7	10	10	8.1	13.2	13.2	6.2
HCM Lane LOS	A	B	A	A	A	A	B	B	A
HCM 95th-tile Q	0.1	1.1	0.8	0.3	0.3	0.8	1.9	1.9	0

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing AM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road

Signal=Split/Rights=Include
Base Vol: 5 5*** 70
Lanes: 1 0 0 1 0

Signal=Protect Rights=Include
Base Vol: Lanes:
5 1
0
590*** 2
0
5 1

Vol Cnt Date: n/a
Cycle Time (sec): 100
Loss Time (sec): 0
Critical V/C: 0.808
Avg Crit Del (sec/veh): 34.5
Avg Delay (sec/veh): 28.1
LOS: D

Signal=Protect Rights=Include
Lanes: Base Vol:
1 25
0
1 205
0
2 295***

Lanes: 0 1 0 0 1
Base Vol: 10 0 680***
Signal=Split/Rights=Include

Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	10	0	680	70	5	5	5	590	5	295	205	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	0	680	70	5	5	5	590	5	295	205	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	0	680	70	5	5	5	590	5	295	205	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	0	680	70	5	5	5	590	5	295	205	25
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	10	0	680	70	5	5	5	590	5	325	205	25
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.93	0.07	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	1500	0	1500	1400	100	1500	1500	3000	1500	3000	1500	1500
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.45	0.05	0.05	0.00	0.00	0.20	0.00	0.11	0.14	0.02
Crit Volume:			680		75			295		162		
Crit Moves:			****		****			****		****		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	675	670	0	515	675	0	0	0	65	0	10
Future Volume (veh/h)	0	675	670	0	515	675	0	0	0	65	0	10
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	776	770	0	592	0				75	0	11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	1156	1031	0	3322					146	0	130
Arrive On Green	0.00	0.65	0.65	0.00	0.65	0.00				0.08	0.00	0.08
Sat Flow, veh/h	0	1870	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	776	770	0	592	0				75	0	11
Grp Sat Flow(s),veh/h/ln	0	1777	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	9.1	11.1	0.0	1.5	0.0				1.4	0.0	0.2
Cycle Q Clear(g_c), s	0.0	9.1	11.1	0.0	1.5	0.0				1.4	0.0	0.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1156	1031	0	3322					146	0	130
V/C Ratio(X)	0.00	0.67	0.75	0.00	0.18					0.51	0.00	0.08
Avail Cap(c_a), veh/h	0	1398	1247	0	4018					1031	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	3.6	4.0	0.0	2.3	0.0				14.8	0.0	14.3
Incr Delay (d2), s/veh	0.0	1.0	2.0	0.0	0.0	0.0				2.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.8	0.0	0.0	0.0				0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.6	6.0	0.0	2.3	0.0				17.6	0.0	14.6
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1546			592	A					86	
Approach Delay, s/veh		5.3			2.3						17.2	
Approach LOS		A			A						B	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				26.4		7.3		26.4
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				26.5		19.5		26.5
Max Q Clear Time (g_c+I1), s				13.1		3.4		3.5
Green Ext Time (p_c), s				8.8		0.3		4.0

Intersection Summary	
HCM 6th Ctrl Delay	5.0
HCM 6th LOS	A

Notes
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	680	0	0	985	65	205	0	260	0	0	0
Future Volume (veh/h)	55	680	0	0	985	65	205	0	260	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	64	791	0	0	1145	0	238	0	302			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	117	2006	0	0	1917		671	0	597			
Arrive On Green	0.07	0.56	0.00	0.00	0.38	0.00	0.19	0.00	0.19			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	64	791	0	0	1145	0	238	0	302			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	1.3	4.5	0.0	0.0	6.6	0.0	2.1	0.0	3.1			
Cycle Q Clear(g_c), s	1.3	4.5	0.0	0.0	6.6	0.0	2.1	0.0	3.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	117	2006	0	0	1917		671	0	597			
V/C Ratio(X)	0.55	0.39	0.00	0.00	0.60		0.35	0.00	0.51			
Avail Cap(c_a), veh/h	245	2684	0	0	2524		1810	0	1610			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	16.5	4.4	0.0	0.0	9.2	0.0	12.9	0.0	13.3			
Incr Delay (d2), s/veh	4.0	0.1	0.0	0.0	0.3	0.0	0.3	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	0.7	0.0	0.0	1.6	0.0	0.7	0.0	0.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	4.6	0.0	0.0	9.5	0.0	13.2	0.0	13.9			
LnGrp LOS	C	A	A	A	A		B	A	B			
Approach Vol, veh/h		855			1145	A		540				
Approach Delay, s/veh		5.8			9.5			13.6				
Approach LOS		A			A			B				

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		11.4		25.1			6.9	18.2
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0
Max Q Clear Time (g_c+I1), s		5.1		6.5			3.3	8.6
Green Ext Time (p_c), s		1.8		5.4			0.0	5.1

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

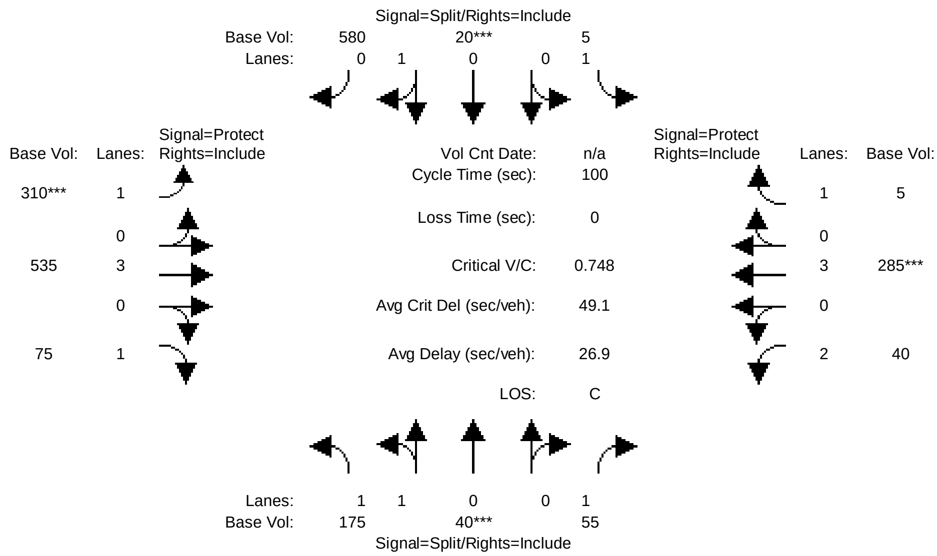
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing AM

Intersection #6: Groveland Land/Ferrari Ranch Road

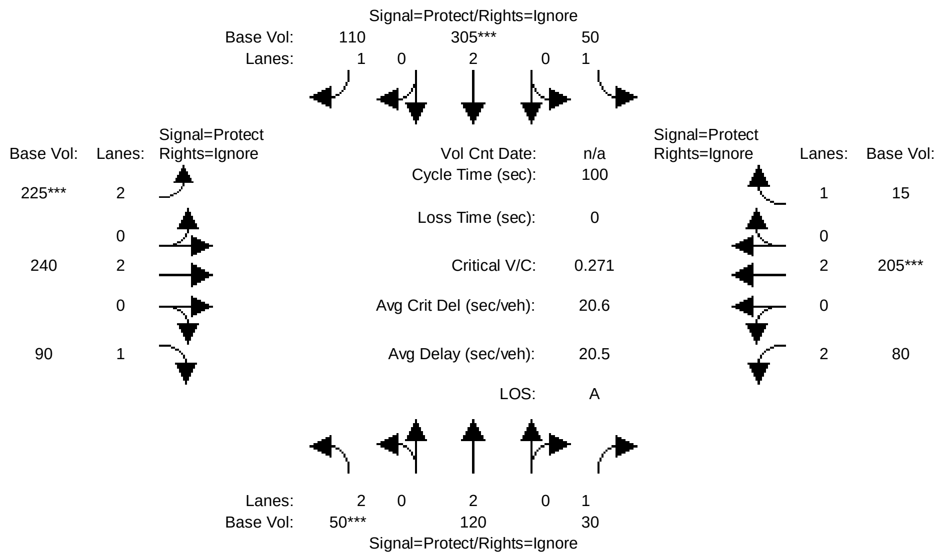


Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	175	40	55	5	20	580	310	535	75	40	285	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	175	40	55	5	20	580	310	535	75	40	285	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	175	40	55	5	20	580	310	535	75	40	285	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	175	40	55	5	20	580	310	535	75	40	285	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	193	40	55	5	20	580	310	535	75	44	285	5
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.66	0.34	1.00	1.00	0.03	0.97	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2484	516	1500	1500	50	1450	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.04	0.00	0.40	0.40	0.21	0.12	0.05	0.01	0.06	0.00
Crit Volume:		116			600		310				95	
Crit Moves:		****			****		****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing AM

Intersection #7: Joiner Parkway/Ferrari Ranch Road



Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	50	120	30	50	305	110	225	240	90	80	205	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	120	30	50	305	110	225	240	90	80	205	15
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	50	120	0	50	305	0	225	240	0	80	205	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	120	0	50	305	0	225	240	0	80	205	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	55	120	0	50	305	0	248	240	0	88	205	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.02	0.04	0.00	0.03	0.10	0.00	0.08	0.08	0.00	0.03	0.07	0.00
Crit Volume:	28				153		124				103	
Crit Moves:	****				****		****				****	

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	0	5	110	0	0	55
Future Vol, veh/h	0	0	5	110	0	0	55
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	117	0	0	59
Number of Lanes	0	0	0	1	0	0	1

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	8	6.8
HCM LOS	A	A

Lane	NBLn1	WBLn1
Vol Left, %	0%	100%
Vol Thru, %	0%	0%
Vol Right, %	100%	0%
Sign Control	Stop	Stop
Traffic Vol by Lane	55	115
LT Vol	0	115
Through Vol	0	0
RT Vol	55	0
Lane Flow Rate	59	122
Geometry Grp	1	1
Degree of Util (X)	0.058	0.144
Departure Headway (Hd)	3.547	4.236
Convergence, Y/N	Yes	Yes
Cap	996	849
Service Time	1.616	2.248
HCM Lane V/C Ratio	0.059	0.144
HCM Control Delay	6.8	8
HCM Lane LOS	A	A
HCM 95th-tile Q	0.2	0.5

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	55	105	250	215	15
Future Vol, veh/h	10	55	105	250	215	15
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	57	109	260	224	16
Number of Lanes	1	2	2	1	2	1

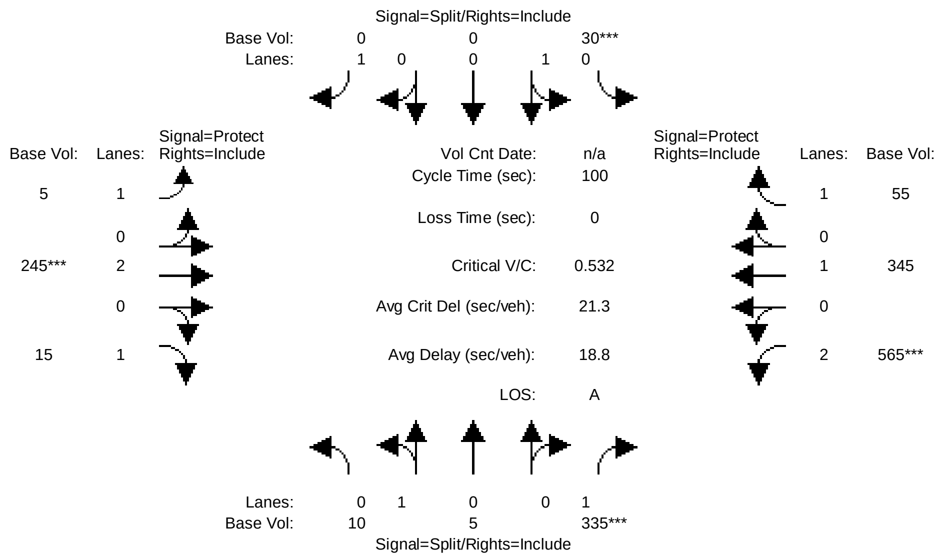
Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	8	7.1	9.5
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	28	28	53	53	250	108	108	15
LT Vol	10	0	0	0	0	0	108	108	0
Through Vol	0	28	28	53	53	0	0	0	0
RT Vol	0	0	0	0	0	250	0	0	15
Lane Flow Rate	10	29	29	55	55	260	112	112	16
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.018	0.046	0.032	0.082	0.082	0.214	0.181	0.181	0.013
Departure Headway (Hd)	6.265	5.761	4.015	5.403	5.403	2.956	5.818	5.818	2.893
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	569	618	883	664	664	1211	620	620	1245
Service Time	4.028	3.525	1.778	3.129	3.129	0.681	3.518	3.518	0.593
HCM Lane V/C Ratio	0.018	0.047	0.033	0.083	0.083	0.215	0.181	0.181	0.013
HCM Control Delay	9.1	8.8	6.9	8.6	8.6	6.5	9.8	9.8	5.6
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.3	0.3	0.8	0.7	0.7	0

