

DRAFT

**Initial Study and Mitigated Negative Declaration
Mistletoe Elementary School Project**

March 2020

Lead Agency:



**Enterprise Elementary School District
1155 Mistletoe Lane
Redding, CA 96002**

Prepared by:



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

**55 Hanover Lane
Suite A
Chico, California 95973**

**DRAFT MITIGATED NEGATIVE DECLARATION
MISTLETOE ELEMENTARY SCHOOL PROJECT**

Project Title/Purpose	Mistletoe Elementary School Project
Lead Agency:	Enterprise Elementary School District
Project Proponent:	Enterprise Elementary School District
Project Location:	The Project site is located on three parcels at 1225 Mistletoe Lane and 1186 and 1220 Del Monte Street in east-central Redding. (<i>Figure 1. Project Vicinity</i> and <i>Figure 2. Site Location</i>). The Project is located in Section 5 of Township 31 North, Range 04 West, (Mount Diablo Base and Meridian). The Project's location is identified as Assessor's Parcel Numbers (APNs) 067-350-038, 067-120-038, and 067-120-040. The approximate center of the site is located at latitude 40°34'34" N and longitude 122°20'58" W.
Project Description:	The Proposed Project is for the construction of a gymnasium, operations and maintenance building, an athletic field, bus parking area and a new drive aisle between the existing Mistletoe Elementary School driveway and Del Monte Street (which are currently not connected). This new drive aisle will allow for better site circulation during drop-off and pick-up times for the school students.
Public Review Period:	To be determined

Mitigation Measures Incorporated into the Project to Avoid Significant Effects:

AES-1: Reflective Surfaces

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: Enterprise Elementary School District

BIO-1: Special-Status Plant Species

Due to the disturbed nature of most of the Project site, the potential for occurrence of special-status plants is significantly reduced. The intermittent drainage and potentially the marsh represent marginally suitable habitat for watershield and Sanford's arrowhead. The intermittent drainage may serve as suitable habitat for the silky cryptantha, which also has potential to occur in the marsh.

In order to minimize potential impacts to special-status plants the following measures shall be implemented:

- If there are proposed impacts for the intermittent drainage and marsh, perform focused plant surveys according to USFWS, CDFW, and CNPS protocol. Surveys shall be timed according to the blooming period for target species and known reference populations, if available, and/or local herbaria shall be visited prior to surveys to confirm the appropriate phenological state of the target species. The USFWS generally considers plant survey results valid for approximately three years.
- If special-status plant species are found, avoidance zones shall be established around plants to clearly demarcate areas for avoidance. Avoidance measures and buffer distances may vary between species and the specific avoidance zone distance shall be determined in coordination with appropriate resource agencies (CDFW and USFWS).
- If special-status plant species are found within the Project site and avoidance of the species is not possible, additional measures such as seed collection and/or translocation shall be developed in consultation with the appropriate agencies.
- If no special-status plants are found, no further measures pertaining to special-status plants are necessary.
- If no impacts are proposed for the intermittent drainage and marsh, a plant survey is not required.

Timing/Implementation: *Prior to commencement of construction and during construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-2: Special-Status and Migratory Bird Treaty Act Birds

The Project site provides nesting habitat for several common birds protected under the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Game (CFG) code. Impacts to nesting special-status and MBTA-protected birds could be considered significant. As such, to ensure that there are no impacts to protected special-status birds, including their eggs and active nests, the following mitigation measures are recommended:

A qualified biologist shall 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 300 feet of the Project site for nesting raptors, and 100 feet of the Project site 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. Impacts to foraging/wintering habitat of non-listed birds protected under the MBTA are typically considered less than significant.

Timing/Implementation: *Prior to commencement of construction and during construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-3: Special- Status Mammals

The Project has potential to impact roosting pallid bat and western red bat. To prevent significant impacts to these species, the following mitigation measures shall be performed:

Prior to any disturbances to the trees, a qualified biologist will conduct a preconstruction survey within seven days of tree disturbance activities to determine the presence of roosting bats.

If roosting bats are found within the trees, a qualified biologist shall determine what types of roosts are present. If non-maternity and non-hibernaculum day or night roosts are present, a qualified biologist will use safe eviction methods to remove bats if direct impacts to these roosts cannot be avoided. If a winter hibernaculum or maternity roost is present, impacts to the resource (e.g., tree) may not occur until the bats have vacated or are safely evicted using methods acceptable to CDFW.

If no roosting bats are found during the preconstruction survey, no further measures are recommended.

Timing/Implementation: *Prior to commencement of construction and during construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-4: Intermittent Drainage or Riparian Vegetation

No construction work is anticipated to penetrate the area adjacent to the intermittent drainage located on the Project site. If, however, construction results in work within the intermittent drainage or riparian vegetation, then a 1602 streambed alteration notification shall be prepared. The Project applicant shall then ensure that a CDFW 1602 Streambed Alteration Agreement has been obtained prior to the approval of grading and improvement plans and before any groundbreaking activity associated with the Project site. The construction contractor shall adhere to all conditions outlined in the Streambed Alteration Agreement.

Timing/Implementation: *Prior to commencement of construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-5: Aquatic Resources/Potential Waters of the U.S.

The Project has the potential to impact 0.565 acre of potential Waters of the U.S. To mitigate this impact during construction, hi-visibility silt fencing and straw wattles shall be placed, at a distance determined by a qualified biologist, from the edge of the wetland in order to protect the wetland.

If it is determined that construction may penetrate the wetland feature, an aquatic resources delineation shall be prepared by a qualified biologist according to United States Army Corps of Engineers (USACE) standards. If no aquatic resources are identified, no further action is needed.

- If any direct impacts to jurisdictional features are proposed, a permit authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) shall be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures shall 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 shall be prepared and submitted to USACE, and shall 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 recommended at a 1:1 ratio for direct impacts, however final mitigation requirements shall be developed in consultation with USACE.
- A Water Quality Certification or waiver pursuant to Section 401 of the CWA shall be obtained for Section 404 permit actions.
- If the aquatic resources are determined to be non-USACE jurisdictional, a Waste Discharge Requirement under the California Porter-Cologne Water Quality Control Act may be required for discharge into Waters of the State. The need for a Waste Discharge Requirement shall be determined through consultation with the California State Water Resources Control Board.

Timing/Implementation: *Prior to commencement of construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

CUL-1: Cultural Resource Discovery

If subsurface deposits believed to be cultural or human in origin are discovered during construction, 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 pre-contact and historic archaeologist, shall be retained by Enterprise Elementary School District 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 Enterprise

Elementary School District, the lead federal agency, and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to their satisfaction.

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Shasta County Coroner (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 agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Timing/Implementation:

During construction

Monitoring/Enforcement:

*Enterprise Elementary School District and the Project
construction lead*

GEO-1: Paleontological or Sensitive Geologic Resource Discovery

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 Enterprise Elementary School District. Enterprise Elementary School District 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, Shasta County 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: *Enterprise Elementary School District and the Project construction lead*

HAZ-1: Hazardous Materials Evaluation

Prior to commencement of construction, the Project site and potentially affected adjacent area, as determined by the DTSC, shall undergo a Preliminary Environmental Assessment (PEA). The PEA shall include evaluation of those areas identified in the DTSC letter addressed to EESD on December 19, 2019 (included in *Appendix F*). As identified in the letter, the potential sources of hazardous material that must be investigated for completion of the PEA are as follows: fill material from an unknown source area, naturally occurring asbestos, and potential off-site sources of hazardous material that must be addressed per California Code of Regulations, section 69104(d). If hazardous materials are identified that may have a significant environmental impact, compliance with all mitigation measures included in the PEA is required.

Timing/Implementation: *Prior to commencement of construction and during construction*

Monitoring/Enforcement: *Enterprise Elementary School District, Project construction lead, and the DTSC*

**Draft Initial Study and Mitigated Negative Declaration
Mistletoe Elementary School Project**

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Appendix B – Greenhouse Gas Emissions Modeling (ECORP Consulting, Inc. January 8, 2020)

Appendix C – Biological Resources Assessment (ECORP Consulting, Inc. February 21, 2020)

Appendix D – Noise (ECORP Consulting, Inc., January 16, 2020)

Appendix E- Energy Consumption Assessment (ECORP Consulting, Inc. January 8, 2020)

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LIST OF ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AADT	Average Annual Daily Trip
AMSL	Above mean sea level
APE	Area of Potential Effects
APN	Accessor Parcel Number
BIOS	Biogeographic Information and Observation System
BMPs	Best Management Practices
Board	Board of Supervisors
BP	Before present
ca	Circa
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
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	Cubic feet per second
CGS	California Geological Survey
CH ₄	Methane
CHRIS	California Historical Resources Information System
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	Carbon Monoxide

LIST OF ACRONYMS AND ABBREVIATIONS

CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
County	Shasta County
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Places
CSU-Chico	California State University, Chico
dBA	Decibels
DMR	Division of Mine Reclamation
DOC	California Department of Conservation
DOF	Department of Finance
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
fc	Foot-candle
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
General Permit	General Construction Activity Stormwater Permit
GHGs	Greenhouse Gases
GLO	General Land Office
I-5	Interstate 5
IS	Initial Study
ITE	Institute of Transportation Engineers
kWh	Kilowatt hours
Lbs/day	Pounds per day
L _{dn}	Day-night average sound level
L _{eq}	Equivalent continuous sound level
LOS	Level of service
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
M-M	Light Industrial
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zones
NAHC	Native American Heritage Commission
NEIC	North Central Information Center
NHTSA	National Highway Transportation Safety Administration
N ₂ O	Nitrous oxide
NO ₂	Nitrogen dioxide
NOI	Notice of Intent

LIST OF ACRONYMS AND ABBREVIATIONS

NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O ₃	Ozone
OHWM	Ordinary high water mark
O&M building	Operation and maintenance building
PG&E	Pacific Gas and Electric
PM ₁₀ and PM _{2.5}	Particulate Matter
PRC	Public Resource Code
Project/ Proposed Project	Mistletoe Elementary School Project
REU	Redding Electric Utility
ROG	Reactive Organic Gases
RTP/SCS	Regional Transportation Plan and Sustainable Communities Strategy for the Shasta Region
RWQCB	Regional Water Quality Control Board
SCAQMD	Shasta County Air Quality Management District
SO ₂	sulfur dioxide
SRWP	Sacramento River Watershed Program
SSC	Species of Special Concern
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
USACE	United States Army Corps of Engineers
UCMP	California Museum of Paleontology
USC	U.S. Code
U.S. Census	U.S. Census Bureau
USEPA	Environmental Protection Agency
USGS	U.S. Geological Survey
VMT	Vehicle miles traveled
WRM	Wildland Resource Managers

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SECTION 1.0 BACKGROUND

1.1 Summary

Project Title:	Mistletoe Elementary School Project
Lead Agency Name and Address:	Enterprise Elementary School District (EESD) 1155 Mistletoe Lane Redding, CA 96002
Lead Agency Contact Person and Phone Number:	Brian Winstead, Superintendent, Enterprise Elementary School District (530) 224-4100
Project Owner	Enterprise Elementary School District
Project Location:	The Project site is located on three parcels at 1225 Mistletoe Lane and 1186 and 1220 Del Monte Street in east-central Redding. (<i>Figure 1. Project Vicinity and Figure 2. Site Location</i>). The Project is located in Section 5 of Township 31 North, Range 04 West, (Mount Diablo Base and Meridian). It is also known as Assessor's Parcel Numbers (APNs) 067-350-038, 067-120-038, and 067-120-040. The approximate center of the site is located at latitude 40°34'34" N and longitude 122°20'58" W.
General Plan Designation:	<ul style="list-style-type: none">• 1 Parcel: Public Facilities or Institutional (PF-1) (APN 067-350-038)• 2 parcels: Residential 10 to 20 Dwelling Units Per Acre (10-20) (APNs 067-120-038 and 067-120-040)
Zoning:	<ul style="list-style-type: none">• 1 Parcel: Public Facility (PF) (APN 067-350-038)• 2 parcels: Residential Multiple-Family 15 units per acre (RM-15) (APNs 067-120-038 and 067-120-040)

1.2 Introduction

The Enterprise Elementary School District (EESD) is the Lead Agency for this Initial Study Mitigated Negative Declaration (IS/MND), which has been prepared to identify and assess the anticipated environmental impacts of the Mistletoe Elementary School Project (Project or Proposed Project) and mitigate potentially significant environmental effects. 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 IS/MND is generally used to determine the potentially significant environmental affects and mitigate those to be less than significant.

1.3 Project Location and Surrounding Land Uses

The Project site consists of three parcels located at 1225 Mistletoe Lane and 1186 and 1220 Del Monte Street in east-central Redding. As illustrated in *Figure 1. Regional Location* and *Figure 2. Site Location* maps, the Proposed Project is located directly south of the existing Mistletoe Elementary School and adjacent to one of the Shasta Head Start Child Development facilities. Adjacent landscape features and uses include a small intermittent drainage channel and single family homes to the east, an HVAC repair service and storage yard, a small light industrial complex, offices, and Grocery Outlet Store to the south, the Shasta Head Start facility and homes to the west, and Mistletoe Elementary School and EESD offices to the north. There is also vacant land southeast of the Project site. See *Figure 3. Surrounding Uses*.

1.4 Environmental Setting

The Proposed Project is located in the east-central portion of the City of Redding in a mostly developed area. The site is zoned *Public Facility (PF)* and *Residential Multiple-Family 15 units per acre (RM-15)*. The environmental setting is characterized by urban and commercial development. Located directly to the north of the Proposed Project site is the existing Mistletoe Elementary School. The parcel located directly to the south of the Project site is developed for commercial use, but undeveloped land exists further to the south and southeast. To the west, the landscape is dominated by commercial development. The landscape is dominated by urban development to the north and east.

The Project site is located in the shadow of Mount Shasta, located approximately 100 miles north. The region's climate is characterized as Mediterranean, with cool, wet winters and hot, dry summers. The native vegetation community is described as follows: The annual grassland appears to have been historically disturbed and consists of predominantly non-native plants, including wild oats, yellow star-thistle, small flowered fiddleneck, and English plantain. Scattered trees found in the annual grassland included interior live oak, blue oak, valley oak, and grey pine. The riparian corridor contains a dense understory of Himalayan blackberry, with hairy vetch, broad-leaf cattail, and tall flatsedge, and a semi-open overstory of arroyo willow, sandbar willow, Fremont's cottonwood, and oak trees (ECORP Consulting, Inc. 2020)

The site is mostly vacant grassland with a sparse covering of native oak trees and bushes. Some of the Proposed Project will be located on the southwest end of the existing Mistletoe Elementary school site, in an area that is currently undeveloped. Elevation of the site ranges from 556 to 558 feet above mean sea level (AMSL). An intermittent drainage exists on the east side of the Project site.

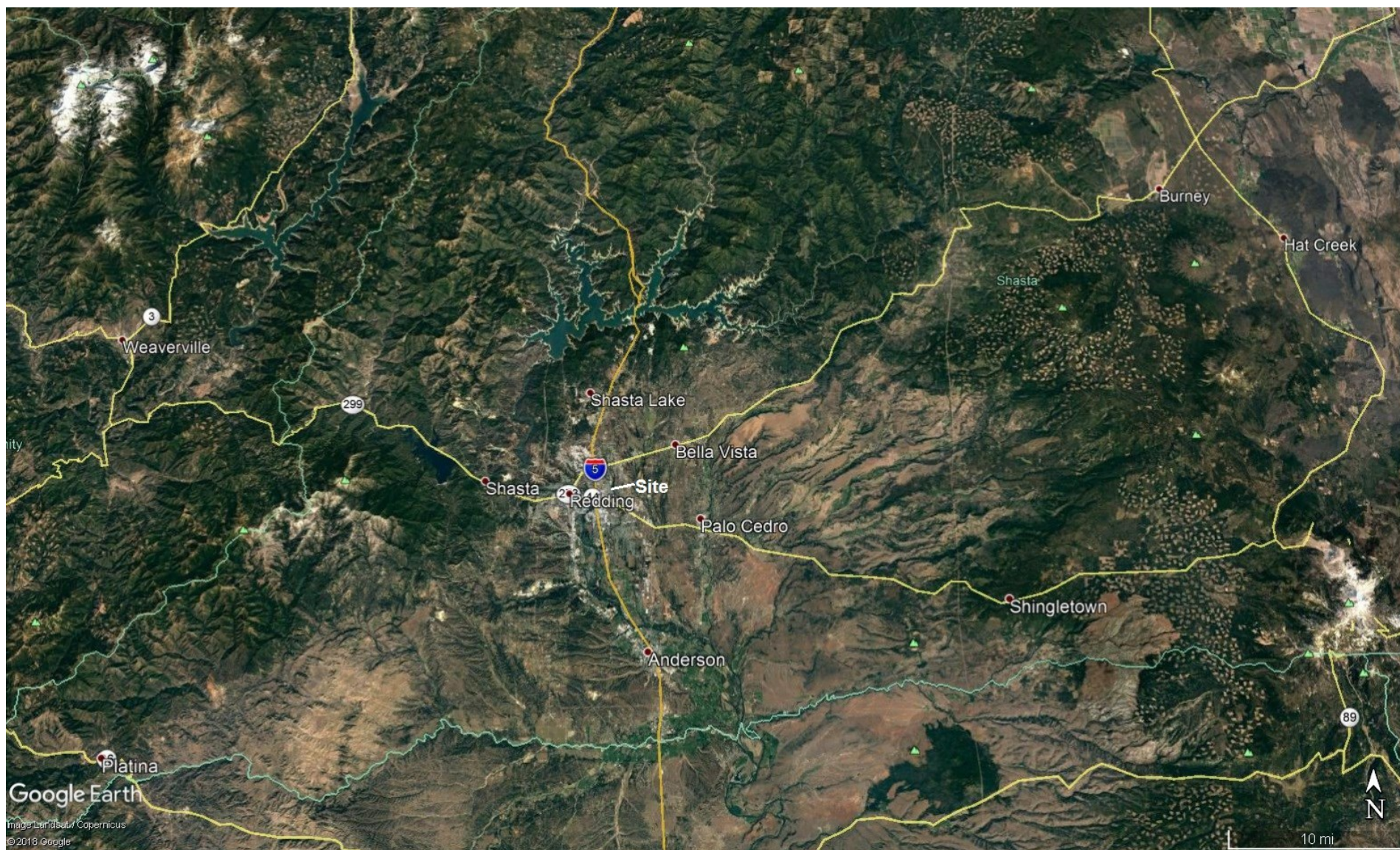
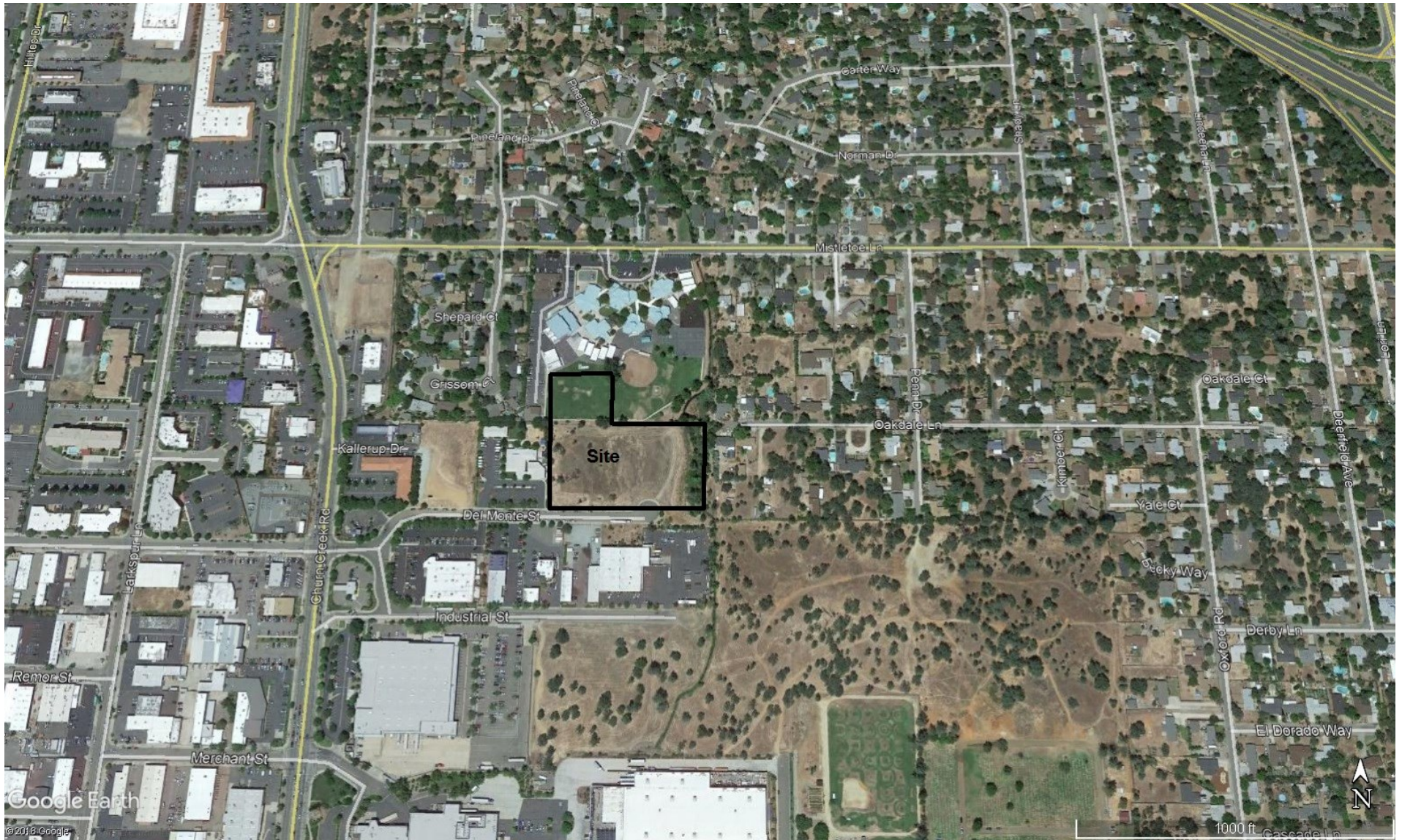


Figure 1. Regional Location
Mistletoe Elementary School Project

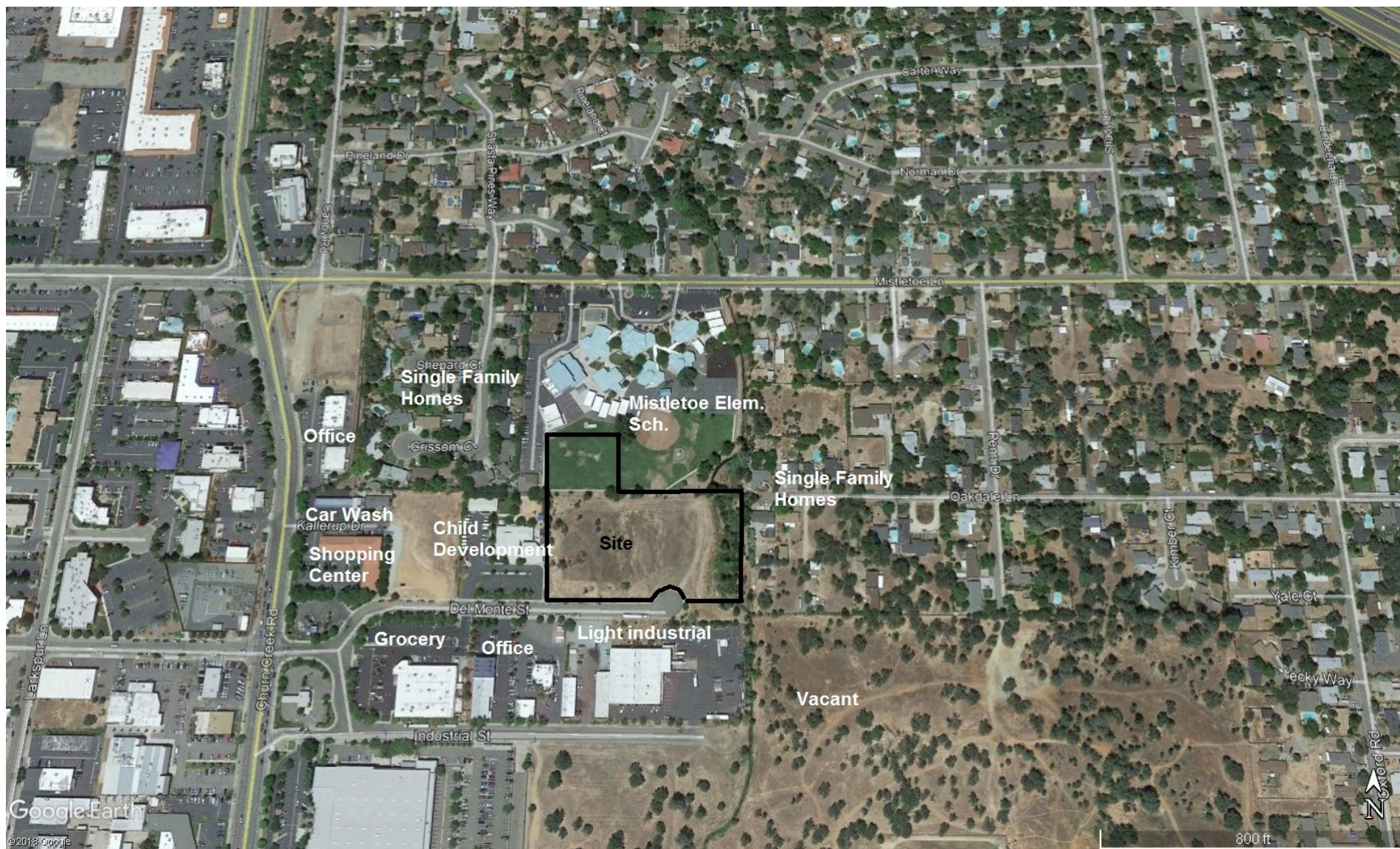


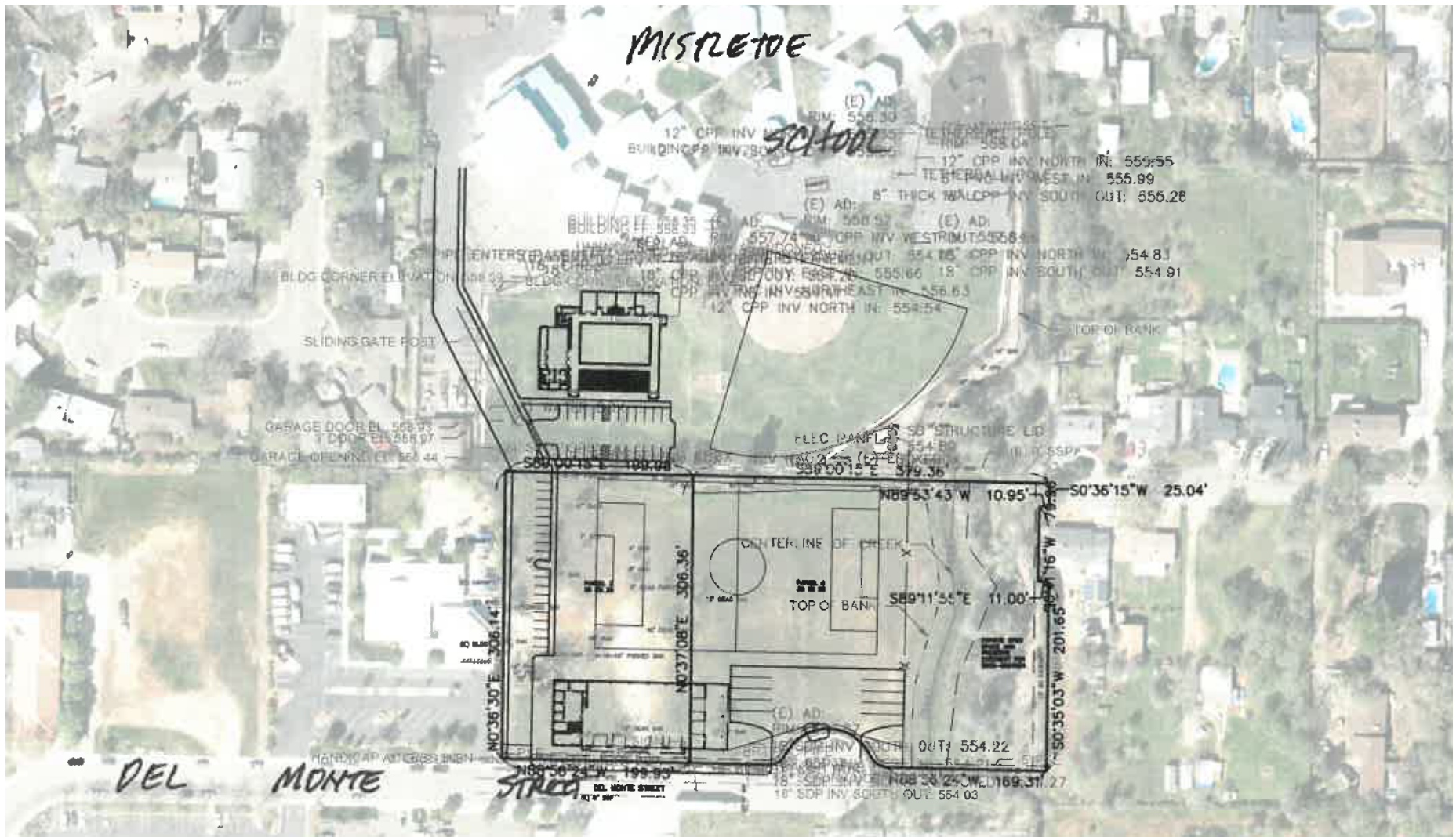
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Figure 2. Site Location
Mistletoe Elementary School Project





SECTION 2.0 PROJECT DESCRIPTION

2.1 Project Description

The Proposed Project is for the construction of a gymnasium, an athletic field, vehicle parking areas and drive isle for the Mistletoe Elementary School, and an operations and maintenance (O & M) building and bus parking area for school district operations. The new drive isle will be constructed between the existing Mistletoe Elementary School driveway and Del Monte Street (which are currently not connected). This new drive aisle will allow for better site circulation during drop-off and pick-up times for the school students. The Proposed Project would not increase student capacity at the school.

The Project would occur on three parcels totaling approximately five acres adjacent to Del Monte Street in the City of Redding. Of the approximately five-acre Project site, one acre is on the southwestern end of the existing Mistletoe school site. This area will be used for the new gymnasium and related parking lot. The remaining Project elements will be located on the two newly acquired parcels (See *Figure 4. Site Plan* for specific location of these new uses).

The approximate square footage of the new construction is summarized in *Table 2.1-1* below.

Table 2.1-1. Approximate Size of the Proposed Project Components

Project Component	Size (sq. ft.)
Gymnasium	12,250
O&M Building	11,000
Athletic Field	76,000
Paved areas (parking and drive areas)	47,000

During operation, the components of the Proposed Projects will be utilized for typical school operation. The athletic field will be utilized in intervals of one hour or less five times per day for physical education classes and two times per day for recess during school hours. Outside of school hours, the soccer field and baseball field will each be used daily for two hours of practice or games, with an anticipated attendance of 25 individuals. The school gymnasium will be used for school-related sports practice and events before and after school hours. The O&M building is the location where school vehicles, including trucks, vans, trailers, and mowers, will be stored. This building will also be a multi-purpose storage area for cold food, tools and materials, and files which need to be stored long-term. This building is also the "home base" for bus drivers and school maintenance workers.

The school owns nine buses that pick up students between 6:30 a.m. and 8:30 a.m. and drop off students between 2:00 p.m. and 4:00 p.m.

2.1.1 Construction and Timing

The Project is anticipated to be constructed over a two-year period. The following is the anticipated construction schedule:

1. Spring / Summer 2020: Grading for the new soccer field, the gym pad, gym parking area, O&M building pad, bus parking area, planting and irrigation for the new athletic field;
 - Grading for the entire Project is anticipated to last for two weeks. 8,000 cubic yards of cut and 8,000 cubic yards of fill will result from the planned balanced grading operation and no import or export of soil will result.
2. Summer 2020: Paving, drainage and utilities for the new drive aisle and parking from Del Monte to the existing Mistletoe School drive aisle;
 - 47,000 square feet of area will be paved over a period of 16 hours to construct the pick-up and drop-off drive isle. Subsurface water detention using perforated storm drainpipes and rock pockets will be constructed.
3. Summer / Fall 2020: Development of the O&M building and the bus parking area;
 - The bus parking area will be paved and complete in four weeks and the O&M building construction will occur over four months. The construction of both will overlap.
4. Summer 2021: Development of a new gym and parking.
 - The new parking area will be paved and complete in four weeks and the gym building will be constructed in six months. The construction of both will overlap.

2.2 Regulatory Requirements, Permits, and Approvals

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

2.2.1 Lead Agency Approval

EESD is the lead agency for the Proposed Project. In order to approve the Proposed Project, the EESD 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

Other agency approvals include the following:

Central Valley Regional Water Quality Control Board

The Regional Water Quality Control Board (RWQCB) typically requires that a Construction General Permit be obtained for projects that disturb more than one acre of soil. Typical conditions issued with such a permit include the submittal of and adherence to a stormwater pollution prevention plan (SWPPP), as well as prohibitions on the release of oils, grease, or other hazardous materials.

Shasta County Air Quality Management District

The Proposed Project is located in an area under the jurisdiction of the Shasta County Air Quality Management District (SCAQMD). The Project applicant will be required to obtain the district's approval of a dust control plan prior to any soil-disturbing activities on the site, as well as an Authority to Construct and a Permit to Operate.

2.2.2 Relationship of Project to Other Plans and Projects

City of Redding General Plan

The City of Redding 2000-2020 General Plan is the primary document governing land use development in the City. The City of Redding General Plan consists of ten individual Elements. These Elements: Air Quality, Community Development and Design, Economic Development, Health and Safety, Housing, Natural Resources, Noise, Public Facilities and Services, Recreation, and Transportation were adopted on October 3, 2000; with the exception of the Housing Element, which was most recently adopted on May 20, 2014. The General Plan has seen various revisions to some of the Elements since the original adoption date. The General Plan includes numerous goals and policies pertaining to land use, circulation, housing, parks, public facilities and services, open space, cultural resources and historic preservation, safety, energy, 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, EESD abides by the Redding General Plan goals and policies in the development and implementation of new projects within the district's facilities.

City of Redding Zoning Ordinance

The City of Redding Zoning Ordinance is codified as Title 18 of the Redding Municipal Code. The purpose of this title is to promote the public health, safety, and welfare of the City and to provide the economic and social advantages, which result from an orderly, planned use of the environment. The Zoning Ordinance implements the City's General Plan and Specific Plans, and establishes regulations governing the use, placement, spacing, and size of land and buildings. The Zoning Ordinance also describes various permits available through the Planning Division, when they are needed, and the process for obtaining permits.

2.2.3 *Consultation with California Native American Tribe(s)*

Assembly Bill (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. EESD has not received any Native American formal consultation requests. Further information on potential Tribal Cultural Resources in the Project area is provided in Section 4.18 of this IS/MND.

SECTION 3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

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.

- | | | |
|---|---|--|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Hazards/Hazardous Materials | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Transportation |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Land Use and Planning | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Utilities and Service Systems |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Noise | <input type="checkbox"/> Wildfire |
| <input checked="" type="checkbox"/> Geology and Soils | <input type="checkbox"/> Population and Housing | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

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. ☐


Brian Winstead,
Superintendent


Date

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SECTION 4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

The Project site is situated in a mostly developed area in the City of Redding. Distant views of the Coastal Range and Mount Shasta can be seen from the site. However, these views are mostly obscured by intervening buildings and vegetation.

The Redding General Plan identifies the Sacramento River a valuable scenic resource in the city as identified in Goal CDD4 as follows:

“Protect and enhance the relationship between the city and the Sacramento River.”

Ridgelines to the west of the city are also considered scenic views and the General Plan includes Policy CDD7A to protect these views. Policy CDD7A is as follows:

“Protect the visual integrity of prominent ridge lines that can be viewed from key public gathering areas, the river, visitor destinations, and community gateways. ...”

Native oak trees are also identified as an aesthetic resource in the General Plan as clarified in Goal NR7:

“Recognize the aesthetic and biological Values of oak woodlands and other natural vegetation.”

The Project is located in the transition zone between the northern Sacramento Valley and the Cascade foothills within a developed urban setting.

Visual Character of the Project Site

The site is mostly vacant grassland with a sparse covering of native oak trees and bushes. Elevation of the site ranges from 556 to 558 feet above mean sea level (AMSL). An intermittently flowing drainage with riparian vegetation is located on the east side of the Project site.

The environmental setting is characterized by urban and commercial development. Located directly to the north of the Proposed Project site is the existing Mistletoe Elementary School. The parcel located directly to the south is developed for commercial use, but undeveloped land exists further to the south and southeast. To the west, the landscape is dominated by commercial development. The landscape is dominated by urban development to the north and east. See *Figure 1. Project Vicinity* and *Figure 2. Project Location*.

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. There are no officially designated state scenic highways within the City of Redding (Caltrans 2019).

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 (fc)¹:

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

Typical nighttime street lighting requirements are one to three 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 offsite 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The City of Redding General Plan Community Design and Development Element includes goals and policies establishing the importance of aesthetic qualities of the Sacramento River, the ridgelines to the west of the City, and native oak trees. Distant views of the Coastal Range and Mt. Shasta can be seen from the Project site. However, these views are mostly obscured by intervening buildings and vegetation. The Sacramento River cannot be seen for the Project site or surrounding areas and any ridgeline view are distant and obscured. Trees on the Project site include: Blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), and grey pine (*Pinus sabiniana*) in the grassland and the riparian corridor contains an overstory of arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix exigua*), Fremont's cottonwood (*Populus fremontii*), and oak trees (*Quercus* spp.). Based on a review of imagery from Google Earth, the site appears to have had trees and other vegetation removed between 2005 and 2006 and the eastern half of the grassland appears to have been mowed around 2010 (ECORP 2020a).

The City of Redding Municipal Code Chapter 18.45 requires that removal of a tree greater six inches in diameter in breast height (dbh) for any species, on any developed or undeveloped/vacant property, must obtain a tree removal permit from the City. However, Section 18.4.040(D) exempts schools from this requirement (City of Redding 2019e). Removal of certain trees from the Project site will likely be required to complete the Proposed Project, but schools are considered exempt from standard tree removal requirements. In addition, the Proposed Project will not significantly impact aesthetic qualities of the Sacramento River, the ridgelines to the west of the City, or distant views of Mt. Shasta or the Coastal Range. The primary two components of the Proposed Project of height are the O&M building and the gymnasium. As stated above, the Sacramento River cannot be seen for the Project site or surrounding areas and any ridgeline view are distant and obscured. In addition, although the views are of high value to Redding residents, the views of Mt. Shasta and the Coastal Range are currently obscured, and the Project site serves as a poor vantage point for these scenic elements. The Proposed Project would not significantly decrease the quality of the scenic views from current levels as viewed from the Project area. As such, the Project would have a less than significant impact on a scenic vista.

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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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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) In a non-urbanized area substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Project site is located in an urbanized area of Redding. As discussed in Item a) above, the Project would not conflict with General Plan goals or policies protecting scenic quality. Therefore, the Project would have a less than significant impact on scenic quality 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) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Redding Municipal Code Section 18.40.090 provides the requirements for building exterior lighting in commercial, office and industrial developments and Section 18.41.090 regulates parking lot lighting in the City (City of Redding 2019).

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 Enterprise Elementary School District 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.

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 workday. 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 custodial 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 Enterprise Elementary School District 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.

At this time, the Proposed Project does not include plans for use of stadium lighting for the athletic field. However, if the school district decides to later install lighting for the athletic field, all lights must comply with the requirements of Redding Municipal Code Section 18.40.090. Compliance with the requirements will prevent significant impacts due to nighttime light glare due to lighting of the athletic field (City of Redding 2019).

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: Reflective Surfaces

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: Enterprise Elementary 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

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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 within an area of Urban and Built-Up Land (DOC 2019a).

This site is not identified as being under a Williamson Act contract (DOC 2016). The site is zoned *PF* and *RM-15* by the City of Redding. Neither of these districts allow farming activities.

The Project site does not contain possible forest or timber resources. No farmland or timberland uses exist within the vicinity of the Proposed Project.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The DOC identifies the Project site as Urban and Built-Up Land. As the Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This site is not subject to a Williamson Act contract. 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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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The Project site is not located in a forestland protection or timber production area as identified by City of Redding or the California Department of Fire and Forestry Protection (CAL FIRE). 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

No identified 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), coarse particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), and lead. In Shasta County, the majority of criteria pollutant emissions come from mobile sources.

Toxic air contaminants (TACs) are distinguished from criteria air pollutants and are separated into categories of carcinogens and noncarcinogens. Carcinogens, such as diesel particulate matter (DPM), 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 California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Proposed Project is located in Shasta County, which is in the Northern Sacramento Valley Air Basin (NSVAB). The NSVAB consists of a total of seven counties: Sutter, Yuba, Colusa, Butte, Glenn, Tehama, and Shasta. The NSVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada. These mountain ranges reach heights in excess of 6,000 feet AMSL, with individual peaks rising much higher. The mountains form a substantial physical barrier to locally created pollution as well as that transported northward on prevailing winds from the Sacramento metropolitan area (Sacramento Valley Basinwide Air Pollution Control Council [SVBAPCC] 2015).

The environmental conditions of NSVAB are conducive to potentially adverse air quality conditions. The region is characterized by moderately wet winters followed by hot and dry summers. The basin area traps pollutants between two mountain ranges to the east and the west. This problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Shasta County have also contributed to an increase in emissions.

The local air quality agency regulating air quality in the Project area is the Shasta County Air Quality Management District (SCAQMD). The SCAQMD, along with other air districts in the NSVAB, has committed to jointly prepare and implement the *NSVAB Air Quality Attainment Plan* for the purpose of achieving and maintaining healthful air quality throughout the air basin (SVAQEEP 2018). In addition to these efforts, the Shasta County Regional Transportation Planning Agency (SRTA) adopted the Shasta Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) (2018) to achieve reduced mobile emissions. Finally, the City of Redding General Plan Air Quality Element contains policy provisions designed to protect the health and welfare of local residents, businesses, and industries by promoting development that is compatible with regional air quality standards and goals.

Ambient Air Quality Standards

Air quality standards are set at both the federal and state levels of government. The federal Clean Air Act requires the USEPA to establish ambient air quality standards for six criteria air pollutants: O₃, CO, NO₂, SO₂, lead, PM₁₀, and PM_{2.5}. The California Clean Air Act also sets ambient air quality standards. The state standards are more stringent than the federal standards, and they include other pollutants in addition to those regulated by the federal standards. When the concentrations of pollutants are below the maximum allowed standards in an area, that area is considered to be in attainment of the standards. The County has been designated as a nonattainment area for the state O₃ standard, though is considered to be in attainment of all other standards. Similarly, Shasta County is classified as being in attainment for all pollutants under federal standards (CARB 2018a, d).

All projects in Shasta County are subject to applicable SCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to construction resulting from implementation of the Proposed Project may include, but are not limited to:

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- SCAQMD Rule 2-1A, Authorities to Construct/Permits to Operate, allows any person to use construction equipment for construction activities, and must obtain a permit to operate prior to installation activities.
- SCAQMD Rule 3-2, Specific Air Contaminants, controls the amount of air contaminants allowed to be discharged into the atmosphere.
- Architectural coatings and solvents used at the Project shall be compliant with SCAQMD Rule 3-31, Architectural Coatings.
- Cutback and emulsified asphalt application shall be conducted in accordance with SCAQMD Rule 3-15, Cutback and Emulsified Asphalt.
- SCAQMD Rule 3-16, Fugitive, Indirect, or Non-traditional Sources, controls the emission of fugitive dust during earth-moving, construction, demolition, bulk storage, and conditions resulting in wind erosion.

SCAQMD significance thresholds are used to determine air quality impacts in this analysis. These thresholds are consistent with New Source Review Rule 2-1 adopted by the SCAQMD Board in 1993, as required by the California Clean Air Act. The thresholds of significance are summarized in *Table 4.3-1*.

Table 4.3-1. Shasta County Air Quality Management District Thresholds of Significance – Pounds per Day

Threshold	NOx	ROG	PM10
Level A Thresholds	25	25	80
Level B Thresholds	137	137	137

The SCAQMD recommends that projects apply Standard Mitigation Measures (SMM) and appropriate Best Available Mitigation Measures (BAMM) when a project exceeds Level A thresholds and SMM, BAMM, and special BAMM when a project exceeds Level B thresholds. Projects that cannot mitigate emissions to levels below the Level B thresholds are considered significant. Based on these standards, the effects of the Proposed Project have been categorized as either a “less than significant impact” or a “potentially significant impact.” Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant and unavoidable impact.

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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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a 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. As previously stated, the Shasta County portion of the NSVAB is classified nonattainment for the state O₃ standard.

The *2015 Air Quality Attainment Plan* is the most recent air quality planning document covering Shasta County. Air quality attainment plans are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards. State law makes CARB the lead agency for all purposes related to the *Air Quality Attainment Plan*. Local air districts prepare air quality attainment plans and submit them to CARB for review and approval. The *2015 Air Quality Attainment Plan* includes forecast ROG and NO_x emissions (O₃ precursors) for the entire NSVAB through the year 2020. The plan also includes control strategies necessary to attain the California O₃ standard at the earliest practicable date, as well as developed emissions inventories and associated emissions projections for the region showing a downtrend for both ROG and NO_x.

Implementation of the Project would result in long-term emissions from area and mobile emission sources, which could conflict with air quality planning in the *2015 Air Quality Attainment Plan*. The consistency of the Proposed Project with the *2015 Air Quality Attainment Plan* is determined by its consistency with air pollutant emission projections in the plan. The *2015 Air Quality Attainment Plan* addresses growth by projecting the growth in emissions based on different indicators (SVBAPCC 2015). For example, population forecasts adopted by local governments are used to forecast population-related emissions. Through the planning process, emission growth is offset by basin-wide controls on stationary, area, and transportation sources of air pollution. In other words, the plans and control measures in the *Air Quality Attainment Plan* are based on information derived from projected growth in order to predict future emissions and then determine strategies and regulatory controls for the reduction of emissions. Growth projections for the City of Redding are based on the City of Redding General Plan. As such, projects in the City that propose development consistent with the growth anticipated by the City General Plan would be consistent with the *Air Quality Attainment Plan*.

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The Project site is designated *Residential – 10 to 20 dwelling units per acre (10-20)* by the City of Redding General Plan. The *10-20* General Plan designation is intended for the development of multiple-family projects ranging from townhouses to apartments. However, the Project involves an expansion of public-school facilities associated with an existing public school, which is allowed in residential zones. Furthermore, the Project would not induce population growth and would not increase student capacity of the school. As a result, the Proposed Project would not exceed the City's population growth projections, which were used to inform the *2015 Air Quality Attainment Plan*. As such, the Proposed Project would not conflict with the *2015 Air Quality Attainment Plan*. This 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) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

A portion of the Proposed Project's air quality impacts are attributable to construction activities. The majority of the long-term air quality impacts will be due to the operation of motor vehicles traveling to and from the site. For purposes of impact assessment, air quality impacts have been separated into construction impacts and operational impacts.

Construction Emissions

The Proposed Project would result in short-term emissions from construction activities. Construction-generated emissions are of temporary duration, lasting only as long as construction activities occur. Emissions commonly associated with construction activities include fugitive dust from soil disturbance. During construction, fugitive dust, the dominant source of particulate matter emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities.

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. See **Attachment A** for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

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Table 4.3-2 below summarizes the construction-generated emissions expected for the Proposed Project. The table compares the Project's construction-generated emissions to the applicable standards for Shasta County.

Table 4.3-2 Unmitigated Construction Emissions

Construction Year	Pollutant (pounds per day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Construction in Year One	0.89	10.11	9.22	5.67	0.89
Construction in Year Two	13.37	8.07	9.10	0.54	0.43
<i>Level A Significance Threshold</i>	25	25	<i>None</i>	80	<i>None</i>
Exceed Level A Threshold	No	No	No	No	No
<i>Level B Significance Threshold</i>	137	137	<i>None</i>	137	<i>None</i>
Exceed Level B Threshold?	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs.

Notes: Building construction, paving, and painting assumed to occur simultaneously.

As shown in Table 4.3-2, no SCAQMD significance thresholds would be surpassed during Project construction. This impact is less than significant.

Operational Emissions

Implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM₁₀, PM_{2.5}, and CO, as well as O₃ precursors such as ROG and NO_x. Project-generated increases in emissions would be predominantly associated with motor vehicle use. Motor vehicle use is not expected to increase notably during Project operation, as the Project will not increase school capacity. Long-term operational emissions attributable to the Project are identified in Table 4.3-3 and compared to the regional operational significance thresholds promulgated by the SCAQMD.

Table 4.3-3. Operational-Related Emissions

Emission Source	Pollutant (pounds per day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Summer Emissions					
Area	0.53	0.00	0.01	0.00	0.00
Energy	0.01	0.12	0.10	0.00	0.00
Mobile	0.34	2.33	3.05	0.01	0.20
Total	0.89	2.45	3.16	0.01	0.20

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Emission Source	Pollutant (pounds per day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Winter Emissions					
Area	0.54	0.00	0.00	0.00	0.00
Energy	0.01	0.12	0.10	0.00	0.00
Mobile	0.26	2.4	2.83	0.73	0.20
Total	0.81	2.5	2.52	0.73	0.21
<i>Level A Significance Threshold</i>	25	25	None	80	None
Exceed Level A Threshold	No	No	No	No	No
<i>Level B Significance Threshold</i>	137	137	None	137	None
Exceed Level B Threshold?	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs.

As shown in Table 4.3-3 above, the Proposed Project will not exceed the Level A significance thresholds. This impact is less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project site is the existing school located immediately adjacent to the Project site and residences located approximately 30 feet west of the Project area.

Construction Air Toxics

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. 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 annual emissions of PM_{2.5} exhaust, considered a surrogate for DPM, would be 0.89 pounds per day (see **Attachment 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}). Most PM_{2.5} derives from combustion, such as use of gasoline and diesel fuels by motor vehicles.) Furthermore, even during the most intense 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, grading, 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 (OEHHA), 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; further, 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 of the Proposed Project is not anticipated to last 9 consecutive years, the minimum duration of exposure from which to calculate health risk, and that on a day-to-day basis construction activity generally spans eight hours as opposed to throughout the entire day. Therefore, considering the relatively low mass of DPM emissions that would be generated during even the most intense season of construction and the temporary nature of construction activities, construction-related TAC emissions would not expose sensitive receptors to substantial amounts of air toxics. This impact is less than significant.

Operational Air Toxics

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly

more stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Project vicinity have steadily declined.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The analysis prepared for CO attainment in the South Coast Air Quality Management District 1992 Federal Attainment Plan for Carbon Monoxide (1992) in Southern California can be used to demonstrate the potential for CO exceedances. The South Coast CO hot spot analysis was conducted for four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the level of service in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be level of service (LOS) E at peak morning traffic and LOS F at peak afternoon traffic. Even with the inefficient LOS and volume of traffic, the CO analysis concluded that there was no violation of CO standards (South Coast Air Quality Management District 1992).

Because the proposed Project would not increase traffic volumes at any intersection to more than 100,000 vehicles per day, there is no likelihood of the Project traffic exceeding CO values. The impact is less than significant.

Diesel Particulate Matter

The Project proposes the development of bus and vehicle parking areas and a drive area. The Project would involve the operation of school buses, which may run on diesel fuel, a source of DPM, as a standard component of operations. According to the California Air Pollution Control Officers Association's (CAPCOA'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 DPM. As previously described, the number of diesel-operated school buses using the site daily following completion of the Project is expected to remain at nine and will *not* increase as a part of the Project. Therefore, the Project would not accommodate 100 heavy-duty trucks or, in this case, buses which may run on diesel, daily. As such, the Project would not be a substantial source of TACs and there would be a less than significant impact as a result of the Project during operations.

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Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 Odors

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 Odors

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 Project does not include any of these or similar land uses. The operational impact is less than significant.

4.3.3 Mitigation Measures

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

4.4 Biological Resources

ECORP Consulting, Inc. conducted a biological resources assessment (BRA) for the Proposed Project (ECORP 2020a). The purpose of the BRA was to collect information on the biological resources present within the Project site such as potential Waters of the U.S./State or habitat for sensitive plant and animals sufficient to support the California Environmental Quality Act (CEQA). The BRA is included as *Appendix C* of this IS/MND.

4.4.1 Environmental Setting

The Project site is located on approximately five acres in the transition zone between the northern Sacramento Valley and the Cascade foothills within a developed urban setting. Elevation ranges between 556 to 558 feet above mean sea level (AMSL).

The Project site is located in the Cascade Ranges region, Cascade Range Foothills subregion of the California Floristic Province. This subregion is characterized by a semi-arid climate, which is comprised of hot and dry summer months and cold and moderately wet winter months. The annual precipitation for Redding is 40.41 inches (with the wettest period during November-March), and average daily temperatures range from 46.9 degrees Fahrenheit (°F) in December to 84.1°F in July (ECORP 2020a).

4.4.1.1 Vegetation Communities

The Project site consists of a manicured lawn within the existing elementary school grounds to the north, annual grassland with scattered trees, and a riparian corridor. The lawn in the elementary school was visually assessed and appeared to consist of a monoculture of horticultural grass. The annual grassland appears to have been historically disturbed and consists of predominantly non-native plants, including wild oats (*Avena fatua*), yellow star-thistle (*Centaurea solstitialis*), small flowered fiddleneck (*Amsinckia menziesii*), and English plantain (*Plantago lanceolata*). Scattered trees found in the annual grassland included interior live oak (*Quercus wislizeni*), blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), and grey pine (*Pinus sabiniana*). The riparian corridor contains a dense understory of Himalayan blackberry (*Rubus armeniacus*), with hairy vetch (*Vicia villosa*), broad-leaf cattail (*Typha latifolia*), and tall flatsedge (*Cyperus eragrostis*), and a semi-open overstory of arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix exigua*), Fremont's cottonwood (*Populus fremontii*), and oak trees (*Quercus* spp.). Representative site photos are shown in *Appendix C*

Based on a review of imagery from Google Earth, the Project site appears to have had trees and other vegetation removed between 2005 and 2006 and the eastern half of the grassland appears to have been mowed around 2010.

Aquatic resources found onsite include an intermittent drainage/marsh complex along the eastern boundary. These are discussed in further detail below.

4.4.1.2 Wildlife

The Project site was visited on December 16, 2019 and February 12, 2020 by ECORP Consulting, Inc. biologists. No special-status species were observed during the surveys, but the Project site supports potentially suitable habitat for several special- status species.

4.4.1.3 Soils

According to the *Web Soil Survey* (NRCS 2019), four soil units, or types, have been mapped within the Project Vicinity (Figure 5. *Natural Resources Conservation Service Soil Types*). These are: (CfA) Churn gravelly loam, deep, 0 to 3 percent slopes, (RbA) Red Bluff loam, 0 to 3 percent slopes, MLRA 17, moist, (RcA) Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes, (RcB) Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes. All four soils types are listed as having hydric components (NRCS 2019).

4.4.1.4 Waters of the U.S.

Visual reconnaissance of the site was completed by ECORP Consulting, Inc. on December 16, 2019 and February 12, 2020. A total of 0.565 acre of potential Waters of the U.S. has been provisionally mapped within the Project site. This includes the intermittent drainage and adjacent marsh.

4.4.1.5 Evaluation of Potentially Occurring Special-Status Species

A botany and wildlife survey was completed on December 16, 2019 and February 12, 2020 by ECORP, provided as *Appendix C*. Based on species occurrence information from the CNDDDB, 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. Five wildlife and vegetation species were noted that either are considered (1) to be present, (2) have potential to occur, or (3) have low potential to occur. Species with potential or low potential to occur are listed in *Table 4.4-1* below. Three plant species and two mammal species have low potential to occur on the Project site. Species that were considered to be absent from the Project Site due to lack of suitable habitat, or because the known distribution of the species does not include the Project Site vicinity, are not discussed further in this document.

A complete list of special-status species known to exist in the region and the results of the database queries are included in the biological resources assessment included in *Appendix C*.

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Table 4.4-1. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Plants						
Watershield <i>(Brasenia schreberi)</i>	–	–	2B.3	Freshwater marshes and swamps (98'–7,218').	June–September	Low Potential; marginal habitat and nearest known occurrence more than 8 miles away.
Silky cryptantha <i>(Cryptantha crinita)</i>	-	-	1B.2	Gravelly streambeds within cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grassland (200'–3,986').	April–May	Low Potential; marginal habitat onsite and nearest known occurrence more than 2 miles away.
Sanford's arrowhead <i>(Sagittaria sanfordii)</i>	–	–	1B.2	Shallow marshes and freshwater swamps (0'–2,133').	May–October	Low Potential; marginal habitat onsite and nearest known occurrence more than 6 miles away.
Mammals						
Pallid Bat <i>(Antrozous pallidus)</i>			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] 2020).	April–September	Low Potential; marginal habitat onsite and nearest known occurrence more than 8 miles away.
Western red bat <i>(Lasiurus blossevillii)</i>	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (WBWG 2020).	April-September	Low Potential; marginal habitat onsite and nearest known occurrence more than 8 miles away.

Status Codes NOTE:

FESA Federal Endangered Species Act

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Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
CESA	California Endangered Species Act					
FE	FESA listed, Endangered.					
FPT	Formally Proposed for FESA listing as Threatened.					
FT	FESA listed, Threatened.					
FC	Candidate for FESA listing as Threatened or Endangered.					
Fd	Formally Delisted (delisted species are monitored for 5 years).					
BCC	USFWS Bird of Conservation Concern (USFWS 2002).					
CT	CESA- or NPPA-listed, Threatened.					
CC	Candidate for CESA listing as Endangered or Threatened.					
CE	CESA or NPPA listed, Endangered.					
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).					
SSC	CDFW Species of Special Concern (CDFW, updated August 2019).					
1B	CRPR/Rare or Endangered in California and elsewhere.					
2B	Plants rare, threatened, or endangered in California but more common elsewhere.					
3	CRPR/Plants About Which More Information is Needed – A Review List.					
4	CRPR/Plants of Limited Distribution – A Watch List.					
0.1	Threat Rank/Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)					
0.2	Threat Rank/Moderately threatened in California (20-80 percent occurrences threatened / moderate degree and immediacy of threat)					
0.3	Threat Rank/Not very threatened in California (<20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)					



Figure 5. Natural Resource Conservation Service Soil Types

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4.4.2 Evaluation of Potential Aquatic Resources

Marsh

A marsh occurs near the eastern boundary of the Project site, east of the intermittent drainage (*Figure 6*). The marsh is vegetated with broad-leaf cattail, tall flatsedge, and bulrush (*Schoenoplectus* sp.), with dense Himalayan blackberry.

Intermittent Drainage

An intermittent drainage occurs near the eastern boundary of the Project site (*Figure 6*). It flows from north to south and eventually leads into Churn Creek. The portion of the drainage that is within the Project site boundary is partially unvegetated and partially vegetated with primrose (*Ludwigia* sp.). An ordinary high water mark (OHWM) mark was observed within the intermittent drainage (e.g., debris, vegetation indicators). A total of 0.565 acre of potential Waters of the U.S. was mapped during this preliminary aquatic resources assessment. The wetland inventory is shown in *Table 4.4-2* below.

Table 4.4-2. Preliminary Aquatic Resources Assessment

Type	Acreage ¹
Aquatic Resources	
Wetlands	
Marsh	0.497
Other Waters	
Intermittent Drainage	0.068
Total:	0.565

¹Acreage totals are approximate and represent a calculated estimation based on a reconnaissance site visit.



Figure 6. Aquatic Resources Assessment Findings
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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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

According to the biological surveys completed by ECORP Consulting, Inc. (2020a), the Project site is potential habitat for several candidate, sensitive, or special status species. The intermittent drainage and marsh are potentially suitable habitat for protected vegetation species including Watershield, Silk Crypantha, and Sanford's Arrowhead. Watershield is not listed pursuant to either the federal or California ESAs but is designated as a California Rare Plant Rank (CRPR) 2B.3 species. Watershield has low potential to occur onsite, as the intermittent drainage provides marginal habitat for the species. Silk Crypantha and Sanford's Arrowhead are not listed as pursuant to either the federal or California ESAs but are designated as CRPR 1B.2 species. The Silky Crypantha has potential to occur onsite, as the intermittent drainage provides suitable habitat for the species. The Sanford's Arrowhead has low potential to occur onsite as the intermittent drainage provides marginally suitable habitat for the species.

The Project site supports marginal roosting habitat for two mammal species: the pallid bat and western red bat. Both pallid bats and western red bats are not listed pursuant to either the California or federal ESAs; however, both species are designated as Species of Special Concern (SSC) by CDFW. The trees within the Project Site along the riparian corridor provide marginally suitable habitat for both species. Pallid bat and western bat have low potential to occur onsite.

Finally, the Project site provides nesting habitat for several bird species protected under the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Game (CFG) code.

As such, mitigation measures **BIO-1**, **BIO-2**, and **BIO-3** shall be implemented to reduce these potential impacts to less than significant. The Impacts to special status species would be less than significant with mitigation incorporated.

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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An intermittent drainage exists on the east side of the Project site. The drainage supports a riparian plant community. The riparian corridor contains a dense understory of Himalayan blackberry (*Rubus armeniacus*), with hairy vetch (*Vicia villosa*), broad-leaf cattail (*Typha latifolia*), and tall flatsedge (*Cyperus eragrostis*), and a semi-open overstory of arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix exigua*), Fremont's cottonwood (*Populus fremontii*), and oak trees (*Quercus* spp.). The Proposed Project has potential to impact the drainage and/or riparian vegetation without implementation of mitigation measures. With implementation of mitigation measure **BIO-4**, the potential impact to the riparian corridor and riparian vegetation will be mitigated to less than significant.

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 state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the preliminary aquatic resources assessment performed on February 12, 2020, a total of 0.565 acre of potential Waters of the U.S. was mapped on the site. As shown in *Table 4.4-2* above, The Project site contains a 0.497- acre marsh and a 0.068- acre intermittent drainage. As per mitigation measure **BIO-5**, the potential Waters of the U.S. shall be evaluated by the United States Army Corps of Engineers (USACE). If the USACE determined the aquatic features are jurisdictional, proper mitigation and permitting must be carried out for the Project. Following implementation of mitigation measure **BIO-5**, this potentially significant impact will be mitigated to be less than significant.

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Project site is an infill project located within a predominantly developed portion of the City of Redding. There is a riparian corridor along the eastern edge of the Project Site with vacant land to the southeast. The riparian corridor likely provides habitat for local wildlife, particularly birds. However, it probably does not represent a significant wildlife movement corridor, due to the developed nature and absence of habitat in the surrounding lands. The Project contains no perennial waterways and thus would not impact the migration of fish. However, the Project site serves as potential nesting habitat for several MBTA protected bird species. Implementation of **BIO-2** will ensure there are no significant impacts to

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nesting MBTA protected bird species. As such, following the implementation of this mitigation measure, there will be 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) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The City of Redding Municipal Code (18.45) regulates the removal of any tree, regardless of species, that exceeds six inches diameter at breast height on a property within the city limits. However, there is an exemption for "Removal of trees on property owned by the federal government, the state of California, the county of Shasta, or any school or special district" (City of Redding 2019e). As such, this Project is exempt from mitigation for the removal of trees within the Project site. Thus, 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are currently no adopted or proposed habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans that affect the Proposed Project. The Project would have no impact in this area.

4.4.4 Mitigation Measures

BIO-1: Special-Status Plant Species

Due to the disturbed nature of most of the Project site, the potential for occurrence of special-status plants is significantly reduced. The intermittent drainage and potentially the marsh represent marginally suitable habitat for watershield and Sanford's arrowhead. The intermittent drainage may serve as suitable habitat for the silky cryptantha, which also has potential to occur in the marsh.

In order to minimize potential impacts to special-status plants the following measures shall be implemented:

- If there are proposed impacts for the intermittent drainage and marsh, perform focused plant surveys according to USFWS, CDFW, and CNPS protocol. Surveys shall be timed according to the blooming period for target species and known reference populations, if available, and/or local herbaria shall be visited prior to surveys to confirm the appropriate phenological state of the

target species. The USFWS generally considers plant survey results valid for approximately three years.

- If special-status plant species are found, avoidance zones shall be established around plants to clearly demarcate areas for avoidance. Avoidance measures and buffer distances may vary between species and the specific avoidance zone distance shall be determined in coordination with appropriate resource agencies (CDFW and USFWS).
- If special-status plant species are found within the Project site and avoidance of the species is not possible, additional measures such as seed collection and/or translocation shall be developed in consultation with the appropriate agencies.
- If no special-status plants are found, no further measures pertaining to special-status plants are necessary.
- If no impacts are proposed for the intermittent drainage and marsh, a plant survey is not required.

Timing/Implementation: *Prior to commencement of construction and during construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-2: Special-Status and Migratory Bird Treaty Act Birds

The Project site provides nesting habitat for several common birds protected under the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Game (CFG) code. Impacts to nesting special-status and MBTA-protected birds could be considered significant. As such, to ensure that there are no impacts to protected special-status birds, including their eggs and active nests, the following mitigation measures are recommended:

A qualified biologist shall 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 300 feet of the Project site for nesting raptors, and 100 feet of the Project site 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. Impacts to foraging/wintering habitat of non-listed birds protected under the MBTA are typically considered less than significant.

Timing/Implementation: *Prior to commencement of construction and during construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-3: Special- Status Mammals

The Project has potential to impact roosting pallid bat and western red bat. To prevent significant impacts to these species, the following mitigation measures shall be performed:

Prior to any disturbances to the trees, a qualified biologist will conduct a preconstruction survey within seven days of tree disturbance activities to determine the presence of roosting bats.

If roosting bats are found within the trees, a qualified biologist shall determine what types of roosts are present. If non-maternity and non-hibernaculum day or night roosts are present, a qualified biologist will use safe eviction methods to remove bats if direct impacts to these roosts cannot be avoided. If a winter hibernaculum or maternity roost is present, impacts to the resource (e.g., tree) may not occur until the bats have vacated or are safely evicted using methods acceptable to CDFW.

If no roosting bats are found during the preconstruction survey, no further measures are recommended.

Timing/Implementation: *Prior to commencement of construction and during construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-4: Intermittent Drainage or Riparian Vegetation

No construction work is anticipated to penetrate the area adjacent to the intermittent drainage located on the Project site. If, however, construction results in work within the intermittent drainage or riparian vegetation, then a 1602 streambed alteration notification shall be prepared. The Project applicant shall then ensure that a CDFW 1602 Streambed Alteration Agreement has been obtained prior to the approval of grading and improvement plans and before any groundbreaking activity associated with the Project site. The construction contractor shall adhere to all conditions outlined in the Streambed Alteration Agreement.

Timing/Implementation: *Prior to commencement of construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

BIO-5: Aquatic Resources/Potential Waters of the U.S.

The Project has the potential to impact 0.565 acre of potential Waters of the U.S. To mitigate this impact during construction, hi-visibility silt fencing and straw wattles shall be placed, at a distance determined by a qualified biologist, from the edge of the wetland in order to protect the wetland.

If it is determined that construction may penetrate the wetland feature, an aquatic resources delineation shall be prepared by a qualified biologist according to United States Army Corps of Engineers (USACE) standards. If no aquatic resources are identified, no further action is needed.

- If any direct impacts to jurisdictional features are proposed, a permit authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) shall be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures shall 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 shall be prepared and submitted to USACE, and shall 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 recommended at a 1:1 ratio for direct impacts, however final mitigation requirements shall be developed in consultation with USACE.
- A Water Quality Certification or waiver pursuant to Section 401 of the CWA shall be obtained for Section 404 permit actions.
- If the aquatic resources are determined to be non-USACE jurisdictional, a Waste Discharge Requirement under the California Porter-Cologne Water Quality Control Act may be required for discharge into Waters of the State. The need for a Waste Discharge Requirement shall be determined through consultation with the California State Water Resources Control Board.

Timing/Implementation: *Prior to commencement of construction*

Monitoring/Enforcement: *Enterprise Elementary School District and the Project construction lead*

4.5 Cultural Resources

4.5.1 Cultural Resources Inventory Report

A Cultural Resources Inventory Report was prepared by ECORP Consulting (2020c) 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 search for the property at the Northeast Information Center (NEIC) of the CHRIS at California State University, Chico on December 18, 2019. The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the proposed project location, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. A RealQuest Property search; historic General Land Office (GLO) land patent records search; and search of numerous historic records, including but not limited to, official records and maps for archaeological sites and surveys in Shasta County were also performed.

As a part of the Cultural Survey, ECORP contacted the California Native American Heritage Commission (NAHC) on December 16, 2019 to request a search of the Sacred Lands File for the APE. This search determined whether or not Sacred Lands have been recorded by California Native American tribes within the APE. A search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the project area.

ECORP mailed a letter to the Shasta Historical Society on December 16, 2019 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area. No responses to the letters sent to the Shasta Historical Society were received as of the preparation of this document (ECORP 2020c).

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. EESD has not received any formal requests for tribal consultation.

4.5.2 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 maintained by the California Office of Historic Preservation 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 appendix 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.

4.5.3 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 Project². 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

² In this case, the APE consists of the approximately 5-acre project area.

removal, grading, trenching, stockpiling, staging, paving, and other elements described in the official Project description. 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 (NEPA) 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 represents the survey coverage area. It measures approximately 560 feet in length by 520 feet in width.

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, depending on the depth of the grading or trenching for installation of facilities. For the Proposed Project, it could extend as deep as 10 feet below the current surface, and therefore, review of geologic and soils maps was necessary to determine the potential for buried archaeological sites that cannot be seen on the surface.

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 Proposed Project, the above-surface vertical APE is up to 30 feet above the surface.

4.5.4 Records Search

Prior to conducting the intensive-level field survey, a records search for the property at the Northeast Information Center (NEIC) of the CHRIS at California State University, Chico on December 18, 2019. The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the proposed project location, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area.

4.5.4.1 Previous Archaeological Survey

Seven previous cultural resource investigations have been conducted within 0.5 mile of the property, covering approximately 40 percent of the total area surrounding the property within the record search radius (*Table 4.5-1*). The previous studies were conducted between 1978 and 2007.

Table 4.5-1. Previous Cultural Studies in or Within 0.5 Mile of the Project Area

Report Number	Author(s)	Report Title	Year	Includes Portion of the Project Area?
62	S. E. Clewett and Elaine Sundahl	Archaeological Reconnaissance of the Canby Road Extension Project, Redding, California	1978	No
94	James Dotta	Archaeological Reconnaissance of the Canby Road Extension Project, Redding, California	1979	No
6488	North State Resources, Inc.	Archaeological Reconnaissance of the Lowe's Home Center Project, Redding, Shasta County, California	2005	No
7094	James Manning	Archaeological Reconnaissance	1979	No
8183	Donald Manuel	Archaeological Survey Highway 44 Project District 2, Shasta County (and addendums)	1977	No

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10118	Tremaine & Associates, Inc.	Cultural Resources Constraints Study for the Replacement of 7 Poles on the Cascade to Benton to Deschutes 60kV Transmission Line	2008	No
13255	CH2M Hill	Cultural Resources Inventory for the North Area Right-of-Way Maintenance Assessment, Central Valley Project and Pacific AC Intertie	2007	No

The results of the records search indicate that none of the Project site has been previously surveyed for cultural resources, and therefore, a pedestrian survey of the APE was warranted.

4.5.4.2 Recorded Cultural Resources

According to the NEIC files, no previously recorded pre-contact or historic-period cultural resources are within or located within 0.5 mile of the Project Area.

The OHP's *Directory of Properties, Historic Property Data File for Shasta County* (dated April 5, 2012) did not include any resources within 0.5 mile of the Project Area.

The National Register Information System did not list any eligible or listed properties within the Project Area. The nearest National Register properties are located two miles northwest of the Project Area in Historic Downtown Redding.

Resources listed as *California Historical Landmarks* by the OHP were reviewed on December 16, 2019. The nearest listed landmark is #519: Bell's Bridge, located 4.5 miles southwest of the Project Area.

A review of *Historic Spots in California* mentions the old wagon trail, the Redding-Eureka Highway, 2.5 miles north of the Project Area. The current alignment of State Route 299 follows this original route. Kyle also mentions Rancho Buena Ventura, Charles Reading, and the Shasta Dam and Shasta Lake as part of Redding's general history.

A search of historic GLO land patent records from the BLM's patent information database revealed that the Central Pacific Railroad received a patent for Section 5, encompassing the Project Area, in 1879 as part of a 345,671-acre grant. The federal government granted public land to the railroads in large swaths such as this, which the railroad could then sell to finance railroad construction. The land grant included land in Tehama and Shasta counties.

A RealQuest online property search for APN 067-120-040-000 and 067-350-038-000 revealed the property consists of 2.84 acres and 10 acres, respectively, of vacant and school district land. No other property history information was on record with RealQuest.

The Caltrans Bridge Local and State Inventories lists one historic-period bridge within 0.5 mile of the Project Area. The local bridge is located 0.15 mile east of the Project Area and carries Mistletoe Lane over the west branch of Churn Creek. It was constructed in 1954 and reconstructed in 1995. The bridge was evaluated by Caltrans as a Category 5 bridge, not eligible for the NRHP under Criterion C.

The *Handbook of North American Indians* indicated the Project Area was occupied by the Keswick group of Wintu Indians but did not list or map any villages.

4.5.4.3 Other Sources Consulted

In addition to the archaeological records of Shasta County as maintained by the NEIC, the following sources were also consulted:

- Historic Property Data File for Shasta County;
- *The National Register Information System*;
- *Office of Historic Preservation, California Historical Landmarks*;
- *California Historical Landmarks*;
- *California Points of Historical Interest*;
- *Directory of Properties in the Historical Resources Inventory*;
- *Caltrans Local Bridge Survey*;
- *Caltrans State Bridge Survey*;
- *Historic Spots in California*;
- 1855 BLM GLO Plat Map for Township 31 North, Range 4 West;
- 1885 BLM GLO Plat Map for Township 31 North, Range 4 West;
- 1890 Red Bluff Sheet, California topographic quadrangle map (1:250,000 scale);
- 1946 USGS Redding, California topographic quadrangle map (1:62,500 scale);
- 1957 USGS Enterprise, California topographic quadrangle map (1:24,000 scale); and
- 1957 (photo revised 1969) USGS Enterprise, California topographic quadrangle map (1:24,000 scale).

4.5.4.4 Field Survey

On December 19, 2019, ECORP subjected the 5.15-acre APE to an intensive pedestrian survey under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties* using transects spaced 15 meters apart. ECORP expended ¼ person-day in the field. 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.

4.5.5 Environmental Setting

The Project area is located in the transition zone between the northern Sacramento Valley and the Cascade foothills within a primarily coniferous forested area amidst a fully developed urban setting. An unnamed drainage runs north to south through to eastern portion of the Project Area. Elevations range from 556 to 558 feet AMSL. The Project Area is 0.7 mile east of the Sacramento River and 0.9 mile west of Churn Creek. The Southern Cascade Range is to the east, the Klamath Mountains to the north, and the North Coast Ranges to the west. Happy Valley is located to the south. An intermittent drainage is located on the eastern edge of the Project Area.

The region's climate is characterized as Mediterranean, with cool, wet winters and hot, dry summers. The APE is dominated by a Valley Woodland plant community, characterized by the presence of oak trees, cottonwood trees, willows, and some pine and manzanita.

According to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) Web Soil Survey website (NRCS 2019), two soil types are located within the Project Area: Churn gravelly loam (CfA), deep, 0 to 3 percent slopes, are well or moderately well drained, moderately permeable soils formed in mixed alluvium of low terraces; and Red Bluff Gravelly Loam (RcA), moderately deep, 0 to 3 percent slopes, consist of very deep well-drained soils formed in old mixed alluvium found on terraces.

There exists the potential for buried pre-contact archaeological sites in the Project Area due to the presence of alluvium along the Sacramento River and Churn Creek, as well as the unnamed drainage within the Project Area, and the likelihood of pre-contact archaeological sites located along perennial waterways.

4.5.5.1 Regional Pre-Contact History

It is generally believed that human occupation of California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 8,000 BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Groups from this time period included only small numbers of individuals who did not often stay in one place for extended periods.

Around 8,000 BP, there was a shift in focus from hunting towards 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. Some projectile points are found in archaeological sites from this period. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period.