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing PM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road



Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	10	5	335	30	0	0	5	245	15	565	345	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	5	335	30	0	0	5	245	15	565	345	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	5	335	30	0	0	5	245	15	565	345	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	5	335	30	0	0	5	245	15	565	345	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	10	5	335	30	0	0	5	245	15	622	345	55
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.67	0.33	1.00	1.00	0.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	1000	500	1500	1500	0	1500	1500	3000	1500	3000	1500	1500
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.22	0.02	0.00	0.00	0.00	0.08	0.01	0.21	0.23	0.04
Crit Volume:			335	30				123		311		
Crit Moves:			****	****				****		****		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	370	250	0	910	325	0	0	0	140	0	50
Future Volume (veh/h)	0	370	250	0	910	325	0	0	0	140	0	50
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	385	260	0	948	0				146	0	52
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	912	608	0	2280					280	0	249
Arrive On Green	0.00	0.45	0.45	0.00	0.45	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	2135	1361	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	334	311	0	948	0				146	0	52
Grp Sat Flow(s),veh/h/ln	0	1777	1625	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	2.9	3.0	0.0	2.9	0.0				1.7	0.0	0.6
Cycle Q Clear(g_c), s	0.0	2.9	3.0	0.0	2.9	0.0				1.7	0.0	0.6
Prop In Lane	0.00		0.84	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	793	726	0	2280					280	0	249
V/C Ratio(X)	0.00	0.42	0.43	0.00	0.42					0.52	0.00	0.21
Avail Cap(c_a), veh/h	0	1409	1289	0	4049					1412	0	1257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.3	4.3	0.0	4.3	0.0				8.8	0.0	8.3
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.0	0.1	0.0				1.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.0	0.2	0.0				0.5	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.6	4.7	0.0	4.4	0.0				10.3	0.0	8.8
LnGrp LOS	A	A	A	A	A					B	A	A
Approach Vol, veh/h		645			948	A					198	
Approach Delay, s/veh		4.7			4.4						9.9	
Approach LOS		A			A						A	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				14.6		8.1		14.6
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s				5.0		3.7		4.9
Green Ext Time (p_c), s				3.3		0.8		5.3

Intersection Summary			
HCM 6th Ctrl Delay			5.1
HCM 6th LOS			A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	490	0	0	790	165	445	0	660	0	0	0
Future Volume (veh/h)	25	490	0	0	790	165	445	0	660	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	26	510	0	0	823	0	464	0	688			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	56	1564	0	0	1492		1167	0	1038			
Arrive On Green	0.03	0.44	0.00	0.00	0.29	0.00	0.33	0.00	0.33			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	26	510	0	0	823	0	464	0	688			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.6	3.6	0.0	0.0	5.3	0.0	3.9	0.0	7.2			
Cycle Q Clear(g_c), s	0.6	3.6	0.0	0.0	5.3	0.0	3.9	0.0	7.2			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	56	1564	0	0	1492		1167	0	1038			
V/C Ratio(X)	0.46	0.33	0.00	0.00	0.55		0.40	0.00	0.66			
Avail Cap(c_a), veh/h	230	2524	0	0	2374		1702	0	1515			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.4	7.1	0.0	0.0	11.6	0.0	10.1	0.0	11.2			
Incr Delay (d2), s/veh	5.8	0.1	0.0	0.0	0.3	0.0	0.2	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.3	0.9	0.0	0.0	1.5	0.0	1.2	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	7.2	0.0	0.0	11.9	0.0	10.3	0.0	11.9			
LnGrp LOS	C	A	A	A	B		B	A	B			
Approach Vol, veh/h		536			823	A		1152				
Approach Delay, s/veh		8.0			11.9			11.3				
Approach LOS		A			B			B				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		17.2		21.5			5.7	15.8				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0				
Max Q Clear Time (g_c+I1), s		9.2		5.6			2.6	7.3				
Green Ext Time (p_c), s		3.5		3.3			0.0	4.0				

Intersection Summary		
HCM 6th Ctrl Delay		10.8
HCM 6th LOS		B

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing PM

Intersection #6: Groveland Land/Ferrari Ranch Road

Signal=Split/Rights=Include
Base Vol: 270 45*** 10
Lanes: 0 1 0 0 1

Base Vol: Lanes: Signal=Protect Rights=Include
380*** 1
0
570 3
0
115 1

Vol Cnt Date: n/a
Cycle Time (sec): 100
Loss Time (sec): 0
Critical V/C: 0.670
Avg Crit Del (sec/veh): 31.3
Avg Delay (sec/veh): 25.5
LOS: B

Signal=Protect Rights=Include Lanes: Base Vol:
1 15
0
3 415***
0
2 100

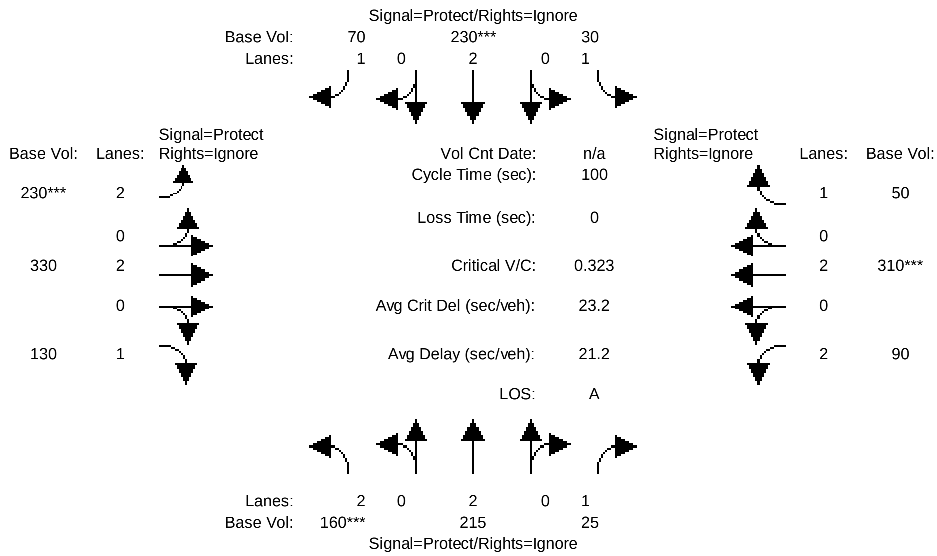
Lanes: 1 1 0 0 1
Base Vol: 240*** 80 100
Signal=Split/Rights=Include

Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	240	80	100	10	45	270	380	570	115	100	415	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	240	80	100	10	45	270	380	570	115	100	415	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	240	80	100	10	45	270	380	570	115	100	415	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	240	80	100	10	45	270	380	570	115	100	415	15
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	264	80	100	10	45	270	380	570	115	110	415	15
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.53	0.47	1.00	1.00	0.14	0.86	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2302	698	1500	1500	214	1286	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.07	0.01	0.21	0.21	0.25	0.13	0.08	0.04	0.09	0.01
Crit Volume:	172				315		380				138	
Crit Moves:	****				****		****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing PM

Intersection #7: Joiner Parkway/Ferrari Ranch Road



Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	160	215	25	30	230	70	230	330	130	90	310	50
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	160	215	25	30	230	70	230	330	130	90	310	50
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	160	215	0	30	230	0	230	330	0	90	310	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	215	0	30	230	0	230	330	0	90	310	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	176	215	0	30	230	0	253	330	0	99	310	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.06	0.07	0.00	0.02	0.08	0.00	0.08	0.11	0.00	0.03	0.10	0.00
Crit Volume:	88				115		127				155	
Crit Moves:	****				****		****				****	

Appendix C

INTERSECTION LOS WORKSHEETS

FOR EXISTING PLUS PHASE 1 CONDITIONS

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	0	15	115	0	0	295
Future Vol, veh/h	0	0	15	115	0	0	295
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	0	24	183	0	0	468
Number of Lanes	0	0	0	1	0	0	1

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	10.2	10.8
HCM LOS	B	B

Lane	NBLn1	WBLn1
Vol Left, %	0%	100%
Vol Thru, %	0%	0%
Vol Right, %	100%	0%
Sign Control	Stop	Stop
Traffic Vol by Lane	295	130
LT Vol	0	130
Through Vol	0	0
RT Vol	295	0
Lane Flow Rate	468	206
Geometry Grp	1	1
Degree of Util (X)	0.506	0.291
Departure Headway (Hd)	3.889	5.079
Convergence, Y/N	Yes	Yes
Cap	927	706
Service Time	1.903	3.131
HCM Lane V/C Ratio	0.505	0.292
HCM Control Delay	10.8	10.2
HCM Lane LOS	B	B
HCM 95th-tile Q	2.9	1.2

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	260	70	155	385	45
Future Vol, veh/h	60	260	70	155	385	45
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	321	86	191	475	56
Number of Lanes	1	2	2	1	2	1

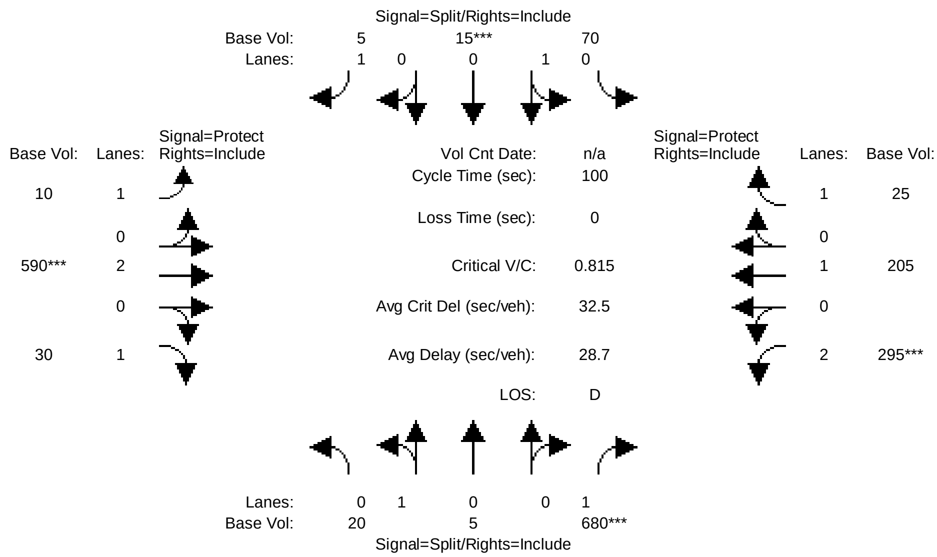
Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	10.9	9.3	13.6
HCM LOS	B	A	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	130	130	35	35	155	193	193	45
LT Vol	60	0	0	0	0	0	193	193	0
Through Vol	0	130	130	35	35	0	0	0	0
RT Vol	0	0	0	0	0	155	0	0	45
Lane Flow Rate	74	160	160	43	43	191	238	238	56
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.149	0.3	0.222	0.085	0.085	0.243	0.437	0.437	0.057
Departure Headway (Hd)	7.237	6.729	4.969	7.054	7.054	4.577	6.618	6.618	3.688
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	533	717	506	506	779	544	544	965
Service Time	5.001	4.493	2.732	4.821	4.821	2.343	4.364	4.364	1.433
HCM Lane V/C Ratio	0.15	0.3	0.223	0.085	0.085	0.245	0.438	0.438	0.058
HCM Control Delay	11.3	12.4	9.2	10.5	10.5	8.8	14.4	14.4	6.7
HCM Lane LOS	B	B	A	B	B	A	B	B	A
HCM 95th-tile Q	0.5	1.3	0.8	0.3	0.3	1	2.2	2.2	0.2