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 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. Regional subcultures also started to develop, each with its own geographical territory and language or dialect. These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century. Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction. The introduction of the bow and arrow into the region sometime around 2,000 BP is indicated by the presence of small projectile points.

The Project Area is located near the convergence of the North Coast, the Northeastern, and the Central Valley regions of California. Investigations of the Trinity Reservoir (25 miles northwest of the Project Area) identified 119 village sites with house pits, hearth features, obsidian debitage, and Gunther barbed-type points. Other areas of archaeological significance include the Ellen Pickett State Forest (20 miles west of the Project Area), South Fork Mountain (10 miles northwest of the Project Area), Squaw Creek, Cow Creek, Swasey and Tower House Prehistoric districts, and the Trinity Summit Area.

Six cultural complexes for the North Coast Ranges of California have been identified, and three are considered relevant to the Project area: the Borax Lake Complex, Mendocino Complex, and Shasta Complex.

Borax Lake Complex

The Borax Lake Complex is divided into three phases, each defined by the presence of specific tools. The earliest phase dates to between 12,000 and 8,000 BP and is characterized by the presence of fluted points and crescent tools. The second phase dates to between 8,000 and 6,000 BP and is marked by the appearance of groundstone tools (manos and metates) and Borax Lake wide-stemmed projectile points. The third phase dates to between 5,000 and 3,000 BP and is characterized by the presence of nonfluted concave base points, stemmed points, and groundstone tools.

Mendocino Complex

Characteristic artifacts of the Mendocino Complex, with a revised date range of 5,000 to 1,000 BP, include a variety of flaked and ground stone tools that differentiate it from the preceding complex. A wide array of projectile point types are associated with Mendocino sites, including lanceolate and diamond-shaped points, points with a concave base, stemmed points, and both corner and side-notched points. Other flaked stone tools include hafted-end scrapers and drills. The Mendocino Complex is also distinguished by the appearance of two distinct mortar and pestle varieties: the bowl-shaped mortar with its attendant bulbous ended pestle, and the cylindrical-shaped mortar, which was used with a pestle possessing both a flattened and a pointed end. Plummets-shaped charmstones are also associated with this complex.

Shasta Complex

The Shasta Complex, generally dated to the period after AD 1600, is believed to have covered a rather wide geographic area, including much of northern California and extending into Oregon. The Shasta Complex has been divided into varying phases by different experts. In general, Shasta sites are distinguished by deep, ash-filled midden mounds, typically located along streams; small Gunther series projectile points; hopper basket mortars and pestles for processing acorns; spire-topped *Olivella* beads

and *Haliotis* pendants; and midden burials that vary in regard to positioning and orientation. The Shasta Complex contains few manos and features obsidian as the primary material for flaked stone tools.

4.5.5.2 Local History

Although Russian and Spanish explorers were said to have travelled through the area as early as 1815, the earliest documented Euroamerican presence in the Project area was related to fur trapping by the Hudson's Bay Company. Seeking beaver pelts, which commanded top dollar, the trappers established and mapped the first Euro-American trails into Shasta County. Among these were Peter Skene Ogden (who is believed to have named Mount Shasta) and Jedediah Strong Smith, who travelled up the Sacramento Valley and into Oregon, via the Pacific Coast, in 1827 and 1828. They were followed by an influx of miners, responding to the discovery of gold at Sutter's Mill in 1848.

Euroamerican settlement in the northern Sacramento Valley began in large part with the acquisition and development of Rancho Buenaventura. Mexican Governor Manuel Micheltorena gave this land grant to Major Pierson Barton Reading in 1844, who received a patent for the land from the U.S. government by 1854. Rancho Buenaventura encompassed six square leagues of land on both sides of the Sacramento River from north of downtown Redding to south of Anderson.

The Gold Rush of the late 1840s and 1850s created a surge of miners working the rivers and creeks in Shasta County. Although mining was primarily conducted several miles west of the Project Area, one of the main routes the immigrants traveled to get to the mining areas near the Sacramento Valley was the Noble's Trail. The present-day Highway 44 (located approximately 15 miles south of the Project Area) essentially follows the Noble's Trail, intersecting several historic towns such as Viola, Shingletown, and Millville. At the end of the Gold Rush, most miners took up ranching, farming, or other trades in the valley areas, with very few settling the forested areas or higher elevations.

Major Pierson Barton Reading established a gold mine just north of Clear Creek. He named the area Reading Springs, and by 1849 it became a permanent site for miners, and subsequently became the Gold Rush boom town of Shasta.

The Homestead Act of 1862 and the arrival of the Central Pacific Railroad in Redding in 1872 led to a population boom in Shasta County. The Homestead Act gave away 160-acres of land at a time to any individual over the age of 21 who was head of household and could pay the \$12 processing fee. The vagueness of the wording allowed many women and immigrants to file land claims during this time. The expansion of the railroads was correlated with the migration spurred by this act. A land agent of the Southern Pacific Railroad named Benjamin B. Redding decided to make a rail stop there, and in 1872 the tracks were routed through the area and the town was born.

Benjamin Bernard Redding was born in Canada in 1824 and sailed to California in 1849 to make his fortune in the Gold Rush. He was elected to the California State Assembly from 1853-54, and elected Mayor of Sacramento in 1856. He also served as Secretary of State from 1863 to 1867. He became the first land agent for the Central Pacific Railroad in 1868, and bought the original property so the railroad could be built. The area six miles east of Shasta, known at the time as Poverty Flats, was selected to be the northern terminus of the railroad in 1872. People named the town Redding in honor their land agent.

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In 1874, local legislature moved to change the spelling of the town's name to Reading, to honor Pierson B. Reading as founder of the Shasta community. The railroad, however, refused to recognize the name change, and as a result there was a lot of confusion over the official spelling of the town's name. By 1880, the name was officially changed to Redding. It became the County Seat in 1888 and it was moved from Shasta after the decline of the mining industry.

From its early beginnings, mineral extraction was one of Redding's principal industry. Other than simply the gold that spurred California's exponential growth in the 1850s, copper and iron were also mined heavily in the mountains surrounding Redding; however, these industries also produced heavy pollution that damaged local agriculture. Their decline after the turn of the twentieth century led to drop in Redding's population. The population recovered with a boom in the 1930s spurred by the construction of Shasta Dam, 12 miles north of the Project Area. The dam project also spurred the development of nearby commuter towns of Central Valley, Summit City, and Project City, which are now known under the name Shasta Lake City. Growth through the 1950s was largely spurred by post-war demand for lumber production, which remains one of Redding's principal industries today.

4.5.6 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 pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Cultural Resources Inventory concluded that no known historic resources 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No prehistoric/archaeological resources were identified within the APE. The absence of such resources within the APE may be partly explained by the degree of intensive disturbance which portions of the APE have been subjected to, including disking, placement of fill material, and the use of vehicles on the field.

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

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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)	Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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**.

4.5.7 Mitigation Measures

CUL-1: Cultural Resource Discovery

If subsurface deposits believed to be cultural or human in origin are discovered during construction, 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 pre-contact and historic archaeologist, shall be retained by Enterprise Elementary School District 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 Enterprise Elementary School District, the lead federal agency, and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Shasta County Coroner (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 agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

<i>Timing/Implementation:</i>	<i>During construction</i>
<i>Monitoring/Enforcement:</i>	<i>Enterprise Elementary School District and Project construction lead</i>

4.6 Energy

4.6.1 Environmental Setting

4.6.1.1 Introduction

Energy consumption is analyzed in this IS/MND due to the potential direct and indirect environmental impacts associated with the Project. Such impacts include the depletion of nonrenewable resources (i.e., oil, natural gas, coal) and emissions of pollutants during both the construction and long-term operational phases.

4.6.1.2 Electricity/Natural Gas Services

Redding Electric Utility (REU) generates power for the City of Redding through state-regulated utility contracts. REU states that they have been aggressive in diversifying their energy resource portfolio for economic and reliability reasons, and more recently for environmental, renewable, and carbon reduction objectives. REU operates from 50% green energy generated through hydropower, wind and solar (Shasta Economic Development Corporation 2017). Natural gas is provided by Pacific Gas and Electric (PG&E). PG&E provides natural gas and electricity to most of the northern 2/3 of California, from Bakersfield and Barstow to near the Oregon, Nevada and Arizona State Lines. It provides 5.2 million people with electricity and/or natural gas across 70,000 square miles.

4.6.1.3 Energy Consumption

Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g., of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption in Shasta County from 2014 to 2018 is shown in *Table 4.6-1*. As indicated, the demand has slightly increased since 2014.

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Table 4.6-1. Non-Residential Electricity Consumption in Shasta County 2014-2018

Year	Non-Residential Electricity Consumption (kilowatt hours)
2018	807,734,813
2017	814,692,639
2016	816,056,877
2015	837,248,805
2014	814,787,970

Source: CEC 2019

Automotive fuel consumption in Shasta County from 2014 to 2018 is shown in *Table 4.6-2*. As shown, on-road and off-road fuel consumption have decreased in the county since 2014.

Table 4.6-2. Automotive Fuel Consumption in Shasta County 2014-2018

Year	On-Road Fuel Consumption (gallons)	Off- Road Fuel Consumption (gallons)
2018	143,625,059	9,237,988
2017	147,148,857	8,891,014
2016	146,424,693	8,576,379
2015	142,948,993	7,871,568
2014	141,459,913	7,705,261

Source: CARB 2017

4.6.2 Energy (VI) 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 potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The impact analysis focuses on the three sources of energy that are relevant to the Proposed Project: electricity, the equipment fuel necessary for Project construction, and the automotive fuel necessary for Project operations. Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use project. For the purpose of this analysis, the amount of electricity estimated to be consumed by the Project is quantified and compared to that consumed by non-residential land uses (commercial and industrial) in Shasta County. Similarly, the amount of fuel necessary for Project construction and operations is calculated and compared to that consumed in Shasta County.

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The analysis of electricity gas usage is based on California Emissions Estimator Model (CalEEMod) modeling conducted by ECORP (see *Appendix E*), which quantifies energy use for Project operations. The amount of operational automotive fuel use was estimated using the CARB's EMFAC2017 computer program, which provides projections for typical daily fuel usage in Shasta County. The amount of total construction-related fuel use was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1.

Energy consumption per year associated with the Proposed Project is summarized in *Table 4.6-3*.

Table 4.6-3. Proposed Project Energy and Fuel Consumption

Energy Type	Annual Energy Consumption	Percentage Increase Countywide
Electricity Consumption ¹	24,179.8 kilowatt-hours	0.0029%
Automotive Fuel Consumption		
Project Construction ²	15,074 gallons	0.016%
Project Operations ³	2,810 gallons	0.0019%

Source: ¹Electricity consumption calculated by ECORP Consulting using CalEEMod 2016.3.2; ²Climate Registry 2016; ³EMFAC2017 (CARB 2017)

Notes: The Project increases in electricity and natural gas consumption are compared with all of the non-residential buildings in Shasta County in 2018, the latest data available. The Project increases in automotive fuel consumption are compared with the countywide fuel consumption in 2018, the most recent full year of data.

As shown in *Table 4.6-3*, the increase in electricity usage as a result of the Project would constitute a negligible increase of 0.0029 percent in the typical annual electricity consumption attributable to non-residential uses in Shasta County. Further, the Project would adhere to all federal, state, and local requirements for energy efficiency, including the Title 24 standards. Title 24 standards establish minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage. Due to the relatively low increase in electricity from the Project and the implementation of energy reducing strategies, the Project would not result in the inefficient, wasteful, or unnecessary consumption of building energy.

The Project's gasoline fuel consumption during the construction period is estimated to be 15,074 gallons of fuel, which would increase the annual construction-related gasoline fuel use in the County by 0.016 percent during the single year that Project construction takes place. As such, Project construction would have a nominal effect on local and regional energy supplies, especially over the long-term. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and require recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

As indicated in *Table 4.6-3*, Project operation is estimated to consume approximately 2,810 gallons of automotive fuel per year, which would increase the annual countywide automotive fuel consumption by 0.0019 percent. The amount of operational fuel use was estimated using the CARB's EMFAC2017

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computer program, which provides projections for typical daily fuel usage in Shasta County. This analysis conservatively assumes that all of the automobile trips projected to arrive at the Project during operations would be new to Shasta County. The Project would not result in any unusual characteristics that would result in excessive long-term operational automotive fuel consumption. The Proposed Project would not increase school capacity and would reduce vehicle idling by providing increased pick-up and drop-off area for students. Fuel consumption associated with vehicle trips generated by the Project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

For these reasons, this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Shasta Regional Climate Action Plan (CAP) includes measures to reduce energy consumption, as energy consumption represents the second largest emissions of GHG in Redding (32 percent). The CAP requires that new construction constructed between 2014 and 2020 comply with the 2013 Title 24 Building Energy Efficient Standards (Measure BE-4: *New Construction*) (Resource Management 2012). Updated Title 24 standards were promulgated in 2019 and more stringent standards will come into effect in 2022 (SCAQMD 2012). The Project will be required to comply with the most recent existing standards at the commencement of construction. In addition, the Project has the option to comply with voluntary measures included in the CAP, including Voluntary measure BE-4: *Solar Photovoltaic Systems*, which encourages the installation of solar panels and use of solar electricity. As discussed in under Item a) the energy and fuel consumption related to this Project would be minimal. For these reasons, this impact would be less than significant.

4.6.3 Mitigation Measures

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

4.7 Geology and Soils

4.7.1 Environmental Setting

4.7.1.1 Geomorphic Setting

The Project site is located in the north-central portion of the Cascade Range geomorphic province of California. The Cascade Range is a chain of volcanic cones, extends through Washington and Oregon into California. It is dominated by Mt. Shasta, a glacier-mantled volcanic cone, rising 14,162 feet above sea level. The southern termination is Lassen Peak, which last erupted in the early 1900s. The Cascade Range is transected by deep canyons of the Pit River. The river flows through the range between these two major

volcanic cones, after winding across interior Modoc Plateau on its way to the Sacramento River (California Geological Survey [CGS] 2002).

4.7.1.2 Site Geology

The Cascade Range, which encompasses Redding, is comprised of slopes, valleys, and peaks around Mount Lassen to the west; closer to the Project Area the region spans broad, relatively young volcanic tablelands with various cones and flows, faulted with small north-to-south trending mountain ranges. The Cascade Range is unique from the surrounding mountain regions marked by Quaternary-aged volcanic rocks and well-preserved volcanos, some historically active. East-west-trending river systems that meander along fault lines drain large basins in the uplands, with river systems typically confined to steep, incised canyons that drain to the larger tributaries of the Sacramento Valley (ECORP 2020c).

4.7.1.3 Site Soils

According to the NRCS through the Web Soil Survey database, the Project site is composed of two soils unit, Churn gravelly loam, deep, 0 to 3 percent slopes and Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes, as shown in *Table 4.7-1*. 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 moderately well or well drained, have a moderate runoff potential, and have no potential for flooding. The majority of Project site soils have a slight erosion potential and a low to moderate linear extensibility (shrink-swell) (NRCS 2019).

Table 4.7-1. Project Area Soil Characteristics

Soil	Percentage of Site	Drainage	Flooding Frequency Class	Erosion Hazard¹
Churn gravelly loam, deep, 0 to 3 percent slopes	85.7%	Well drained	None	Slight
Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes	14.3%	Moderately well drained	None	Slight
	Runoff Potential²	Linear Extensibility (Rating)³	Frost Action⁴	
Churn gravelly loam, deep, 0 to 3 percent slopes	C (moderate)	1.5%, low	None	
Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes	C (moderate)	4.5%, moderate	None	

Source: NRCS 2019

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.

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Soil	Percentage of Site	Drainage	Flooding Frequency Class	Erosion Hazard ¹
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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%, moderate if 3 to 6%, high if 6 to 9%, and very high if more than 9%. 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.

4.7.1.4 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 2011).

According to the DOC Data Viewer interactive mapping program, the closest earthquake faults to the Project site are two unnamed Quaternary era faults north of the City approximately seven to eight miles north of the Project site. The nearest named fault is the Hoadley Fault approximate 9.5 miles to the to the west of the site. The Hoadley Fault is also a Quaternary era fault. The nearest Holocene fault is the Rocky Ledge fault located approximately 43 miles to the east of the Project site (CGS 2019).

4.7.1.5 Paleontological Resources

A paleontological records search was completed using the University of California Museum of Paleontology (UCMP) Locality Search website on December 10, 2019. The search included a review of the institution's paleontology specimen collection records for Shasta County, including the Project area and vicinity. 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.

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The results of the search of the UCMP indicated that 39 paleontological specimens were recorded from 37 identified localities and two unidentified localities in the City of Redding. Paleontological resources include fossilized remains of plants, mammals, fish, mollusks, and microfossils. No paleontological resources have been previously recorded within or near the Proposed Project site (UCMP 2020).

4.7.2 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii)	Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii)	Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv)	Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i)	The Proposed Project site is not located within an Alquist-Priolo Earthquake Zone (CGS 2011, 2016). There would be no impact related to fault rupture.				
ii)	According to CGS' Earthquake Shaking Potential for California mapping, the Proposed Project site is located in an area which has a low to moderate likelihood of experience ground shaking. During 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 a gymnasium, an athletic field, an operations and maintenance (O&M) building, vehicle parking areas, a bus parking area, and a pick-up and drop-off area. The gymnasium and O&M building in particular may be affected by a seismic event. However, all structures would be required to comply with the 2019 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.				

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iii) 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. DOC provides mapping for area susceptible to liquefaction in California. According to this mapping, the Project is not located in an area of liquefaction (DOC 2019b). As such, the Proposed Project would result in less than significant impacts with regard to seismic-related ground failure, including liquefaction.

iv) The Project site is of minimal elevation gain and the site does not have steep hillsides or other formations susceptible to landslides during a seismic event. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As shown in *Table 4.6-1*, the Project soils have a slight erosion potential. 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.

The Project applicant will be required to prepare a SWPPP to comply with the 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 *Section 4.10.2*). Implementation of the Project's required BMPs would reduce soil erosion impacts to a less than significant impact.

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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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As discussed previously, the Project site has little potential for landslides.

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 2019). As indicated in *Table 4.6-1*, the Web Soil Survey identifies the Project site as having soils with a no frost action potential. Additionally, as discussed in Item a) iii) above, the Project site is not identified as being in an area with a potential for liquefaction. 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 USGS, the Project site is not located in an area of land subsidence (USGS 2018). 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.

Because of the required compliance with the CBC seismic mitigation standards and the distance from active faults the potential for that settlement/collapse at the site is considered unlikely. As such, there is a less than significant impact in this area.

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

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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 direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 1.5 percent 4.5 percent. Soils with linear extensibility in that range correlate to soils having a low and moderate expansion potential. The soil type with moderate linear extensibility makes up a fairly small percentage of the site; 14.3 percent. 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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project does not include the installation of septic tanks or alternative waste disposal systems. 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) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 (UCMP 2020). 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 **GEO-1**.

4.7.3 Mitigation Measures

GEO-1: Paleontological or Sensitive Geologic Resource Discovery

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 Enterprise Elementary School District. Enterprise Elementary School District 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, Shasta County 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:

Enterprise Elementary School District and the Project construction lead

4.8 Greenhouse Gas Emissions

4.8.1 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 (CO₂), methane (CH₄), nitrous oxide (N₂O), 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 (IPCC 2013, 2014).

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. CH₄ traps more than 25 times more heat per molecule than CO₂, and N₂O absorbs 298 times more heat per molecule than CO₂. Often, estimates of GHG emissions are presented in CO₂e. Expressing GHG emissions in carbon dioxide equivalents 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 CO₂ were being emitted (EPA 2016a, b, c).

State

At the federal and state level, laws are in place to set GHG reduction targets at regular intervals.

At the state level, Assembly Bill (AB) 32 (2006) and associated scoping plan updates (2008) set a goal for the state to reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels. Further, Executive Order B-30-15 (2015) establishes a California GHG reduction target of 40 percent below 1990 levels by 2030 and aims to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050.

Senate Bill (SB) 32 and AB 197 of 2016 serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

In addition, SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. In October 2015, SB 350 was signed by Governor Brown, which requires retail sellers and publicly-owned utilities to procure 50 percent of their electricity from renewable resources by 2030. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 RPS.

Local

Shasta County Air Quality Management District

The Shasta County Air Quality Management District (SCAQMD) does not promulgate thresholds for GHG emissions; therefore, the analysis will rely on a multi-tiered approach to analyzing GHG.

Shasta Regional Climate Action Plan

As previously described, the SCAQMD initiated the Shasta Regional Climate Action Plan (CAP) process in 2010. The primary objectives of the CAP process are to contribute to the State's climate protection efforts and to provide CEQA review streamlining benefits for development projects in the region's four jurisdictions. The CAP establishes a community-wide emissions reduction target of 15 percent below 2008 levels by 2020, following guidance from CARB and the Governor's Office of Planning and Research. CARB and the California Attorney General have determined this approach to be consistent with the statewide AB 32 goal of reducing emissions to 1990 levels by the year 2020. To facilitate these objectives, the SCAQMD worked with the four jurisdictions to prepare community-specific, independent climate action plans that contain GHG emission inventories and forecasts, emission reduction measures, and implementation and monitoring programs.

To meet emissions reduction targets, the CAP relies on a combination of statewide actions and local emissions reduction efforts. The CAP identifies both mandatory and voluntary emission reduction measures that would apply to different types of proposed projects, including the Proposed Project. For each of the mandatory measures, the CAP either reinforces the implementation of current codes and

ordinances or recommends changes to the City's codes and ordinances that would result in GHG reductions. CAP Measure BE-2: *New Construction*, is the primary mandatory CAP requirement applicable to new development projects. Measure BE-2 states that all new construction projects shall demonstrate 15 percent higher efficiency than the California Title 24 Building Efficiency Standards (also known as the California Energy Code).^[1] The remaining CAP measures are essentially voluntary, relying on assumed levels of community participation to create communitywide emission reductions. Voluntary measure BE-4: *Solar Photovoltaic Systems* encourages the installation of solar panels and use of solar electricity. The Proposed Project has the option to generate power through solar energy. All development in Redding, including the Project, is required to adhere to all City-adopted policy provisions, including those contained in the CAP.

2018 Shasta Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS)

The 2018 RTP/SCS embodies a collective vision for the region's future and is developed with input from local governments, including the City of Redding. The RTP/SCS establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 and establishes an overall GHG target for the region consistent with both the statewide GHG-reduction targets for 2020 and the post-2020 statewide GHG reduction goals. The 2018 RTP/SCS is a long-range visioning plan to encourage and promote the safe and efficient management, operation, and development of a regional intermodal transportation system that, when linked with appropriate land use planning, will serve the mobility needs of goods and people. Future investments seek to reduce traffic bottlenecks, improve the efficiency of the region's network, and expand mobility choices. The RTP/SCS is an important planning document for the region, allowing project sponsors to qualify for federal funding. In addition, the RTP/SCS is supported by a combination of transportation and land use strategies that help the region achieve state GHG emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support the vital goods movement industry, and use resources more efficiently.

The core strategy of the 2018 RTP/SCS is focused growth in existing Shasta County communities along the existing transportation network. This strategy allows the best "bang for the buck" in achieving key regional economic, environmental and equity goals: It builds upon existing community characteristics, efficiently leverages existing infrastructure, and mitigates impacts on areas with less development. The RTP/SCS identifies forecasted residential and job growth areas throughout Shasta County which are areas focused for growth and development.

^[1] The 2016 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential Standards include improvements for attics, walls, water heating, and lighting. The 2016 Building Energy Efficiency Standards are 28 percent more efficient than previous standards for residential construction. Energy-efficient buildings require less electricity, and increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions.

4.8.2 Greenhouse Gas Emissions (VIII) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project would generate GHG emissions during both construction and operations. As explained above, the SCAQMD does not promulgate thresholds for GHG emissions; therefore, the analysis relies on a multi-tiered approach to analyzing GHG emissions. To determine if the Project will generate GHG emissions that may have a significant impact on the environment, Project GHG emissions will first be compared with the thresholds established by the California Air Pollution Control Officers Association (CAPCOA). CAPCOA has provided guidance for determining the significance of GHG emissions generated from land use development projects. CAPCOA also considers projects that generate more than 900 metric tons of CO₂e to be significant. This threshold was developed to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to the Statewide GHG emissions reduction goals for the year 2020 promulgated under AB 32 and the post-2020 reduction goals promulgated under SB 32. Thus, both cumulatively and individually, projects that generate less than 900 metric tons CO₂e per year have a negligible contribution to overall emissions. Additionally, Project operational emissions will be compared for consistency with the GHG inventory prepared in the Shasta Regional Climate Action Plan, as well as compliance with the Plan's mandatory measures for new development. Lastly, Project operational GHG emissions will also be compared for consistency with the goals and assumptions of the Shasta Regional Transportation Agency (SRTA) 2018 Shasta Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which establishes an overall GHG target for the Project region consistent with both the target date of AB 32 (2020) and the post-2020 GHG reduction goals of SB 32 (SRTA 2018b).

Construction Emissions

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).

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 4.8-1*.

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Table 4.8-1. Construction-Related Greenhouse Gas Emissions (SMM Mitigation Incorporated)

Construction Year	Carbon Dioxide Equivalents (CO ₂ e) (metric tons)
Construction	
Year 2020	132
Year 2021	22
Construction Total	154
SCAQMD Significance Threshold	900
Exceed Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to *Appendix B* for Model Data Outputs.

Note: Building construction, paving, and architectural coating assumed to occur simultaneously.

As shown in *Table 4.8-1*, GHG emissions would remain below the significance threshold during Project construction. Construction-generated GHG emissions would be less than significant.

Operational Emissions

Operation of the Project would result in GHG emissions predominantly associated with motor vehicle and school bus use. As explained above, the CAPCOA threshold of 900 metric tons will be utilized to determine the significance of GHG impacts. *Table 4.8-2* summarizes all the direct and indirect annual GHG emissions levels associated with operations of the Project.

Table 4.8-2. Operational-Related Greenhouse Gas Emissions (SMM Mitigation Incorporated)

Emissions Source	CO ₂ e (metric tons)
Area Source (landscaping, hearth)	0
Energy	77
Mobile	134
Waste	1
Water	2
Total:	214
Significance Threshold	900
Exceed Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to *Appendix B* for Model Data Outputs.

As shown in *Table 4.8-2*, GHG emissions would remain below the significance threshold during Project operations. Operational-generated GHG emissions would be less than significant.

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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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As identified under response 4.8.2 (a), Project-generated GHG emissions would not surpass the CAPCOA GHG significance threshold, which was prepared with the purpose of complying with California GHG reduction goals. Furthermore, the Proposed Project would not conflict with any adopted plans, policies, or regulations adopted for the purpose of reducing GHG emissions.

As per the RTP/SCS, which contains GHG-reduction goals from mobile sources, the Project site is located in an area anticipated for moderate urban growth. The Project site and adjacent area are projected to accommodate one residential household and two to ten jobs in the RTP/SCS by 2035. Additionally, some of the land just northeast of the Project site, along and on either side Mistletoe Lane, is projected to accommodate 11-100 residential households by 2035. Lastly, the area just south of the Project site is expected to accommodate a combination of one and two-ten residential households by 2035 (SRTA 2018b, Figure 48). Since the Project site is in a location planned for urban and job growth in the RTP/SCS planning period, it is included in an area where such development is both predicted and encouraged in the RTP/SCS. The Proposed Project, a school expansion, is urban development, which is consistent with the projections of the RTP/SCS. The school will continue to provide educational and career opportunities for Redding residents. Therefore, the Project is consistent with 2018 RTP/SCS and it can be assumed that regional mobile emissions will continue to decrease in line with the goals of 2018 RTP/SCS with implementation of the Proposed Project. Implementing the 2018 RTP/SCS will greatly reduce the regional GHG emissions from transportation, and the Proposed Project will not obstruct the achievement of RTP/SCS emission reduction targets.

Furthermore, the Proposed Project would adhere to all City-adopted policy provisions, including those contained in the CAP. Measure BE-2: *New Construction* states that all new construction projects shall demonstrate 15 percent higher efficiency than the California Title 24 Building Efficiency Standards. Voluntary CAP Measure BE-4: *Solar Photovoltaic Systems* encourages the installation of solar panels and use of solar electricity. The Proposed Project has the option to generate power through solar energy. The Proposed Project would not conflict with the CAP, and no aspects of the Project would inhibit CAP measures.

As such, the Proposed Project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs. The Project is of reduced intensity of land use envisioned for the site vicinity in the General Plan, and as a result, the Project would not exceed the population or job growth projections used by the City to develop the CAP. As described, all development in Redding, including the Project, is required to adhere to all City-adopted policy provisions, including Measure BE-2, the mandatory CAP requirement applicable to new development projects. Furthermore, the Project is proposed for a location consistent with urban

development anticipated for the site in the 2018 RTP/SCS, and therefore will not obstruct the achievement of the RTP/SCS emission reduction targets.

Therefore, the Proposed Project would not conflict with California GHG reduction goals. A less than significant impact would occur.

4.8.3 Mitigation Measures

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

4.9 Hazards and Hazardous Materials

4.9.1 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, § 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 Shasta County is managed by the Shasta County Environmental Health Division. The Division is charged with the responsibility of enforcement of pertinent California health laws, rules, regulations, and Shasta County Ordinances and is responsible for responding to incidents involving any release or threatened release of hazardous materials. Threats to people, property and the environment are assessed, and then remedial action procedures are conducted under the supervision of a Registered Environmental Health Specialist. The Division is also responsible for requiring all business that use hazardous materials to comply with the State required hazardous materials business plan submittal and registration with the California Environmental Reporting System.

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Under Government Code § 65962.5, both the California Department of Toxic Substance Control (DTSC) and the State Water Resources Control Board (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. The Proposed Project underwent a Phase I Environmental Site Assessment (ESA). Upon receipt of the Phase I ESA results, the DTSC issued a letter stating that while the Phase I ESA indicated that no recognized environmental conditions (RECs) were identified on the site, the DTSC identified data gaps in the ESA that require further investigation. The DTSC determined that a Preliminary Environmental Assessment (PEA) is required for the site and the PEA will need to investigate environmental conditions of concern identified by the DTSC due to unknown fill material source, naturally occurring asbestos, and potential off-site sources of hazards that may have impacted the site.

Aside from the site assessment for the Project, a search of the DTSC (2018) list identified no open cases of hazardous waste violations within one mile of the Project site. A search of the SWRCB (2018) list identified one open leaking underground storage tank (LUST) cleanup site 0.5 mile away from the Project site. The case has been open since April of 1999, when unauthorized release of gasoline was reported following the removal of four underground storage tanks at the Tay Van Car Wash site located at 1803 Hilltop Drive, Redding, CA 96002. The site is actively undergoing monitoring and cleanup to remediate and contain potential contamination to groundwater used for purposes other than drinking water. The site is not expected to have a significant impact on the health and safety of Mistletoe Elementary School students, and the Proposed Project will not significantly impact ongoing remediation efforts at and surrounding the LUST cleanup site.

4.9.2 Hazards and Hazardous Materials (IX) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project would result in the storage of typical cleaning supplies as well as vehicle and equipment maintenance supplies such as antifreeze, oil and lubricants for vehicle maintenance and diesel fuel. Typical incidents that could result in accidental release of hazardous materials involve leaking storage tanks, spills during transport, inappropriate storage, inappropriate use, and/or natural disasters. If not remediated immediately and completely, these and other types of incidents could cause toxic fumes and contamination of soil, surface water, and groundwater. Depending on the nature and extent of the contamination, groundwater supplies could become unsuitable for use as a domestic water source. Human exposure to contaminated soil or water could have potential health effects depending on a variety of factors, including the nature of the contaminant and the degree of exposure.

Hazardous materials must be stored in designated areas designed to prevent accidental release to the environment. CBC requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards.

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Hazardous materials regulations, which are codified in Titles 8, 22, and 26 of the CCR, and their enabling legislation set forth in Chapter 6.95 of the California Health and Safety Code, were established at the state level to ensure compliance with federal regulations and to reduce the risk to human health and the environment from the routine use of hazardous substances. Protection against accidental spills and releases provided by this legislation includes physical and mechanical controls of fueling operations, including automatic shutoff valves; requirements that fueling operations are contained on impervious surface areas; oil/water separators or physical barriers in catch basins or storm drains; vapor emissions controls; leak detection systems; and regular testing and inspection of fueling stations.

Aboveground tanks storing hazardous chemicals must have secondary containment to collect fluids that are accidentally released. Applicable existing standards include the California Environmental Protection Agency's Aboveground Petroleum Storage Act, Cal/OSHA operational requirements, California Health and Safety Code Section 25270 regarding aboveground storage tanks and § 25290 regarding underground storage tanks. Compliance with all applicable federal and state laws related to the storage of hazardous materials would be required to maximize containment and provide for prompt and effective cleanup, if an accidental release occurs.

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. 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. 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) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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.

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During operation, 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.

The Phase I ESA identified no RECs on the site. However, the DTSC's review of the ESA identified data gaps in the information and determined that a PEA should be prepared for the site. The PEA will investigate environmental conditions of concern identified by the DTSC due to unknown fill material source, naturally occurring asbestos, and potential off-site sources of hazards that may have impacted the site. If the PEA identified the presence of hazardous materials, hazardous waste upset during construction and operation may occur. As such, mitigation measure **HAZ-1** requires the Project to undergo the PEA and comply with mitigation measures recommended by the DTSC upon completion of the PEA. Implementation of **HAZ-1** will reduce this potentially significant impact to 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Proposed Project is a school expansion. As explained under item a and b above, hazardous materials will be stored, used, and transported in compliance with applicable label directions and laws. The Proposed Project is not expected to emit hazardous emissions due to use of hazardous materials. However, review of the Phase I ESA by the DTSC identified environmental conditions of concern on and near the Project site. If hazardous materials are present, the Project construction and operation may result in emissions of hazardous waste due to soil disturbance on a school site. Therefore, **HAZ-1** is required to mandate compliance with DTSC requirements regarding PEA completion and require implementation of mitigation measures which may be recommended by the DTSC. Implementation of **HAZ-1** will reduce this potentially significant impact to 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 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 list identified that the site is currently under investigation as a

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potential school site. As discussed previously, the review of the Phase I ESA by DTSC determined that further investigation was necessary and a PEA is required for the site to evaluate the potential for hazardous materials due to the present of fill material from an unknown source, potential for naturally occurring asbestos, and potential impacts from off-site sources. As such, mitigation measure **HAZ-1** is included to reduce potential impacts due to hazardous materials to a less than significant level.

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 or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The nearest airports to the Project site are the Benton Airpark, approximately 3 miles west of the Project site and the Redding Municipal Airport, located approximately 5.65 miles southeast of the site. The Project site is outside of the Benton Airpark land use plan and is thereby beyond the safety contours for the airpark (City of Redding 2020). According to the Redding Municipal Airport Influence Area Map, the Proposed Project is located outside of the airport influence zone (City of Redding 2019a, 2020). 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) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 onsite and not impede the use of surrounding roadway in an emergency evacuation. The Project is a school expansion and would not interfere with any emergency response or evacuation plans. Emergency responders would be made aware of the school expansion and the Project and building plans would be checked for fire safety compliance. Implementation of the Proposed Project would result in a less than significant impact in this area.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 CAL FIRE Very High Fire Hazard Severity Zones in a Local Responsibility Area map identifies the Project site as not being located in a Very High Fire Hazard Severity Zone (VHFSZ) (CAL FIRE 2008). The Project is located in an urbanized area not considered susceptible to wildland fire. Further, the Project will be constructed to comply with applicable fire safety standards, including the 2019 California Fire Code (CBSC 2019). Compliance with these standards would reduce the potential wildfire impacts to a less than significant level.

4.9.3 Mitigation Measures

HAZ-1: Hazardous Materials Investigation

Prior to commencement of construction, the Project site and potentially affected adjacent area, as determined by the DTSC, shall undergo a Preliminary Environmental Assessment (PEA). The PEA shall include evaluation of those areas identified in the DTSC letter addressed to EESD on December 19, 2019 (*Appendix F*). As identified in the letter, the potential sources of hazardous material that must be investigated for completion of the PEA are as follows: fill material from an unknown source area, naturally occurring asbestos, and potential off-site sources of hazardous material that must be addressed per California Code of Regulations, section 69104(d). If hazardous materials are identified that may have a significant environmental impact, compliance with all mitigation measures included in the PEA is required.

Timing/Implementation: Prior to commencement of construction and during construction

Monitoring/Enforcement: Enterprise Elementary School District, Project construction lead, and the DTSC

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

Regional Hydrology

Surface Water

The Project site is located in the greater Sacramento River hydrologic region. The Sacramento River hydrologic region covers ± 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, Siskiyou, 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 (California Department of Water Resources [DWR] 2003).

The Project site is located within boundaries of the Upper Sacramento River watershed. The Upper Sacramento River originates from water flowing off Mount Shasta to the north and from the Klamath Mountains to the west. The river flows south for approximately 40 miles, joined by numerous tributary streams, and empties into Lake Shasta above Shasta Dam. Near the city of Mount Shasta in Siskiyou County, flows are regulated by the 430-acre Lake Siskiyou Reservoir built in 1968 for power production and recreation. Wilderness, high mountains, and numerous lakes and streams, together with an abundance of public land, make this watershed a center for outdoor recreation. The watershed also supports extensive timber resources on both public and private lands, and the river itself is one of the state's premier wild trout waters. Prominent features in the watershed include Mount Shasta, Union Pacific Railroad, Lake Shasta and Shasta Dam, and Castle Crags State Park. (Sacramento River Watershed Program [SRWP] 2018).

Surface flow in the river has been monitored by USGS at a location near Lake Shasta since 1945. Average daily flow is approximately 1,000 cubic feet per second (cfs), with a peak daily flow of 70,000 cfs (1974) and extreme low of 117 cfs (1977). Located in the upper watershed near the City of Mount Shasta, the 26,100-acre-foot Box Canyon Dam/Siskiyou Reservoir is operated by Siskiyou County for hydropower generation and recreation. Local communities capture spring water for domestic supply. There are no defined groundwater basins in this watershed; however, individual domestic wells are located throughout the region, and larger wells supply water to bottling plants in Mount Shasta and Dunsmuir. (SRWP 2018).

Groundwater

Groundwater in the State of California is managed and monitored by the DWR. The Project site is within the Redding Area- Enterprise Subbasin, (basin number 5-6.04) of the Sacramento Valley Hydrologic Region (DWR 2019b). The original basin descriptions were provided in the 2004 Bulletin 118 (B118) Update completed by the DWR. The 2004 basin descriptions included available information on narrative descriptions of basin boundaries, summaries of the hydrologic and hydrogeologic setting, groundwater storage capacity and water budget, groundwater level and quality trends, well yields, basin management, and references. However, not all 2004 basin descriptions, including the Enterprise Subbasin, have been updated for B118 Interim Update 2018 at this time.

The Project site is located in the 2004 B118 Enterprise Subbasin (DWR 2004). As such, the following information is provided from the 2004 B118 for the Enterprise Subbasin. The Enterprise Subbasin is the portion of the Sacramento Valley Groundwater Basin bounded on the west and southwest by the Sacramento River, on the north by the Klamath Mountains, and on the east by Little Cow Creek and Cow Creek. Annual precipitation within the basin ranges from 29- to 41- inches, increasing to the north. The estimated storage capacity for the basin is 5.5 million acre-feet for 200 feet of saturated thickness over an area of approximately 510 square miles. Estimates of groundwater extraction for agricultural and municipal/industrial uses are 4,449 and 4,127 acre-feet respectively (DWR 2004).

4.10.1.1 Project Site Hydrology and Onsite Drainage

The Project site is located on relatively hilly terrain situated at an elevational range between 556 to 558 feet AMSL. An intermittently flowing drainage with riparian vegetation is located on the east side of the Project site.

In the Project area, the precipitation period of the year lasts for 6.2 months, from October 28 to May 2. The most rain/snow falls during the 31 days around December 12, with an average total accumulation of 6.8 inches. The rainless period of the year lasts for 2.4 months, from June 26 to September 8. The least rain falls around July 31, with an average total accumulation of 0.1 inch (Weatherspark 2018).

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Project area (Map No. 06089C1553G) 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 2011).

4.10.2 Hydrology and Water Quality (X) 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 or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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. The Project will occur in phases with construction occurring in an area greater than one acre in size. Thus, the Project will require the implementation of a SWPPP with minimum BMPs. 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.

In an instance where one acre or more would be disturbed during a construction phase, a General Permit would be needed. 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

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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 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, berms, 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.

An intermittently flowing drainage with riparian vegetation is located on the east side of the Project site. The Project site is also relatively flat, with elevations ranging from 556 to 558 feet AMSL. The level nature of the site reduces the potential for runoff into the intermittent drainage. In addition, 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 decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Following completion of the school expansion, the water supply for Mistletoe Elementary School will continue to be derived from the City's municipal system. The City's water supply is sourced from both surface water and groundwater. The Sacramento River and Whiskeytown Lake provide the City with 74 percent of the water they use. This translates into approximately 7.25 billion gallons per year. The remaining 26 percent, or 2.51 billion gallons per year, is groundwater which comes from 16 wells drilled into the Redding- Enterprise Groundwater Basin (City of Redding, 2019b). The California Department of Water Resources (DWR 2006) Bulletin 118 identified the Enterprise Subbasin groundwater supply fluctuation averages as follows:

"Evaluation of groundwater level data shows a seasonal fluctuation of approximate 5- to 10-feet and, for the semi-confined wells, between 10- to 15-feet for normal and dry years."

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The Project will increase water demand primarily for the irrigation of the new sports field as well as for operation of the gymnasium and O&M building. Furthermore, the Project will increase the amount of impervious surface area in the amount of approximately 70,250 square feet, and as such will reduce groundwater recharge. The Project entails the construction of a gymnasium, an athletic field, an operations and maintenance (O&M) building, vehicle parking areas, a bus parking area, a drive isle, and a pick-up and drop-off area.

The Proposed Project would increase the demand for groundwater in the City. The Project will require the use of water almost exclusively for the O&M building and athletic field. The new gymnasium and parking and driving areas are not expected to require a notable amount of water use. The Project is expected to have an annual water demand of 1,070,900 gallons. Approximately, 2.51 billion gallons of groundwater per year and 7.25 billion gallons of surface water per year is used by the City. As such, the Proposed Project will represent a small increase in water demand of 0.0109 percent.⁴

Additionally, the Proposed Project would have the potential to remove a portion of the five-acre site's potential groundwater recharge area due to the development of 70,250 square feet of this area with impervious surfaces. However, according to the City of Redding, the groundwater supply for the City comes from 16 wells drilled into the Redding-Enterprise Groundwater Basin (City of Redding, 2019b). The Redding-Enterprise Groundwater Basin is 60,900 acres, or 95 square miles (DWR 2004). As such, the addition of the impervious surface area associated with the Proposed Project will not significantly impact the ability of groundwater to infiltrate within the basin. In addition, the Project both includes the development of drainage systems and has existing and planned stormwater drainage systems designed for urban development and infiltration area located within the Project site and within the existing Mistletoe Elementary School footprint. The Project includes proposed subsurface water detention which will utilize storm drainpipes and rock pockets which will allow for stormwater to infiltrate into the soil. As such, development of this area would only minimally affect the groundwater recharge ability of the Project site. Therefore, the Project would have a less than significant impact on groundwater recharge.

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, or through the addition of impervious surfaces, in a manner that would:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) result in substantial erosion or siltation on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

⁴ 1,070,900/9,760,000,000= 0.0109%

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
(iii) 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; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- i) An intermittent drainage exists on the eastern portion of the Project site. As such, siltation into on- or off-site waterways, particularly during construction, has the potential to occur.

The Project construction activities would result in soil disturbances of over one acre of total land area during a construction phase. As such, a NPDES Construction General Permit would be required prior to the start of a construction phase. Excavation and grading activities associated with the Project will reduce vegetative cover and expose bare soil surfaces making these surfaces more susceptible to erosion. To comply with the requirements of the NPDES Construction General Permit the City 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.

Note that the SWPPP is a "live" document and should be kept current by the person responsible for its implementation (EPA 2007b). Preparation of, and compliance with a required SWPPP would effectively prevent Project on-site erosion and sediment transport off-site. This will reduce potential runoff, erosion, and siltation associated with construction and operation of the Project. As such, the effects of the Project on onsite and offsite erosion and siltation, therefore, would be less than significant.

- ii) Implementation of the Project would not result in the substantial increase of the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. The Project involves the construction of a gymnasium, an athletic field, an operations and maintenance (O&M) building, vehicle parking areas, a bus parking area, and a pick-up and drop-off area. The Project includes proposed subsurface water detention which will utilize storm drainpipes and rock pockets which will allow for stormwater to infiltrate into the soil as well as slow the potential runoff from the site. With the implementation of BMPs, including the installation of berms or straw wattles during the construction phase and hydroseeding following infill of trenches, where necessary, the increase in surface runoff will be minimal. 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 onsite or offsite flooding. Therefore, the Proposed Project would have a less than significant impact with regard to causing flooding onsite or offsite.

- iii See discussion of Issues i) and ii), above. There are existing and planned stormwater drainage systems designed for urban development and an infiltration area located within the Project site and within the existing Mistletoe Elementary School footprint. The Project includes proposed subsurface water detention which will utilize storm drainpipes and rock pockets. The nearest existing stormwater drainage facilities off-site are located along Del Monte Street.

Polluted runoff from the Project site during construction and operation could include sediment from soil disturbances, oil and grease from construction equipment, and 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 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 Project would be less than significant.

Activities associated with operation of the Project would contribute to stormwater flow and polluted runoff as the Project will increase impervious surface area by approximately 70,250 square feet. However, the Project includes planned stormwater drainage systems. The Project will include the construction of curbs gutters along new sidewalks, roads, and parking areas as is required by the City Code. Furthermore, the Project site would be graded to direct stormwater flows to existing and proposed drainage facilities. Following implementation of these runoff reduction measures, runoff would be minimized and runoff from the site is not expected to be of sufficient quantity to overwhelm existing and proposed stormwater drainage facilities. As such, the Project's impact during operation would be considered less than significant.

While potential impacts could result from vehicles and other users at the Proposed Project site during 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 operation. Therefore, impacts during operation would be considered less than significant.

- iv) FEMA flood hazard maps (Map No. 06089C1553G) shows that the Project site is in shaded Zone X. The Project site is not located within a 100-year flood zone and all project improvements. Therefore, implementation of The Project will have no impact related to impeding or redirecting flood flows.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

FEMA flood hazard maps (No. 06089C1553G) 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.

The nearest waterway to the Project site is an unnamed, intermittent drainage on the east side of the Project site, which will not be located adjacent to planned buildings and does not pose a significant flood risk. Shasta Lake is located approximately 14 miles north of the Project site. In the event of dam failure, water would flow into and potentially breach the banks of the Sacramento River, located 0.7 mile west of the Project site. Whiskeytown Lake is approximately 9.5 miles to the northwest of the project site. According to the City of Redding 2000-2020 General Plan Health and Safety Element, the Project site is not located within the Shasta Dam or the Whiskeytown Dam inundation areas (City of Redding 2000, Figure 4-5) Additionally, dams are regulated by DWR's Division of Safety of Dams and are routinely inspected during their impoundment life, which includes monitoring for compliance with seismic stability standards. 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. 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.

Further, the Project site is not located within a potential tsunami or seiche inundation area. As such, damage due to a seiche, a seismic-induced wave generated in a restricted body of water would not occur.

Based on the discussion above, the Project would not result in the release of pollutants due to Project inundation. Thus, 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
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The City of Redding is a participating member of the Enterprise-Anderson Groundwater Authority (GGA) formed in May 2017 (Shasta County 2014). The Enterprise-Anderson Groundwater Sustainability Agency (EAGSA) has been formed through a Memorandum of Understanding to sustainably manage groundwater in the Enterprise Sub-basin (DWR Basin No. 5-6.04) and Anderson Sub-basin (DWR Basin No. 5-6.03) of the Redding Area Groundwater Basin. The EAGSA includes the City of Anderson, Anderson-Cottonwood Irrigation District, Bella Vista Water District, Clear Creek Community Services District, City of Redding, and

County of Shasta. The Enterprise-Anderson GSA has formed a Groundwater Sustainability Plan (GSP). The GSP ensures compliance with the Sustainable Groundwater Management Act (SGMA) (DWR 2019b). The Project would have a less than significant impact on the implementation of the groundwater management plan.

4.10.3 Mitigation Measures

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

4.11 Land Use and Planning

4.11.1 Environmental Setting

The Project site consists of three parcels located in east-central Redding. As illustrated in *Figure 1. Regional Location* and *Figure 2. Site Location* maps, the Proposed Project is located directly south of the existing Mistletoe Elementary School and adjacent to one of the Shasta Head Start Child Development facilities. Adjacent landscape features and uses include a small intermittent drainage and single-family homes to the east, an HVAC repair service and storage yard, a small light industrial complex, offices, and Grocery Outlet Store to the south, the Shasta Head Start facility to the west and Mistletoe Elementary School and EESD offices to the north. There is also vacant land southeast of the Project site. See *Figure 3. Surrounding Uses*.

The City of Redding General Plan designations for the site are *Residential 10 to 20 Dwelling Units Per Acre (10-20)* for the two parcels located on Del Monte Street and *Public Facilities or Institutional (PF-1)* for the parcel that is part of the existing school site. The City of Redding General Plan describes the *Public Facilities or Institutional (PF-1)* land use designation as intended for public and quasi-public facilities, including institutional uses such as schools and accredited secondary educational facilities. The Proposed Project is consistent with the allowed uses in the *PF* designation. However, the *Residential 10-20* land use designation is intended for multiple-family projects ranging from townhouses to apartments, typically located on arterial or collector street(s). The proposed uses on the two parcels designated *Residential 10-20* include an athletic field, vehicle parking areas, drive isle, operations and maintenance (O & M) building, and bus parking.

The site is zoned both *Public Facility (PF)* and *Residential Multiple-Family 15 units per acre (RM-15)*. The proposed gymnasium and existing school site are located on the parcel zoned *PF*, and the athletic field, vehicle parking areas, drive isle, operations and maintenance (O & M) building, and bus parking area are on two parcels zoned *RM-15*. The City of Redding Municipal Code describes areas zoned *PF* as appropriate for public and quasi-public facilities, including educational facilities. As such, the Project is consistent with the *PF* zoning designation. The *RM-15* designation, however, is intended for multi-family residential use and allows for up to 15 units per acre.

Although the uses proposed on the two parcels designated *Residential 10-20* and zoned *RM-15* do not usually permit the proposed uses, the school is exempt from complying with the zoning designations and General Plan designations of the City pursuant to Section 53094 of the Government Code. The two parcels zoned *RM-15* and designated *10-20* each include a portion of the proposed athletic field. The athletic field

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will be used for physical education classes, a required part of school curriculum pursuant to California Education Code Section 33352. In addition, the parcels designated zoned *RM-15* and designated *Residential 10-20* will become an official part of the Mistletoe Elementary School district. As such, the Project is exempt from the zoning and General Plan designations.

4.11.2 Land Use and Planning (XI) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project, a school expansion, is to be located directly south of and partially in the existing footprint of Mistletoe Elementary School. The surrounding land use context includes a mixture of residential, vacant, and commercial land uses. More specifically, adjacent uses include single-family homes to the east, an HVAC repair service and storage yard, a small light industrial complex, offices, and Grocery Outlet Store to the south, the Shasta Head Start facility to the west and Mistletoe Elementary School and EESD offices to the north. Thus, 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) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As explained above, the Project is exempt from the City's zoning and General Plan designation requirements pursuant to Section 53094 of the Government Code. Thus, the Proposed Project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Thus, a less than significant impact would occur.

4.11.3 Mitigation Measures

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

4.12 Mineral Resources

4.12.1 Environmental Setting

The state-mandated Surface Mining and Reclamation Act of 1975 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*).

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Neither the County nor the California DOC Division of Mine Reclamation (DMR), identify the Project site as a mineral resource zone (DMR 2018).

4.12.2 Mineral Resources (XII) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

As discussed above, neither the County nor DMR identify the Project site as having the mineral resources. 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
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project site is not identified as a mineral resource recovery site by the County or DMR. There would be no impact in this area.

4.12.3 Mitigation Measures

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

4.13 Noise

4.13.1 Environmental Setting

The Proposed Project is located in an urbanized area. Adjacent landscape features and uses include single family homes to the east, an HVAC repair service and storage yard, a small light industrial complex, offices, and Grocery Outlet Store to the south, the Shasta Head Start facility and homes to the west, and Mistletoe Elementary School and EESD offices to the north. There is also vacant land southeast of the Project site. See *Figure 3. Surrounding Uses*.

Fundamentals of Sound

Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived

as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (Federal Transit Administration 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Under the dB scale, three sources of equal loudness together would produce an increase of 5 dB.

Sound Propagation and Attenuation

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. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB (dBA) for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2008), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend length-wise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the line of sight between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is

largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The Leq is a measure of ambient noise, while the Ldn and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined as follows:

- Equivalent Noise Level (Leq) is the average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- Day-Night Average (Ldn) is a 24-hour average Leq with a 10-dBA “weighting” added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.4 dBA Ldn.
- Community Noise Equivalent Level (CNEL) is a 24-hour average Leq with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented 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- to 70-dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA), or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA noise levels, 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.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest sensitive noise receptors to the Project site outside of the school itself are residences located approximately 30 feet west of the development site, specifically where the new drive isle would be located.

Existing Ambient Noise Environment

Redding is impacted by various noise sources. It is subject to typical urban noise such as noise generated by traffic, heavy machinery, and day-to-day outdoor activities. Mobile sources of noise, especially cars and trucks, are the most common source of noise in the community. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout Redding that generate stationary source noise. The Benton Airpark is located approximately three miles east of the Project site. The Project site is located outside of the boundaries of the Benton Airpark land use plan and is thereby beyond the noise contours generated by airport operations. Furthermore, the Project site is located more than two miles from any other airport.

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.

Regulatory Framework

City of Redding General Plan

The City of Redding Noise Element of the General Plan establishes goals and policies addressing major noise sources within the community. The following provides the applicable goals, policies and criteria for evaluating the feasibility and potential noise impact associated with the Proposed Project:

Goal N2: Protect Residents from Exposure to Excessive Transportation-Related Noise.

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- **Policy N2B:** Prevent development of new projects which contain noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation sources with exceed the levels specified in *Table 4.13-1*, unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in the Table.

Table 4.13-1. Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹ L _{dn} /CNEL, dB	Interior Spaces	
		L _{dn} /CNEL, dB	L _{eq} , dB ²
Residential	60 ³	45	--
Transit Lodging	60 ³	45	--
Hospitals, Nursing Homes	60 ^{3,4}	45	--
Theaters, Auditoriums, Music Hall	--	--	35
Churches, Meeting Halls	60 ³	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

Source: City of Redding General Plan

Notes: ¹The exterior noise level standards shall be applied to the outside activity area of the receiving land use. Outdoor activity areas are normally located near or adjacent to the main structure and often occupied by porches, patios, balconies, etc.

²As determined for a typical worst-case hour during periods of use.

³Where it is not possible to reduce noise in outdoor activity areas to 60 dBA L_{dn}/CNEL or less, using a practical application of the best available noise reduction measures, higher exterior noise levels may be allowed provided that practical exterior noise level reduction measures have been implemented and that interior noise levels are in compliance with this Table.

⁴In the case of hotel/motel facilities or other transient lodging, outdoor activity areas, such as pool areas, may not be included in the project design. In these cases, only interior noise-level criterion will apply.

- **Policy N2C:** Mitigate noise created by new transportation noise sources consistent with the levels specified in *Table 4.13-1* in outdoor-activity areas and interior spaces of existing noise sensitive land uses.
- **Policy N2E:** Require acoustical analysis for noise sensitive land uses proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in (*Table 4.13-1* above) or the performance standards of (*Table 4.13-2* below) to determine mitigation for inclusion in the project design.

Table 4.13-2. Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Sources

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L _{eq} , dB	55	45

Source: City of Redding General Plan

Notes: Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply for residential units established in conjunction with industrial or commercial uses. The City can impose noise level standards which are more restrictive than those specified above based upon determination of existing low ambient noise levels.

Industrial, light industrial, commercial, and public service facilities which have the potential for producing objectionable noise levels at nearby noise sensitive uses are dispersed throughout the City. Fixed noise sources which are typically of concern include, but are not limited to, the following: HVAC systems, generators, air compressors, outdoor speakers, fans and blowers (this list only includes equipment applicable for the Proposed Project).

- **Policy N2G:** enforce existing applicable sections of the California Vehicle Code related to vehicle or equipment mufflers and modified exhaust systems.

Goal N3:

- **Policy N3A:** Prohibit the development of noise sensitive uses where the noise level due to non-transportation sources will exceed the noise level standards of *Table 4.13-2* as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in *Table 4.13-2*.
- **Policy N3B:** Mitigate noise created by new proposed non-transportation sources consistent with the noise level standards of *Table 4.13-2* as measured immediately within the property line of lands designated for noise sensitive land uses. Noise level standards for non-noise sensitive uses will generally be 10 dB higher before mitigation is required.
- **Policy N3C:** Require acoustical analysis of new nonresidential land uses and the expansion of existing nonresidential land uses if likely to produce noise levels exceeding the performance standards of *Table 4.13-2* within the property line of existing or planned noise sensitive uses.

City of Redding Municipal Code

The Redding Municipal Code, Section 18.40.100, Noise Standards specifies additional noise regulations pertaining to the allowable exterior noise levels based upon the time of day and land use category. The City's Noise Ordinance was established in order to control unnecessary, excessive and annoying noise while protecting the public health, safety and welfare. These noise standards are presented in *Table 4.13-3* below.

Table 4.13-3. Exterior Noise Standards

Receiving Land Use Category	Time Period	Noise Level (Hourly L_{eq} / dB)
Residential	10:00 p.m.- 7:00 a.m.	45
	7:00 a.m. to 10: 00 p.m.	55
Office/Commercial	10:00 p.m.- 7:00 a.m.	55
	7:00 a.m. to 10: 00 p.m.	65
Industrial	10:00 p.m.- 7:00 a.m.	N/A ¹
	7:00 a.m. to 10: 00 p.m.	N/A ¹

Source: City of Redding Municipal Code.

Notes: ¹Industrial Noise shall be measured at the property line of any nonresidential district.

Additionally, Section 18.40.100 prohibits the operation of any tools or equipment used in construction, alteration or demolition work in or within five hundred feet of a residential district such that the sound creates a noise disturbance across a property line during the following times:

- May 15th through September 15th: Between the weekday hours of 7:00 p.m. and 6:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.
- September 16th through May 14th: Between the weekday hours of 7:00 p.m. and 7:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.

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4.13.2 Noise (XIII.) Environmental Checklist and Discussion

Would the Project result in	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Project Construction

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., building construction, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

Table 4.13-4 indicates the anticipated noise levels of construction equipment. The average noise levels presented in Table 4.13-4 are based on the quantity, type, and acoustical use factor for each type of equipment that is anticipated to be used.

Table 4.13-4. Typical Construction Equipment Noise Levels

Type of Equipment	Maximum Noise (Lmax) at 50 Feet (dBA)	Maximum 8-Hour Noise (Leq) at 50 Feet (dBA)
Crane	80.6	72.6
Dozer	81.7	77.7
Excavator	80.7	76.7
Generator	80.6	77.6
Grader	85.0	81.0
Other Equipment (greater than 5 horsepower)	85.0	82.0
Paver	77.2	74.2
Roller	80.0	73.0
Tractor	84.0	80.0
Dump Truck	76.5	72.5
Concrete Pump Truck	81.4	74.4
Welder	74.0	70.0

Source: FHWA, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2008.

As previously stated, the nearest noise-sensitive land uses consist of residences approximately 30 feet west of the Project site. The noise levels from construction equipment at 50 feet range from 70.0 dBA to 81.0 dBA. The noise levels from construction operations decrease at a rate of approximately 6.0 dB per doubling of distance. Thus, the noise levels at the nearest residences, approximately 30 feet away, would range from 74.4 to 88.4 dBA.

The City of Redding restricts the time that construction can take place but does not promulgate numeric thresholds pertaining to the noise associated with construction. Specifically, Section 18.40.100 of the City's Municipal Code prohibits the operation of any tools or equipment used in construction, alteration or demolition work in or within five hundred feet of a residential district such that the sound creates a noise disturbance across a property line during the following times:

- May 15th through September 15th: Between the weekday hours of 7:00 p.m. and 6:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.
- September 16th through May 14th: Between the weekday hours of 7:00 p.m. and 7:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.

It is typical to regulate construction noise in this manner since construction noise is temporary, short-term, intermittent in nature, and would cease on completion of the construction. Furthermore, the City of Redding is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Additionally, construction would occur through the Project site and would not be concentrated at one point. Therefore, noise generated during construction activities, as long as conducted within the permitted hours, would not exceed City noise standards and would result in a less than significant impact.

Project Operations

Onsite Noise Sources

As previously stated, noise sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest noise-sensitive land uses are residences located 30 feet west of the Project site.

The main onsite operational noise associated with the Project would be events occurring on the Project site such as students gathering, recesses, physical education classes, sporting events and parking lot activity/circulation. The O&M building would produce some shop related noise, but these events would be less frequent and intermittent in nature. Per information supplied by the school district, the athletic field would be utilized in intervals of one hour or less, five times per day for physical education classes and two times per day for recess during school hours. The soccer field would be used daily for two hours of practice or games with an anticipated attendance of 25 individuals. The school gymnasium is anticipated to be used for school-related sports practice and events before and after school hours and the O&M building is the location where maintenance would be performed on school vehicles, including trucks, vans, trailers, and mowers. All noise producing school related activities will take place between 7:00

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a.m. and 10:00 p.m. with little to no noise producing activities taking place between 10:00 p.m. and 7:00 a.m. *Table 4.13- 5* summarizes operational onsite noise sources.

Table 4.13-5. Summary of Onsite Stationary Sources

Stationary Sources	Noise Level (dBA L_{eq}) at the Source	Estimated Time of Use
Parking Lot Activities	61.1 dBA	7:00 a.m. – 10:00 p.m.
Playground & Sports Field	66.0 dBA	7:00 a.m. – 10:00 p.m.
Operations and Maintenance Building	82.2 dBA	7:00 a.m. – 10:00 p.m.

Table 4.13-6 shows the predicted noise propagation associated with full operations of the Proposed Project, as predicted by SoundPLAN 3D noise model. This includes four residences adjacent to the Project site. Additionally, a noise contour graphic (*Figure 7*) has been prepared to depict the predicted noise levels in the vicinity on a worst-case scenario basis.

Table 4.13-6. Modeled Operational Exterior Noise Levels

Site Location	Location	Modeled Operational Noise Attributable to Project (L_{eq} dBA)	City Standard
1	Residence east of Project site	54.1 dBA	55 dBA
2	Residence east of Project site and adjacent to the proposed soccer field	54.8 dBA	55 dBA
3	Residence west of Project site and adjacent to proposed parking lot	47.7 dBA	55 dBA
4	Residence west of Project site and adjacent to proposed driveway	49.6 dBA	55 dBA

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Attachment A for noise modeling assumptions and results.

As shown in *Table 4.13-6*, Project noise levels would reach between 47.7 dBA and 54.8 dBA at the nearby residences, during Project operations between 7:00 a.m. - 10:00 p.m. These numbers fall below the City's single-family residence noise standards presented in the General Plan for non-transportation noise sources and the standards contained in the City's Municipal Code. Additionally, as previously stated, the interior-to-exterior noise reduction attributable to newer structures is generally 30 dBA or more. Thus, the modeled exterior Project noise of 54.8 dBA, for example, would equate to as low as 24.8 dBA within the interior of the residence. Furthermore, Project noise modeling represents a worst-case scenario in which all potential Project noise sources are being generated at full intensity at the same moment. It is very unlikely that noise levels on the Project site would reach that of those predicted in *Table 4.13-6*. The operational noise associated with the Project would be less than significant.

Project Operations – Offsite Traffic Noise

According to Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013a), doubling of traffic on a roadway is necessary in order to result in an increase of 3 dBA (a barely perceptible increase

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as previously described). The Project is proposing the expansion of the existing Mistletoe Elementary School with the construction of a gymnasium, O&M building, an athletic field, parking area and a new drive isle. The Project would not increase student capacity or instigate additional school functions; therefore, it would not result in an increase in traffic. The Project would not result in additional traffic on any of the vicinity roadways, and thus the Project would not be contributing to increased traffic noise. Traffic noise impacts associated with the Project would be less than significant.

Would the Project result in		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Project Construction

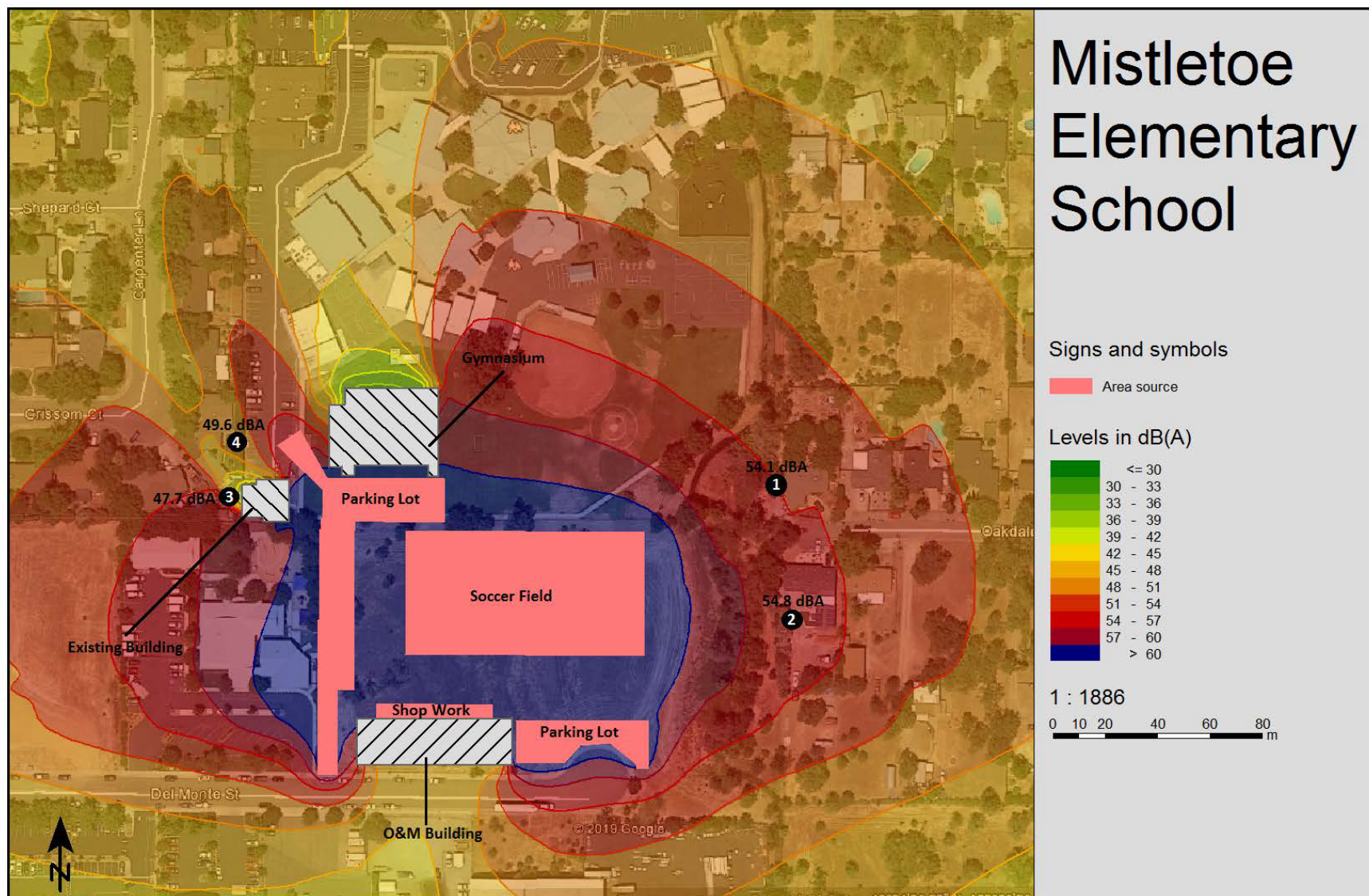
Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term, construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction as such equipment is not generally necessary for single story construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in *Table 4.13-7*.

Table 4.13-7. Vibration Source Amplitudes for Construction Equipment

Equipment Type	Peak Particle Velocity at 20 Feet (inches per second)
Large Bulldozer	0.124
Caisson Drilling	0.124
Loaded Trucks	0.106
Rock Breaker	0.115
Jackhammer	0.049
Small Bulldozer/Tractor	0.004

Source: FTA 2018; Caltrans 2013b



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 (2013b) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

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 of concern to the construction site are located approximately 20 feet away, adjacent to where the new drive isle and parking are proposed to be located. Based on the vibration levels presented in *Table 4.13-7*, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.124 inches per second peak particle velocity at 20 feet. Thus, structures located at 20 feet would not be negatively affected. Since predicted vibration levels at the nearest structures would not exceed recommended criteria and because the City does not regulate vibration associated with construction, no impact would occur.

Project Operations

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels. For this reason, there is no impact.

c) For a project located within the vicinity of a private airstrip or 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
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project site is located approximately three miles east of the Benton Airpark and is located outside of any airport land use plan. Since the site is outside any land use plan boundaries it is beyond the noise contours generated by airport operations. The Proposed Project will not expose people working or visiting the Project area to excess airport noise levels. Thus, no impact would occur with implementation of the Proposed Project (ECORP 2020b).

4.13.3 Mitigation Measures

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

4.14 Population and Housing

4.14.1 Environmental Setting

The Project site is located in a developed area of Redding. According to the California Department of Finance (DOF), which provides estimated population and housing unit demographics by year throughout the State, the City's population increased 2.3 percent between 2010 and 2018, from 89,861 to 91,958. DOF estimates that there were 39,679 total housing units in the City, and a 5.5 percent vacancy rate as of

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January 1, 2018. The average household size was estimated to be 2.39 persons per household during the same time period (DOF 2018).

4.14.2 Population and Housing (XIV) 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 unplanned 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project does not include the construction of any new homes and development of the Project will not increase school capacity. 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 people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

No persons or residences would be displaced or removed as a result of the Proposed Project, and the Project would have no impact in this area.

4.14.3 Mitigation Measures

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

4.15 Public Services

4.15.1 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.

Police Services

Police protection services at the project site are provided by the City of Redding Police Department. The police department is comprised of three divisions: the Administrative Division, Field Operations, and Crime Investigations. The police department is located at 777 Cypress Ave, Redding, CA 96001, approximately

2.4 road miles west of the Project site. Additionally, the Shasta County Sheriff Department is located within three miles of the Project site. This agency may provide additional support to the Police Department in case of an emergency.

Fire Services

Fire protection services for the Project site are provided by the City of Redding Fire Department. The fire station, like the police department, is located at 777 W Cypress Ave, Redding, CA 96001, approximately 2.4 road miles west of the Project site.

Schools

The area is served by the Enterprise Elementary School District, which includes nine schools. The Project itself is the expansion of Mistletoe Elementary School, which serves kindergarten through eighth grade. The Project will not increase the capacity of the school. Upon graduation, students may attend one of several high schools in the area. The nearest high school is Enterprise High School, located 1.7 miles west of the Project site.

Parks

Recreational opportunities for both youth and adults are varied and plentiful in the Project area. The Upper Sacramento River and Shasta Lake provide opportunities for water recreation, including boating, swimming, fishing, and other outdoor activities. The Mt. Shasta Ski Park, approximately 70 miles north of the Project site, includes opportunities for downhill and cross-country skiing as well as summer activities such as hiking and mountain biking. In addition, the City of Redding owns and maintains 41 parks, managed by the City's Parks and Recreation District. Features at these parks include playgrounds, walking and hiking paths, picnic and barbeque facilities, sports and recreational areas, skateboard park, and a roller/ice skating rink.

Other Public Facilities

Other public facilities found in the Project vicinity include the Redding Library, two U.S. Postal Service offices, and public lands owned and administered by the Bureau of Land Management and the U.S. Forest Service.

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4.15.2 Public Services (XV) 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other Public Facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Fire Services

The Project site is located approximately 2.4 miles from the City of Redding Fire Department. 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 Fire District facilities, equipment, and/or staff and is not anticipated to create an additional burden on existing fire facilities. The Project would be subject to the fire protection regulations defined in PRC 4290. Code 4290 provide requirements for road and street networks, driveways designs, road signage, water requirement standards and fuel modification/removal areas. Therefore, the Project would have a less than significant impact in this area.

Police Services

The Proposed Project is located approximately 2.4 miles City of Redding Police Department. 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 in the area, 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.

Schools

The purpose of the Proposed Project is the expansion of Mistletoe Elementary School facilities, parking, and pick-up and drop-off area for existing students. This development will not result in an increase of student population. Further, the Proposed Project does not result in an increase in housing or population in the area, and as such would not 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. 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

The Proposed Project does not result in an increase in housing or population in the City, which would result in library, post office, or other public facilities use. Therefore, the Project would have a less than significant impacts on other public facilities.

4.15.3 Mitigation Measures

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

4.16 Recreation

4.16.1 Environmental Setting

Recreational opportunities for both youth and adults are varied and plentiful in the Project area. The Upper Sacramento River and Shasta Lake provide opportunities for water recreation, including boating, swimming, fishing, and other outdoor activities. The Mt. Shasta Ski Park, approximately 70 miles north of the Project site, includes opportunities for downhill and cross-country skiing as well as summer activities such as hiking and mountain biking. In addition, the City of Redding owns and maintains 41 parks, managed by the City's Parks and Recreation District. Features at these parks include playgrounds, walking and hiking paths, picnic and barbeque facilities, sports and recreational areas, skateboard park, and a roller/ice skating rink. Hiking and backpacking opportunities are plentiful in the region.

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4.16.2 Recreation (XVI) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The need for additional parkland is primarily based on an increase in population to an area. Given that the Proposed Project would not increase 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project includes the construction of a gymnasium, an athletic field, an operations and maintenance (O&M) building, vehicle parking areas, a bus parking area, drive isle, and a pick-up and drop-off area as part of a school expansion project. The gymnasium and athletic field fall into the recreational facilities category. However, the proposed recreational facilities will not have an adverse physical effect on the environment. For one, the school expansion would increase recreational opportunities for existing students but would not result in an increase in school population. In addition, BMPs will be utilized during the grading and construction process to minimize runoff into the nearby stream and drainage systems. As explained under each environmental issue area in the document, the Project will have a less than significant impact as proposed and the Project will comply with all applicable laws and regulations. All potentially significant environmental impacts, including to cultural resources, tribal cultural resources, biological resources, and aesthetics will be mitigated to a less than significant level through the implementation of mitigation measures outlined in each corresponding section. As such, the Proposed Project will have a less than significant impact due to construction and expansion of recreational facilities.

4.16.3 Mitigation Measures

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

4.17 Transportation

4.17.1 Environmental Setting

Regional access to the Project site is provided by I-5, which link the site with other northern California communities to the north and south. Local access to the Project site is provided both to the north of the Project site via the I-5/Hwy 44 interchange and south of the Project site via the I-5/East Cypress Ave. interchange.

Important roadways in the vicinity of the Proposed Project include the following:

- I-5: I-5 is a north-south federal highway through California. It is a divided six-lane freeway adjacent to the Project site. According to Caltrans, I-5 at the I-5/Hwy 44 interchange had an Annual Average Daily Trip (AADT)⁵ count of 15,800 in 2018. This indicates that, on average, 15,800 vehicles exited I-5 at the I-5/Hwy 44 interchange on a daily basis. The AADT at the I-5/East Cypress Ave off ramp was 6,500 in 2018. The AADT counts are summarized in *Table 4.17-1* below (Caltrans 2018).

Table 4.17-1. I-5 Traffic Counts – Year 2018

Roadway Interchange	AADT
I-5/Hwy 44 off-ramp	15,800
I-5/Hwy 44 off-ramp	6,500

Source: Caltrans 2018

- Churn Creek Road: Churn Creek Road is a north-south two-lane road that provides arterial access to the Project site. Two collector road routes, Mistletoe Lane and Industrial Street to Del Monte Street will provide access to the completed Project. According to the City of Redding's Traffic Flow Map, the Churn Creek Road segment located between the two collector roads has an am two-way peak-hour volume of 1,602 at 11:00 am and a pm two-way peak-hour volume of 1,798 at 12:00 pm. The total daily traffic count is 20,392.