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing Plus Phase 1 AM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road



Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	20	5	680	70	15	5	10	590	30	295	205	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	5	680	70	15	5	10	590	30	295	205	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	5	680	70	15	5	10	590	30	295	205	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	5	680	70	15	5	10	590	30	295	205	25
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	20	5	680	70	15	5	10	590	30	325	205	25
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.80	0.20	1.00	0.82	0.18	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	1200	300	1500	1235	265	1500	1500	3000	1500	3000	1500	1500
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.45	0.06	0.06	0.00	0.01	0.20	0.02	0.11	0.14	0.02
Crit Volume:			680		85			295		162		
Crit Moves:			****		****			****		****		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	675	670	0	515	675	0	0	0	65	0	10
Future Volume (veh/h)	0	675	670	0	515	675	0	0	0	65	0	10
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	776	770	0	592	0				75	0	11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	1156	1031	0	3322					146	0	130
Arrive On Green	0.00	0.65	0.65	0.00	0.65	0.00				0.08	0.00	0.08
Sat Flow, veh/h	0	1870	1585	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	776	770	0	592	0				75	0	11
Grp Sat Flow(s),veh/h/ln	0	1777	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	9.1	11.1	0.0	1.5	0.0				1.4	0.0	0.2
Cycle Q Clear(g_c), s	0.0	9.1	11.1	0.0	1.5	0.0				1.4	0.0	0.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1156	1031	0	3322					146	0	130
V/C Ratio(X)	0.00	0.67	0.75	0.00	0.18					0.51	0.00	0.08
Avail Cap(c_a), veh/h	0	1398	1247	0	4018					1031	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	3.6	4.0	0.0	2.3	0.0				14.8	0.0	14.3
Incr Delay (d2), s/veh	0.0	1.0	2.0	0.0	0.0	0.0				2.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.8	0.0	0.0	0.0				0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.6	6.0	0.0	2.3	0.0				17.6	0.0	14.6
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1546			592	A					86	
Approach Delay, s/veh		5.3			2.3						17.2	
Approach LOS		A			A						B	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				26.4		7.3		26.4				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				26.5		19.5		26.5				
Max Q Clear Time (g_c+I1), s				13.1		3.4		3.5				
Green Ext Time (p_c), s				8.8		0.3		4.0				

Intersection Summary			
HCM 6th Ctrl Delay			5.0
HCM 6th LOS			A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	680	0	0	985	65	205	0	260	0	0	0
Future Volume (veh/h)	55	680	0	0	985	65	205	0	260	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	64	791	0	0	1145	0	238	0	302			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	117	2006	0	0	1917		671	0	597			
Arrive On Green	0.07	0.56	0.00	0.00	0.38	0.00	0.19	0.00	0.19			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	64	791	0	0	1145	0	238	0	302			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	1.3	4.5	0.0	0.0	6.6	0.0	2.1	0.0	3.1			
Cycle Q Clear(g_c), s	1.3	4.5	0.0	0.0	6.6	0.0	2.1	0.0	3.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	117	2006	0	0	1917		671	0	597			
V/C Ratio(X)	0.55	0.39	0.00	0.00	0.60		0.35	0.00	0.51			
Avail Cap(c_a), veh/h	245	2684	0	0	2524		1810	0	1610			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	16.5	4.4	0.0	0.0	9.2	0.0	12.9	0.0	13.3			
Incr Delay (d2), s/veh	4.0	0.1	0.0	0.0	0.3	0.0	0.3	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	0.7	0.0	0.0	1.6	0.0	0.7	0.0	0.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	4.6	0.0	0.0	9.5	0.0	13.2	0.0	13.9			
LnGrp LOS	C	A	A	A	A		B	A	B			
Approach Vol, veh/h		855			1145	A		540				
Approach Delay, s/veh		5.8			9.5			13.6				
Approach LOS		A			A			B				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		11.4		25.1			6.9	18.2				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0				
Max Q Clear Time (g_c+I1), s		5.1		6.5			3.3	8.6				
Green Ext Time (p_c), s		1.8		5.4			0.0	5.1				

Intersection Summary		
HCM 6th Ctrl Delay		9.1
HCM 6th LOS		A

Notes

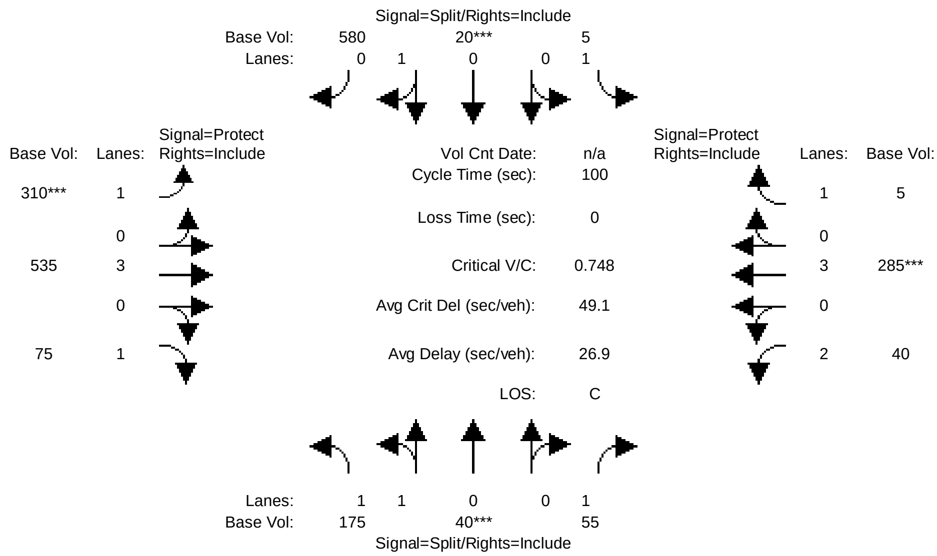
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing Plus Phase 1 AM

Intersection #6: Groveland Land/Ferrari Ranch Road

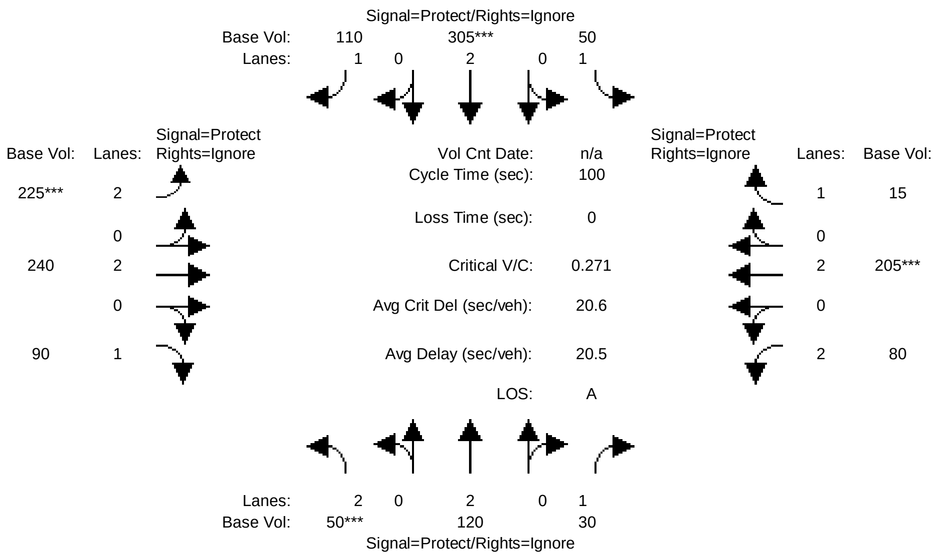


Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	175	40	55	5	20	580	310	535	75	40	285	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	175	40	55	5	20	580	310	535	75	40	285	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	175	40	55	5	20	580	310	535	75	40	285	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	175	40	55	5	20	580	310	535	75	40	285	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	193	40	55	5	20	580	310	535	75	44	285	5
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.66	0.34	1.00	1.00	0.03	0.97	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2484	516	1500	1500	50	1450	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.04	0.00	0.40	0.40	0.21	0.12	0.05	0.01	0.06	0.00
Crit Volume:		116			600		310				95	
Crit Moves:		****			****		****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing Plus Phase 1 AM

Intersection #7: Joiner Parkway/Ferrari Ranch Road



Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	50	120	30	50	305	110	225	240	90	80	205	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	120	30	50	305	110	225	240	90	80	205	15
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	50	120	0	50	305	0	225	240	0	80	205	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	120	0	50	305	0	225	240	0	80	205	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	55	120	0	50	305	0	248	240	0	88	205	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.02	0.04	0.00	0.03	0.10	0.00	0.08	0.08	0.00	0.03	0.07	0.00
Crit Volume:	28				153		124				103	
Crit Moves:	****				****		****				****	

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	0	0	5	120	0	0	70
Future Vol, veh/h	0	0	5	120	0	0	70
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	128	0	0	74
Number of Lanes	0	0	0	1	0	0	1

Approach	WB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	NB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		WB
Conflicting Lanes Right	0	1
HCM Control Delay	8.1	6.9
HCM LOS	A	A

Lane	NBLn1	WBLn1
Vol Left, %	0%	100%
Vol Thru, %	0%	0%
Vol Right, %	100%	0%
Sign Control	Stop	Stop
Traffic Vol by Lane	70	125
LT Vol	0	125
Through Vol	0	0
RT Vol	70	0
Lane Flow Rate	74	133
Geometry Grp	1	1
Degree of Util (X)	0.074	0.158
Departure Headway (Hd)	3.565	4.264
Convergence, Y/N	Yes	Yes
Cap	990	843
Service Time	1.643	2.28
HCM Lane V/C Ratio	0.075	0.158
HCM Control Delay	6.9	8.1
HCM Lane LOS	A	A
HCM 95th-tile Q	0.2	0.6

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	60	105	255	220	25
Future Vol, veh/h	25	60	105	255	220	25
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	63	109	266	229	26
Number of Lanes	1	2	2	1	2	1

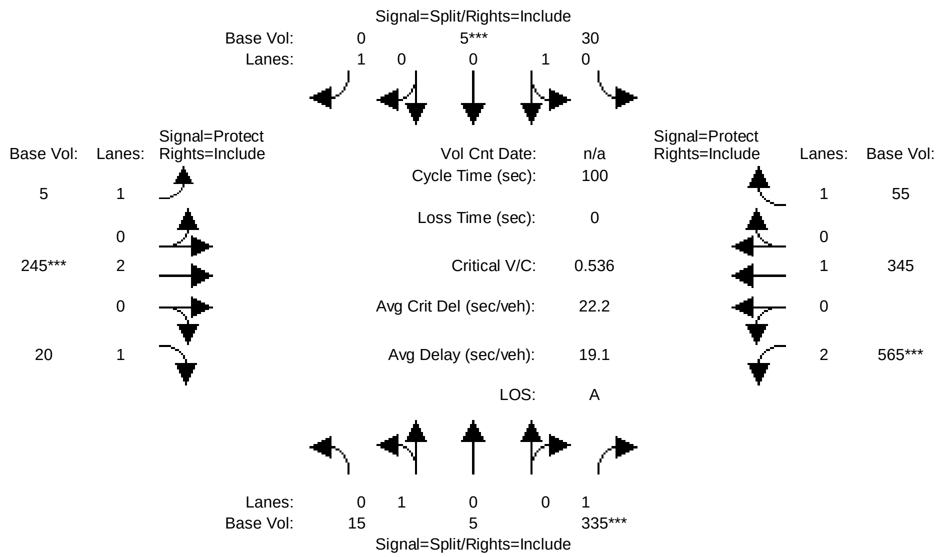
Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	8.4	7.3	9.5
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	30	30	53	53	255	110	110	25
LT Vol	25	0	0	0	0	0	110	110	0
Through Vol	0	30	30	53	53	0	0	0	0
RT Vol	0	0	0	0	0	255	0	0	25
Lane Flow Rate	26	31	31	55	55	266	115	115	26
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.046	0.05	0.035	0.083	0.083	0.224	0.188	0.188	0.021
Departure Headway (Hd)	6.31	5.806	4.059	5.483	5.483	3.035	5.891	5.891	2.966
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	564	613	872	653	653	1177	613	613	1214
Service Time	4.085	3.581	1.833	3.219	3.219	0.77	3.591	3.591	0.666
HCM Lane V/C Ratio	0.046	0.051	0.036	0.084	0.084	0.226	0.188	0.188	0.021
HCM Control Delay	9.4	8.9	7	8.7	8.7	6.7	9.9	9.9	5.7
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0.3	0.3	0.9	0.7	0.7	0.1