As shown in *Table 4.17-2* below, the segment of Mistletoe Lane between Canby Lane and the School currently experiences a traffic volume of 6,745 (3,120 eastbound and 3,625 westbound) vehicles per day and Industrial Street currently experiences a traffic volume of 6,596 vehicles per day (City of Redding 2019c).

Table 4.17-2. Residential Traffic Counts

Roadway Interchange	AADT
Mistletoe Lane	6,745
Industrial Street	6,596

Source: The City of Redding 2019c

The Transportation Element of the General Plan does not provide level of service (LOS) limits for City streets, but does provide general guidelines for maximum recommended trips per day on neighborhood

⁵ Annual average daily traffic is the total traffic volume for the year divided by 365 days.

streets. The element states that residential streets that accommodate more than 2,000 trips per day are viewed as unsafe, noisy, and disruptive to the quality of a residential environment (City of Redding 2000).

The 2018 Regional Transportation Plan and Sustainable Communities Strategy (RTP) for the Shasta Region utilizes several methods to evaluate traffic flow and congestion. LOS is one method used to evaluate system utilization. LOS A, B, and C are generally considered acceptable, whereas LOS D, E, and F indicate significant delays due to traffic. *Table 4.17-3* below summarizes characteristics of each LOS class on multiple name highways in the region, namely I-5. Volume to capacity ratio (V/C) is another method for evaluating system utilization. A V/C ratio of 0.75 or greater is considered congested.

The impact of system performance on mobility is measured by vehicle hours of delay (VHD) and AM/PM peak travel period. VHD is the extra time drivers spend on the road due to traffic congestion as compared to the time it would take to reach the given destination in the absence of congestion. AM/PM peak travel period falls during “rush hour”. The RTP aims to improve average vehicle miles per hour by 4.5% for the PM Peak period, 3% for the AM Peak Period and 3.6% for the Daily average, by 2035 (Shasta Regional Transportation Agency 2018b).

Table 4.17-3. Multi-Lane Highway LOS Descriptions

Classification	Level of Service Threshold		
	LOS	Operating Speed	Technical Description
Multi-Lane Highways	A	60	No delays: highest level of service. Traffic flows freely with little or no restrictions in maneuverability.
	B	60	No delays: traffic flows freely, but drivers have slightly less freedom to maneuver.
	C	60	Minimal Delays: density becomes noticeable with ability to maneuver limited by other vehicles
	D	57	Minimal delays: speed and ability to maneuver is severely restricted by increasing density of vehicles
	E	55	Minimal delays: unstable traffic flow. Speeds vary greatly and are unpredictable.
	F	<55	Significant delays: traffic flow is unstable, with brief periods of movement followed by forced stops.

Source: Shasta Regional Transportation Agency 2018b

The RTP also has set goals and objectives related to transportation. Goal two of the RTP is to “Strategically increase capacity on interregional and regionally significant roadways to keep people and freight moving effectively and efficiently” and goal four is to “Create people-centered communities that support public safety, health, and well-being”.

Transit Service

Public transportation in the Shasta region is provided by several entities. Interregional transportation is available by Amtrak, Greyhound, Trinity Transit, and Stage Sage. The Greyhound serves the Downtown Redding Transit Center, also known as the Redding Bus Station. Trinity Transit offers transportation on weekdays between the Downtown Redding Transit Center and Weaverville and Sage Stage provides intercity transit service between Alturas and the Downtown Redding Transit Center. Three tribal public

transportation services provide general and health service transportation to tribe members. These services include Pit River Health Services, Redding Rancheria, and Susanville Rancheria. Fixed-route public transportation is provided by the Redding Area Bus Authority (RABA), which offers ten local routes, a commuter route from the city of Anderson to downtown Redding, and three express routes (SRTA 2018b). The nearest RABA bus stop to the Project site is located on Route Four at the intersection of Churn Creek Road and Mistletoe Lane (City of Redding 2019d). Two transit service lines provide demand response and paratransit services. RABA Demand Response provides services to those with disabilities and Dignity Health Connected Living serves people 60 and over, people 18 years of age or older with disabilities who are outside of the regular RABA service area and mobility-impaired people (SRTA 2018b)

Mistletoe Elementary School provides bus transportation for students living outside of a certain distance range from the school. Bus service is offered to kindergarten through third grade if the student lives more than 0.75 mile from school, to fourth through sixth grade if the student lives more than one mile from school, and seventh through eighth grade if the student lives more than 1.5 miles from the school. The school does not disclose bus routes to the public to protect the safety of their students (Mistletoe School 2019).

Pedestrian and Bicycle Facilities

The City of Redding is actively working to improve and expand pedestrian and bicycling opportunities in the City. The City is recognized as "bronze" level by the League of American Bicyclists as a bicycle friendly community. The City currently has a total of 169.6 miles of bikeways and trails (SRTA 2018a). The Go Shasta Active Regional Transportation Plan recommends pedestrian and bike path improvements and expansion to increase safety and connectivity of the routes (Shasta Regional Transportation Agency 2018a).

4.17.2 Transportation (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 a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The City of Redding General Plan Transportation Element (2000) and the 2018 Shasta RTP (2018b) provide guidance in the City and region for existing and future transportation facilities. The Project includes the construction of increased roadway access to Mistletoe Elementary School for improved pick-up and drop-off of students. The purpose of this improvement is to improve circulation and reduce the congestion that currently exists on Mistletoe Lane during school pick-up and drop-off times. Parents of students will arrive at the school via Del Monte Street and depart via Mistletoe Lane rather than traveling to and from the school via Mistletoe Lane. Furthermore, the Project would not increase the school capacity. As such, the Proposed Project would not conflict with any program, plan, ordinance, or policy addressing the

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circulation system in any of these documents. 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)	Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Guidelines Section 15064.3, subdivision (b) provides criteria for analyzing transportation impacts based on a vehicle miles traveled (VMT) methodology instead of the now superseded (as of January 1, 2019) LOS methodology. Pertinent to the Proposed Project are those criteria identified in § 15064.3(b)(1) Land Use Projects. According to this section:

“Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor⁶ should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.”

However, Section 15064.3(b)(3) allows an agency to determine a project’s transportation impact on a qualitative basis if a VMT methodology is unavailable, as is the case with the Proposed Project.

Section 15064.3(b)(3) is as follows:

“Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project’s vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.”

Additionally, Section 15064.3(c) allows an agency to use the VMT methodology immediately or defer until July 1, 2020 when the VMT methodology is required of all agencies in the state. Section 15064.3(c) is as follows:

“The provisions of this section shall apply prospectively as described in section 15007. A lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide.”

Because the City does not have an adopted VMT methodology at this time, for the Proposed Project, the existing traffic counts are used to determine the Project’s impact to surrounding roadways.

⁶ “High-quality transit corridor” means an existing corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. For the purposes of this Appendix, an “existing stop along a high-quality transit corridor” may include a planned and funded stop that is included in an adopted regional transportation improvement program.

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Access to the Proposed Project site will generally be via Mistletoe lane and Industrial Street. Mistletoe Lane currently experiences a traffic volume of 6,745 vehicles per day and Industrial Street currently experiences a traffic volume of 6,596 vehicles per day (City of Redding 2019c). The traffic on both roadways is currently in exceedance of the 2,000 vehicle trips or less recommended for residential streets in the City (City of Redding 2000). However, the Proposed Project will not increase total vehicle trips on streets in the Project area. Instead, the Project will re-distribute the vehicle trips associated with school Pick-up and drop-off. Following completion of the Project, eastbound vehicle trips are expected to be reduced on Mistletoe Lane and more trips will be distributed to the Industrial Street to Del Monte Street route located to the south of the school. Del Monte is not a through street, and as such, traffic on this road will impact less commute traffic than it would on Mistletoe Lane. The VHD for commuters using Mistletoe Lane will be reduced; helping the region to meet the RTP goals. 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) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Project would construct a driveway from Del Monte Street to Mistletoe Lane in order to reduce traffic congestion during student pick-up and drop-off times. These driveway/roadway interfaces would be required to be located and constructed according to City roadway standards. The driveway will not include hazardous geometric design features or incompatible uses. 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
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Project design provides a new access point to Mistletoe Elementary School that would improve emergency access. Therefore, the Project would have a less than significant impact regarding emergency access.

4.17.3 Mitigation Measures

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

4.18 Tribal Cultural Resources

4.18.1 Environmental Setting

The following information was provided by the ECORP Consulting (2020c) as a part of the Cultural Resources Inventory Report for the Proposed Project.

The Project area is located within lands traditionally claimed by Native Americans. Ethnographically, the Project Area is located in a region known to have been occupied by the Wintu Indians. Wintu territory encompassed portions of present-day Trinity, Tehama, Shasta, and Siskiyou counties. The territory is bounded in the southeast by the South Fork Trinity River, in the southwest by the Beegum and Little Cow Creeks, and in the north by Mount Shasta. There are nine distinct Wintu Indian groups. The Wintu language is in the Penutian Language family and is part of the Wintuan language group that includes the Wintu, the Nomlaki, and the Patwin Indians. The Wintu hunted deer, brown bears, quail, rabbits, rats, squirrels, and birds. They mostly fished Chinook salmon and steelhead, but also collected suckers, mussels, and clams. The family units would collect acorns, buckeye, manzanita berries, Indian potatoes, *Calochortus* sp. (pussy's ears), snake's head, clover, miner's lettuce, skunkbush, hazel nuts, pine nuts, and wild grapes. The Wintu would also cultivate many plants for medicine, such as pennyroyal, Oregon grape, soaproot, milkweed, and salt.

Village structures included bark houses, steam houses, menstrual huts, and the earth lodge. The bark houses were the family unit's main shelter. Bark houses were conical and made of lashed together poles covered in bark or branches of evergreen. The steam houses and menstrual huts were domed brush shelters. The semi-subterranean earth lodges were the largest structures, ranging from 15-20 feet in diameter with a center pole. The earth lodge was used by men for gatherings, sweating, shaman initiation, and for the single men to sleep during the winter months.

The family unit was the basic organization unit for the Wintu Indians, and the village served as the focus of social, political, and economic organization. The chieftainships were ostensibly hereditary, passing from father to eldest son. The Wintu were generally known to be a peaceful people, but they did engage in warfare. Wintu wars were typically the result of feuds between individuals or neighboring groups; these conflicts were generally limited in their scope and severity by strong bonds of kinship. The weapons the Wintu used were bows and arrows, clubs, thrusting spears, daggers, and slings. Wintu funerary practices required an individual to be buried on the same day that they died, or as soon as their relatives arrived. Individuals were buried in a crouched position, with their elbows placed between their knees and their hands placed on their cheeks. They were then bundled in in a deer or bearskin and buried. Funerary objects included personal effects of the deceased, the deceased's dog, and a basket of acorn meal water.

The Wintu population prior to contact with Europeans is estimated to have been over 14,000. A malaria epidemic swept through the Central and Upper Sacramento Valley in 1830-1833, killing off 75 percent of the indigenous population and severely hampering the ability of the Wintu to resist incursions into their territory by settlers. As settlers moved into the region, the Wintu faced the destruction of vital resources by livestock, the pollution of fishing areas by gold miners, and violent conflict with settlers. These factors further diminished the Wintu population, and by 1910 the Wintu population is estimated to have been 395. In the twentieth century, dams were constructed, dispersing the last large concentrations of Wintu as

much of their habitable land was inundated. The Wintu population in 1971 is estimated to have reached 900, and today they live throughout the U.S.

4.18.2 Tribal Consultation

As a part of the Cultural Survey, ECORP contacted the California Native American Heritage Commission (NAHC) on December 16, 2019 to request a search of the Sacred Lands File for the APE. This search determined whether or not Sacred Lands have been recorded by California Native American tribes within the APE. A search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the project area.

ECORP mailed a letter to the Shasta Historical Society on December 16, 2019 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area. No responses to the letters sent to the Shasta Historical Society were received as of the preparation of this document (ECORP 2020c).

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. EESD has not received any consultation requests from Native American tribes.

4.18.3 Tribal Cultural Resources (XVIII) 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, 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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource 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.

4.18.4 Mitigation Measures

Implement mitigation measure **CUL-1**.

4.19 Utilities and Service Systems

4.19.1 Environmental Setting

The City of Redding Public Works Department is responsible for water, wastewater, and storm drainage for the City. The City contracts with Waste Management to provide solid waste collection services in the City.

Water Service

The Project site is served by the City of Redding' municipal water supply. The City's water supply is sourced from both surface water and groundwater. The Sacramento River and Whiskeytown Lake provide the City with 74 percent of the water they use. This translates into approximately 7.25 billion gallons per year. The remaining 26 percent, or 2.51 billion gallons per year, is groundwater which comes from 16 wells drilled into the Redding- Enterprise Groundwater Basin.

Two water treatment plants treat the surface municipal water supply to the City. The Foothill Water Treatment Plant currently has the capacity to treat 24 million gallon per day (mgd) from the Sacramento River and has expansion capabilities up to 42 mgd. Two water lines convey the river water to the treatment plant. In the late 1970's, the plant switched to treatment via a dual media filtration facility and a 6 mgd storage reservoir. The capacity of the City's primary river pumping facility (Pump House #1) is currently 32,000 gallons per minute. The Foothill Water Treatment Plant is considered a conventional treatment facility. Conventional treatment includes such necessary steps as pre-treatment, coagulation

and flocculation, sedimentation, filtration and chlorination. This treatment process effectively removes impurities from the water and ensure potable water for the citizens of Redding.

The Buckeye Water Treatment Plant treats surface water from Whiskeytown Lake at a rate of 14 mgd. A 36-inch diameter water line conveys water from the 17-foot diameter Spring Creek conduit that comes from the lake into the Buckeye Plant. The system is gravity-fed, and as such there is no need for a pumping facility. The plant includes a chemical feed system, three-stage flocculation, four-sedimentation basins, eight gravity filtration units, and a washwater recovery system (City of Redding, 2019b).

The City's groundwater supply is obtained from 16 wells in the Redding-Enterprise Subbasin.

Whiskeytown Lake is not located within a subbasin. The subbasin is 95,000 square miles and is considered a medium priority subbasin. The subbasin is managed by the Enterprise Anderson Groundwater Sustainability Agency (GSA). The GSA is in the process of forming a Groundwater Sustainability Plan (GSP), as is required to comply with the Sustainable Groundwater Management Act (SGMA). The GSP has a 2022 completion deadline (Shasta County 2014).

The DWR Groundwater Information Center Interactive Map Application (GICIMA) provides groundwater levels through the state. Among other things, this interactive on-line tool can illustrate the change in groundwater depth of a certain time period for a particular location, such as the City of Redding.

According to the GICIMA information, the distance from groundwater to ground surface in the Project area decreased 7.5 feet between October 2017 and October 2018. However, the depth to groundwater varies by location and rainfall. For example, in the same time period, a well to the east of the Project site decreased in depth by only 0.1 feet and a well to the south increased in depth by 2.1 feet (DWR 2019a).

Wastewater

All sewage is collected and processed by two wastewater facilities in the City of Redding: Clear Creek Wastewater Treatment Plant and Stillwater Wastewater Treatment Plant.

The Clear Creek Wastewater Treatment Plant has an average dry weather design flow of 9.4 million gallons/day (MGD) and a peak wet weather flow of 40+ MGD. In 2014, the facility underwent significant upgrades, including treatment system improvements and wet-weather flow enhancements. Current projects include construction of a new solids handling building to further enhance solids dewatering and disposal. The Clear Creek Wastewater Treatment Plant is operated and maintained in compliance with National Pollutant Discharge Elimination System (NPDES) permit limits and best management practices.

The Stillwater Wastewater Treatment Plant has an average dry weather design flow of 4 million gallons/day (MGD) and a peak wet weather flow of 14.4 MGD. The plant strives to meet stringent water quality criteria and protect the health of the public and environment. The Stillwater Wastewater Treatment Plant is in compliance with National Pollutant Discharge Elimination System (NPDES) permit limits and best management practices (Shasta County 2014).

Both facilities are operating under several Waste Discharge Requirement Orders adopted by the Central Valley Regional Water Quality Control Board. The orders require compliance with pertinent environmental laws and water quality standards (California Waterboards 2019).

Storm Drainage

The City of Redding stormwater drainage system consists primarily of surface water conveyance utilizing curbs and gutters which lead to underground conveyance pipes that eventually discharge into a catch basin or a detention basin (City of Redding 2019b).

Stormwater discharges from the City are regulated by the California Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Phase II MS4 Permit) (Order 2013-0001-DWQ) and may be affected by Total Maximum Daily Loads (TMDLs) for watersheds that encompass the City. The Phase II MS4 Permit prohibits discharge of stormwater from the City's stormwater system into water of the U.S. Further, the permit requires the City to implement controls to reduce the discharge of pollutants from their MS4s to the Maximum Extent Practicable (MEP).

Through the Storm Water Management Program, the City rehabilitated five ponds previously decommissioned from use as sewage treatment ponds. The five ponds provide a net benefit of 440 acre-ft./yr. of groundwater recharge and 1,300 cu f.t/yr. of controlled runoff volume (Geosyntec 2019).

Solid Waste

The City of Redding's Solid Waste Utility manages solid waste in the City. The City of Redding's Transfer Station and Material Recovery Facility (MRF) is where solid waste from the City is processed initially. The facility currently processes about 500 tons per day of solid waste and has a capacity of 750 tons per day. After initial processing, all solid waste is transferred to the West Central Landfill for disposal.

The Solid Waste Utility operates the West Central Landfill, which is owned by Shasta County. The West Central Landfill accommodates all the solid waste disposed in Shasta County (City of Redding Public Works 2019). The California Department of Resources Recycling and Recovery (CalRecycle) provides solid waste disposal and recycling information for jurisdictions in the state, including the West Central Landfill. The landfill performs disposal of garbage, recycling, and green waste.

As of December 1, 2013, the West Central Landfill had a remaining capacity of 6,589,044 cubic yards of its total capacity of 13,115,844 cubic yards (CalRecycle 2019b, c). In 2018, 623,720 tons of solid waste was processed from Redding (CalRecycle 2019a).

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4.19.2 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Water

Development of the Project would increase the demand for water in the city. The Proposed Project's estimated annual water demand (provided by EESD) is approximately 8,416 gallons per day (gpd) during the peak month of July and 1.07 million gallons per year. The City has an annual water supply of 9.76 billion gallons total, which equates to 26.73 million gallons per day. As such, the Proposed Project represents an increase of 0.03 percent of the City's maximum potential pumping capacity.⁷ The existing portion of Mistletoe Elementary School is connected to the City's water supply and onsite water infrastructure would be installed by the Proposed Project as necessary. Therefore, the Proposed Project would have a less than significant impact to the City's water treatment or conveyance facilities.

Wastewater

The Proposed Project would not result in a substantial increase in wastewater production from the existing levels currently produced by Mistletoe Elementary school because the Project will not increase school capacity. The gymnasium will offer additional restrooms which may be utilized by students, faculty, and visitors, but the overall sewage production will not increase. According to EESD, the O&M building, however, may produce up to 300 gpd of wastewater.

The Clear Creek Wastewater Treatment Plant has an average dry weather design flow of 9.4 million gallons/day (MGD) and a peak wet weather flow of 40+ MGD and the Stillwater Wastewater Treatment Plant has an average dry weather design flow of 4 million gallons/day (MGD) and a peak wet weather flow of 14.4 MGD. As such, the 300 gpd of additional wastewater produced by the Proposed Project would represent 0.0075 percent of the average dry weather design flow from the smaller of the two treatment plants, Stillwater Wastewater Treatment Plant.⁸ This increased demand would represent a 0.0075 percent increase over the existing demand for the smaller of the two treatment plants, during the low-flow season. Since there is adequate capacity remaining at the Wastewater Facility to serve wastewater production from the Project site, the Proposed Project would not result in the need for new or expanded facilities. This impact would be considered less than significant.

⁷ 8,416 gpd / 26,739,726 gpd x 100 = 0.03 percent

⁸ Wastewater demand percent of daily capacity: 300 gpd/ 4,000,000 gpd= 0.0075 percent

Storm Drainage

The nearest existing stormwater drainage facilities are located along Del Monte Road, directly to the south of the Project site. The existing footprint of Mistletoe Elementary School also contains stormwater drainage. The Proposed Project includes an increase in impervious surface area, including parking lots, roadways, and a gymnasium, which will be required to include the construction of curbs, gutters, and drainages to meet stormwater and runoff control requirements promulgated by the City, National Pollutant Discharge Elimination System (NPDES) Stormwater Program of the EPA, and the Central Valley Regional Water Quality Control Board (RWQCB). As such, the Proposed Project would not result in the need for new or expanded stormwater facilities. This impact would be considered less than significant.

Electric Power

Redding Electric Utility (REU) provides electrical services to the Project area through state-regulated public utility contracts. REU's ability to provide its services concurrently for each project is evaluated during the development review process. The utility company is bound by contract to update its systems to meet any additional demand. Existing electrical lines are located along Mistletoe Lane to the south of the existing portion of the school and cross a portion of Del Monte Street, adjacent to the Project Site. No new electric facilities will be required to provide electricity to the Project. Therefore, the Project would have a less than significant impact in this area.

Natural Gas

Existing PG&E natural gas pipelines are located in close Project site in order to provide natural gas to the existing Mistletoe Elementary School. All on-site connections would be required to be constructed by the Project Proponent as necessary. No new PG&E natural gas facilities would be required to be constructed to serve the site. As such, the Project would have a less than significant impact to natural gas facilities.

Telecommunications

Existing phone lines are located adjacent to the Project site. Telecommunication will be through existing company and personal cell phones. No new telecommunication facilities will be required to serve the Project.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Refer to Item a) above. The Project will have a less than significant impact in this area.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Refer to Item a) above. The Project will 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
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Project would not generate a significant amount of additional solid waste during operation because the Proposed Project will not increase school capacity. However, the O&M building will result in some additional solid waste production. According to CalRecycle (2019c), the estimated solid waste generation rates for employees is 15.4 pounds per employee per day. Based on this information and an anticipated maximum of 16 employees upon operation of the Project, the Project would produce approximately 246.4 pounds per day, or 44.968 tons per year.⁹

The construction of the Project would occur in several stages of varying lengths, each stage requiring a different number of workers. Based on the construction information provided, construction will be occurring for nine to ten months between the spring 2020 and summer of 2021. The number of workers on site at a given time will vary between five and ten. Over the course of the construction period, there will be five workers for ten days, six workers for 12 days, and ten workers for 264 days. According to CalRecycle (2019c), the estimated solid waste generation rates for employees is 15.4 pounds per employee per day. As such, the total estimated solid waste during the period would amount to 21.267 tons per year.¹⁰

As explained above, the City of Redding's Transfer Station and Material Recovery Facility (MRF) processes 750 tons of solid waste per day, or 273,750 tons per year. As such, the construction phase from spring 2020 to summer 2021 will represent 0.0077 percent of the City's annual waste production, and operation will represent 0.0164 percent of the City's annual waste production for each year of the Project's operation. After initial processing, the solid waste is transported to the West Central Landfill, which had a

⁹ 77 lbs/day X 365 days / 2000 lbs/ ton = 44.968 tons per year

¹⁰ (77 lbs/day X 10 days / 2000 lbs/ ton = 0.385 tons per year) + (92.4 lbs/day X 12 days / 2000 lbs/ ton = 0.554 tons per year) + (154 lbs/day X 264 days / 2000 lbs/ ton = 20.328 tons per year) = 21.267 tons per year

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remaining capacity of 6,589,044 cubic yards as of December 1, 2013 (CalRecycle 2019b, c). As such, 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
e)	Comply with federal, state, and local statutes and management and reduction regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

4.19.3 Mitigation Measures

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

4.20 Wildfire

4.20.1 Environmental Setting

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 Project area is relatively flat and dominated by residential and commercial development. The area is not designated as having high wildland fire potential (CAL FIRE 2008).

4.20.2 Wildfire (XX) Environmental Checklist and Discussion

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project site is not in an area designated by California Department of Forestry and Fire Protection (2008) as a Fire Hazard Severity Zone. Furthermore, no Very High Fire Hazard Severity Zones are located nearby. Also, the Project site is not located in a state responsibility area. The Project would have no impact in this area.

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If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project site is not in an area designated by California Department of Forestry and Fire Protection (2008) as a Fire Hazard Severity Zone. Furthermore, no Very High Fire Hazard Severity Zones are located nearby. Also, the Project site is not located in a state responsibility area. The Project would have no impact in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project site is not in an area designated by California Department of Forestry and Fire Protection (2008) as a Fire Hazard Severity Zone. Furthermore, no Very High Fire Hazard Severity Zones are located nearby. Also, the Project site is not located in a state responsibility area. The Project would have no impact in this area.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Project site is not in an area designated by California Department of Forestry and Fire Protection (2008) as a Fire Hazard Severity Zone. Furthermore, no Very High Fire Hazard Severity Zones are located nearby. Also, the Project site is not located in a state responsibility area. The Project would have no impact in this area.

4.20.3 Mitigation Measures

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

4.21 Mandatory Findings of Significance

4.21.1 Mandatory Findings of Significance (XXI) 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 substantially 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, substantially 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As discussed in *Section 4.5 Cultural Resources* and *Section 4.18 Tribal Cultural Resources*, the Proposed Project would have potential impact cultural resources and tribal cultural resources. However, with implementation of mitigation measure **CUL-1**, this potential impact would be reduced to a level that is considered less than significant. In addition, as described in *Section 4.4 Biological Resources*, the Proposed Project has the potential to impact special-status plant species, special-status invertebrates, special-status amphibians, special-status and Migratory Bird Treaty Act protected birds, and special-status mammals. In addition, the Project site possesses aquatic features, and as such the Project may impact the intermittent drainage, riparian vegetation, and/or aquatic resources/potential waters of the U.S. However, with the implementation of mitigation measures **BIO-1** through **BIO-5**, these potential impacts to biological resources will be reduced to a less than significant level.

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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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 **AES-1**, **BIO-1** through **BIO-5**, **CUL-1**, **GEO-1**, and **HAZ-1** as identified in the relevant subsections of this IS/MND, these potential impacts would be reduced to a level that is considered less than significant. See section a) and section c) for a summary of Project-specific mitigation measures to be implemented for the Project.

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Direct and indirect impacts to human beings would be less than significant with the implementation of mitigation measures listed in this IS/MND. Mitigation measures included to mitigate potentially significant impacts include the mitigation measures explained for potential biological and cultural resource impacts explained in section a) above, as well as mitigation measures for potential impacts related to aesthetics, geology and soils, and hazardous materials. Mitigation measure **AES-1** is included to prevent aesthetic impacts due to reflective metal surfaces or otherwise reflective surfaces which may be included in the Project design. Mitigation measure **GEO-1** is included to prevent potential significant impacts to paleontological or geologically sensitive resources which may be present on the Project site. Mitigation measure **HAZ-1** is included to prevent potentially significant hazardous material impacts by requiring compliance with the Preliminary Site Assessment (PEA) assessment and mitigation requirements.

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SECTION 5.0 LIST OF PREPARERS

Enterprise Elementary School District

Lead Agency

Brian Winstead, Superintendent

ECORP Consulting, Inc.

CEQA Documentation/Air Quality/Biological Resources/Cultural Resources/Greenhouse Gas/Noise

Scott Friend, AICP, CEQA Project Director

Mike Martin, CEQA Project Manager

Seth Myers, Air Quality/GHG & Noise Director

Claire Lester, Assistant Environmental Planner

Rosemary Worden, Assistant Environmental Planner

Laura Hesse, Technical Editor

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Appendices

Appendix A

Air Quality Emissions Modeling

Mistletoe Elementary School Project - Shasta County, Summer

Mistletoe Elementary School Project

Shasta County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.10	1000sqft	1.00	1,100.00	0
Unrefrigerated Warehouse-No Rail	1.23	1000sqft	1.00	1,225.00	0
Other Asphalt Surfaces	8.50	1000sqft	1.00	8,500.00	0
Parking Lot	8.50	1000sqft	1.00	8,500.00	0
City Park	0.10	Acre	1.00	4,356.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2022
Utility Company	PacifiCorp				
CO2 Intensity (lb/MW hr)	527.9	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Mistletoe Elementary School Project - Shasta County, Summer

Project Characteristics - PacfiCorp is used as a conservative substitute for Redding Electric Utility. GHG Intensity Factors per EPA's Power Profiler

Land Use - Warehouse is used as an equivalent to the student gymnasium. City park is used as an equivalent to the athletic field. General light industry is used as an equivalent to a the O&M building. The project site totals to 5 acres.

Construction Phase - Construction phase lengths adjusted to match information provided by the Applicant.

Off-road Equipment - Equipment specifications adjusted to match information provided by applicant.

Off-road Equipment - Equipment type and hours of use adjusted to match specifications provided by the applicant.

Off-road Equipment - Construction equipment adjusted to match information provided by applicant.

Grading - The project area is five acres

Energy Use -

Construction Off-road Equipment Mitigation - SMM mitigation measures and California Code or Regulation minimum tiers are required.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	18.00	2.00
tblConstructionPhase	NumDays	5.00	1.00
tblGrading	AcresOfGrading	7.50	5.00
tblGrading	AcresOfGrading	0.50	5.00
tblLandUse	LandUseSquareFeet	1,230.00	1,225.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.20	1.00

Mistletoe Elementary School Project - Shasta County, Summer

tblLandUse	LotAcreage	0.20	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	187.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	1656.39	527.9
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004

2.0 Emissions Summary

Mistletoe Elementary School Project - Shasta County, Summer

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					
2020	0.8940	10.1163	9.2277	0.0143	5.3436	0.5203	5.6792	0.5834	0.4788	0.8922	0.0000	1,397.865 6	1,397.865 6	0.3960	0.0000	1,407.766 3
2021	13.3707	8.0703	9.1026	0.0143	0.1093	0.4376	0.5468	0.0296	0.4026	0.4322	0.0000	1,394.170 2	1,394.170 2	0.3954	0.0000	1,404.056 3
Maximum	13.3707	10.1163	9.2277	0.0143	5.3436	0.5203	5.6792	0.5834	0.4788	0.8922	0.0000	1,397.865 6	1,397.865 6	0.3960	0.0000	1,407.766 3

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					
2020	0.8940	10.1163	9.2277	0.0143	2.4129	0.5203	2.7486	0.2650	0.4788	0.5738	0.0000	1,397.865 6	1,397.865 6	0.3960	0.0000	1,407.766 3
2021	13.3707	8.0703	9.1026	0.0143	0.0730	0.4376	0.5105	0.0207	0.4026	0.4233	0.0000	1,394.170 2	1,394.170 2	0.3954	0.0000	1,404.056 3
Maximum	13.3707	10.1163	9.2277	0.0143	2.4129	0.5203	2.7486	0.2650	0.4788	0.5738	0.0000	1,397.865 6	1,397.865 6	0.3960	0.0000	1,407.766 3

	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
Percent Reduction	0.00	0.00	0.00	0.00	54.41	0.00	47.65	53.39	0.00	24.71	0.00	0.00	0.00	0.00	0.00	0.00

Mistletoe Elementary School Project - Shasta County, Summer

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959
Total	0.1093	0.2421	0.3142	1.2300e-003	0.0714	2.0600e-003	0.0734	0.0191	2.0000e-003	0.0211		132.7580	132.7580	7.5100e-003	2.7000e-004	133.0251

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959
Total	0.1093	0.2421	0.3142	1.2300e-003	0.0714	2.0600e-003	0.0734	0.0191	2.0000e-003	0.0211		132.7580	132.7580	7.5100e-003	2.7000e-004	133.0251

Mistletoe Elementary School Project - Shasta County, Summer

	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
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	3/14/2020	3/16/2020	5	1	
2	Grading	Grading	3/17/2020	3/30/2020	5	10	
3	Building Construction	Building Construction	3/31/2020	2/15/2021	5	230	
4	Paving	Paving	2/16/2021	2/17/2021	5	2	
5	Architectural Coating	Architectural Coating	2/18/2021	2/24/2021	5	5	

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 5

Acres of Paving: 2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,488; Non-Residential Outdoor: 1,163; Striped Parking Area: 1,020 (Architectural Coating – sqft)

OffRoad Equipment

Mistletoe Elementary School Project - Shasta County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	4.00	187	0.41
Grading	Scrapers	1	4.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Graders	3	0.20	187	0.41
Building Construction	Paving Equipment	2	0.10	132	0.36
Building Construction	Tractors/Loaders/Backhoes	6	5.00	97	0.37
Paving	Dumpers/Tenders	1	8.00	16	0.38
Paving	Graders	1	4.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
Architectural Coating	Air Compressors	1	6.00	78	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	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Mistletoe Elementary School Project - Shasta County, Summer

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 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					
Fugitive Dust					5.3025	0.0000	5.3025	0.5726	0.0000	0.5726			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	5.3025	0.3353	5.6378	0.5726	0.3085	0.8811		943.4872	943.4872	0.3051		951.1158

Mistletoe Elementary School Project - Shasta County, Summer

3.2 Site Preparation - 2020**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	0.0251	0.0156	0.1893	4.5000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		44.5156	44.5156	1.5800e-003		44.5551
Total	0.0251	0.0156	0.1893	4.5000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		44.5156	44.5156	1.5800e-003		44.5551

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					2.3861	0.0000	2.3861	0.2577	0.0000	0.2577			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	2.3861	0.3353	2.7215	0.2577	0.3085	0.5662	0.0000	943.4872	943.4872	0.3051		951.1158

Mistletoe Elementary School Project - Shasta County, Summer

3.2 Site Preparation - 2020**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	0.0251	0.0156	0.1893	4.5000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		44.5156	44.5156	1.5800e-003		44.5551
Total	0.0251	0.0156	0.1893	4.5000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		44.5156	44.5156	1.5800e-003		44.5551

3.3 Grading - 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					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651		1,205.251 2	1,205.251 2	0.3898		1,214.996 2
Total	0.8391	10.0914	5.7764	0.0124	0.5303	0.3969	0.9271	0.0573	0.3651	0.4224		1,205.251 2	1,205.251 2	0.3898		1,214.996 2

Mistletoe Elementary School Project - Shasta County, Summer

3.3 Grading - 2020**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	0.0402	0.0249	0.3030	7.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		71.2250	71.2250	2.5200e-003		71.2881
Total	0.0402	0.0249	0.3030	7.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		71.2250	71.2250	2.5200e-003		71.2881

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					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962
Total	0.8391	10.0914	5.7764	0.0124	0.2386	0.3969	0.6355	0.0258	0.3651	0.3909	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962

Mistletoe Elementary School Project - Shasta County, Summer

3.3 Grading - 2020**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	0.0402	0.0249	0.3030	7.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		71.2250	71.2250	2.5200e-003		71.2881
Total	0.0402	0.0249	0.3030	7.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		71.2250	71.2250	2.5200e-003		71.2881

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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380

Mistletoe Elementary School Project - Shasta County, Summer

3.4 Building Construction - 2020**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	0.0172	0.4823	0.1007	1.1800e-003	0.0271	2.6900e-003	0.0298	7.8100e-003	2.5700e-003	0.0104		122.8853	122.8853	9.3200e-003		123.1182
Worker	0.0503	0.0311	0.3787	8.9000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.4000e-004	0.0223		89.0312	89.0312	3.1500e-003		89.1101
Total	0.0675	0.5134	0.4794	2.0700e-003	0.1093	3.2700e-003	0.1125	0.0296	3.1100e-003	0.0327		211.9166	211.9166	0.0125		212.2283

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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380

Mistletoe Elementary School Project - Shasta County, Summer

3.4 Building Construction - 2020**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	0.0172	0.4823	0.1007	1.1800e-003	0.0194	2.6900e-003	0.0221	5.9100e-003	2.5700e-003	8.4800e-003		122.8853	122.8853	9.3200e-003		123.1182
Worker	0.0503	0.0311	0.3787	8.9000e-004	0.0536	5.8000e-004	0.0542	0.0148	5.4000e-004	0.0153		89.0312	89.0312	3.1500e-003		89.1101
Total	0.0675	0.5134	0.4794	2.0700e-003	0.0730	3.2700e-003	0.0762	0.0207	3.1100e-003	0.0238		211.9166	211.9166	0.0125		212.2283

3.4 Building Construction - 2021**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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553

Mistletoe Elementary School Project - Shasta County, Summer

3.4 Building Construction - 2021**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	0.0143	0.4406	0.0879	1.1700e-003	0.0271	1.3500e-003	0.0285	7.8100e-003	1.2900e-003	9.1000e-003		121.8621	121.8621	8.9700e-003		122.0863
Worker	0.0463	0.0276	0.3428	8.6000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		85.9452	85.9452	2.7800e-003		86.0147
Total	0.0606	0.4682	0.4306	2.0300e-003	0.1093	1.9200e-003	0.1112	0.0296	1.8100e-003	0.0314		207.8072	207.8072	0.0118		208.1010

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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553

Mistletoe Elementary School Project - Shasta County, Summer

3.4 Building Construction - 2021**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	0.0143	0.4406	0.0879	1.1700e-003	0.0194	1.3500e-003	0.0207	5.9100e-003	1.2900e-003	7.2100e-003		121.8621	121.8621	8.9700e-003		122.0863
Worker	0.0463	0.0276	0.3428	8.6000e-004	0.0536	5.7000e-004	0.0542	0.0148	5.2000e-004	0.0153		85.9452	85.9452	2.7800e-003		86.0147
Total	0.0606	0.4682	0.4306	2.0300e-003	0.0730	1.9200e-003	0.0749	0.0207	1.8100e-003	0.0225		207.8072	207.8072	0.0118		208.1010

3.5 Paving - 2021**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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031

Mistletoe Elementary School Project - Shasta County, Summer

3.5 Paving - 2021**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	0.0371	0.0221	0.2742	6.9000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		68.7561	68.7561	2.2300e-003		68.8118
Total	0.0371	0.0221	0.2742	6.9000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		68.7561	68.7561	2.2300e-003		68.8118

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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031

Mistletoe Elementary School Project - Shasta County, Summer

3.5 Paving - 2021**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	0.0371	0.0221	0.2742	6.9000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		68.7561	68.7561	2.2300e-003		68.8118
Total	0.0371	0.0221	0.2742	6.9000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		68.7561	68.7561	2.2300e-003		68.8118

3.6 Architectural Coating - 2021**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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Summer

3.6 Architectural Coating - 2021**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	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		17.1890	17.1890	5.6000e-004		17.2030
Total	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		17.1890	17.1890	5.6000e-004		17.2030

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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Summer

3.6 Architectural Coating - 2021**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	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		17.1890	17.1890	5.6000e-004		17.2030
Total	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		17.1890	17.1890	5.6000e-004		17.2030

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Mistletoe Elementary School Project - Shasta County, Summer

	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	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959
Unmitigated	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.19	2.28	1.67	1,493	1,493
General Light Industry	7.67	1.45	0.75	16,906	16,906
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2.07	2.07	2.07	6,033	6,033
Total	9.92	5.79	4.49	24,431	24,431

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other 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
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

Mistletoe Elementary School Project - Shasta County, Summer

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
General Light Industry	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Unrefrigerated Warehouse-No Rail	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

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	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
NaturalGas Unmitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Summer

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					
City Park	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
General Light Industry	62.8959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
Other 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
Unrefrigerated Warehouse-No Rail	60.6795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Summer

5.2 Energy by Land Use - NaturalGas**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					
City Park	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
General Light Industry	0.0628959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
Other 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
Unrefrigerated Warehouse-No Rail	0.0606795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

6.0 Area Detail**6.1 Mitigation Measures Area**

Mistletoe Elementary School Project - Shasta County, Summer

	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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Unmitigated	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

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	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

Mistletoe Elementary School Project - Shasta County, Summer

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	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

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
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Mistletoe Elementary School Project - Shasta County, Summer

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

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

Equipment Type	Number
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11.0 Vegetation

Mistletoe Elementary School Project - Shasta County, Winter

Mistletoe Elementary School Project

Shasta County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.10	1000sqft	1.00	1,100.00	0
Unrefrigerated Warehouse-No Rail	1.23	1000sqft	1.00	1,225.00	0
Other Asphalt Surfaces	8.50	1000sqft	1.00	8,500.00	0
Parking Lot	8.50	1000sqft	1.00	8,500.00	0
City Park	0.10	Acre	1.00	4,356.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2022
Utility Company	PacifiCorp				
CO2 Intensity (lb/MW hr)	527.9	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Mistletoe Elementary School Project - Shasta County, Winter

Project Characteristics - PacfiCorp is used as a conservative substitute for Redding Electric Utility. GHG Intensity Factors per EPA's Power Profiler

Land Use - Warehouse is used as an equivalent to the student gymnasium. City park is used as an equivalent to the athletic field. General light industry is used as an equivalent to a the O&M building. The project site totals to 5 acres.