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing Plus Phase 1 PM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road



Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	15	5	335	30	5	0	5	245	20	565	345	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	5	335	30	5	0	5	245	20	565	345	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	15	5	335	30	5	0	5	245	20	565	345	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	15	5	335	30	5	0	5	245	20	565	345	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	15	5	335	30	5	0	5	245	20	622	345	55
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.75	0.25	1.00	0.86	0.14	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	1125	375	1500	1286	214	1500	1500	3000	1500	3000	1500	1500
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.22	0.02	0.02	0.00	0.00	0.08	0.01	0.21	0.23	0.04
Crit Volume:			335		35			123		311		
Crit Moves:			****		****			****		****		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	370	250	0	910	325	0	0	0	140	0	50
Future Volume (veh/h)	0	370	250	0	910	325	0	0	0	140	0	50
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	385	260	0	948	0				146	0	52
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	912	608	0	2280					280	0	249
Arrive On Green	0.00	0.45	0.45	0.00	0.45	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	2135	1361	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	334	311	0	948	0				146	0	52
Grp Sat Flow(s),veh/h/ln	0	1777	1625	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	2.9	3.0	0.0	2.9	0.0				1.7	0.0	0.6
Cycle Q Clear(g_c), s	0.0	2.9	3.0	0.0	2.9	0.0				1.7	0.0	0.6
Prop In Lane	0.00		0.84	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	793	726	0	2280					280	0	249
V/C Ratio(X)	0.00	0.42	0.43	0.00	0.42					0.52	0.00	0.21
Avail Cap(c_a), veh/h	0	1409	1289	0	4049					1412	0	1257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.3	4.3	0.0	4.3	0.0				8.8	0.0	8.3
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.0	0.1	0.0				1.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.0	0.2	0.0				0.5	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.6	4.7	0.0	4.4	0.0				10.3	0.0	8.8
LnGrp LOS	A	A	A	A	A					B	A	A
Approach Vol, veh/h		645			948	A					198	
Approach Delay, s/veh		4.7			4.4						9.9	
Approach LOS		A			A						A	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				14.6		8.1		14.6
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s				5.0		3.7		4.9
Green Ext Time (p_c), s				3.3		0.8		5.3

Intersection Summary	
HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	490	0	0	790	165	445	0	660	0	0	0
Future Volume (veh/h)	25	490	0	0	790	165	445	0	660	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	26	510	0	0	823	0	464	0	688			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	56	1564	0	0	1492		1167	0	1038			
Arrive On Green	0.03	0.44	0.00	0.00	0.29	0.00	0.33	0.00	0.33			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	26	510	0	0	823	0	464	0	688			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.6	3.6	0.0	0.0	5.3	0.0	3.9	0.0	7.2			
Cycle Q Clear(g_c), s	0.6	3.6	0.0	0.0	5.3	0.0	3.9	0.0	7.2			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	56	1564	0	0	1492		1167	0	1038			
V/C Ratio(X)	0.46	0.33	0.00	0.00	0.55		0.40	0.00	0.66			
Avail Cap(c_a), veh/h	230	2524	0	0	2374		1702	0	1515			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.4	7.1	0.0	0.0	11.6	0.0	10.1	0.0	11.2			
Incr Delay (d2), s/veh	5.8	0.1	0.0	0.0	0.3	0.0	0.2	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.3	0.9	0.0	0.0	1.5	0.0	1.2	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	7.2	0.0	0.0	11.9	0.0	10.3	0.0	11.9			
LnGrp LOS	C	A	A	A	B		B	A	B			
Approach Vol, veh/h		536			823	A		1152				
Approach Delay, s/veh		8.0			11.9			11.3				
Approach LOS		A			B			B				

Timer - Assigned Phs		2		4			7	8	
Phs Duration (G+Y+Rc), s		17.2		21.5			5.7	15.8	
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5	
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0	
Max Q Clear Time (g_c+I1), s		9.2		5.6			2.6	7.3	
Green Ext Time (p_c), s		3.5		3.3			0.0	4.0	

Intersection Summary		
HCM 6th Ctrl Delay		10.8
HCM 6th LOS		B

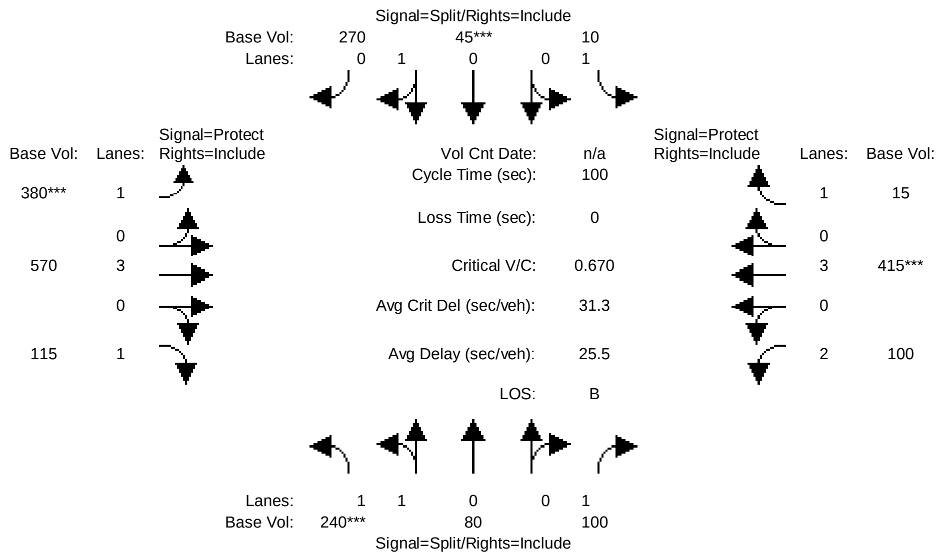
Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing Plus Phase 1 PM

Intersection #6: Groveland Land/Ferrari Ranch Road

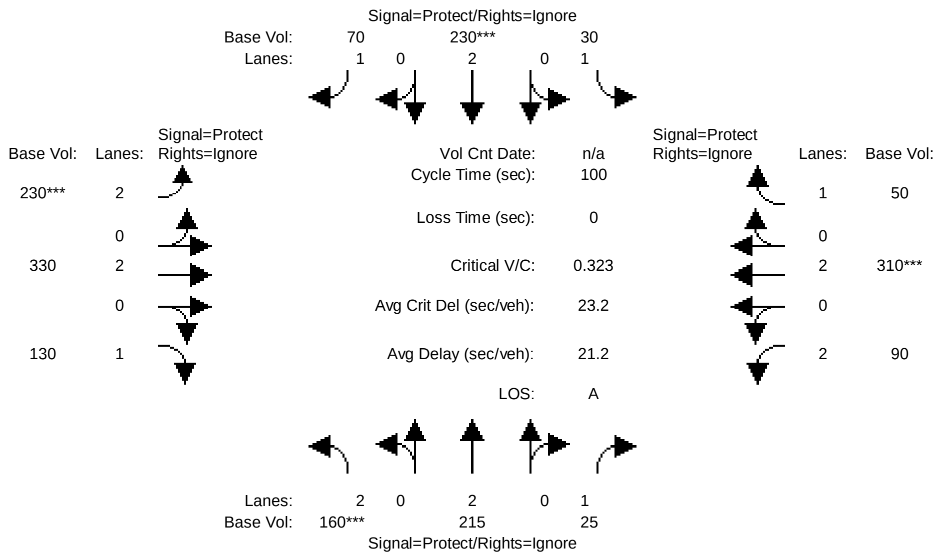


Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	240	80	100	10	45	270	380	570	115	100	415	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	240	80	100	10	45	270	380	570	115	100	415	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	240	80	100	10	45	270	380	570	115	100	415	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	240	80	100	10	45	270	380	570	115	100	415	15
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	264	80	100	10	45	270	380	570	115	110	415	15
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.53	0.47	1.00	1.00	0.14	0.86	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2302	698	1500	1500	214	1286	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.07	0.01	0.21	0.21	0.25	0.13	0.08	0.04	0.09	0.01
Crit Volume:	172				315		380				138	
Crit Moves:	****				****		****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
Existing Plus Phase 1 PM

Intersection #7: Joiner Parkway/Ferrari Ranch Road



Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	160	215	25	30	230	70	230	330	130	90	310	50
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	160	215	25	30	230	70	230	330	130	90	310	50
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	160	215	0	30	230	0	230	330	0	90	310	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	215	0	30	230	0	230	330	0	90	310	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	176	215	0	30	230	0	253	330	0	99	310	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.06	0.07	0.00	0.02	0.08	0.00	0.08	0.11	0.00	0.03	0.10	0.00
Crit Volume:	88				115		127				155	
Crit Moves:	****				****		****				****	

Appendix D

INTERSECTION LOS WORKSHEETS
FOR CUMULATIVE NO-PROJECT CONDITIONS

Intersection	
Intersection Delay, s/veh	76.8
Intersection LOS	F

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	985	10	15	70	245	10	240
Future Vol, veh/h	985	10	15	70	245	10	240
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	1037	11	16	74	258	11	253
Number of Lanes	2	0	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	112.6	13.5	17.9
HCM LOS	F	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	97%	0%	100%	100%
Vol Right, %	0%	100%	0%	3%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	240	657	338	85	123	123
LT Vol	10	0	0	0	85	0	0
Through Vol	0	0	657	328	0	123	123
RT Vol	0	240	0	10	0	0	0
Lane Flow Rate	11	253	691	356	89	129	129
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.025	0.512	1.277	0.656	0.2	0.271	0.271
Departure Headway (Hd)	8.919	7.698	6.65	6.629	8.488	7.976	7.976
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	404	472	546	545	426	454	454
Service Time	6.619	5.398	4.405	4.384	6.188	5.676	5.676
HCM Lane V/C Ratio	0.027	0.536	1.266	0.653	0.209	0.284	0.284
HCM Control Delay	11.8	18.2	159.7	21.2	13.3	13.6	13.6
HCM Lane LOS	B	C	F	C	B	B	B
HCM 95th-tile Q	0.1	2.9	27.8	4.7	0.7	1.1	1.1

Intersection	
Intersection Delay, s/veh	80.1
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1235	315	145	360	5
Future Vol, veh/h	10	1235	315	145	360	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1300	332	153	379	5
Number of Lanes	1	2	2	1	2	1

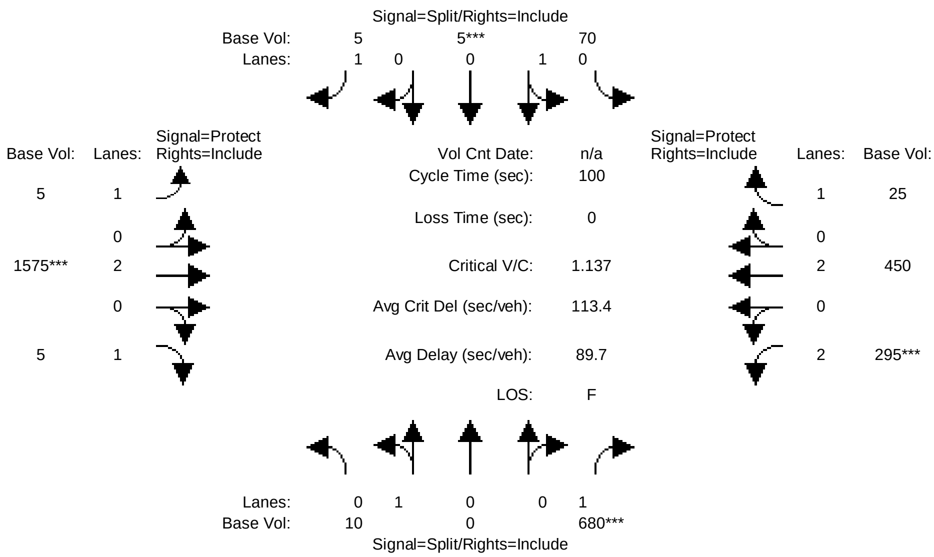
Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	122.5	14.8	17.9
HCM LOS	F	B	C