Construction Phase - Construction phase lengths adjusted to match information provided by the Applicant.

Off-road Equipment - Equipment specifications adjusted to match information provided by applicant.

Off-road Equipment - Equipment type and hours of use adjusted to match specifications provided by the applicant.

Off-road Equipment - Construction equipment adjusted to match information provided by applicant.

Grading - The project area is five acres

Energy Use -

Construction Off-road Equipment Mitigation - SMM mitigation measures and California Code or Regulation minimum tiers are required.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	18.00	2.00
tblConstructionPhase	NumDays	5.00	1.00
tblGrading	AcresOfGrading	7.50	5.00
tblGrading	AcresOfGrading	0.50	5.00
tblLandUse	LandUseSquareFeet	1,230.00	1,225.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.20	1.00

Mistletoe Elementary School Project - Shasta County, Winter

tblLandUse	LotAcreage	0.20	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	187.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	1656.39	527.9
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004

2.0 Emissions Summary

Mistletoe Elementary School Project - Shasta County, Winter

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					
2020	0.8886	10.1211	9.1862	0.0142	5.3436	0.5204	5.6792	0.5834	0.4789	0.8922	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0
2021	13.3696	8.0822	9.0641	0.0141	0.1093	0.4376	0.5469	0.0296	0.4027	0.4322	0.0000	1,378.706 2	1,378.706 2	0.3962	0.0000	1,388.612 0
Maximum	13.3696	10.1211	9.1862	0.0142	5.3436	0.5204	5.6792	0.5834	0.4789	0.8922	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0

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					
2020	0.8886	10.1211	9.1862	0.0142	2.4129	0.5204	2.7486	0.2650	0.4789	0.5738	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0
2021	13.3696	8.0822	9.0641	0.0141	0.0730	0.4376	0.5106	0.0207	0.4027	0.4233	0.0000	1,378.706 2	1,378.706 2	0.3962	0.0000	1,388.612 0
Maximum	13.3696	10.1211	9.1862	0.0142	2.4129	0.5204	2.7486	0.2650	0.4789	0.5738	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0

	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
Percent Reduction	0.00	0.00	0.00	0.00	54.41	0.00	47.65	53.39	0.00	24.71	0.00	0.00	0.00	0.00	0.00	0.00

Mistletoe Elementary School Project - Shasta County, Winter

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303
Total	0.1011	0.2490	0.2920	1.1300e-003	0.0714	2.0900e-003	0.0735	0.0191	2.0300e-003	0.0212		122.3810	122.3810	7.9600e-003	2.7000e-004	122.6595

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303
Total	0.1011	0.2490	0.2920	1.1300e-003	0.0714	2.0900e-003	0.0735	0.0191	2.0300e-003	0.0212		122.3810	122.3810	7.9600e-003	2.7000e-004	122.6595

Mistletoe Elementary School Project - Shasta County, Winter

	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
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	3/14/2020	3/16/2020	5	1	
2	Grading	Grading	3/17/2020	3/30/2020	5	10	
3	Building Construction	Building Construction	3/31/2020	2/15/2021	5	230	
4	Paving	Paving	2/16/2021	2/17/2021	5	2	
5	Architectural Coating	Architectural Coating	2/18/2021	2/24/2021	5	5	

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 5

Acres of Paving: 2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,488; Non-Residential Outdoor: 1,163; Striped Parking Area: 1,020 (Architectural Coating – sqft)

OffRoad Equipment

Mistletoe Elementary School Project - Shasta County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	4.00	187	0.41
Grading	Scrapers	1	4.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Graders	3	0.20	187	0.41
Building Construction	Paving Equipment	2	0.10	132	0.36
Building Construction	Tractors/Loaders/Backhoes	6	5.00	97	0.37
Paving	Dumpers/Tenders	1	8.00	16	0.38
Paving	Graders	1	4.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
Architectural Coating	Air Compressors	1	6.00	78	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	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Mistletoe Elementary School Project - Shasta County, Winter

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 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					
Fugitive Dust					5.3025	0.0000	5.3025	0.5726	0.0000	0.5726			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	5.3025	0.3353	5.6378	0.5726	0.3085	0.8811		943.4872	943.4872	0.3051		951.1158

Mistletoe Elementary School Project - Shasta County, Winter

3.2 Site Preparation - 2020**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	0.0220	0.0186	0.1592	3.9000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		38.5999	38.5999	1.3600e-003		38.6338
Total	0.0220	0.0186	0.1592	3.9000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		38.5999	38.5999	1.3600e-003		38.6338

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					2.3861	0.0000	2.3861	0.2577	0.0000	0.2577			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	2.3861	0.3353	2.7215	0.2577	0.3085	0.5662	0.0000	943.4872	943.4872	0.3051		951.1158

Mistletoe Elementary School Project - Shasta County, Winter

3.2 Site Preparation - 2020**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	0.0220	0.0186	0.1592	3.9000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		38.5999	38.5999	1.3600e-003		38.6338
Total	0.0220	0.0186	0.1592	3.9000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		38.5999	38.5999	1.3600e-003		38.6338

3.3 Grading - 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					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651		1,205.2512	1,205.2512	0.3898		1,214.9962
Total	0.8391	10.0914	5.7764	0.0124	0.5303	0.3969	0.9271	0.0573	0.3651	0.4224		1,205.2512	1,205.2512	0.3898		1,214.9962

Mistletoe Elementary School Project - Shasta County, Winter

3.3 Grading - 2020**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	0.0352	0.0297	0.2547	6.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		61.7598	61.7598	2.1700e-003		61.8140
Total	0.0352	0.0297	0.2547	6.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		61.7598	61.7598	2.1700e-003		61.8140

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					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962
Total	0.8391	10.0914	5.7764	0.0124	0.2386	0.3969	0.6355	0.0258	0.3651	0.3909	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962

Mistletoe Elementary School Project - Shasta County, Winter

3.3 Grading - 2020**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	0.0352	0.0297	0.2547	6.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		61.7598	61.7598	2.1700e-003		61.8140
Total	0.0352	0.0297	0.2547	6.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		61.7598	61.7598	2.1700e-003		61.8140

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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380

Mistletoe Elementary School Project - Shasta County, Winter

3.4 Building Construction - 2020**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	0.0180	0.4912	0.1195	1.1400e-003	0.0271	2.7500e-003	0.0299	7.8100e-003	2.6300e-003	0.0104		118.8326	118.8326	0.0105		119.0955
Worker	0.0440	0.0372	0.3184	7.8000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.4000e-004	0.0223		77.1997	77.1997	2.7100e-003		77.2675
Total	0.0621	0.5284	0.4379	1.9200e-003	0.1093	3.3300e-003	0.1126	0.0296	3.1700e-003	0.0328		196.0324	196.0324	0.0132		196.3630

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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380

Mistletoe Elementary School Project - Shasta County, Winter

3.4 Building Construction - 2020**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	0.0180	0.4912	0.1195	1.1400e-003	0.0194	2.7500e-003	0.0221	5.9100e-003	2.6300e-003	8.5400e-003		118.8326	118.8326	0.0105		119.0955
Worker	0.0440	0.0372	0.3184	7.8000e-004	0.0536	5.8000e-004	0.0542	0.0148	5.4000e-004	0.0153		77.1997	77.1997	2.7100e-003		77.2675
Total	0.0621	0.5284	0.4379	1.9200e-003	0.0730	3.3300e-003	0.0763	0.0207	3.1700e-003	0.0239		196.0324	196.0324	0.0132		196.3630

3.4 Building Construction - 2021**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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553

Mistletoe Elementary School Project - Shasta County, Winter

3.4 Building Construction - 2021**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	0.0151	0.4472	0.1054	1.1300e-003	0.0271	1.4100e-003	0.0285	7.8100e-003	1.3500e-003	9.1500e-003		117.8180	117.8180	0.0102		118.0718
Worker	0.0407	0.0329	0.2868	7.5000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		74.5252	74.5252	2.3900e-003		74.5849
Total	0.0557	0.4801	0.3922	1.8800e-003	0.1093	1.9800e-003	0.1112	0.0296	1.8700e-003	0.0315		192.3432	192.3432	0.0125		192.6567

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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553

Mistletoe Elementary School Project - Shasta County, Winter

3.4 Building Construction - 2021**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	0.0151	0.4472	0.1054	1.1300e-003	0.0194	1.4100e-003	0.0208	5.9100e-003	1.3500e-003	7.2600e-003		117.8180	117.8180	0.0102		118.0718
Worker	0.0407	0.0329	0.2868	7.5000e-004	0.0536	5.7000e-004	0.0542	0.0148	5.2000e-004	0.0153		74.5252	74.5252	2.3900e-003		74.5849
Total	0.0557	0.4801	0.3922	1.8800e-003	0.0730	1.9800e-003	0.0750	0.0207	1.8700e-003	0.0226		192.3432	192.3432	0.0125		192.6567

3.5 Paving - 2021**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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031

Mistletoe Elementary School Project - Shasta County, Winter

3.5 Paving - 2021**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	0.0325	0.0263	0.2295	6.0000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		59.6201	59.6201	1.9100e-003		59.6679
Total	0.0325	0.0263	0.2295	6.0000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		59.6201	59.6201	1.9100e-003		59.6679

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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031

Mistletoe Elementary School Project - Shasta County, Winter

3.5 Paving - 2021**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	0.0325	0.0263	0.2295	6.0000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		59.6201	59.6201	1.9100e-003		59.6679
Total	0.0325	0.0263	0.2295	6.0000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		59.6201	59.6201	1.9100e-003		59.6679

3.6 Architectural Coating - 2021**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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Winter

3.6 Architectural Coating - 2021**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	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		14.9050	14.9050	4.8000e-004		14.9170
Total	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		14.9050	14.9050	4.8000e-004		14.9170

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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Winter

3.6 Architectural Coating - 2021**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	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		14.9050	14.9050	4.8000e-004		14.9170
Total	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		14.9050	14.9050	4.8000e-004		14.9170

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Mistletoe Elementary School Project - Shasta County, Winter

	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	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303
Unmitigated	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.19	2.28	1.67	1,493	1,493
General Light Industry	7.67	1.45	0.75	16,906	16,906
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2.07	2.07	2.07	6,033	6,033
Total	9.92	5.79	4.49	24,431	24,431

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other 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
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
General Light Industry	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Unrefrigerated Warehouse-No Rail	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

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	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
NaturalGas Unmitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Winter

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					
City Park	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
General Light Industry	62.8959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
Other 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
Unrefrigerated Warehouse-No Rail	60.6795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Winter

5.2 Energy by Land Use - NaturalGas**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					
City Park	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
General Light Industry	0.0628959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
Other 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
Unrefrigerated Warehouse-No Rail	0.0606795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Unmitigated	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

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	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

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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	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

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
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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11.0 Vegetation

Appendix B

Greenhouse Gas Emissions Modeling

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.10	1000sqft	1.00	1,100.00	0
Unrefrigerated Warehouse-No Rail	1.23	1000sqft	1.00	1,225.00	0
Other Asphalt Surfaces	8.50	1000sqft	1.00	8,500.00	0
Parking Lot	8.50	1000sqft	1.00	8,500.00	0
City Park	0.10	Acre	1.00	4,356.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2022
Utility Company	PacifiCorp				
CO2 Intensity (lb/MW hr)	527.9	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - PacfiCorp is used as a conservative substitute for Redding Electric Utility. GHG Intensity Factors per EPA's Power Profiler

Land Use - Warehouse is used as an equivalent to the student gymnasium. City park is used as an equivalent to the athletic field. General light industry is used as an equivalent to a the O&M building. The project site totals to 5 acres.

Construction Phase - Construction phase lengths adjusted to match information provided by the Applicant.

Off-road Equipment - Equipment specifications adjusted to match information provided by applicant.

Off-road Equipment - Equipment type and hours of use adjusted to match specifications provided by the applicant.

Off-road Equipment - Construction equipment adjusted to match information provided by applicant.

Grading - The project area is five acres

Energy Use -

Construction Off-road Equipment Mitigation - SMM mitigation measures and California Code or Regulation minimum tiers are required.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	18.00	2.00
tblConstructionPhase	NumDays	5.00	1.00
tblGrading	AcresOfGrading	7.50	5.00
tblGrading	AcresOfGrading	0.50	5.00
tblLandUse	LandUseSquareFeet	1,230.00	1,225.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.20	1.00

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tblLandUse	LotAcreage	0.20	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	187.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	1656.39	527.9
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004

2.0 Emissions Summary

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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					
2020	0.0924	0.9405	0.9406	1.4800e-003	0.0160	0.0537	0.0696	3.4700e-003	0.0494	0.0529	0.0000	130.7617	130.7617	0.0375	0.0000	131.6991
2021	0.0494	0.1384	0.1543	2.4000e-004	1.7700e-003	7.5600e-003	9.3300e-003	4.8000e-004	6.9800e-003	7.4600e-003	0.0000	21.4138	21.4138	5.9700e-003	0.0000	21.5631
Maximum	0.0924	0.9405	0.9406	1.4800e-003	0.0160	0.0537	0.0696	3.4700e-003	0.0494	0.0529	0.0000	130.7617	130.7617	0.0375	0.0000	131.6991

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					
2020	0.0924	0.9405	0.9406	1.4800e-003	9.5300e-003	0.0537	0.0632	2.2900e-003	0.0494	0.0517	0.0000	130.7616	130.7616	0.0375	0.0000	131.6990
2021	0.0494	0.1384	0.1543	2.4000e-004	1.1900e-003	7.5600e-003	8.7500e-003	3.4000e-004	6.9800e-003	7.3100e-003	0.0000	21.4138	21.4138	5.9700e-003	0.0000	21.5631
Maximum	0.0924	0.9405	0.9406	1.4800e-003	9.5300e-003	0.0537	0.0632	2.2900e-003	0.0494	0.0517	0.0000	130.7616	130.7616	0.0375	0.0000	131.6990

	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
Percent Reduction	0.00	0.00	0.00	0.00	39.50	0.00	8.87	33.42	0.00	2.19	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-2-2020	6-1-2020	0.2860	0.2860
2	6-2-2020	9-1-2020	0.3230	0.3230
3	9-2-2020	12-1-2020	0.3197	0.3197
4	12-2-2020	3-1-2021	0.2947	0.2947
		Highest	0.3230	0.3230

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	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Energy	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	8.1969	8.1969	4.1000e-004	9.0000e-005	8.2333
Mobile	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877
Waste						0.0000	0.0000		0.0000	0.0000	0.5136	0.0000	0.5136	0.0304	0.0000	1.2723
Water						0.0000	0.0000		0.0000	0.0000	0.1709	0.7980	0.9689	0.0176	4.2000e-004	1.5344
Total	0.0173	0.0331	0.0378	1.5000e-004	9.0800e-003	3.2000e-004	9.4100e-003	2.4500e-003	3.1000e-004	2.7600e-003	0.6845	22.3613	23.0458	0.0492	5.1000e-004	24.4282

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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	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Energy	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	8.1969	8.1969	4.1000e-004	9.0000e-005	8.2333
Mobile	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877
Waste						0.0000	0.0000		0.0000	0.0000	0.5136	0.0000	0.5136	0.0304	0.0000	1.2723
Water						0.0000	0.0000		0.0000	0.0000	0.1709	0.7980	0.9689	0.0176	4.2000e-004	1.5344
Total	0.0173	0.0331	0.0378	1.5000e-004	9.0800e-003	3.2000e-004	9.4100e-003	2.4500e-003	3.1000e-004	2.7600e-003	0.6845	22.3613	23.0458	0.0492	5.1000e-004	24.4282

	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
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**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/14/2020	3/16/2020	5	1	
2	Grading	Grading	3/17/2020	3/30/2020	5	10	
3	Building Construction	Building Construction	3/31/2020	2/15/2021	5	230	
4	Paving	Paving	2/16/2021	2/17/2021	5	2	
5	Architectural Coating	Architectural Coating	2/18/2021	2/24/2021	5	5	

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 5

Acres of Paving: 2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,488; Non-Residential Outdoor: 1,163; Striped Parking Area: 1,020 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	4.00	187	0.41
Grading	Scrapers	1	4.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Graders	3	0.20	187	0.41
Building Construction	Paving Equipment	2	0.10	132	0.36
Building Construction	Tractors/Loaders/Backhoes	6	5.00	97	0.37
Paving	Dumpers/Tenders	1	8.00	16	0.38
Paving	Graders	1	4.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
Architectural Coating	Air Compressors	1	6.00	78	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	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 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					
Fugitive Dust					2.6500e-003	0.0000	2.6500e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-004	4.2200e-003	2.0500e-003	0.0000		1.7000e-004	1.7000e-004		1.5000e-004	1.5000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314
Total	3.4000e-004	4.2200e-003	2.0500e-003	0.0000	2.6500e-003	1.7000e-004	2.8200e-003	2.9000e-004	1.5000e-004	4.4000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314

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3.2 Site Preparation - 2020**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	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181
Total	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181

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					1.1900e-003	0.0000	1.1900e-003	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-004	4.2200e-003	2.0500e-003	0.0000		1.7000e-004	1.7000e-004		1.5000e-004	1.5000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314
Total	3.4000e-004	4.2200e-003	2.0500e-003	0.0000	1.1900e-003	1.7000e-004	1.3600e-003	1.3000e-004	1.5000e-004	2.8000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314

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3.2 Site Preparation - 2020**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	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181
Total	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181

3.3 Grading - 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					
Fugitive Dust					2.6500e-003	0.0000	2.6500e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-003	0.0505	0.0289	6.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111
Total	4.2000e-003	0.0505	0.0289	6.0000e-005	2.6500e-003	1.9800e-003	4.6300e-003	2.9000e-004	1.8300e-003	2.1200e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111

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3.3 Grading - 2020**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	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897
Total	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897

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					1.1900e-003	0.0000	1.1900e-003	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-003	0.0505	0.0289	6.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111
Total	4.2000e-003	0.0505	0.0289	6.0000e-005	1.1900e-003	1.9800e-003	3.1700e-003	1.3000e-004	1.8300e-003	1.9600e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111

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3.3 Grading - 2020**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	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897
Total	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897

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	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5116	106.5116	0.0345	0.0000	107.3728
Total	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5116	106.5116	0.0345	0.0000	107.3728

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3.4 Building Construction - 2020**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	1.7300e-003	0.0486	0.0108	1.1000e-004	2.5800e-003	2.7000e-004	2.8400e-003	7.5000e-004	2.6000e-004	1.0000e-003	0.0000	10.8836	10.8836	8.8000e-004	0.0000	10.9056
Worker	4.1200e-003	3.3000e-003	0.0314	8.0000e-005	7.7400e-003	6.0000e-005	7.7900e-003	2.0600e-003	5.0000e-005	2.1100e-003	0.0000	7.1641	7.1641	2.5000e-004	0.0000	7.1703
Total	5.8500e-003	0.0519	0.0422	1.9000e-004	0.0103	3.3000e-004	0.0106	2.8100e-003	3.1000e-004	3.1100e-003	0.0000	18.0477	18.0477	1.1300e-003	0.0000	18.0759

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	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5115	106.5115	0.0345	0.0000	107.3727
Total	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5115	106.5115	0.0345	0.0000	107.3727

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3.4 Building Construction - 2020**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	1.7300e-003	0.0486	0.0108	1.1000e-004	1.8500e-003	2.7000e-004	2.1200e-003	5.7000e-004	2.6000e-004	8.3000e-004	0.0000	10.8836	10.8836	8.8000e-004	0.0000	10.9056
Worker	4.1200e-003	3.3000e-003	0.0314	8.0000e-005	5.0700e-003	6.0000e-005	5.1300e-003	1.4000e-003	5.0000e-005	1.4600e-003	0.0000	7.1641	7.1641	2.5000e-004	0.0000	7.1703
Total	5.8500e-003	0.0519	0.0422	1.9000e-004	6.9200e-003	3.3000e-004	7.2500e-003	1.9700e-003	3.1000e-004	2.2900e-003	0.0000	18.0477	18.0477	1.1300e-003	0.0000	18.0759

3.4 Building Construction - 2021**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	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592
Total	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592

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3.4 Building Construction - 2021**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	2.3000e-004	7.1600e-003	1.5300e-003	2.0000e-005	4.2000e-004	2.0000e-005	4.4000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.7442	1.7442	1.4000e-004	0.0000	1.7476
Worker	6.1000e-004	4.7000e-004	4.5800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.1177	1.1177	4.0000e-005	0.0000	1.1186
Total	8.4000e-004	7.6300e-003	6.1100e-003	3.0000e-005	1.6700e-003	3.0000e-005	1.7000e-003	4.5000e-004	3.0000e-005	4.8000e-004	0.0000	2.8619	2.8619	1.8000e-004	0.0000	2.8662

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	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592
Total	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592

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3.4 Building Construction - 2021**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	2.3000e-004	7.1600e-003	1.5300e-003	2.0000e-005	3.0000e-004	2.0000e-005	3.2000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.7442	1.7442	1.4000e-004	0.0000	1.7476
Worker	6.1000e-004	4.7000e-004	4.5800e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	1.1177	1.1177	4.0000e-005	0.0000	1.1186
Total	8.4000e-004	7.6300e-003	6.1100e-003	3.0000e-005	1.1200e-003	3.0000e-005	1.1500e-003	3.2000e-004	3.0000e-005	3.5000e-004	0.0000	2.8619	2.8619	1.8000e-004	0.0000	2.8662

3.5 Paving - 2021**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	6.0000e-004	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.2200e-003	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074

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3.5 Paving - 2021**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	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559
Total	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559

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	6.0000e-004	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.2200e-003	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074

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3.5 Paving - 2021**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	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559
Total	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559

3.6 Architectural Coating - 2021**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	0.0329					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	0.0334	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394

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3.6 Architectural Coating - 2021**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	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350
Total	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350

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	0.0329					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	0.0334	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394

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3.6 Architectural Coating - 2021**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	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350
Total	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	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	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877
Unmitigated	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.19	2.28	1.67	1,493	1,493
General Light Industry	7.67	1.45	0.75	16,906	16,906
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2.07	2.07	2.07	6,033	6,033
Total	9.92	5.79	4.49	24,431	24,431

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other 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
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
General Light Industry	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Unrefrigerated Warehouse-No Rail	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

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	5.7899	5.7899	3.6000e-004	4.0000e-005	5.8120
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.7899	5.7899	3.6000e-004	4.0000e-005	5.8120
NaturalGas Mitigated	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	5.0000e-005	4.0000e-005	2.4213
NaturalGas Unmitigated	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	5.0000e-005	4.0000e-005	2.4213

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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					
City Park	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
General Light Industry	22957	1.2000e-004	1.1300e-003	9.5000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2251	1.2251	2.0000e-005	2.0000e-005	1.2324
Other 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
Unrefrigerated Warehouse-No Rail	22148	1.2000e-004	1.0900e-003	9.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1819	1.1819	2.0000e-005	2.0000e-005	1.1889
Total		2.4000e-004	2.2200e-003	1.8600e-003	2.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	4.0000e-005	4.0000e-005	2.4213

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5.2 Energy by Land Use - NaturalGas**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					
City Park	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
General Light Industry	22957	1.2000e-004	1.1300e-003	9.5000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2251	1.2251	2.0000e-005	2.0000e-005	1.2324
Other 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
Unrefrigerated Warehouse-No Rail	22148	1.2000e-004	1.0900e-003	9.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1819	1.1819	2.0000e-005	2.0000e-005	1.1889
Total		2.4000e-004	2.2200e-003	1.8600e-003	2.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	4.0000e-005	4.0000e-005	2.4213

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	9702	2.3232	1.5000e-004	2.0000e-005	2.3320
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	2975	0.7124	4.0000e-005	1.0000e-005	0.7151
Unrefrigerated Warehouse-No Rail	11502.8	2.7544	1.7000e-004	2.0000e-005	2.7649
Total		5.7899	3.6000e-004	5.0000e-005	5.8120

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5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	9702	2.3232	1.5000e-004	2.0000e-005	2.3320
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	2975	0.7124	4.0000e-005	1.0000e-005	0.7151
Unrefrigerated Warehouse-No Rail	11502.8	2.7544	1.7000e-004	2.0000e-005	2.7649
Total		5.7899	3.6000e-004	5.0000e-005	5.8120

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Unmitigated	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004

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	3.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Total	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004

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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	3.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Total	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.9689	0.0176	4.2000e-004	1.5344
Unmitigated	0.9689	0.0176	4.2000e-004	1.5344

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.119148	0.0999	1.0000e-005	0.0000	0.1002
General Light Industry	0.254375 / 0	0.4103	8.3100e-003	2.0000e-004	0.6771
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.284438 / 0	0.4588	9.2900e-003	2.2000e-004	0.7571
Total		0.9689	0.0176	4.2000e-004	1.5344

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.119148	0.0999	1.0000e-005	0.0000	0.1002
General Light Industry	0.254375 / 0	0.4103	8.3100e-003	2.0000e-004	0.6771
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.284438 / 0	0.4588	9.2900e-003	2.2000e-004	0.7571
Total		0.9689	0.0176	4.2000e-004	1.5344

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Mistletoe Elementary School Project - Shasta County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.5136	0.0304	0.0000	1.2723
Unmitigated	0.5136	0.0304	0.0000	1.2723

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
General Light Industry	1.36	0.2761	0.0163	0.0000	0.6840
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.16	0.2355	0.0139	0.0000	0.5834
Total		0.5136	0.0304	0.0000	1.2724

Mistletoe Elementary School Project - Shasta County, Annual

8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
General Light Industry	1.36	0.2761	0.0163	0.0000	0.6840
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.16	0.2355	0.0139	0.0000	0.5834
Total		0.5136	0.0304	0.0000	1.2724

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
----------------	--------	----------------	-----------------	---------------	-----------

Mistletoe Elementary School Project - Shasta County, Annual

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix C

Biological Resources Assessment

Biological Resources Assessment

Mistletoe School Site Expansion Project

Shasta County, California

Prepared For:
Enterprise Elementary School District

February 21, 2020



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Attachment B – U.S. Fish and Wildlife Service IPaC Trust Resource Report for the Project Area
Attachment C – California Native Plant Society 9-quad Search for the Enterprise, California Quad
Attachment D – Representative Site Photos

LIST OF ACRONYMS AND ABBREVIATIONS

BCC	Bird of Conservation Concern
BRA	Biological resources assessment
CCH	Consortium of California Herbaria
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank

LIST OF ACRONYMS AND ABBREVIATIONS

CWA	Clean Water Act
DPS	Distinct Population Segments
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FR	Federal Register
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MSL	Mean sea level
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
OHWM	Ordinary high-water mark
Project	Mistletoe School Site Expansion
SSC	Species of special concern
TNW	Traditional Navigable Waters
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 Survey
WBWG	Western Bat Working Group
WRCC	Western Regional Climate Center

1.0 INTRODUCTION

At the request of the Enterprise Elementary School District, ECORP Consulting, Inc. conducted a biological resources assessment (BRA) for the Mistletoe School Site Expansion Project (Project) located in Shasta County, California. The purpose of the BRA was to collect information on the biological resources present within the Project site such as potential Waters of the U.S./State or habitat for sensitive plant and animals sufficient to support the California Environmental Quality Act (CEQA).

1.1 Project Location

The ±5.15-acre Project site is located north of Del Monte Street, east of Churn Creek Road, and south of Mistletoe Lane, with a tributary to Churn Creek to the east, and is located within the City of Redding in Shasta County, California. The Project site corresponds to a portion of section 5, Township 31 North, Range 4 West (Mount Diablo Base and Meridian) of the "Enterprise, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1969) (Figure 1. *Project Location and Vicinity*). The approximate center of the Project site is located at latitude 40.576298° (NAD83) and longitude -122.349434° (NAD83). The Project site is located within the Clear Creek-Sacramento River watershed (Hydrologic Unit Code #18020154) Watershed (Natural Resources Conservation Service [NRCS], et al. 2019).

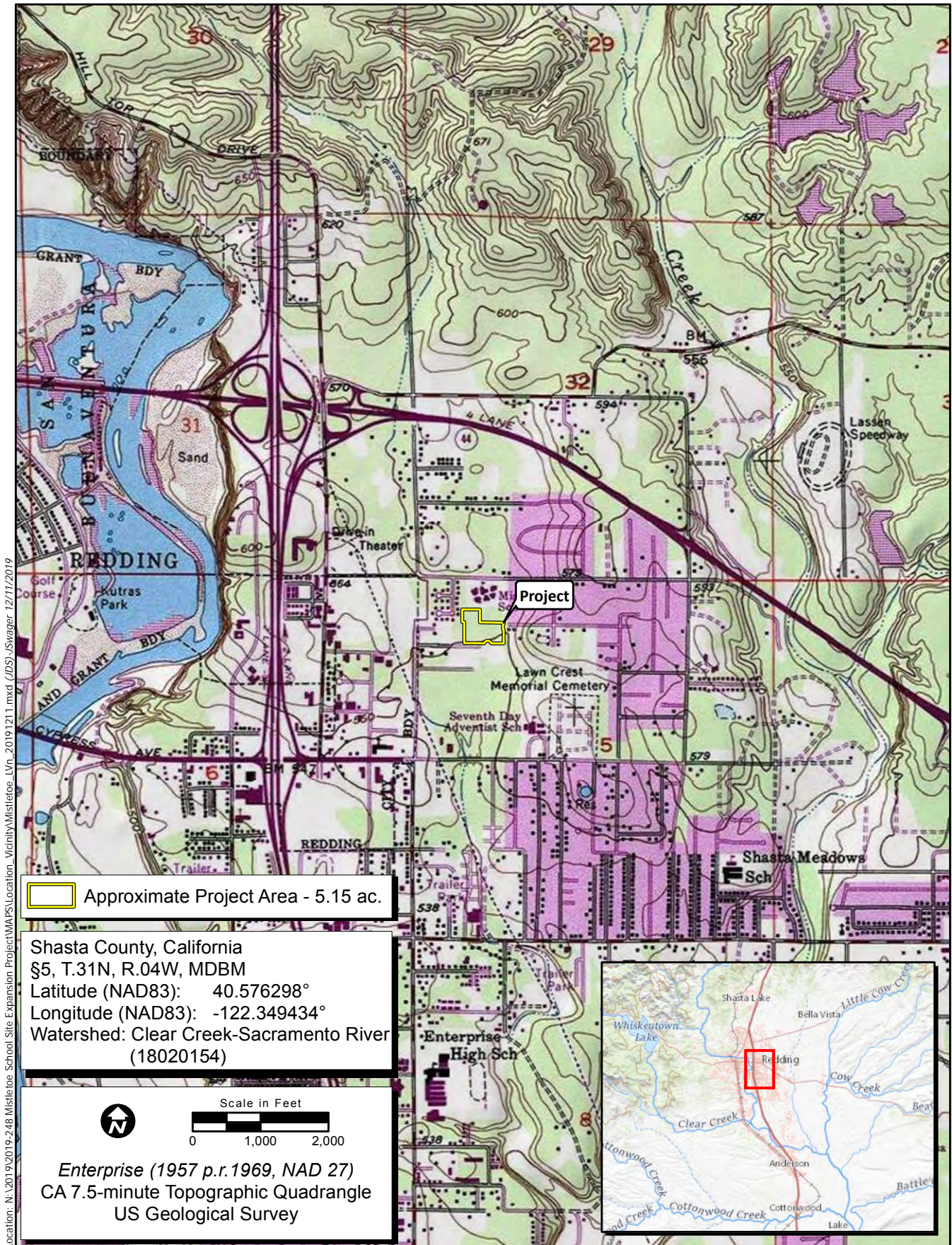
1.2 Biological Setting

The Project site is located in the transition zone between the northern Sacramento Valley and the Cascade foothills within a developed urban setting. Elevation ranges between 555 to 560 feet above mean sea level (MSL). Single-family homes are located to the east and northwest, commercial and light industrial are located to the west and south, and vacant land is located to the southeast.

The Project site is located in the Cascade Ranges region, Cascade Range Foothills subregion of the California Floristic Province (Baldwin et al. 2012). This subregion is characterized by a semi-arid climate, which is comprised of hot and dry summer months and cold and moderately wet winter months. The annual precipitation for Redding is 40.41 inches (with the wettest period during November-March), and average daily temperatures range from 46.9°F in December to 84.1°F in July (Western Regional Climate Center [WRCC] 2020).

1.3 Purpose

The purpose of this BRA is to support CEQA by assessing the potential for occurrence of special-status plant and animal species, or their habitat, and sensitive habitats such as Waters of the U.S./State within the Project site. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols, and the conclusions presented in this report are based upon a literature review, database queries, and limited site reconnaissance.



Map Date: 12/11/2019
 Sources: ESRI, USGS

Figure 1. Project Location and Vicinity

2019-248 Mistletoe School Site Expansion Project

This report describes potential Waters of the U.S., including wetlands, identified within the Project site that may be regulated by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). The information presented in this report is intended to support CEQA and general planning purposes, and therefore does not meet the USACE Sacramento District's Minimum Standards for Acceptance of Aquatic Resources Delineations (USACE 2016).

For the purposes of this assessment, species that are federally or state-protected are considered special-status species. 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 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 (BCC) 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 and 2);
- are plants considered by the CNPS to be data deficient for which more information is needed (CRPR 3), or plants of limited distribution-a watch list (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. While other species (e.g., CRPR 3 or 4 species, California Natural Diversity Database- [CNDDB]-tracked species) are sometimes found in database searches or within the literature, these were not included within this analysis.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal 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 that is 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 Code of Federal Regulations [CFR] § 328.2(f)). In addition, Section 401 of the CWA (33 U.S. Code [USC] 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.

Pursuant to the U.S. Environmental Protection Agency (USEPA) and USACE memorandum regarding CWA jurisdiction, issued following the U.S. 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 2007).

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 non-navigable tributary (USEPA and USACE 2007). 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 2007).

Waters of the United States

Waters of the U.S., including wetlands, are regulated by the USACE under Section 404 of the CWA. Descriptions of Waters of the U.S. are provided below.

Wetlands

Wetlands are "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" (51 Federal Register [FR] 41250, November 13, 1986, as amended at 58 FR 45036, August 25, 1993). Wetlands can be perennial or intermittent, and isolated or adjacent to other waters.

Other Waters

Other waters are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses (51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993). The limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the ordinary high-water mark (OHWM). 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" (51 FR 41250, November 13, 1986, as amended at 58 FR 45036, August 25, 1993). The bank-to-bank extent of the channel that contains the water flow during a normal rainfall year generally serves as a good first 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.

2.1.2 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service. Section 9 of the ESA prohibits the taking of endangered wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of ESA, federal agencies are required to consult with the 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, 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 the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. 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.

2.2 State or Local Regulations

2.2.1 *California Endangered Species Act*

The California ESA generally parallels the main provisions of the federal 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 or threatened species or result in destruction or adverse modification of essential habitat.

2.2.2 *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) 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, except for necessary scientific research.

2.2.3 *Native Plant Protection Act*

The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to “preserve, protect and enhance rare and endangered plants in this State.” The NPPA is administered by CDFW. 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.

2.2.4 *California Environmental Quality Act Significance Criteria*

Section 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 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 Habitat Conservation Plan (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.

2.2.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires individuals or agencies to provide a Notification of Lake or Streambed Alteration 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, proposed measures to protect affected fish and wildlife resources. The final proposal mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

2.2.6 California Fish and Game Code

As stated before, the State of California has provided for the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.2.7 City of Redding Tree Management Ordinance

The City of Redding Code (18.45) regulates the removal of any tree, regardless of species, that exceeds six inches diameter at breast height on a property within the City limits. However, there is an exemption for "Removal of trees on property owned by the federal government, the state of California, the county of Shasta, or any school or special district" (Redding 2006). As such, this Project is likely exempt from mitigation for the removal of trees within the Project site.

3.0 METHODS

Field data to support this BRA were gathered during a field visit conducted by ECORP biologists Eric Stitt on December 16, 2019 and Keith Kwan on February 12, 2020. During these field visits, the biologists walked meandering transects through the Project site. Prior to preparing the report, the CDFW's CNDDDB (CDFW 2020; Attachment A), USFWS species lists (USFWS 2019; Attachment B) and CNPS Electronic Inventory (CNPS 2020; Attachment C) were queried to determine the special-status species documented in the Enterprise California quadrangle and the adjacent nine quadrangles that encompass the Project site. Additional data regarding the potential occurrence of special-status species were gathered from various online websites and databases such as Calflora. Soil types were determined using the U.S. Department of Agriculture NRCS Web Soil Survey (NRCS 2019).