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	618	618	158	158	145	180	180	5
LT Vol	10	0	0	0	0	0	180	180	0
Through Vol	0	618	618	158	158	0	0	0	0
RT Vol	0	0	0	0	0	145	0	0	5
Lane Flow Rate	11	650	650	166	166	153	189	189	5
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.023	1.331	1.012	0.379	0.379	0.246	0.439	0.439	0.008
Departure Headway (Hd)	7.884	7.374	5.606	8.67	8.67	6.177	8.682	8.682	5.715
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	452	494	644	418	418	585	417	417	630
Service Time	5.667	5.157	3.389	6.37	6.37	3.877	6.382	6.382	3.415
HCM Lane V/C Ratio	0.024	1.316	1.009	0.397	0.397	0.262	0.453	0.453	0.008
HCM Control Delay	10.9	184.7	62.1	16.6	16.6	10.9	18	18	8.5
HCM Lane LOS	B	F	F	C	C	B	C	C	A
HCM 95th-tile Q	0.1	28.4	16	1.7	1.7	1	2.2	2.2	0

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 No Project AM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road



Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	10	0	680	70	5	5	5	1575	5	295	450	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	0	680	70	5	5	5	1575	5	295	450	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	0	680	70	5	5	5	1575	5	295	450	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	0	680	70	5	5	5	1575	5	295	450	25
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	10	0	680	70	5	5	5	1575	5	325	450	25
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.93	0.07	1.00	1.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	1500	0	1500	1400	100	1500	1500	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.45	0.05	0.05	0.00	0.00	0.53	0.00	0.11	0.15	0.02
Crit Volume:			680		75			788		162		
Crit Moves:			****		****			****		****		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1150	1180	0	760	675	0	0	0	285	0	10
Future Volume (veh/h)	0	1150	1180	0	760	675	0	0	0	285	0	10
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1322	1356	0	874	0				328	0	11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	1285	1121	0	3651					347	0	309
Arrive On Green	0.00	0.71	0.71	0.00	0.71	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	1890	1568	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	1305	1373	0	874	0				328	0	11
Grp Sat Flow(s),veh/h/ln	0	1777	1588	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	71.5	71.5	0.0	5.9	0.0				18.2	0.0	0.6
Cycle Q Clear(g_c), s	0.0	71.5	71.5	0.0	5.9	0.0				18.2	0.0	0.6
Prop In Lane	0.00		0.99	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1270	1135	0	3651					347	0	309
V/C Ratio(X)	0.00	1.03	1.21	0.00	0.24					0.94	0.00	0.04
Avail Cap(c_a), veh/h	0	1270	1135	0	3651					347	0	309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.2	14.3	0.0	4.9	0.0				39.7	0.0	32.6
Incr Delay (d2), s/veh	0.0	32.4	102.7	0.0	0.0	0.0				34.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	32.8	51.5	0.0	1.7	0.0				11.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	46.6	116.9	0.0	4.9	0.0				73.7	0.0	32.7
LnGrp LOS	A	F	F	A	A					E	A	C
Approach Vol, veh/h		2678			874	A					339	
Approach Delay, s/veh		82.7			4.9						72.4	
Approach LOS		F			A						E	

Timer - Assigned Phs			4		6		8
Phs Duration (G+Y+Rc), s			76.0		24.0		76.0
Change Period (Y+Rc), s			4.5		4.5		4.5
Max Green Setting (Gmax), s			71.5		19.5		71.5
Max Q Clear Time (g_c+I1), s			73.5		20.2		7.9
Green Ext Time (p_c), s			0.0		0.0		7.3

Intersection Summary		
HCM 6th Ctrl Delay		64.3
HCM 6th LOS		E

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	1195	0	0	1080	285	355	0	260	0	0	0
Future Volume (veh/h)	235	1195	0	0	1080	285	355	0	260	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	273	1390	0	0	1256	0	413	0	302			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	333	2193	0	0	1716		691	0	615			
Arrive On Green	0.19	0.62	0.00	0.00	0.34	0.00	0.19	0.00	0.19			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	273	1390	0	0	1256	0	413	0	302			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	7.0	11.7	0.0	0.0	10.3	0.0	5.0	0.0	4.0			
Cycle Q Clear(g_c), s	7.0	11.7	0.0	0.0	10.3	0.0	5.0	0.0	4.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	333	2193	0	0	1716		691	0	615			
V/C Ratio(X)	0.82	0.63	0.00	0.00	0.73		0.60	0.00	0.49			
Avail Cap(c_a), veh/h	392	2460	0	0	1928		1345	0	1197			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.6	5.7	0.0	0.0	13.9	0.0	17.5	0.0	17.1			
Incr Delay (d2), s/veh	11.4	0.5	0.0	0.0	1.3	0.0	0.8	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.5	2.4	0.0	0.0	3.4	0.0	1.9	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	6.2	0.0	0.0	15.2	0.0	18.3	0.0	17.7			
LnGrp LOS	C	A	A	A	B		B	A	B			
Approach Vol, veh/h		1663			1256	A		715				
Approach Delay, s/veh		10.1			15.2			18.1				
Approach LOS		B			B			B				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		13.7		33.9			13.4	20.5				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.0		33.0			10.5	18.0				
Max Q Clear Time (g_c+I1), s		7.0		13.7			9.0	12.3				
Green Ext Time (p_c), s		2.2		10.1			0.1	3.7				

Intersection Summary		
HCM 6th Ctrl Delay		13.4
HCM 6th LOS		B

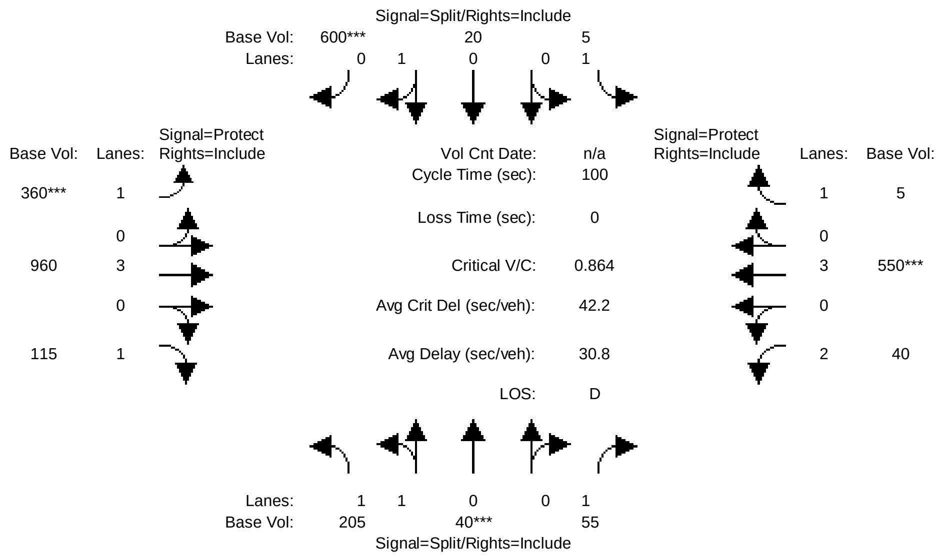
Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 No Project AM

Intersection #6: Groveland Land/Ferrari Ranch Road



Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	205	40	55	5	20	600	360	960	115	40	550	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	205	40	55	5	20	600	360	960	115	40	550	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	205	40	55	5	20	600	360	960	115	40	550	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	205	40	55	5	20	600	360	960	115	40	550	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	226	40	55	5	20	600	360	960	115	44	550	5
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.70	0.30	1.00	1.00	0.03	0.97	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2548	452	1500	1500	48	1452	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.09	0.09	0.04	0.00	0.41	0.41	0.24	0.21	0.08	0.01	0.12	0.00
Crit Volume:		133				620	360				183	
Crit Moves:		****				****	****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 No Project AM

Intersection #7: Joiner Parkway/Ferrari Ranch Road

Signal=Protect/Rights=Ignore
Base Vol: 110 355*** 50
Lanes: 1 0 2 0 1

Base Vol: Lanes: Signal=Protect Rights=Ignore
225*** 2
0
415 2
0
340 1

Vol Cnt Date: n/a
Cycle Time (sec): 100
Loss Time (sec): 0
Critical V/C: 0.379
Avg Crit Del (sec/veh): 23.0
Avg Delay (sec/veh): 21.3
LOS: A

Signal=Protect Rights=Ignore Lanes: Base Vol:
1 15
0
2 370***
0
2 80

Lanes: 2 0 2 0 1
Base Vol: 150*** 170 30
Signal=Protect/Rights=Ignore

Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	150	170	30	50	355	110	225	415	340	80	370	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	170	30	50	355	110	225	415	340	80	370	15
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	150	170	0	50	355	0	225	415	0	80	370	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	150	170	0	50	355	0	225	415	0	80	370	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	165	170	0	50	355	0	248	415	0	88	370	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.06	0.06	0.00	0.03	0.12	0.00	0.08	0.14	0.00	0.03	0.12	0.00
Crit Volume:	83				178		124				185	
Crit Moves:	****				****		****				****	

Intersection	
Intersection Delay, s/veh	19.2
Intersection LOS	C

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	305	10	5	110	880	10	55
Future Vol, veh/h	305	10	5	110	880	10	55
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	324	11	5	117	936	11	59
Number of Lanes	2	0	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	13.1	21.6	11
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	91%	0%	100%	100%
Vol Right, %	0%	100%	0%	9%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	55	203	112	115	440	440
LT Vol	10	0	0	0	115	0	0
Through Vol	0	0	203	102	0	440	440
RT Vol	0	55	0	10	0	0	0
Lane Flow Rate	11	59	216	119	122	468	468
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.025	0.117	0.407	0.222	0.211	0.741	0.741
Departure Headway (Hd)	8.403	7.187	6.776	6.713	6.203	5.7	5.7
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	426	498	530	535	579	637	637
Service Time	6.163	4.947	4.522	4.459	3.935	3.432	3.432
HCM Lane V/C Ratio	0.026	0.118	0.408	0.222	0.211	0.735	0.735
HCM Control Delay	11.4	10.9	14.1	11.4	10.6	23	23
HCM Lane LOS	B	B	B	B	B	C	C
HCM 95th-tile Q	0.1	0.4	2	0.8	0.8	6.5	6.5

Intersection	
Intersection Delay, s/veh	33.8
Intersection LOS	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	340	975	260	235	25
Future Vol, veh/h	30	340	975	260	235	25
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	354	1016	271	245	26
Number of Lanes	1	2	2	1	2	1

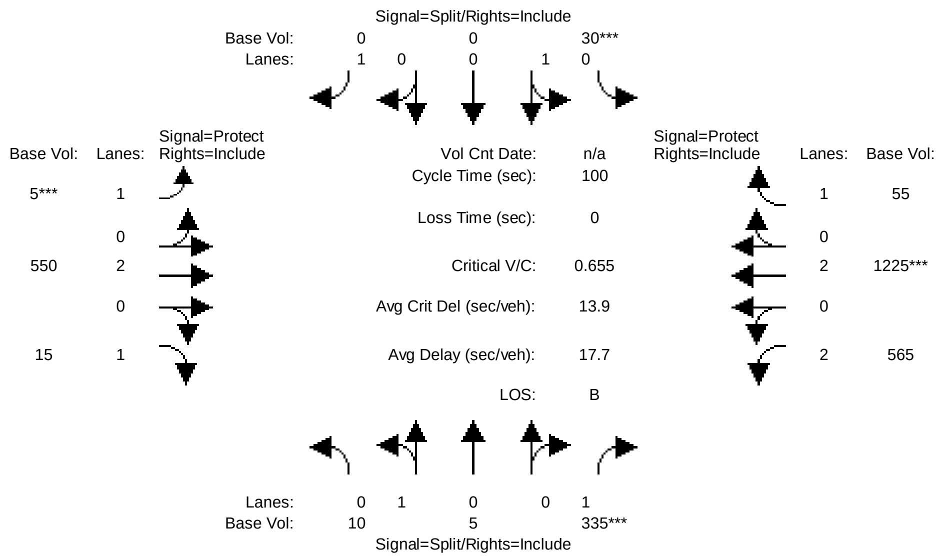
Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	13.9	44	13.8
HCM LOS	B	E	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	170	170	488	488	260	118	118	25
LT Vol	30	0	0	0	0	0	118	118	0
Through Vol	0	170	170	488	488	0	0	0	0
RT Vol	0	0	0	0	0	260	0	0	25
Lane Flow Rate	31	177	177	508	508	271	122	122	26
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.075	0.399	0.312	0.951	0.951	0.322	0.285	0.285	0.039
Departure Headway (Hd)	8.622	8.113	6.349	6.743	6.743	4.275	8.376	8.376	5.418
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	416	444	565	538	538	842	431	431	662
Service Time	6.371	5.862	4.097	4.458	4.458	1.99	6.099	6.099	3.14
HCM Lane V/C Ratio	0.075	0.399	0.313	0.944	0.944	0.322	0.283	0.283	0.039
HCM Control Delay	12.1	16.2	12	53.3	53.3	9	14.4	14.4	8.4
HCM Lane LOS	B	C	B	F	F	A	B	B	A
HCM 95th-tile Q	0.2	1.9	1.3	12.2	12.2	1.4	1.2	1.2	0.1

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 No Project PM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road



Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	10	5	335	30	0	0	5	550	15	565	1225	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	5	335	30	0	0	5	550	15	565	1225	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	5	335	30	0	0	5	550	15	565	1225	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	5	335	30	0	0	5	550	15	565	1225	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	10	5	335	30	0	0	5	550	15	622	1225	55
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.67	0.33	1.00	1.00	0.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	1000	500	1500	1500	0	1500	1500	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.22	0.02	0.00	0.00	0.00	0.18	0.01	0.21	0.41	0.04
Crit Volume:			335	30			5				613	
Crit Moves:			****	****			****				****	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	535	390	0	1675	325	0	0	0	495	0	165
Future Volume (veh/h)	0	535	390	0	1675	325	0	0	0	495	0	165
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	557	406	0	1745	0				516	0	172
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	860	627	0	2239					639	0	568
Arrive On Green	0.00	0.44	0.44	0.00	0.44	0.00				0.36	0.00	0.36
Sat Flow, veh/h	0	2054	1429	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	505	458	0	1745	0				516	0	172
Grp Sat Flow(s),veh/h/ln	0	1777	1613	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	9.9	9.9	0.0	12.9	0.0				11.6	0.0	3.5
Cycle Q Clear(g_c), s	0.0	9.9	9.9	0.0	12.9	0.0				11.6	0.0	3.5
Prop In Lane	0.00		0.89	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	779	707	0	2239					639	0	568
V/C Ratio(X)	0.00	0.65	0.65	0.00	0.78					0.81	0.00	0.30
Avail Cap(c_a), veh/h	0	822	746	0	2362					824	0	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.8	9.8	0.0	10.6	0.0				12.8	0.0	10.2
Incr Delay (d2), s/veh	0.0	1.7	1.8	0.0	1.7	0.0				4.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	2.8	0.0	3.7	0.0				4.5	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.4	11.6	0.0	12.3	0.0				17.5	0.0	10.5
LnGrp LOS	A	B	B	A	B					B	A	B
Approach Vol, veh/h		963			1745	A					688	
Approach Delay, s/veh		11.5			12.3						15.8	
Approach LOS		B			B						B	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				23.9		20.4		23.9				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				20.5		20.5		20.5				
Max Q Clear Time (g_c+I1), s				11.9		13.6		14.9				
Green Ext Time (p_c), s				4.0		2.3		4.5				
Intersection Summary												
HCM 6th Ctrl Delay			12.8									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	945	0	0	1110	535	890	0	660	0	0	0
Future Volume (veh/h)	90	945	0	0	1110	535	890	0	660	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	94	984	0	0	1156	0	927	0	688			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	131	1709	0	0	1614		1197	0	1065			
Arrive On Green	0.07	0.48	0.00	0.00	0.32	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	94	984	0	0	1156	0	927	0	688			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	2.5	9.8	0.0	0.0	9.8	0.0	11.5	0.0	9.1			
Cycle Q Clear(g_c), s	2.5	9.8	0.0	0.0	9.8	0.0	11.5	0.0	9.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	131	1709	0	0	1614		1197	0	1065			
V/C Ratio(X)	0.72	0.58	0.00	0.00	0.72		0.77	0.00	0.65			
Avail Cap(c_a), veh/h	181	1986	0	0	1868		1339	0	1192			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	22.3	9.2	0.0	0.0	14.9	0.0	14.7	0.0	13.9			
Incr Delay (d2), s/veh	8.1	0.3	0.0	0.0	1.1	0.0	2.6	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	2.8	0.0	0.0	3.3	0.0	4.3	0.0	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	9.5	0.0	0.0	16.0	0.0	17.3	0.0	14.9			
LnGrp LOS	C	A	A	A	B		B	A	B			
Approach Vol, veh/h		1078			1156	A		1615				
Approach Delay, s/veh		11.3			16.0			16.2				
Approach LOS		B			B			B				

Timer - Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		21.0		28.2			8.1	20.1
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0
Max Q Clear Time (g_c+I1), s		13.5		11.8			4.5	11.8
Green Ext Time (p_c), s		3.0		6.1			0.0	3.7

Intersection Summary	
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

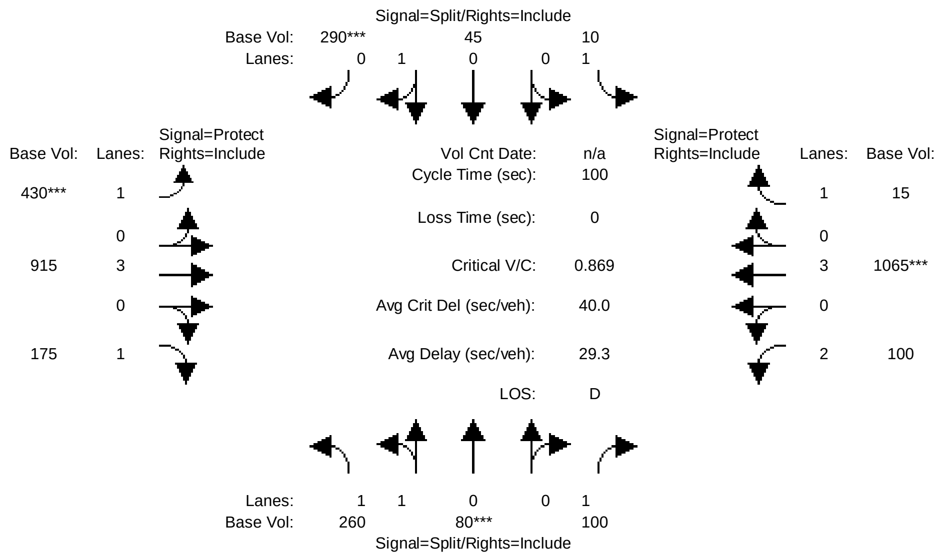
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 No Project PM

Intersection #6: Groveland Land/Ferrari Ranch Road

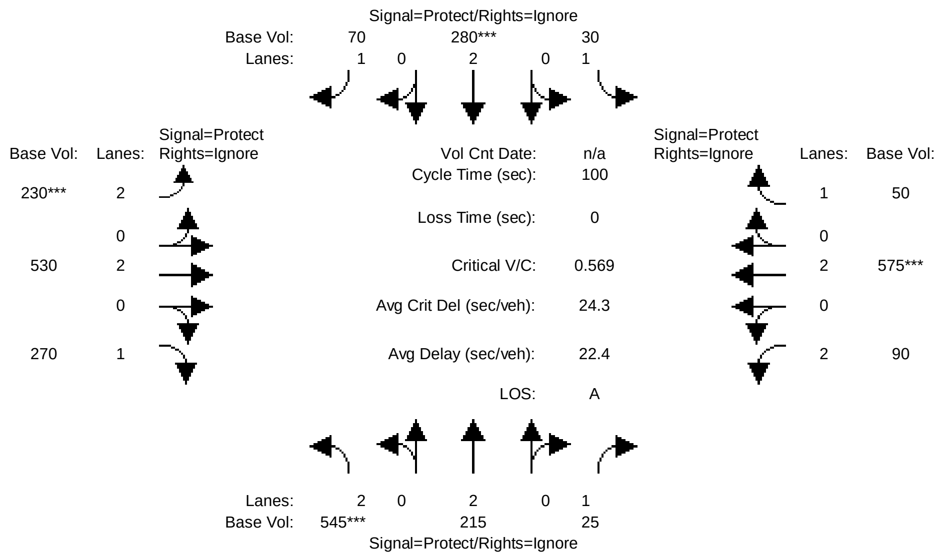


Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	260	80	100	10	45	290	430	915	175	100	1065	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	260	80	100	10	45	290	430	915	175	100	1065	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	260	80	100	10	45	290	430	915	175	100	1065	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	260	80	100	10	45	290	430	915	175	100	1065	15
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	286	80	100	10	45	290	430	915	175	110	1065	15
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.56	0.44	1.00	1.00	0.13	0.87	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2344	656	1500	1500	201	1299	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.07	0.01	0.22	0.22	0.29	0.20	0.12	0.04	0.24	0.01
Crit Volume:		183				335	430				355	
Crit Moves:		****				****	****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 No Project PM

Intersection #7: Joiner Parkway/Ferrari Ranch Road



Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	545	215	25	30	280	70	230	530	270	90	575	50
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	545	215	25	30	280	70	230	530	270	90	575	50
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	545	215	0	30	280	0	230	530	0	90	575	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	545	215	0	30	280	0	230	530	0	90	575	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	600	215	0	30	280	0	253	530	0	99	575	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.20	0.07	0.00	0.02	0.09	0.00	0.08	0.18	0.00	0.03	0.19	0.00
Crit Volume:	300				140		127				288	
Crit Moves:	****				****		****				****	

Appendix E

INTERSECTION LOS WORKSHEETS

FOR CUMULATIVE PLUS FULL BUILDOUT CONDITIONS

Intersection	
Intersection Delay, s/veh	75
Intersection LOS	F

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	930	65	15	115	245	10	295
Future Vol, veh/h	930	65	15	115	245	10	295
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	979	68	16	121	258	11	311
Number of Lanes	2	0	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	113.4	14.7	23.7
HCM LOS	F	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	83%	0%	100%	100%
Vol Right, %	0%	100%	0%	17%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	295	620	375	130	123	123
LT Vol	10	0	0	0	130	0	0
Through Vol	0	0	620	310	0	123	123
RT Vol	0	295	0	65	0	0	0
Lane Flow Rate	11	311	653	395	137	129	129
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.025	0.648	1.284	0.763	0.318	0.282	0.282
Departure Headway (Hd)	9.162	7.939	7.085	6.961	8.822	8.309	8.309
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	393	460	509	517	411	436	436
Service Time	6.862	5.639	4.866	4.742	6.522	6.009	6.009
HCM Lane V/C Ratio	0.028	0.676	1.283	0.764	0.333	0.296	0.296
HCM Control Delay	12.1	24.1	164.5	29	15.6	14.2	14.2
HCM Lane LOS	B	C	F	D	C	B	B
HCM 95th-tile Q	0.1	4.5	26.8	6.7	1.3	1.1	1.1

Intersection	
Intersection Delay, s/veh	79.6
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	1190	315	155	385	45
Future Vol, veh/h	60	1190	315	155	385	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	1253	332	163	405	47
Number of Lanes	1	2	2	1	2	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	124.6	15.9	18.4
HCM LOS	F	C	C