Biological resource information reported in this BRA includes:

- potential Waters of the U.S.,
- plant and animal species directly observed,
- characterization of habitats present onsite,
- animal signs (e.g., scat, tracks) observed,
- active bird nests,
- burrows and any other special habitat features, and
- representative site photographs

3.1 Special-Status Species

Based on species occurrence information from the CNDDDB, 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. Only special-status species as defined in Section 3.1 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 site boundary based on documented occurrences within the CNDDDB or other literature.

- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Project site 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 CNDDDB 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 CNDDDB records and other documentation.

4.0 RESULTS

4.1 Site Characteristics, Land Use, Vegetation Communities

The Project site consists of a manicured lawn within the existing elementary school grounds to the north, a ruderal grassland on a graded building pad, and a riparian corridor. The lawn in the elementary school was visually assessed and appeared to consist of a monoculture of horticultural grass. The ruderal grassland is found on a graded building pad; and consists of predominantly nonnative plants, including wild oats (*Avena fatua*), yellow star-thistle (*Centaurea solstitialis*), small flowered fiddleneck (*Amsinckia menziesii*), and English plantain (*Plantago lanceolata*). Scattered trees found in the ruderal grassland included interior live oak (*Quercus wislizeni*), blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), and grey pine (*Pinus sabiniana*). The riparian corridor contains a dense understory of Himalayan blackberry (*Rubus armeniacus*), with hairy vetch (*Vicia villosa*), broad-leaf cattail (*Typha latifolia*), and tall flatsedge (*Cyperus eragrostis*), and a semi-open overstory of arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix exigua*), Fremont's cottonwood (*Populus fremontii*), and oak trees (*Quercus* spp.). Representative site photos are shown in Attachment D.

Based on a review of imagery from Google Earth, the Project site appears to have had trees and other vegetation removed between 2005 and 2006 and the eastern half of the graded area appears to have been mowed around 2010 (Google Earth 2020).

Aquatic resources found onsite include an intermittent drainage/marsh complex along the eastern boundary. These are discussed in further detail below.

4.2 Soils

According to the *Web Soil Survey* (NRCS 2019), four soil units, or types, have been mapped onsite (Figure 2. *Natural Resources Conservation Service Soil Types*). These are: (CfA) Churn gravelly loam, deep, 0 to 3 percent slopes, (RbA) Red Bluff loam, 0 to 3 percent slopes, MLRA 17, moist, (RcA) Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes, (RcB) Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes. All four soils types are listed as having hydric components (NRCS 2020).

4.3 Potential Aquatic Resources

A total of 0.565 acre of potential Waters of the U.S. was mapped during this preliminary aquatic resources assessment (Table 1 and Figure 3. *Preliminary Aquatic Resources Assessment*). These include the intermittent drainage and adjacent marsh.

Table 1. Preliminary Aquatic Resources Assessment	
Type	Acreage ¹
Aquatic Resources	
Wetlands	
Marsh	0.497
Other Waters	
Intermittent Drainage	0.068
Total:	0.565

¹Acreage totals are approximate and represent a calculated estimation based on a reconnaissance site visit.

4.3.1 Marsh

A marsh occurs near the eastern boundary of the Project site, east of the intermittent drainage (Figure 3). The marsh is vegetated with broad-leaf cattail, tall flatsedge, and bulrush (*Schoenoplectus* sp.), with dense Himalayan blackberry.

4.3.2 Intermittent Drainage

An intermittent drainage occurs near the eastern boundary of the Project site (Figure 3). It flows from north to south and eventually leads into Churn Creek. The portion of the drainage that is within the Project site boundary is unvegetated in patches with some emergent vegetation consisting of primrose (*Ludwigia* sp.). An OHWM mark was observed within the intermittent drainage (e.g., debris, vegetation indicators). This drainage appears to have been channelized, possibly when the building pad was constructed onsite.

4.4 Evaluation of Special-Status Species

Tabulated results for all species evaluated for the Project are presented in Table 2. Species descriptions are provided in the following sections for each of the five species that were considered (1) to be present, (2) have potential to occur, or (3) have low potential to occur (according to the definitions provided in Section 3.1). Species that were considered to be absent (Table 2) from the Project Site due to lack of suitable habitat, or because the known distribution of the species does not include the Project Site vicinity, are not discussed further in this document.

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Map Features

- Approximate Project Area - 5.15 ac.
- Aquatic Resources Assessment 0.565 ac. ^{1 *}
- Intermittent Drainage - 0.068 ac.
- Marsh/Riparian Woodland - 0.497 ac.

¹ The information depicted on this graphic represents a preliminary wetland assessment. The assessment was not conducted in accordance with the Corps of Engineers Wetland Delineation Manual and South Pacific Division Regulatory Program Minimum Standards. The project boundaries, wetland boundaries, and acreage values are approximate.
^{*} The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these

Sources: ESRI, Shasta County (2018)

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Plants						
Shasta maidenhair fern <i>(Adiantum shastense)</i>	-	-	4.3	Sometimes carbonate soils within lower montane coniferous forest (1,082'–5,036').	April–August	Absent; no habitat on the site.
Henderson's bent grass <i>(Agrostis hendersonii)</i>	–	–	3.2	Vernal pools and mesic areas in valley and foothill grasslands (230'–1,001').	April–June	Absent; no habitat on the site.
Sanborn's onion <i>(Allium sanbornii</i> var. <i>sanbornii)</i>	–	–	4.2	Chaparral, cismontane woodland, and lower montane coniferous forests, usually with gravelly, serpentinite soils (853'–4,954').	May–September	Absent; no habitat on the site.
Slender silver moss <i>(Anomobryum julaceum)</i>	–	–	4.2	Damp rock and soil on outcrops, usually on road cuts in broadleaf upland forest, lower montane coniferous forest, North Coast coniferous forest (328'–3,281').	Any Season	Absent; no habitat on the site.
Shasta County arnica <i>(Arnica venosa)</i>	-	-	4.2	Often in disturbed areas and roadcuts within cismontane woodland and lower montane coniferous forest (1,099'–4,888').	May–July	Absent; outside of known elevation range.
Depauperate milk-vetch <i>(Astragalus pauperculus)</i>	-	-	4.3	Vernally mesic and volcanic within chaparral, cismontane woodland, and valley and foothill grassland (197'–3,986').	March–June	Absent; no habitat on the site.
Big-scale balsamroot <i>(Balsamorhiza macrolepis</i> var. <i>macrolepis)</i>	–	–	1B.2	Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentinite soils (148'–5,102').	March–June	Absent; no habitat on the site.
Watershield <i>(Brasenia schreberi)</i>	–	–	2B.3	Freshwater marshes and swamps (98'–7,218').	June–September	Low Potential; marginal habitat and nearest known occurrence more than 8 miles away.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Sulphur Creek brodiaea (<i>Brodiaea matsonii</i>)	-	-	1B.1	Rocky, metamorphic amphibolite schist within cismontane woodland (streambanks) and meadows and seeps (640'–722').	May–June	Absent; no habitat on the site.
Thread-leaved beakseed (<i>Bulbostylis capillaris</i>)	–	–	4.2	Lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest (1,296'–6,808').	June–August	Absent; no habitat on the site and outside of known range.
Pink creamsacs (<i>Castilleja rubicundula</i> var. <i>rubicundula</i>)	–	–	1B.2	Serpentine substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (66'–2,986').	April–June	Absent; no habitat on the site.
Northern clarkia (<i>Clarkia borealis</i> ssp. <i>borealis</i>)	-	-	1B.3	Often roadcuts within chaparral, cismontane woodland, and lower montane coniferous forest (1,312'–5,135').	June–September	Absent; no habitat on the site.
Silky cryptantha (<i>Cryptantha crinita</i>)	-	-	1B.2	Gravelly streambeds within cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grassland (200'–3,986').	April–May	Low Potential; marginal habitat onsite and nearest known occurrence more than 2 miles away.
Red-stemmed Cryptantha (<i>Cryptantha rostellata</i>)	-	-	4.2	Often gravelly, volcanic openings and often roadsides within cismontane woodland and valley and foothill grassland (131'–2,645').	April–June	Absent; no habitat on the site.
Mountain lady's-slipper (<i>Cypripedium montanum</i>)	–	–	4.2	Broadleaf upland forest, cismontane woodland, lower montane coniferous forest, and North Coast coniferous forest (607'–7,300').	March–August	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Shasta fawn lily (<i>Erythronium shastense</i>)	-	-	1B.2	Usually carbonate soils, rocky, north-facing or shaded, and can form clumps due to bulb offsets, within cismontane woodland and lower montane coniferous forest (1,148'–3,346').	(February) March–April	Absent; no habitat on the site.
Boggs Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	–	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (33'–7,792').	April–August	Absent; no habitat on the site.
Red Bluff dwarf rush (<i>Juncus leiospermus</i> var. <i>leiospermus</i>)	–	–	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; no habitat on the site.
Dubious pea (<i>Lathyrus sulphureus</i> var. <i>argillaceus</i>)	–	–	3	Cismontane woodland, lower montane coniferous forest and upper montane coniferous forest (492'–3,051').	April–May	Absent; no habitat on the site.
Legenere (<i>Legenere limosa</i>)	–	–	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; no habitat on the site.
Bellinger's meadowfoam (<i>Limnanthes floccosa</i> ssp. <i>bellingiana</i>)	-	-	1B.2	Mesic within cismontane woodland and meadows and seeps (951'–3,609').	April–June	Absent; no habitat on the site.
Woolly meadowfoam (<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>)	–	–	4.2	Vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and vernal pools (197'–4,380').	March–May	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Baker's navarretia <i>(Navarretia leucocephala ssp. bakeri)</i>	-	-	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (16'-5,709').	April-July	Absent; no habitat on the site.
Shasta snow-wreath <i>(Neviusia cliftonii)</i>	-	-	1B.2	Often streambanks, sometimes carbonate, volcanic, or metavolcanics within cismontane woodland, lower montane coniferous forest, and riparian woodland (984'-1936').	April-June	Absent; outside of known elevation range.
Slender Orcutt grass <i>(Orcuttia tenuis)</i>	FT	CE	1B.1	Vernal pools, often gravelly (115'-5,774').	May-September	Absent; no habitat on the site.
Ahart's paronychia <i>(Paronychia aharti)</i>	-	-	1B.1	Cismontane woodland, valley and foothill grassland, and vernal pools (98'-1,673').	February-June	Absent; no habitat on the site.
Sanford's arrowhead <i>(Sagittaria sanfordii)</i>	-	-	1B.2	Shallow marshes and freshwater swamps (0'-2,133').	May-October	Low Potential; marginal habitat onsite and nearest known occurrence more than 6 miles away.
Redding checkerbloom <i>(Sidalcea celata)</i>	-	-	3	Sometimes serpentinite within cismontane woodland (443'-5,003').	April-August	Absent; no habitat on the site.
Slender false lupine <i>(Thermopsis gracilis)</i>	-	-	4.3	Sometimes roadside within chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, and North Coast coniferous forest (328'-5,643').	March - July	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species

Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Maverick clover (<i>Trifolium piorkowskii</i>)	-	-	1B.2	Volcanic clay, openings, and often streambanks within chaparral, cismontane woodland, lower montane coniferous forest, mesic areas of valley and foothill grassland, and vernal pools (Consortium of California Herbaria [CCH 2020] (525'–2,231')).	April–May	Absent; no habitat on the site.
Shasta huckleberry (<i>Vaccinium shastense</i> ssp. <i>shastense</i>)	-	-	1B.3	Acidic, mesic, often in streambanks, sometimes seeps, rocky outcrops, roadsides, and disturbed areas in chaparral, cismontane woodland, lower montane coniferous forest, riparian forest, and subalpine coniferous forest (1,066'–4,003').	December–May (June–September)	Absent; outside of known elevation range.
Oval-leaved viburnum (<i>Viburnum ellipticum</i>)	–	–	2B.3	Chaparral, cismontane woodland, and lower montane coniferous forest communities (705'–4,593').	May–June	Absent; no habitat on the site.
Invertebrates						
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	-	-	Elderberry shrubs.	Any season	Absent; no habitat on the site.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	-	-	Vernal pools/wetlands.	November–April	Absent; no habitat on the site.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	-	-	Vernal pools/wetlands.	November–April	Absent; no habitat on the site.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE	-	-	Vernal pools/wetlands.	November–April	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Fish						
Delta smelt <i>(Hypomesus transpacificus)</i>	FT	CE	-	Sacramento-San Joaquin Delta.	N/A	Absent; no habitat on the site.
Chinook salmon (Central Valley spring-run Evolutionarily Significant Unit] ESU)) <i>(Oncorhynchus tshawytscha)</i>	FT	CT	-	Undammed rivers, streams, creeks.	N/A	Absent; no habitat on the site.
Chinook salmon (Sacramento River winter-run ESU) <i>(Oncorhynchus tshawytscha)</i>	FE	CE	-	Undammed rivers, streams, creeks.	N/A	Absent; no habitat on the site.
Pacific Lamprey <i>Entosphenus tridentatus)</i>	FC		SSC	Drainages including rivers and creeks of the central valley, usually with connectivity to the ocean.	N/A	Absent; no habitat on the site.
Steelhead (CA Central Valley Distinct Population Segments [DPS]) <i>(Oncorhynchus mykiss)</i>	FT	-	-	Undammed rivers, streams, creeks.	N/A	Absent; no habitat on the site.
Amphibians						
Shasta salamander <i>(Hydromantes shastae)</i>		CT		Occurs in mixed Douglas fir forest. Usually found on cliff faces, cavern walls, and rock cracks. Eggs are lain in limestone shelters and young hatch out fully developed.		Absent; no habitat on the site.
California red-legged frog <i>(Rana draytonii)</i>	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1- November 1	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Foothill yellow-legged frog (<i>Rana boylei</i>)	-	CC	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	May - October	Absent; no habitat on the site.
Western spadefoot (<i>Spea hammondi</i>)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Absent; no habitat on the site.
Reptiles						
Northwestern pond turtle (<i>Actinemys marmorata</i>)	-	-	SSC	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-September	Absent; no habitat on the site.
Birds						
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Fd	CE	CFP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Absent; no habitat on the site.
Northern spotted owl (<i>Strix occidentalis caurina</i>)	FT	CC	SSC	Found from Marin County through coastal ranges north to British Columbia; breeds in old growth mature forest. They use forests with greater complexity and structure.	March-June	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Bank swallow (<i>Riparia riparia</i>)	-	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 habitat on the site.
Purple martin (<i>Progne subis</i>)	-	-	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.	May-August	Absent; no habitat on the site.
Tricolored blackbird (<i>Agelaius tricolor</i>)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. 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.	March-August	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Mammals						
Fisher-West Coast DPS <i>(Pekania pennanti)</i>	FPT	CT	SSC	Northern coniferous and mixed forests of Canada and northern United States.	Any season	Absent; no habitat on the site.
Pallid Bat <i>(Antrozous pallidus)</i>			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] 2020).	April– September	Low Potential; marginal habitat onsite and nearest known occurrence more than 8 miles away.
Spotted bat <i>(Euderma maculatum)</i>	-	-	SSC	Roost in cracks, crevices, and caves, usually high in fractured rock cliffs. Found in desert, sub-alpine meadows, desert-scrub, pinyon-juniper woodland, ponderosa pine, mixed conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pastures (WBWG 2020).	April- September	Absent; no habitat on the site.
Townsend's big-eared bat <i>(Corynorhinus townsendii)</i>	-	-	SSC	Caves, mines, buildings, rock crevices, trees.	April- September	Absent; no habitat on the site.
Western red bat <i>(Lasiurus blossevillii)</i>	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (WBWG 2020).	April- September	Low Potential; marginal habitat onsite and nearest known occurrence more than 8 miles away.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			

Status Codes NOTE:

FESA	Federal Endangered Species Act					
CESA	California Endangered Species Act					
FE	FESA listed, Endangered.					
FPT	Formally Proposed for FESA listing as Threatened.					
FT	FESA listed, Threatened.					
FC	Candidate for FESA listing as Threatened or Endangered.					
Fd	Formally Delisted (delisted species are monitored for 5 years).					
BCC	USFWS Bird of Conservation Concern (USFWS 2002).					
CT	CESA- or NPPA-listed, Threatened.					
CC	Candidate for CESA listing as Endangered or Threatened.					
CE	CESA or NPPA listed, Endangered.					
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).					
SSC	CDFW Species of Special Concern (CDFW, updated August 2019).					
1B	CRPR/Rare or Endangered in California and elsewhere.					
2B	Plants rare, threatened, or endangered in California but more common elsewhere.					
3	CRPR/Plants About Which More Information is Needed – A Review List.					
4	CRPR/Plants of Limited Distribution – A Watch List.					
0.1	Threat Rank/Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)					
0.2	Threat Rank/Moderately threatened in California (20-80 percent occurrences threatened / moderate degree and immediacy of threat)					
0.3	Threat Rank/Not very threatened in California (<20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)					

4.4.1 Special-Status Plants

No special-status plants were found during the field assessment. A number of special-status plants have been documented in the CNDDDB to occur in the vicinity of the Project site, and vegetation communities onsite represent potentially suitable habitat for a number of other regionally occurring special-status plants (Table 2). Based on current site conditions, the potentially occurring special-status plants onsite include watershield (*Brasenia schreberi*), silky cryptantha (*Cryptantha crinita*), and Sanford's arrowhead (*Sagittaria sanfordii*).

Watershield

Watershield is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.3 species (CNPS 2020). This species is an herbaceous rhizomatous perennial that occurs usually in freshwater marshes and swamps (CNPS 2020). Watershield blooms from June through September and is known to occur from 98 to 7,218 feet above MSL (CNPS 2020). The current range for Watershield in California includes Butte, Calaveras, El Dorado, Fresno, Kern, Lake, Lassen, Mendocino, Merced, Nevada, Plumas, Sacramento, Shasta, Sierra, Siskiyou, San Joaquin, Sutter, Tehama, Tulare, and Tuolumne counties. It's presence in Butte and Kern counties is uncertain (CNPS 2020).

There is one CNDDDB-documented occurrence of watershield more than eight miles from the Project site (CDFW 2020). The intermittent drainage within the Project site provides marginally suitable habitat for this species. Watershield has low potential to occur onsite.

Silky Cryptantha

Silky cryptantha is not listed as pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species (CNPS 2020). This species is an annual herb that occurs in gravelly streambeds within cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grasslands (CNPS 2020). Silky cryptantha blooms between April and May and is known to occur at elevations ranging from 200 to 3,986 feet above MSL (CNPS 2020). The current range of this species includes Glenn, Shasta, and Tehama counties (CNPS 2020).

There are three CNDDDB-documented occurrences of silky cryptantha more than two miles from the Project site (CDFW 2020). The intermittent drainage within the Project Site provide suitable habitat for this species. silky cryptantha has potential to occur onsite.

Sanford's Arrowhead

Sanford's arrowhead is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a perennial rhizomatous herb that occurs in shallow, freshwater marshes and swamps (CNPS 2020). Sanford's arrowhead blooms from May through October, and is known to occur at elevations ranging from sea level to 2,133 feet above MSL (CNPS 2020). Sanford's arrowhead is endemic to California; the current range of this species includes Butte, Del Norte, El Dorado, Fresno, Merced, Mariposa, Marin, Napa, Orange, Placer, Sacramento, San Bernardino, San Joaquin, Shasta, Solano, Tehama, Tulare, Ventura, and Yuba counties (CNPS 2020).

There is one CNDDDB-documented occurrence of Sanford's arrowhead more than six miles from the Project site (CDFW 2020). The intermittent drainage within the Project site provides marginally suitable habitat for this species. Sanford's arrowhead has low potential to occur onsite.

4.4.2 Special-Status Animals

No special-status animals were found during the field assessment. A number of special-status animals have been documented in the CNDDDB within five miles of the Project site (CDFW 2020). The habitats and vegetation communities found onsite represent potentially suitable habitat for several special-status animal species (Table 2). The Project site supports marginal roosting habitat for pallid bat (*Antrozous pallidus*) and western red bat (*Lasiurus blossevillei*). Detailed descriptions of these species are provided below.

Pallid Bat

Pallid bats are not listed pursuant to either the California or federal ESAs; however, it is designated as an SSC by CDFW. Their range extends from British Columbia to central Mexico (Harvey et al. 2011). Pallid bat has a strong association with arid regions with rocky outcrops near water (Harvey et al. 2011). Roosting

usually occurs in rock crevices and buildings, but is also found in tree cavities, caves, mines, and piles of rocks (Harvey et al. 2011). Pallid bat roosts in small colonies of 20 or more individuals (Harvey et al. 2011). This species will give birth to one to two offspring in May or June (Harvey et al. 2011).

There is one CNDDDB-documented occurrence of pallid bat more than eight miles from the Project site (CDFW 2020). The trees within the Project Site along the riparian corridor provide marginally suitable habitat for this species. Pallid bat has low potential to occur onsite.

Western Red Bat

The western red bat is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This species is broadly distributed, its range extending from southern British Columbia in Canada through Argentina and Chile in South America, and including much of the western U.S. This solitary species day roosts primarily in the foliage of trees or shrubs in edge habitats bordering streams or open fields, in orchards, and occasionally urban areas. They may be associated with intact riparian habitat, especially with willows, cottonwoods, and sycamores. This species may occasionally utilize caves for roosting as well. They feed on a variety of insects, and generally begin to forage one to two hours after sunset. This species is considered highly migratory; however, the timing of migration and the summer ranges of males and females may be different. Winter behavior of this species is poorly understood (WBWG 2020).

There is one CNDDDB-documented occurrence of western red bat more than nine miles from Project site (CDFW 2020). The trees within the Project Site along the riparian corridor provide marginally suitable habitat for this species. Western red bat has low potential to occur onsite.

4.4.3 Special-Status Birds

Migratory Bird Treaty Act Birds

While not considered special status as previously defined in this BRA, many birds are provided protection under the MBTA, including common species such as house finch (*Haemorrhous mexicanus*), northern mockingbird (*Mimus polyglottos*), and American robin (*Turdus migratorius*) have potential to nest and forage onsite.

4.5 Wildlife Movement/Corridors

The Project site is an infill project located within a predominantly developed portion of the City of Redding. There is a riparian corridor along the eastern edge of the Project Site with vacant land to the southeast. The riparian corridor likely provides habitat for local wildlife, particularly birds. However, it probably does not represent a significant wildlife movement corridor, due to the developed nature and absence of habitat in the surrounding lands.

5.0 RECOMMENDATIONS

5.1 Aquatic Resources/Potential Waters of the U.S.

A total of 0.565 acre of potential Waters of the U.S. has been provisionally mapped within the Project site. This includes a marsh and an intermittent drainage. The following mitigation measures are recommended to minimize potential impacts to Waters of the U.S.:

- Prepare an aquatic resources delineation according to USACE standards.
- If any direct impacts to jurisdictional features are proposed, 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 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.
- If the aquatic resources are determined to be non-USACE jurisdictional, a Waste Discharge Requirement under the California Porter-Cologne Water Quality Control Act may be required for discharge into Waters of the State.

5.2 California Department of Fish and Wildlife 1602 Streambed Alteration Agreement

If the Project plans to impact the intermittent drainage or riparian vegetation, then a 1602 streambed alteration notification will need to be prepared. The Project applicant will then need to ensure that a CDFW 1602 Streambed Alteration Agreement has been obtained prior to the approval of grading and improvement plans and before any groundbreaking activity associated with the Project site. The construction contractor will then need to adhere to all conditions outlined in the Streambed Alteration Agreement.

5.3 Special-Status Plants

Due to the disturbed nature of most of the Project site, the potential for occurrence of special-status plants is significantly reduced. The intermittent drainage and marsh represent marginally suitable habitat for watershield, silky cryptantha, and Sanford's arrowhead.

In order to minimize potential impacts to special-status plants the following measures are recommended:

- If no impacts are proposed for the intermittent drainage and marsh, a plant survey may not be necessary.

- If there are proposed impacts for the intermittent drainage and marsh, perform focused plant surveys according to USFWS, CDFW, and CNPS protocol. Surveys will be timed according to the blooming period for target species and known reference populations, if available, and/or local herbaria will be visited prior to surveys to confirm the appropriate phenological state of the target species. The USFWS generally considers plant survey results valid for approximately three years.
- If special-status plant species are found, avoidance zones may be established around plants to clearly demarcate areas for avoidance. Avoidance measures and buffer distances may vary between species and the specific avoidance zone distance will be determined in coordination with appropriate resource agencies (CDFW and USFWS).
- If special-status plant species are found within the Project site and avoidance of the species is not possible, additional measures such as seed collection and/or translocation may be developed in consultation with the appropriate agencies.
- If no special-status plants are found, no further measures pertaining to special-status plants are necessary.

5.4 Special-Status Invertebrates

There are no special-status invertebrate species present at the Project site.

5.5 Special-Status Fish

There are no special-status fish species present at the Project site.

5.6 Special-Status Amphibians

There are no special-status amphibian species present at the Project site.

5.7 Special-Status Reptiles

There are no special-status reptiles at the Project site.

5.8 Special-Status and Migratory Bird Treaty Act Birds

The Project site does not provide foraging or nesting habitat for special-status bird species. However, it does provide nesting habitat for several common birds protected under the MBTA and California Fish and Game Code.

The impacts to nesting special-status and MBTA-protected birds could be considered significant. As such, to ensure that there are no impacts to protected special-status birds, including their eggs and 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 within 300 feet of the Project site for nesting raptors, and 100 feet

of the Project site 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. Impacts to foraging/wintering habitat of non-listed birds protected under the MBTA are typically considered less than significant.

5.9 Special-Status Mammals

The Project site provides marginal roosting habitat for pallid bat and western red bat. To ensure that there are no impacts to these species, the following mitigation measures are recommended:

5.9.1 *Pallid and Western Red Bats*

- Prior to any disturbances to the trees, a qualified biologist will conduct a preconstruction survey within seven days of tree disturbance activities to determine the presence of roosting bats.
- If roosting bats are found within the trees, a qualified biologist shall determine what types of roosts are present. If non-maternity and non-hibernaculum day or night roosts are present, a qualified biologist will use safe eviction methods to remove bats unless direct impacts to these roosts can be avoided. If a winter hibernaculum or maternity roost is present, impacts to the resource (e.g., tree) will not occur until the bats have vacated or are safely evicted using methods acceptable to CDFW.
- If no roosting bats are found during the preconstruction survey, no further measures are recommended.

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LIST OF ATTACHMENTS

Attachment A – California Natural Diversity Database 9-quad List for the Enterprise, California Quad

Attachment B – U.S. Fish and Wildlife Service IPaC Trust Resource Report for the Project Area

Attachment C – California Native Plant Society 9-quad Search for the Enterprise, California Quad

Attachment D – Representative Site Photos

ATTACHMENT A

California Natural Diversity Database 9-quad List for the Enterprise, California Quad



Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (Shasta Dam (4012264) OR Project City (4012263) OR Bella Vista (4012262) OR Redding (4012254) OR Palo Cedro (4012252) OR Enterprise (4012253) OR Olinda (4012244) OR Cottonwood (4012243) OR Balls Ferry (4012242))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAD09030	<i>Hydromantes shastae</i> Shasta salamander	None	Threatened	G1G2	S3	
AAABF02020	<i>Spea hammondi</i> western spadefoot	None	None	G3	S3	SSC
AAABH01050	<i>Rana boylei</i> foothill yellow-legged frog	None	Candidate Threatened	G3	S3	SSC
ABNGA04040	<i>Ardea alba</i> great egret	None	None	G5	S4	
ABNKC01010	<i>Pandion haliaetus</i> osprey	None	None	G5	S4	WL
ABNKC10010	<i>Haliaeetus leucocephalus</i> bald eagle	Delisted	Endangered	G5	S3	FP
ABPAU01010	<i>Progne subis</i> purple martin	None	None	G5	S3	SSC
ABPAU08010	<i>Riparia riparia</i> bank swallow	None	Threatened	G5	S2	
ABPBXB0020	<i>Agelaius tricolor</i> tricolored blackbird	None	Threatened	G2G3	S1S2	SSC
AFBAA02100	<i>Entosphenus tridentatus</i> Pacific lamprey	None	None	G4	S4	SSC
AFCHA0205A	<i>Oncorhynchus tshawytscha</i> pop. 6 chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	G5	S1	
AFCHA0205B	<i>Oncorhynchus tshawytscha</i> pop. 7 chinook salmon - Sacramento River winter-run ESU	Endangered	Endangered	G5	S1	
AFCHA0209K	<i>Oncorhynchus mykiss irideus</i> pop. 11 steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	
AMACC01020	<i>Myotis yumanensis</i> Yuma myotis	None	None	G5	S4	
AMACC02010	<i>Lasionycteris noctivagans</i> silver-haired bat	None	None	G5	S3S4	
AMACC05030	<i>Lasiurus cinereus</i> hoary bat	None	None	G5	S4	
AMACC05060	<i>Lasiurus blossevillei</i> western red bat	None	None	G5	S3	SSC
AMACC07010	<i>Euderma maculatum</i> spotted bat	None	None	G4	S3	SSC
AMACC08010	<i>Corynorhinus townsendii</i> Townsend's big-eared bat	None	None	G3G4	S2	SSC



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMACC10010	<i>Antrozous pallidus</i> pallid bat	None	None	G5	S3	SSC
AMAFJ01010	<i>Erethizon dorsatum</i> North American porcupine	None	None	G5	S3	
AMAJF01021	<i>Pekania pennanti</i> fisher - West Coast DPS	None	Threatened	G5T2T3Q	S2S3	SSC
ARAAD02030	<i>Emys marmorata</i> western pond turtle	None	None	G3G4	S3	SSC
CTT61410CA	<i>Great Valley Cottonwood Riparian Forest</i> Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT61420CA	<i>Great Valley Mixed Riparian Forest</i> Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
CTT61430CA	<i>Great Valley Valley Oak Riparian Forest</i> Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
CTT63410CA	<i>Great Valley Willow Scrub</i> Great Valley Willow Scrub	None	None	G3	S3.2	
ICBRA03030	<i>Branchinecta lynchi</i> vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	<i>Linderiella occidentalis</i> California linderiella	None	None	G2G3	S2S3	
ICBRA10010	<i>Lepidurus packardii</i> vernal pool tadpole shrimp	Endangered	None	G4	S3S4	
IICOL48011	<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	Threatened	None	G3T2	S2	
IICOL49010	<i>Anthicus sacramento</i> Sacramento anthicid beetle	None	None	G1	S1	
IICOL49020	<i>Anthicus antiochensis</i> Antioch Dunes anthicid beetle	None	None	G1	S1	
IMBIV27020	<i>Margaritifera falcata</i> western pearlshell	None	None	G4G5	S1S2	
IMGASA2030	<i>Trilobopsis roperi</i> Shasta chaparral	None	None	G1	S1	
IMGASA2040	<i>Trilobopsis tehamana</i> Tehama chaparral	None	None	G1	S1	
IMGASA4070	<i>Vespericola shasta</i> Shasta hesperian	None	None	G1	S1	
IMGASC2280	<i>Helminthoglypta hertleini</i> Oregon shoulderband	None	None	G1	S1S2	
IMGASC7092	<i>Monadenia troglodytes wintu</i> Wintu sideband	None	None	G1G2T1T2	S1S2	
IMGASG3110	<i>Fluminicola seminalis</i> nugget pebblesnail	None	None	G2	S1S2	



Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IMGASL7030	<i>Lanx patelloides</i> kneecap lanx	None	None	G2	S2	
PDAST11061	<i>Balsamorhiza macrolepis</i> big-scale balsamroot	None	None	G2	S2	1B.2
PDBOR0A0Q0	<i>Cryptantha crinita</i> silky cryptantha	None	None	G2	S2	1B.2
PDCAB01010	<i>Brasenia schreberi</i> watershield	None	None	G5	S3	2B.3
PDCAM0C010	<i>Legenere limosa</i> legenere	None	None	G2	S2	1B.1
PDCAR0L0V0	<i>Paronychia ahartii</i> Ahart's paronychia	None	None	G3	S3	1B.1
PDCPR07080	<i>Viburnum ellipticum</i> oval-leaved viburnum	None	None	G4G5	S3?	2B.3
PDERI181Z1	<i>Vaccinium shastense ssp. shastense</i> Shasta huckleberry	None	None	G4T3	S3	1B.3
PDFAB25101	<i>Lathyrus sulphureus var. argillaceus</i> dubious pea	None	None	G5T1T2Q	S1S2	3
PDFAB40410	<i>Trifolium piorkowskii</i> maverick clover	None	None	G2	S2	1B.2
PDLIM02041	<i>Limnanthes floccosa ssp. bellingeriana</i> Bellinger's meadowfoam	None	None	G4T2T3	S1	1B.2
PDLIM02043	<i>Limnanthes floccosa ssp. floccosa</i> woolly meadowfoam	None	None	G4T4	S3	4.2
PDONA05062	<i>Clarkia borealis ssp. borealis</i> northern clarkia	None	None	G3T3	S3	1B.3
PDPLM0C0E1	<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	None	None	G4T2	S2	1B.1
PDROS14020	<i>Nevisia cliftonii</i> Shasta snow-wreath	None	None	G2	S2	1B.2
PDSCR0D482	<i>Castilleja rubicundula var. rubicundula</i> pink creamsacs	None	None	G5T2	S2	1B.2
PDSCR0R060	<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	None	Endangered	G2	S2	1B.2
PMALI040Q0	<i>Sagittaria sanfordii</i> Sanford's arrowhead	None	None	G3	S3	1B.2
PMJUN011L2	<i>Juncus leiospermus var. leiospermus</i> Red Bluff dwarf rush	None	None	G2T2	S2	1B.1
PMLIL0C0H0	<i>Brodiaea matsonii</i> Sulphur Creek brodiaea	None	None	G1	S1	1B.1
PMPOA040K0	<i>Agrostis hendersonii</i> Henderson's bent grass	None	None	G2Q	S2	3.2



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMPOA4G050	<i>Orcuttia tenuis</i> slender Orcutt grass	Threatened	Endangered	G2	S2	1B.1

Record Count: 62

U.S. Fish and Wildlife Service IPaC Trust Resource Report for the Project Area

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Shasta County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
------	--------

Northern Spotted Owl *Strix occidentalis caurina*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/1123>

Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2891>

Fishes

NAME

STATUS

Delta Smelt *Hypomesus transpacificus*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/321>

Insects

NAME

STATUS

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/7850>

Crustaceans

NAME

STATUS

Conservancy Fairy Shrimp *Branchinecta conservatio*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/8246>

Vernal Pool Fairy Shrimp *Branchinecta lynchi*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/498>

Vernal Pool Tadpole Shrimp *Lepidurus packardii*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2246>

Flowering Plants

NAME

STATUS

Slender Orcutt Grass *Orcuttia tenuis*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/1063>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

[below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Black Swift *Cypseloides niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8878>

Breeds Jun 15 to Sep 10

California Thrasher *Toxostoma redivivum*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Jul 31

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Dec 31

Common Yellowthroat <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird <i>Selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Song Sparrow <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee <i>Pipilo maculatus clementae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10

Willet *Tringa semipalmata*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

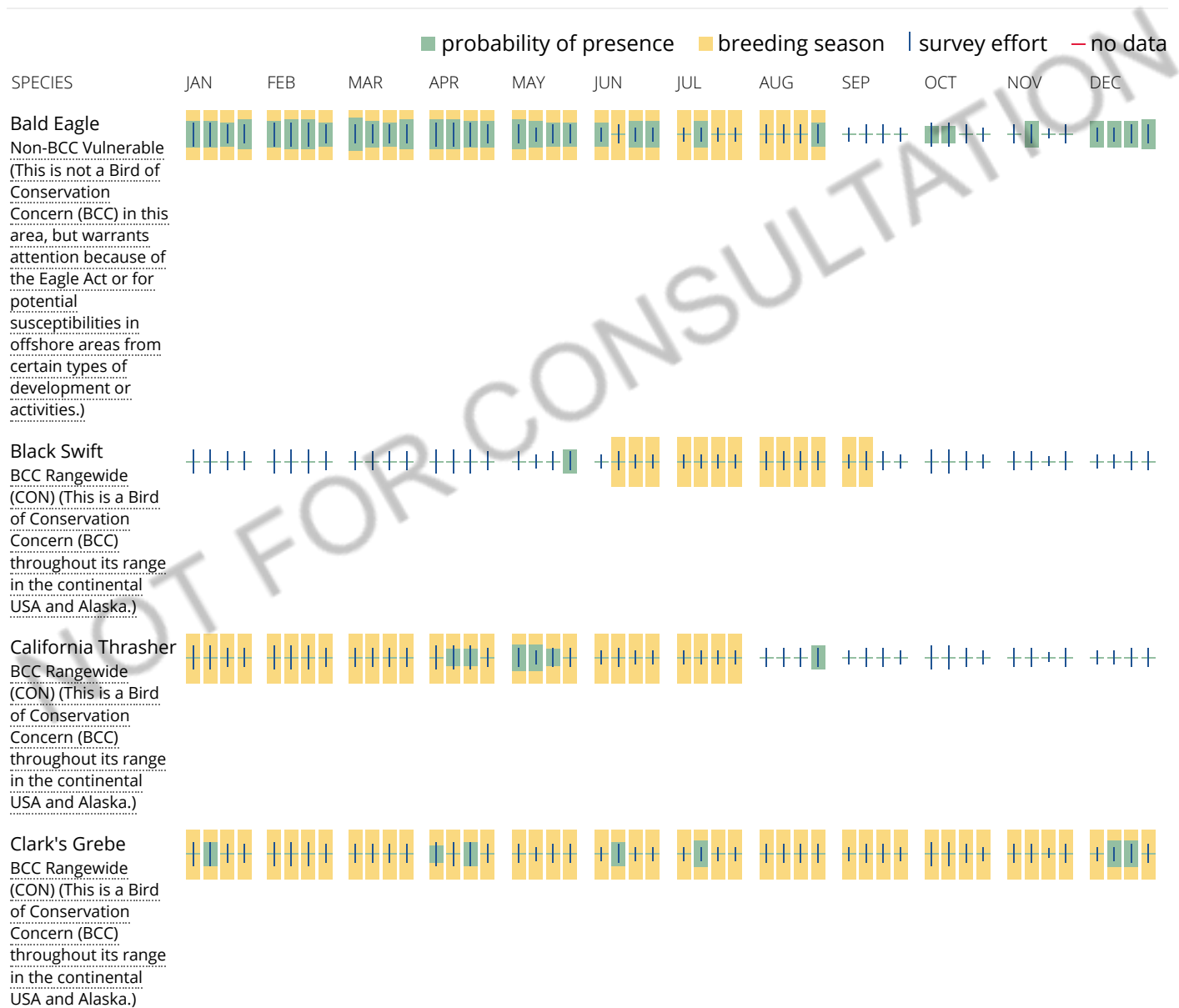
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

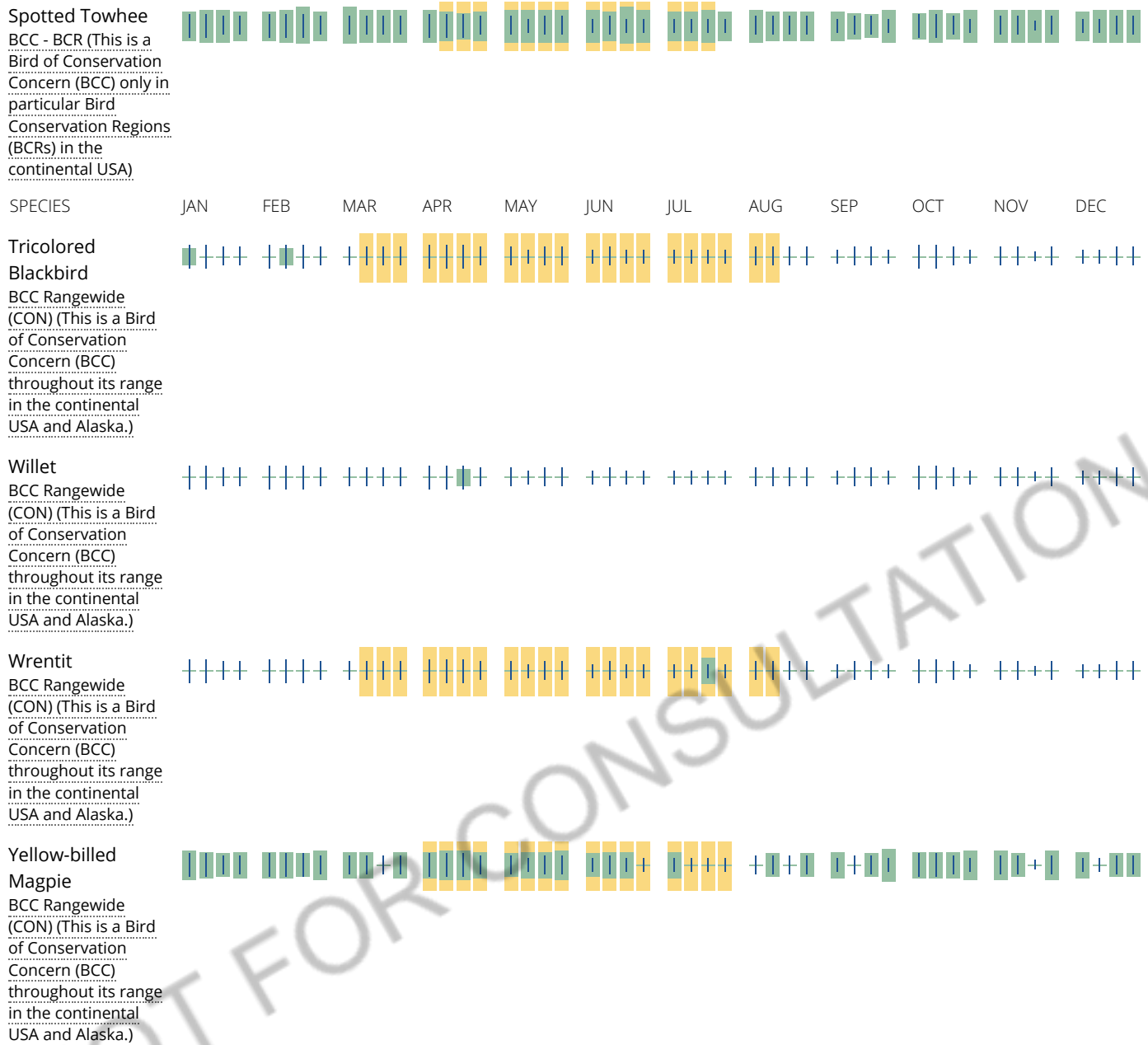
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.







Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project

intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

ATTACHMENT C

California Native Plant Society 9-quad Search for the Enterprise, California Quad



*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

31 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quads 4012264, 4012263, 4012262, 4012254, 4012253, 4012252, 4012244 4012243 and 4012242;

[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
Adiantum shastense	Shasta maidenhair fern	Pteridaceae	perennial herb	Apr-Aug	4.3	S3	G3
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	3.2	S2	G2Q
Allium sanbornii var. sanbornii	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	4.2	S3S4	G4T3T4
Anomobryum julaceum	slender silver moss	Bryaceae	moss		4.2	S2	G5?
Arnica venosa	Shasta County arnica	Asteraceae	perennial rhizomatous herb	May-Jul(Sep)	4.2	S3	G3
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3	S3	G5
Brodiaea matsonii	Sulphur Creek brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	1B.1	S1	G1
Bulbostylis capillaris	thread-leaved beakseed	Cyperaceae	annual herb	Jun-Aug	4.2	S3	G5
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	1B.2	S2	G5T2
Clarkia borealis ssp. borealis	northern clarkia	Onagraceae	annual herb	Jun-Sep	1B.3	S3	G3T3
Cryptantha crinita	silky cryptantha	Boraginaceae	annual herb	Apr-May	1B.2	S2	G2
Cryptantha rostellata	red-stemmed cryptantha	Boraginaceae	annual herb	Apr-Jun	4.2	S3	G4
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Erythronium shastense	Shasta fawn lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Apr	1B.2	S2	G2

<u>Gratiola heterosepala</u>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
<u>Juncus leiostermus var. leiostermus</u>	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	1B.1	S2	G2T2
<u>Lathyrus sulphureus var. argillaceus</u>	dubious pea	Fabaceae	perennial herb	Apr-May	3	S1S2	G5T1T2Q
<u>Legenere limosa</u>	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
<u>Limnanthes floccosa ssp. bellingeriana</u>	Bellinger's meadowfoam	Limnanthaceae	annual herb	Apr-Jun	1B.2	S1	G4T2T3
<u>Limnanthes floccosa ssp. floccosa</u>	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	4.2	S3	G4T4
<u>Navarretia leucocephala ssp. bakeri</u>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
<u>Neviusia cliftonii</u>	Shasta snow-wreath	Rosaceae	perennial deciduous shrub	Apr-Jun	1B.2	S2	G2
<u>Orcuttia tenuis</u>	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
<u>Paronychia ahartii</u>	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	1B.1	S3	G3
<u>Sagittaria sanfordii</u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
<u>Sidalcea celata</u>	Redding checkerbloom	Malvaceae	perennial herb	Apr-Aug	3	S2S3	G2G3
<u>Thermopsis gracilis</u>	slender false lupine	Fabaceae	perennial rhizomatous herb	Mar-Jul	4.3	S4	G4
<u>Vaccinium shastense ssp. shastense</u>	Shasta huckleberry	Ericaceae	perennial deciduous shrub	Dec-May(Jun-Sep)	1B.3	S3	G4T3
<u>Viburnum ellipticum</u>	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	2B.3	S3?	G4G5

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Contributors

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[The California Lichen Society](#)

[California Natural Diversity Database](#)

[The Jepson Flora Project](#)

[The Consortium of California Herbaria](#)

[CalPhotos](#)

Questions and Comments

rareplants@cnps.org

ATTACHMENT D

Representative Site Photos



Photo 1. Intermittent drainage, looking south.
Photo taken December 16, 2019.



Photo 2. Grassland, looking northeast.
Photo taken December 16, 2019.



Photo 3. Seasonal wetland, looking west.
Photo taken December 16, 2019.



Photo 4. Riparian corridor, looking northeast.
Photo taken December 16, 2019.



Appendix D

Noise Assessment

January 2020

Enterprise Elementary School District (EESD)
1155 Mistletoe Lane
Redding, CA 96002

RE: *Mistletoe Elementary School Project – Noise Memorandum*

PROJECT DESCRIPTION

The Project proposes the construction of a gymnasium, an athletic field, vehicle parking areas, and drive isle as additions to the Mistletoe Elementary School in Redding, California. Additionally, the Project proposes to construct an operations and maintenance (O&M) building and bus parking area for school district operations. The Project would occur on three parcels totaling approximately five acres adjacent to Del Monte Street in the City of Redding. The Project is anticipated to be constructed over a two-year period.

During operation, the components of the proposed Projects will be utilized for typical school operation. Of the approximately five-acre site, one acre is on the existing Mistletoe Elementary School site. This area is proposed to be used for the new gymnasium and related parking lot. The school gymnasium would be used for school-related sports practice and events before and after school hours. The athletic field would be utilized in intervals of one hour or less, five times per day for physical education classes and two times per day for recess, during school hours. Outside of school hours, the soccer field would be used daily for two hours of practice or games, with an anticipated attendance of 25 individuals. The new drive isle would be constructed between the existing Mistletoe Elementary School driveway and Del Monte Street (which are currently not connected). This new drive isle would allow for better site circulation during drop-off and pick-up times for the school students. The O&M building is the location where maintenance is proposed to be performed on school vehicles, including trucks, vans, trailers, and mowers. This building would also be a multi-purpose storage area for cold food, tools and materials, and files which need to be stored long-term. This building is also the “home base” for bus drivers and school maintenance workers.

The proposed Project would not increase student capacity at the school.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE EXISTING

Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (Federal Transit Administration 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Under the dB scale, three sources of equal loudness together would produce an increase of 5 dB.

Sound Propagation and Attenuation

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. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB (dBA) for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2008), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend length-wise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the line of sight between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA “weighting” added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented 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- to 70-dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban

residential or residential-commercial areas (60 to 75 dBA), or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA noise levels, 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.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest sensitive noise receptors to the Project site are residences located approximately 30 feet west of the development site, specifically where the new drive isle would be located.

Existing Ambient Noise Environment

Redding is impacted by various noise sources. It is subject to typical urban noise such as noise generated by traffic, heavy machinery, and day-to-day outdoor activities. Mobile sources of noise, especially cars and trucks, are the most common source of noise in the community. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout Redding that generate stationary source noise. The Benton Airpark is located approximately three miles east of the Project site. The Project site is located outside of the boundaries of the Benton Airpark land use plan and is thereby beyond the noise contours generated by airport operations. Furthermore, the Project site is located more than two miles from any other airport.

REGULATORY FRAMEWORK

City of Redding General Plan Noise Element

The City of Redding Noise Element of the General Plan establishes goals and policies addressing major noise sources within the community. The following provides the applicable goals, policies and criteria for evaluating the feasibility and potential noise impact associated with the proposed Project:

Goal N2: Protect Residents from Exposure to Excessive Transportation-Related Noise.

- **Policy N2B:** Prevent development of new projects which contain noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation sources with exceed the levels specified in [Table 1], unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in the Table.

Table 1. Maximum Allowable Noise Exposure for Transportation Noise Sources			
Land Use	Outdoor Activity Areas ¹ L _{dn} /CNEL, dB	Interior Spaces	
		L _{dn} /CNEL, dB	L _{eq} , dB ²
Residential	60 ³	45	--
Transit Lodging	60 ³	45	--
Hospitals, Nursing Homes	60 ^{3,4}	45	--
Theaters, Auditoriums, Music Hall	--	--	35
Churches, Meeting Halls	60 ³	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

Source: City of Redding General Plan

Notes: ¹The exterior noise level standards shall be applied to the outside activity area of the receiving land use. Outdoor activity areas are normally located near or adjacent to the main structure and often occupied by porches, patios, balconies, etc.

²As determined for a typical worst-case hour during periods of use.

³Where it is not possible to reduce noise in outdoor activity areas to 60 dBA L_{dn}/CNEL or less, using a practical application of the best available noise reduction measures, higher exterior noise levels may be allowed provided that practical exterior noise level reduction measures have been implemented and that interior noise levels are in compliance with this Table.

⁴In the case of hotel/motel facilities or other transient lodging, outdoor activity areas, such as pool areas, may not be included in the project design. In these cases, only interior noise-level criterion will apply.

- **Policy N2C:** Mitigate noise created by new transportation noise sources consistent with the levels specified in [Table 1] in outdoor-activity areas and interior spaces of existing noise sensitive land uses.
- **Policy N2E:** Require acoustical analysis for noise sensitive land uses proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in [Table 1 above] or the performance standards of [Table 2 below] to determine mitigation for inclusion in the project design.

Table 2. Noise Level Performance Standards for New Projects Affected by or Including Nontransportation Noise Sources		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L _{eq} , dB	55	45

Source: City of Redding General Plan

Notes: Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply for residential units established in conjunction with industrial or commercial uses. The City can impose noise level standards which are more restrictive than those specified above based upon determination of existing low ambient noise levels.

Industrial, light industrial, commercial, and public service facilities which have the potential for producing objectionable noise levels at nearby noise sensitive uses are dispersed throughout the City. Fixed noise sources which are typically of concern include, but are not limited to, the following: HVAC systems, generators, air compressors, outdoor speakers, fans and blowers (this list only includes equipment applicable for the proposed Project).

- **Policy N2G:** enforce existing applicable sections of the California Vehicle Code related to vehicle or equipment mufflers and modified exhaust systems.

Goal N3:

- **Policy N3A:** Prohibit the development of noise sensitive uses where the noise level due to nontransportation sources will exceed the noise level standards of [Table 2] as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in [Table 2].
- **Policy N3B:** Mitigate noise created by new proposed nontransportation sources consistent with the noise level standards of [Table 2] as measured immediately within the property line of lands designated for noise sensitive land uses. Noise level standards for non-noise sensitive uses will generally be 10 dB higher before mitigation is required.
- **Policy N3C:** Require acoustical analysis of new nonresidential land uses and the expansion of existing nonresidential land uses if likely to produce noise levels exceeding the performance standards of [Table 2] within the property line of existing or planned noise sensitive uses.

City of Redding Municipal Code

The Redding Municipal Code, Section 18.40.100, Noise Standards specifies additional noise regulations pertaining to the allowable exterior noise levels based upon the time of day and land use category. The City's Noise Ordinance was established in order to control unnecessary, excessive and annoying noise while protecting the public health, safety and welfare. These noise standards are presented in Table 3 below.

Table 3. Exterior Noise Standards		
Receiving Land Use Category	Time Period	Noise Level (Hourly L_{eq} dB)
Residential	10:00 p.m.- 7:00 a.m.	45
	7:00 a.m. to 10: 00 p.m.	55
Office/Commercial	10:00 p.m.- 7:00 a.m.	55
	7:00 a.m. to 10: 00 p.m.	65
Industrial	10:00 p.m.- 7:00 a.m.	N/A ¹
	7:00 a.m. to 10: 00 p.m.	N/A ¹

Source: City of Redding Municipal Code.

Notes: ¹Industrial Noise shall be measured at the property line of any nonresidential district.

Additionally, Section 18.40.100 prohibits the operation of any tools or equipment used in construction, alteration or demolition work in or within five hundred feet of a residential district such that the sound creates a noise disturbance across a property line during the following times:

- May 15th through September 15th: Between the weekday hours of 7:00 p.m. and 6:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.
- September 16th through May 14th: Between the weekday hours of 7:00 p.m. and 7:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.

NOISE IMPACT ANALYSIS

This analysis employs noise prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the Federal Highway Administration's Roadway Construction Model (2008). In order to estimate the worst-case noise levels that may occur at the nearest noise-sensitive receptors, onsite operational noise levels have been calculated with the SoundPLAN 3D noise model (which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources and the geometry and reflective properties of the local terrain, buildings, and barriers) as well as reference measurements taken by ECORP Consulting and other noise analysis.

Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

Would the Project result in a generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Project Construction

Construction noise associated with the proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., building construction, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

Table 4 indicates the anticipated noise levels of construction equipment. The average noise levels presented in Table 4 are based on the quantity, type, and acoustical use factor for each type of equipment that is anticipated to be used.

Table 4. Typical Construction Equipment Noise Levels		
Type of Equipment	Maximum Noise (Lmax) at 50 Feet (dBA)	Maximum 8-Hour Noise (Leq) at 50 Feet (dBA)
Crane	80.6	72.6
Dozer	81.7	77.7
Excavator	80.7	76.7
Generator	80.6	77.6
Grader	85.0	81.0
Other Equipment (greater than 5 horsepower)	85.0	82.0
Paver	77.2	74.2
Roller	80.0	73.0
Tractor	84.0	80.0
Dump Truck	76.5	72.5
Concrete Pump Truck	81.4	74.4
Welder	74.0	70.0
Crane	80.6	72.6
Dozer	81.7	77.7

Source: FHWA, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2008.

As previously stated, the nearest noise-sensitive land uses consist of residences approximately 30 feet west of the Project site. The noise levels from construction equipment at 50 feet range from 70.0 dBA to 81.0 dBA. The noise levels from construction operations decrease at a rate of approximately 6.0 dB per doubling of distance. Thus, the noise levels at the nearest residences, approximately 30 feet away, would range from 74.4 to 88.4 dBA.

The City of Redding restricts the time that construction can take place but does not promulgate numeric thresholds pertaining to the noise associated with construction. Specifically, Section 18.40.100 of the City's Municipal Code prohibits the operation of any tools or equipment used in construction, alteration or demolition work in or within five hundred feet of a residential district such that the sound creates a noise disturbance across a property line during the following times:

- May 15th through September 15th: Between the weekday hours of 7:00 p.m. and 6:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.
- September 16th through May 14th: Between the weekday hours of 7:00 p.m. and 7:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.

It is typical to regulate construction noise in this manner since construction noise is temporary, short-term, intermittent in nature, and would cease on completion of the construction. Furthermore, the City of Redding is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Additionally, construction would occur through the Project site and would not be concentrated at one point. Therefore, noise generated during construction activities, as long as conducted within the permitted hours, would not exceed City noise standards.

Project Operations-Onsite Noise Sources

As previously stated, noise sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging,

libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest noise-sensitive land uses are residences located 30 feet west of the Project site.

The main onsite operational noise associated with the Project would be events occurring on the Project site such as students gathering, recesses, physical education classes, sporting events and parking lot activity/circulation. The O&M building would produce some shop related noise, but these events would be less frequent and intermittent in nature. Per information supplied by the school district, the athletic field would be utilized in intervals of one hour or less, five times per day for physical education classes and two times per day for recess during school hours. The soccer field would be used daily for two hours of practice or games with an anticipated attendance of 25 individuals. The school gymnasium is anticipated to be used for school-related sports practice and events before and after school hours and the O&M building is the location where maintenance would be performed on school vehicles, including trucks, vans, trailers, and mowers. All noise producing school related activities will take place between 7:00 a.m. and 10:00 p.m. with little to no noise producing activities taking place between 10:00 p.m. and 7:00 a.m. Table 5 summarizes operational onsite noise sources.

Table 5. Summary of Onsite Stationary Sources		
Stationary Sources	Noise Level (dBA L_{eq}) at the Source	Estimated Time of Use
Parking Lot Activities	61.1 dBA	7:00 a.m. – 10:00 p.m.
Playground & Sports Field	66.0 dBA	7:00 a.m. – 10:00 p.m.
Operations and Maintenance Building	82.2 dBA	7:00 a.m. – 10:00 p.m.

Table 6 shows the predicted noise propagation associated with full operations of the proposed Project, as predicted by SoundPLAN 3D noise model. This includes four residences adjacent to the Project site. Additionally, a noise contour graphic (Figure 1) has been prepared to depict the predicted noise levels in the vicinity on a worst-case scenario basis.

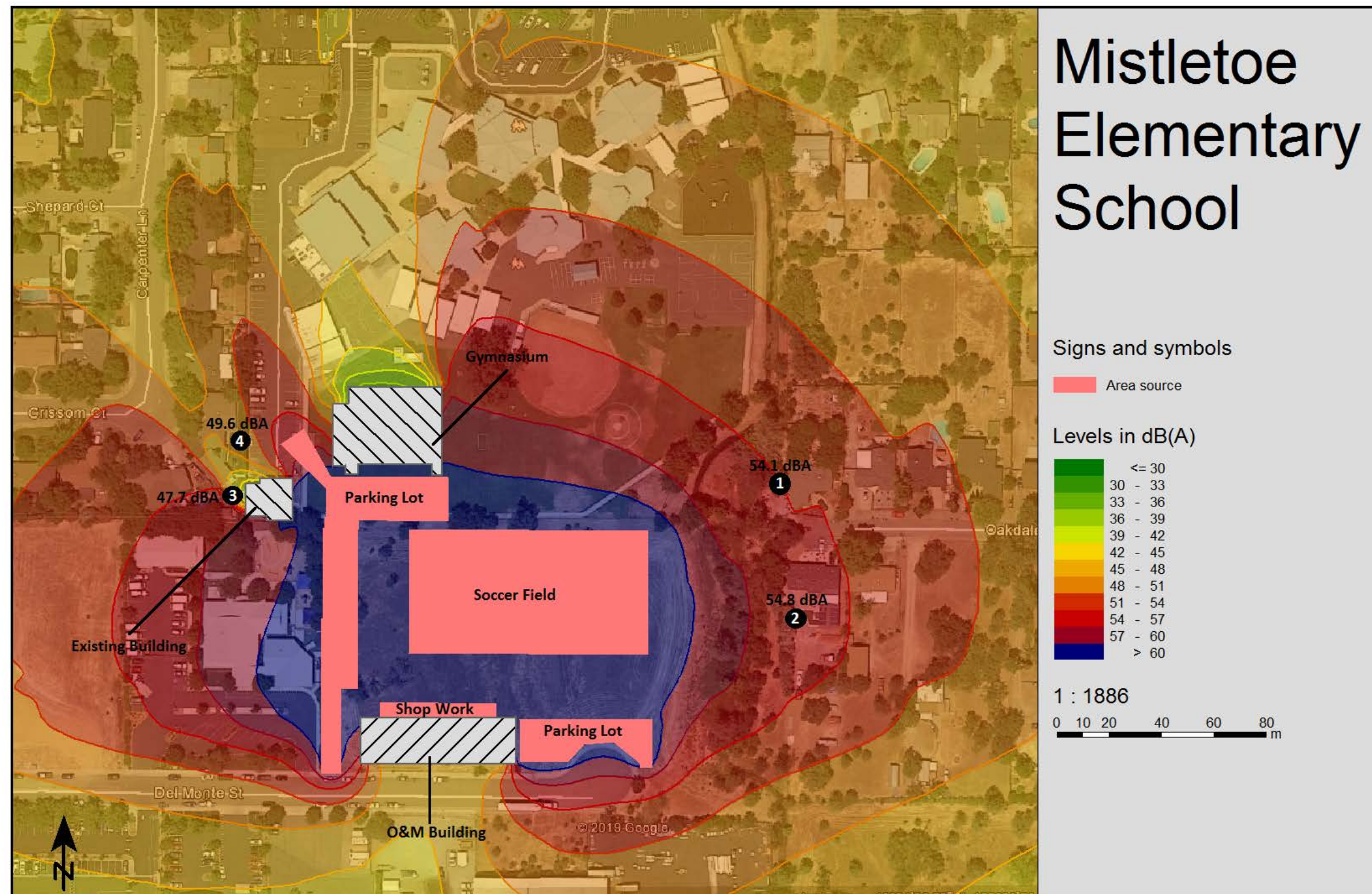
Table 6. Modeled Operational Exterior Noise Levels			
Site Location	Location	Modeled Operational Noise Attributable to Project (L _{eq} dBA)	City Standard?
1	Residence east of Project site	54.1 dBA	55 dBA
2	Residence east of Project site and adjacent to the proposed soccer field	54.8 dBA	55 dBA
3	Residence west of Project site and adjacent to proposed parking lot	47.7 dBA	55 dBA
4	Residence west of Project site and adjacent to proposed driveway	49.6 dBA	55 dBA

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Attachment A for noise modeling assumptions and results.

As shown in Table 6, Project noise levels would reach between 47.7 dBA and 54.8 dBA at the nearby residences, during Project operations between 7:00 a.m. - 10:00 p.m. These numbers fall below the City's single-family residence noise standards presented in the General Plan for nontransportation noise sources and the standards contained in the City's Municipal Code. Additionally, as previously stated the interior-to-exterior noise reduction attributable to newer structures is generally 30 dBA or more. Thus, the modeled exterior Project noise of 54.8 dBA, for example, would equate to as low as 24.8 dBA within the interior of the residence. Furthermore, Project noise modeling represents a worst-case scenario in which all potential Project noise sources are being generated at full intensity at the same moment. It is very unlikely that noise levels on the Project site would reach that of those predicted in Table 6.

Project Operations-Offsite Traffic Noise

According to Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013a), doubling of traffic on a roadway is necessary in order to result in an increase of 3 dBA (a barely perceptible increase as previously described). The Project is proposing the expansion of the existing Mistletoe Elementary School with the construction of a gymnasium, O&M building, an athletic field, parking area and a new drive isle. The Project would not increase student capacity or instigate additional school functions; therefore, it would not result in an increase in traffic. The Project would not result in additional traffic on any of the vicinity roadways, and thus the Project would not be contributing to increased traffic noise.



Map Date: 1/16/2019
Photo (or Base) Source: SoundPLAN

Figure 1. Noise Contour Graphic

Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Project Construction

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with short-term, construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction as such equipment is not generally necessary for single story construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 7.

Table 7. Vibration Source Amplitudes for Construction Equipment	
Equipment Type	Peak Particle Velocity at 20 Feet (inches per second)
Large Bulldozer	0.124
Caisson Drilling	0.124
Loaded Trucks	0.106
Rock Breaker	0.115
Jackhammer	0.049
Small Bulldozer/Tractor	0.004

Source: FTA 2018; Caltrans 2013b

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 (2013b) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

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 of concern to the construction site are located approximately 20 feet away, adjacent to where the new drive isle and parking are proposed to be located. Based on the vibration levels presented in Table 7, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.124 inches per second peak particle velocity at 20 feet. Thus, structures located at 20 feet would not be negatively affected.

Project Operations

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels.

For a project located within the vicinity of a private airstrip or 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?

The Project site is located approximately three miles east of the Benton Airpark and is located outside of any airport land use plan. Since the site is outside any land use plan boundaries it is beyond the noise contours generated by airport operations. The proposed Project will not expose people working or visiting the Project area to excess airport noise levels.

REFERENCES

Caltrans. 2013a. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*.

_____. 2013b *Transportation and Construction Vibration Guidance Manual*.

FHWA. 2008. Roadway Construction Noise Model.

_____. 2011. Effective Noise Control During Nighttime Construction.

http://ops.fhwa.dot.gov/wz/workshops/accessible/schexnayder_paper.htm.

Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment.

Redding. City of. 2000. *City of Redding General Plan*.

_____.2019. *City of Redding Municipal Code*

Western Electro-Acoustic Laboratory, Inc. 2000. *Sound Transmission Sound Test Laboratory Report No. TL 96-186*.

ATTACHMENT A

SoundPLAN Output File

SoundPLAN				
Output Source Information				
Number	Reciever Name		Floor	Daytime Level at Receiver
1	Residence east of Project site		Ground Floor	54.1 dBA
2	Residence east of Project site and adjacent to the proposed soccer field		Ground Floor	54.8 dBA
3	Residence west of Project site and adjacent to proposed parking lot		Ground Floor	47.7 dBA
4	Residence west of Project site and adjacent to proposed driveway		Ground Floor	49.6 dBA
Number	Noise Source Information		Citation	Level at Source
1	Parking Lot Activities		ECORP Reference Noise Measurements at a Safeway Grocery Store Parking Lot on November 11, 2019	61.1 dBA
2	Play Grounds & Sports Fields		Edward L. Pack Associates, Inc., Noise Assessment Study for the Rocketship School, October 23, 2015.	66.0 dBA
4	Shop/ Warehouse Activity		CalFIRE Altaville Forest Fire Station Auto Shop Replacement Project Initial Study/Mitigated Negative Declaration. 2014	82.2 dBA

Appendix E

Energy Consumption Assessment

**Proposed Project
Total Construction-Related Operational
Gasoline Usage**

Action	Carbon Dioxide Equivalents (CO ₂ e) in Metric Tons	Conversion of Metric Tons to Kilograms	Construction Equipment Emission Factor ¹	Total Gallons of Fuel Consumed
Project Construction	153	153000	10.15	15,074
	Per CalEEMod Output Files.	Per Climate Registry Equation 13e	Per Climate Registry Equation 13e	

Total Gallons Consumed During Project Construction: 15,074

Notes:

¹Fuel used by all construction equipment, including vehicle hauling trucks, assumed to be diesel.

Sources:

Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1*. January 2016.
<http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf>

ECORP Consulting. 2019. Air Quality & Greenhouse Gas Impact Analysis for Mistletoe Elementary School Project

Total Gallons During Project Operations

Area	Sub-Area	Cal. Year	Season	Veh_tech	EMFAC AC2007 Category	Fuel_GAS	Fuel_DSL	Daily Total	ANNUAL TOTAL
Sub-Areas	Shasta County	2022	Annual	All Vehicles	All Vehicles	7.7	0	7.7	2810.5

Sources:

California Air Resource Board. 2017. EMFAC2014 Mobile Emissions Model.

Appendix F

Phase 1 Environmental Site Assessment

DTSC determination letter



Jared Blumenfeld
Secretary for
Environmental Protection

Department of Toxic Substances Control

Meredith Williams, Ph.D.
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

December 19, 2019

Mr. Ronald Cushman
Maintenance and Operations Director
Enterprise Elementary School District
1155 Mistletoe Lane
Redding, California 96002

PHASE I ENVIRONMENTAL SITE ASSESSMENT –
PRELIMINARY ENVIRONMENTAL ASSESSMENT REQUIRED DETERMINATION,
ENTERPRISE ELEMENTARY SCHOOL DISTRICT, MISTLETOE ELEMENTARY
SCHOOL EXPANSION, 1186 AND 1220 DEL MONTE STREET, REDDING,
SHASTA COUNTY (PROJECT CODE 104813)

Dear Mr. Cushman:

The Department of Toxic Substances Control (DTSC) reviewed the *Phase I Environmental Site Assessment* (Phase I – Sharrah Dunlap Sawyer, Inc., July 12, 2019) received on December 3, 2019. The Phase I describes current and historical land use with the intent of identifying recognized environmental conditions (RECs) that may impact the expansion parcels adjoining the existing Mistletoe Elementary School and located at 1186 and 1220 Del Monte Street, Redding, Shasta County, California (Site).

According to the Phase I, the 4.4-acre expansion Site is further defined by the Shasta County Assessor's Office as Assessor's Parcel Numbers 067-120-038 (1.5-acre parcel) and 067-120-040 (2.9-acre parcel). The Enterprise Elementary School District (District) plans to use the expansion property for development as an Operations and Maintenance facility and to create additional sports fields. No increase in the number of classrooms or student attendance is anticipated as a result of the expansion.

Based on historical aerial photographs, the Site is reported to have been vacant fallow land since at least 1943. DTSC was unable to confirm since the only aerial photographs which were provided were from 1998 through 2016. Based on topographic maps provided for the period of 1901 through 2012, no structures appear to be present on the Site. Currently, both parcels are vacant and have no existing structures. Vegetation on the Site consists largely of grasses throughout the westernmost parcel and on a majority

of the easternmost parcel along the top of bank. Scattered pine and oak trees of varying sizes and degrees can be found on the Site. Circa August 2010, an unspecified volume of imported fill material from an unidentified borrow source area was brought on to the Site as part of grading activities for future development as well as for construction of a 30-foot overland release ditch to the west of the existing Little Churn Creek.

The Site is bordered to the north by Mistletoe Elementary School followed by Mistletoe Lane and residential subdivisions; to the east by Little Churn Creek followed by residential lots and Penn Drive; to the south by Del Monte Street followed by commercial properties; and, to the west by Shasta Head Start followed by a vacant fallow parcel, commercial properties and Churn Creek Road.

The Phase I did not identify RECs, controlled RECs, or historical RECs for the Site. *De minimis* environmental conditions were also not noted for the Site. However; the Phase I also identified data gaps, including fill material.

Based on the information provided in the Phase I, DTSC has determined that it will neither approve nor disapprove the Phase I; however, DTSC has determined that the Phase I contains sufficient information to determine that a Preliminary Environmental Assessment (PEA) is required for the Site. DTSC has identified environmental conditions of concern from unknown fill material source, naturally occurring material, and potential off-Site sources which may potentially have impacted the Site. The purpose of the PEA would be to determine whether a release or threatened release of hazardous substances or naturally occurring hazardous material may pose a threat to public health or the environment.

The PEA should address, but may not be limited to, the following potential environmental concerns:

- Fill material from an unknown source area. DTSC recommends that these environmental concerns be investigated, and possibly mitigated, in accordance with DTSC's *Information Advisory – Clean Imported Fill Material, dated October 2001*
- Based on review of geologic maps for the area surrounding the Site, it appears that geologic formations that may contain naturally occurring asbestos (NOA) exist within a 10-mile radius of the Site. Located within 5-miles upslope from the Site are mapped metavolcanic rock formations that are identified to include greenstone and diabase. Literature notes that asbestos can occur in metavolcanic rocks such as metabasalts (greenstone) and metagabbros (diabase) which have been sheared and silicified. As such, it is the opinion of DTSC that Site soils and fill material be analyzed for asbestos from NOA. Pursuant to DTSC's *Interim Guidance – Naturally Occurring Asbestos at School Sites, Revised September 24, 2004*, further environmental investigation should be considered and conducted to determine whether a naturally occurring hazardous

material (i.e., NOA) is present, based on reasonably available information about the properties and the areas in their vicinity.

- Potential environmental impacts associated with the off-site source areas should be further clarified and evaluated, as appropriate, including:
 - Provide further clarification ("detailed description") of potential source areas identified in the Environmental Data Resources, Inc. findings, including the listing of the Iron Mountain Mine superfund site within 0.5 to 1-mile (4314 feet) west of the Site.
 - Education Code, section 17210, subdivision (g) provides the definition of a Phase I. The Education Code requires that a Phase I be prepared in accordance with American Society for Testing and Materials (ASTM) Standard E1527 and any regulations promulgated by DTSC. DTSC has expanded the definition to identify and evaluate all sources for the potential release and/or the presence of hazardous material on proposed school sites (California Code of Regulation, section 69104, subsection (d)), including items not previously identified or addressed in the Phase I, such as:
 1. Agricultural use
 2. Debris or stockpiles
 3. Fill material
 4. Electrical transformers, oil-filled electrical equipment, or hydraulic systems
 5. Government use or ownership
 6. Grading activities
 7. Hydrogen sulfide
 8. Illegal drug manufacturing
 9. Lead-based paint application
 10. Metals and metalloids
 11. Methane
 12. Mines
 13. Naturally-occurring asbestos
 14. Naturally-occurring hazardous materials
 15. Petroleum deposits or use
 16. Radon
 17. Railroad use or easements
 18. Residential use
 19. Surface drainage pathways
 20. Termiticide application
 21. Utility easements
 22. Munitions and explosives of concern

Pursuant to the Education Code section 17213.1, subdivision (a), DTSC acceptance of the Phase I does not constitute a determination that "all appropriate inquiry" has been conducted within the meaning of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. section 9601(35)(B)). DTSC review of the Phase I was conducted solely to identify RECs and/or potential environmental conditions at this Site in accordance with the requirements of ASTM E1527 and the Education Code to determine whether further investigation is necessary prior to DTSC approval of this Site for future school use.

Pursuant to Education Code section 17213.1, subdivision (a)(4)(B), if the District elects to pursue Site acquisition or construction, the District shall enter into an Environmental Oversight Agreement (EOA) with DTSC to oversee the preparation of the PEA. A copy of the Environmental Oversight Program application for the EOA is available on the DTSC School Site Evaluation Web page at <https://dtsc.ca.gov/evaluating-cleaning-up-school-sites/>.

Please forward the completed application, signed by an authorized District representative, to:

Ms. Tamara Purvis
Agreement Coordinator
Northern California Schools
Site Mitigation and Restoration Program
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826
Tamara.Purvis@dtsc.ca.gov
(916) 255-3857

Ms. Purvis will oversee the preparation of an agreement, which will then be forwarded for review and signature. Subsequently, the project manager will contact the District to schedule a scoping meeting. For additional information regarding the PEA process or entering into an agreement, please contact me, José Salcedo, Northern California Schools Unit Chief, at (916) 255-3732 or Jose.Salcedo@dtsc.ca.gov.

For all documents submitted to DTSC, please submit two hard (paper) copies and one electronic copy in Adobe Portable Document Format with a maximum file size of 100 megabytes. All submittals should include applicable signatures and certification stamps, as appropriate.

Mr. Ronald Cushman
December 19, 2019
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If you have any questions regarding the project, please contact the DTSC Project Manager, Mr. José Luevano at (916) 255-3577 or via electronic mail at Jose.Luevano@dtsc.ca.gov. Alternatively, you may contact me at (916) 255-3732 or via electronic mail at Jose.Salcedo@dtsc.ca.gov.

Sincerely,



José Salcedo, PE, Chief
Northern California Schools Unit
Site Mitigation and Restoration Program

cc: (via email)

Mr. Fred Yeager
California Department of Education
FYeager@cde.ca.gov

Mr. John Gordan
California Department of Education
JGordon@cde.ca.gov

Mr. Ian Stripling, PE
Sharrah Dunlap Sawyer, Inc.
IStrippling@sdsengineering.com

Ms. Nicole Redes
Sharrah Dunlap Sawyer, Inc.
NRedes@sdsengineering.com

Ms. Tamara Purvis
Project Manager, Admin
DTSC, Site Mitigation and Restoration Program
Tamara.Purvis@dtsc.ca.gov

Mr. Jose Luevano
Project Manager
DTSC, Northern California Schools Unit
Jose.Luevano@dtsc.ca.gov

Mr. Harold (Bud) Duke
Senior Engineering Geologist
DTSC, Northern California Schools Unit
Bud.Duke@dtsc.ca.gov