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	595	595	158	158	155	193	193	45
LT Vol	60	0	0	0	0	0	193	193	0
Through Vol	0	595	595	158	158	0	0	0	0
RT Vol	0	0	0	0	0	155	0	0	45
Lane Flow Rate	63	626	626	166	166	163	203	203	47
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.144	1.343	1.034	0.4	0.4	0.283	0.482	0.482	0.074
Departure Headway (Hd)	8.229	7.718	5.946	9.121	9.121	6.624	8.83	8.83	5.86
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	436	476	614	398	398	547	411	411	615
Service Time	5.971	5.46	3.687	6.821	6.821	4.324	6.53	6.53	3.56
HCM Lane V/C Ratio	0.144	1.315	1.02	0.417	0.417	0.298	0.494	0.494	0.076
HCM Control Delay	12.4	190.8	69.7	17.8	17.8	11.9	19.5	19.5	9
HCM Lane LOS	B	F	F	C	C	B	C	C	A
HCM 95th-tile Q	0.5	28.2	16.6	1.9	1.9	1.2	2.5	2.5	0.2

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 Plus Buildout AM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road

Signal=Split/Rights=Include
Base Vol: 5 20*** 70
Lanes: 1 0 0 1 0

Base Vol:	Lanes:	Signal=Protect Rights=Include			Signal=Protect Rights=Include	Lanes:	Base Vol:
			Vol Cnt Date:	n/a			
			Cycle Time (sec):	100			
15	1					1	25
			Loss Time (sec):	0			
	0					0	
1575***	2		Critical V/C:	1.147		2	450
	0		Avg Crit Del (sec/veh):	113.9		0	
30	1		Avg Delay (sec/veh):	93.1		2	295***
			LOS:	F			

Lanes: 0 1 0 0 1
Base Vol: 65 5 680***
Signal=Split/Rights=Include

Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	65	5	680	70	20	5	15	1575	30	295	450	25
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	65	5	680	70	20	5	15	1575	30	295	450	25
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	65	5	680	70	20	5	15	1575	30	295	450	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	65	5	680	70	20	5	15	1575	30	295	450	25
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	65	5	680	70	20	5	15	1575	30	325	450	25
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.93	0.07	1.00	0.78	0.22	1.00	1.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	1393	107	1500	1167	333	1500	1500	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.45	0.06	0.06	0.00	0.01	0.53	0.02	0.11	0.15	0.02
Crit Volume:			680		90			788		162		
Crit Moves:			****		****			****		****		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1150	1180	0	760	675	0	0	0	285	0	10
Future Volume (veh/h)	0	1150	1180	0	760	675	0	0	0	285	0	10
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1322	1356	0	874	0				328	0	11
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	1285	1121	0	3651					347	0	309
Arrive On Green	0.00	0.71	0.71	0.00	0.71	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	1890	1568	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	1305	1373	0	874	0				328	0	11
Grp Sat Flow(s),veh/h/ln	0	1777	1588	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	71.5	71.5	0.0	5.9	0.0				18.2	0.0	0.6
Cycle Q Clear(g_c), s	0.0	71.5	71.5	0.0	5.9	0.0				18.2	0.0	0.6
Prop In Lane	0.00		0.99	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1270	1135	0	3651					347	0	309
V/C Ratio(X)	0.00	1.03	1.21	0.00	0.24					0.94	0.00	0.04
Avail Cap(c_a), veh/h	0	1270	1135	0	3651					347	0	309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.2	14.3	0.0	4.9	0.0				39.7	0.0	32.6
Incr Delay (d2), s/veh	0.0	32.4	102.7	0.0	0.0	0.0				34.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	32.8	51.5	0.0	1.7	0.0				11.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	46.6	116.9	0.0	4.9	0.0				73.7	0.0	32.7
LnGrp LOS	A	F	F	A	A					E	A	C
Approach Vol, veh/h		2678			874	A					339	
Approach Delay, s/veh		82.7			4.9						72.4	
Approach LOS		F			A						E	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				76.0		24.0		76.0				
Change Period (Y+Rc), s				4.5		4.5		4.5				
Max Green Setting (Gmax), s				71.5		19.5		71.5				
Max Q Clear Time (g_c+I1), s				73.5		20.2		7.9				
Green Ext Time (p_c), s				0.0		0.0		7.3				

Intersection Summary		
HCM 6th Ctrl Delay		64.3
HCM 6th LOS		E

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	1195	0	0	1080	285	355	0	260	0	0	0
Future Volume (veh/h)	235	1195	0	0	1080	285	355	0	260	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	273	1390	0	0	1256	0	413	0	302			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	333	2193	0	0	1716		691	0	615			
Arrive On Green	0.19	0.62	0.00	0.00	0.34	0.00	0.19	0.00	0.19			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	273	1390	0	0	1256	0	413	0	302			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	7.0	11.7	0.0	0.0	10.3	0.0	5.0	0.0	4.0			
Cycle Q Clear(g_c), s	7.0	11.7	0.0	0.0	10.3	0.0	5.0	0.0	4.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	333	2193	0	0	1716		691	0	615			
V/C Ratio(X)	0.82	0.63	0.00	0.00	0.73		0.60	0.00	0.49			
Avail Cap(c_a), veh/h	392	2460	0	0	1928		1345	0	1197			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.6	5.7	0.0	0.0	13.9	0.0	17.5	0.0	17.1			
Incr Delay (d2), s/veh	11.4	0.5	0.0	0.0	1.3	0.0	0.8	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.5	2.4	0.0	0.0	3.4	0.0	1.9	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	6.2	0.0	0.0	15.2	0.0	18.3	0.0	17.7			
LnGrp LOS	C	A	A	A	B		B	A	B			
Approach Vol, veh/h		1663			1256	A		715				
Approach Delay, s/veh		10.1			15.2			18.1				
Approach LOS		B			B			B				

Timer - Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		13.7		33.9			13.4	20.5
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		18.0		33.0			10.5	18.0
Max Q Clear Time (g_c+I1), s		7.0		13.7			9.0	12.3
Green Ext Time (p_c), s		2.2		10.1			0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

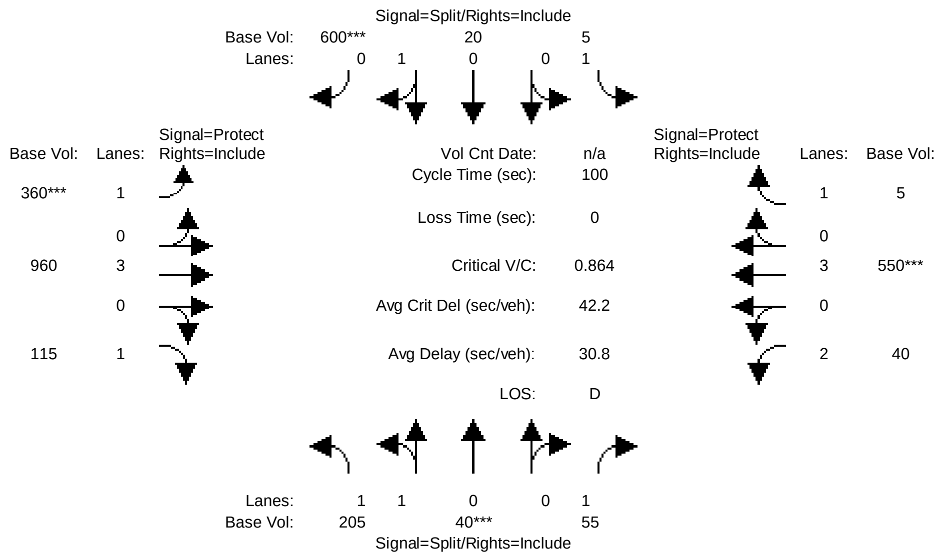
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 Plus Buildout AM

Intersection #6: Groveland Land/Ferrari Ranch Road

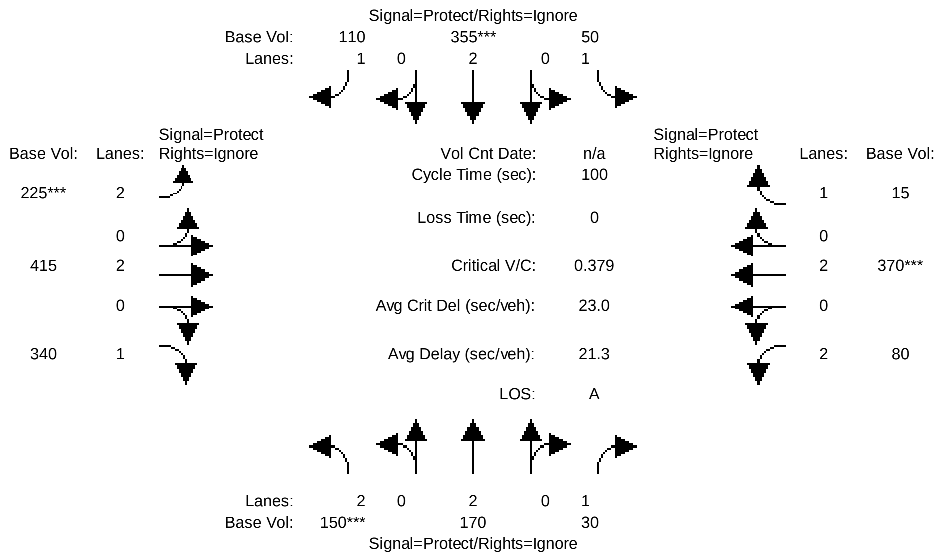


Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	205	40	55	5	20	600	360	960	115	40	550	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	205	40	55	5	20	600	360	960	115	40	550	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	205	40	55	5	20	600	360	960	115	40	550	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	205	40	55	5	20	600	360	960	115	40	550	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	226	40	55	5	20	600	360	960	115	44	550	5
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.70	0.30	1.00	1.00	0.03	0.97	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2548	452	1500	1500	48	1452	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.09	0.09	0.04	0.00	0.41	0.41	0.24	0.21	0.08	0.01	0.12	0.00
Crit Volume:		133				620	360				183	
Crit Moves:		****				****	****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 Plus Buildout AM

Intersection #7: Joiner Parkway/Ferrari Ranch Road



Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	150	170	30	50	355	110	225	415	340	80	370	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	170	30	50	355	110	225	415	340	80	370	15
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	150	170	0	50	355	0	225	415	0	80	370	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	150	170	0	50	355	0	225	415	0	80	370	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	165	170	0	50	355	0	248	415	0	88	370	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.06	0.06	0.00	0.03	0.12	0.00	0.08	0.14	0.00	0.03	0.12	0.00
Crit Volume:	83				178		124				185	
Crit Moves:	****				****		****				****	

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	295	20	5	120	880	10	70
Future Vol, veh/h	295	20	5	120	880	10	70
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	314	21	5	128	936	11	74
Number of Lanes	2	0	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	13.2	22.3	11.3
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	83%	0%	100%	100%
Vol Right, %	0%	100%	0%	17%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	70	197	118	125	440	440
LT Vol	10	0	0	0	125	0	0
Through Vol	0	0	197	98	0	440	440
RT Vol	0	70	0	20	0	0	0
Lane Flow Rate	11	74	209	126	133	468	468
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.025	0.149	0.399	0.236	0.232	0.751	0.751
Departure Headway (Hd)	8.443	7.227	6.874	6.755	6.277	5.774	5.774
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	423	495	523	531	572	627	627
Service Time	6.208	4.991	4.626	4.507	4.011	3.507	3.507
HCM Lane V/C Ratio	0.026	0.149	0.4	0.237	0.233	0.746	0.746
HCM Control Delay	11.4	11.3	14.1	11.6	10.9	23.9	23.9
HCM Lane LOS	B	B	B	B	B	C	C
HCM 95th-tile Q	0.1	0.5	1.9	0.9	0.9	6.7	6.7

Intersection	
Intersection Delay, s/veh	34.8
Intersection LOS	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	330	975	265	240	35
Future Vol, veh/h	45	330	975	265	240	35
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	344	1016	276	250	36
Number of Lanes	1	2	2	1	2	1

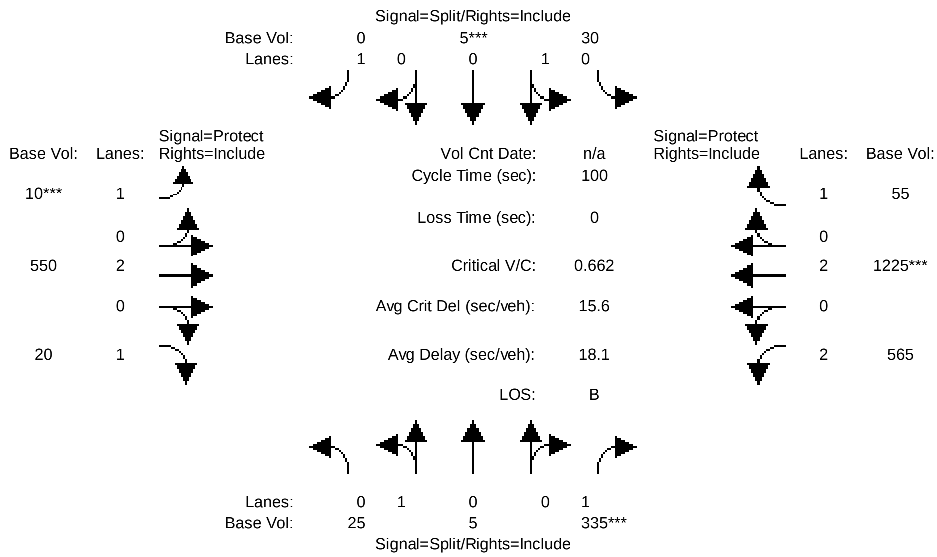
Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	3	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	3	3
HCM Control Delay	13.9	45.8	13.8
HCM LOS	B	E	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	165	165	488	488	265	120	120	35
LT Vol	45	0	0	0	0	0	120	120	0
Through Vol	0	165	165	488	488	0	0	0	0
RT Vol	0	0	0	0	0	265	0	0	35
Lane Flow Rate	47	172	172	508	508	276	125	125	36
Geometry Grp	8	8	8	8	8	8	7	7	7
Degree of Util (X)	0.113	0.391	0.307	0.961	0.961	0.333	0.292	0.292	0.055
Departure Headway (Hd)	8.704	8.195	6.429	6.816	6.816	4.347	8.414	8.414	5.455
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	412	440	559	533	533	828	429	429	658
Service Time	6.453	5.944	4.178	4.531	4.531	2.062	6.137	6.137	3.177
HCM Lane V/C Ratio	0.114	0.391	0.308	0.953	0.953	0.333	0.291	0.291	0.055
HCM Control Delay	12.6	16.1	12	55.8	55.8	9.2	14.6	14.6	8.5
HCM Lane LOS	B	C	B	F	F	A	B	B	A
HCM 95th-tile Q	0.4	1.8	1.3	12.6	12.6	1.5	1.2	1.2	0.2

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 Plus Buildout PM

Intersection #3: Caledon Circle (E)/ Ferrari Ranch Road



Street Name:	Caledon Circle						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	25	5	335	30	5	0	10	550	20	565	1225	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	25	5	335	30	5	0	10	550	20	565	1225	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	25	5	335	30	5	0	10	550	20	565	1225	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	5	335	30	5	0	10	550	20	565	1225	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	25	5	335	30	5	0	10	550	20	622	1225	55
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.83	0.17	1.00	0.86	0.14	1.00	1.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	1250	250	1500	1286	214	1500	1500	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.22	0.02	0.02	0.00	0.01	0.18	0.01	0.21	0.41	0.04
Crit Volume:			335		35		10				613	
Crit Moves:			****		****		****				****	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	535	390	0	1675	325	0	0	0	495	0	165
Future Volume (veh/h)	0	535	390	0	1675	325	0	0	0	495	0	165
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	557	406	0	1745	0				516	0	172
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	860	627	0	2239					639	0	568
Arrive On Green	0.00	0.44	0.44	0.00	0.44	0.00				0.36	0.00	0.36
Sat Flow, veh/h	0	2054	1429	0	5274	1585				1781	0	1585
Grp Volume(v), veh/h	0	505	458	0	1745	0				516	0	172
Grp Sat Flow(s),veh/h/ln	0	1777	1613	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	9.9	9.9	0.0	12.9	0.0				11.6	0.0	3.5
Cycle Q Clear(g_c), s	0.0	9.9	9.9	0.0	12.9	0.0				11.6	0.0	3.5
Prop In Lane	0.00		0.89	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	779	707	0	2239					639	0	568
V/C Ratio(X)	0.00	0.65	0.65	0.00	0.78					0.81	0.00	0.30
Avail Cap(c_a), veh/h	0	822	746	0	2362					824	0	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.8	9.8	0.0	10.6	0.0				12.8	0.0	10.2
Incr Delay (d2), s/veh	0.0	1.7	1.8	0.0	1.7	0.0				4.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	2.8	0.0	3.7	0.0				4.5	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.4	11.6	0.0	12.3	0.0				17.5	0.0	10.5
LnGrp LOS	A	B	B	A	B					B	A	B
Approach Vol, veh/h		963			1745	A					688	
Approach Delay, s/veh		11.5			12.3						15.8	
Approach LOS		B			B						B	

Timer - Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				23.9		20.4		23.9
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				20.5		20.5		20.5
Max Q Clear Time (g_c+I1), s				11.9		13.6		14.9
Green Ext Time (p_c), s				4.0		2.3		4.5

Intersection Summary			
HCM 6th Ctrl Delay			12.8
HCM 6th LOS			B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	945	0	0	1110	535	890	0	660	0	0	0
Future Volume (veh/h)	90	945	0	0	1110	535	890	0	660	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	94	984	0	0	1156	0	927	0	688			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	131	1709	0	0	1614		1197	0	1065			
Arrive On Green	0.07	0.48	0.00	0.00	0.32	0.00	0.34	0.00	0.34			
Sat Flow, veh/h	1781	3647	0	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	94	984	0	0	1156	0	927	0	688			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	2.5	9.8	0.0	0.0	9.8	0.0	11.5	0.0	9.1			
Cycle Q Clear(g_c), s	2.5	9.8	0.0	0.0	9.8	0.0	11.5	0.0	9.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	131	1709	0	0	1614		1197	0	1065			
V/C Ratio(X)	0.72	0.58	0.00	0.00	0.72		0.77	0.00	0.65			
Avail Cap(c_a), veh/h	181	1986	0	0	1868		1339	0	1192			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	22.3	9.2	0.0	0.0	14.9	0.0	14.7	0.0	13.9			
Incr Delay (d2), s/veh	8.1	0.3	0.0	0.0	1.1	0.0	2.6	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	2.8	0.0	0.0	3.3	0.0	4.3	0.0	2.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	9.5	0.0	0.0	16.0	0.0	17.3	0.0	14.9			
LnGrp LOS	C	A	A	A	B		B	A	B			
Approach Vol, veh/h		1078			1156	A		1615				
Approach Delay, s/veh		11.3			16.0			16.2				
Approach LOS		B			B			B				

Timer - Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		21.0		28.2			8.1	20.1
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		18.5		27.5			5.0	18.0
Max Q Clear Time (g_c+I1), s		13.5		11.8			4.5	11.8
Green Ext Time (p_c), s		3.0		6.1			0.0	3.7

Intersection Summary	
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

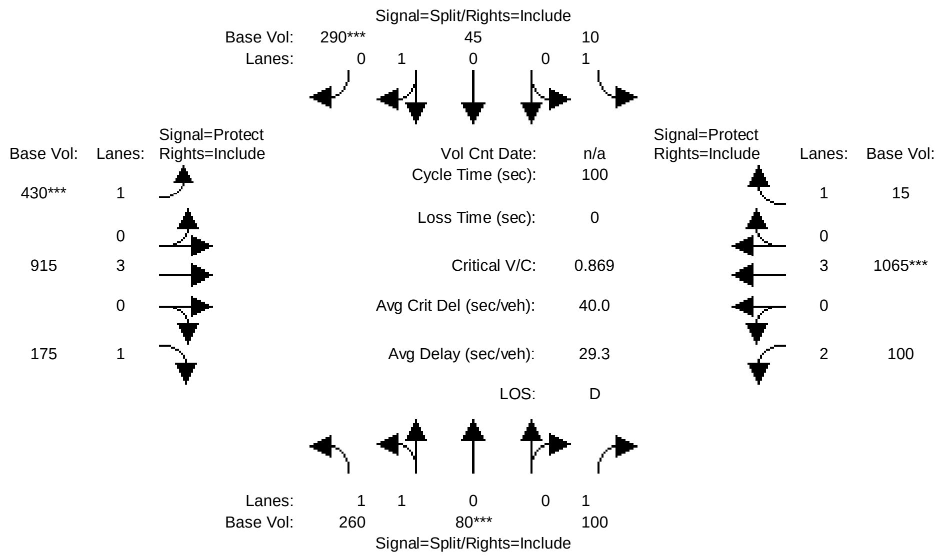
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 Plus Buildout PM

Intersection #6: Groveland Land/Ferrari Ranch Road

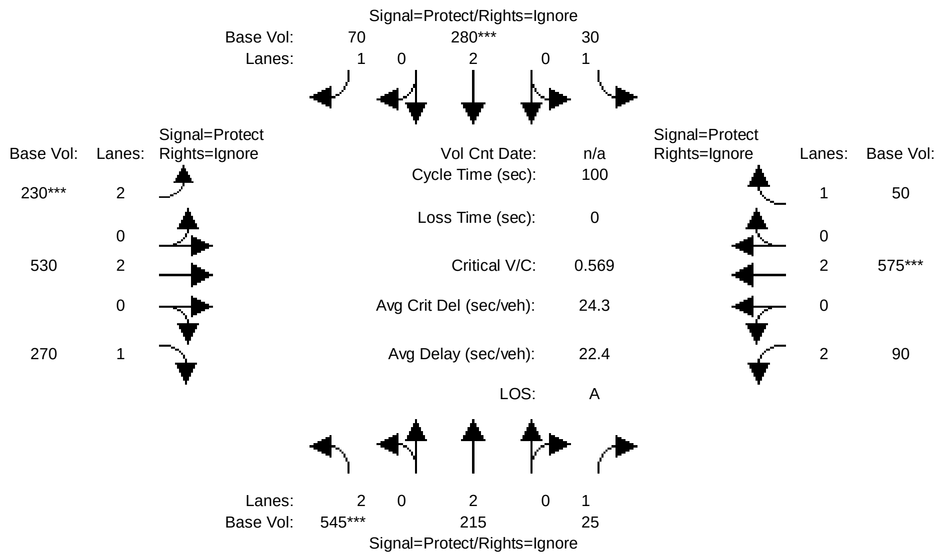


Street Name:	Groveland Lane						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	260	80	100	10	45	290	430	915	175	100	1065	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	260	80	100	10	45	290	430	915	175	100	1065	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	260	80	100	10	45	290	430	915	175	100	1065	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	260	80	100	10	45	290	430	915	175	100	1065	15
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.00
FinalVolume:	286	80	100	10	45	290	430	915	175	110	1065	15
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.56	0.44	1.00	1.00	0.13	0.87	1.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	2344	656	1500	1500	201	1299	1500	4500	1500	3000	4500	1500
Capacity Analysis Module:												
Vol/Sat:	0.12	0.12	0.07	0.01	0.22	0.22	0.29	0.20	0.12	0.04	0.24	0.01
Crit Volume:		183				335	430				355	
Crit Moves:		****				****	****				****	

Lincoln Crossing South Elementary School

Level Of Service Computation Report
Circular 212 Planning (Base Volume Alternative)
2030 Plus Buildout PM

Intersection #7: Joiner Parkway/Ferrari Ranch Road



Street Name:	Joiner Parkway						Ferrari Ranch Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	545	215	25	30	280	70	230	530	270	90	575	50
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	545	215	25	30	280	70	230	530	270	90	575	50
User Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
PHF Volume:	545	215	0	30	280	0	230	530	0	90	575	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	545	215	0	30	280	0	230	530	0	90	575	0
PCE Adj:	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
MLF Adj:	1.10	1.00	0.00	1.00	1.00	0.00	1.10	1.00	0.00	1.10	1.00	0.00
FinalVolume:	600	215	0	30	280	0	253	530	0	99	575	0
Saturation Flow Module:												
Sat/Lane:	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3000	3000	1500	1500	3000	1500	3000	3000	1500	3000	3000	1500
Capacity Analysis Module:												
Vol/Sat:	0.20	0.07	0.00	0.02	0.09	0.00	0.08	0.18	0.00	0.03	0.19	0.00
Crit Volume:	300				140		127				288	
Crit Moves:	****				****		****				****	

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