PUBLIC REVIEW DRAFT

INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

FOR THE

UNITED PAVEMENT PROJECT

(CITY PERMIT NO.: USE22-0106)
City of Hughson, CA

February 2024

Prepared for:

City of Hughson
7018 Pine Street
Hughson, CA 95326
Attn: Carla Jauregui

Prepared by:

BaseCamp Environmental, Inc.
802 W. Lodi Avenue
Lodi, CA 95240

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LIST OF ACRONYMS USED IN THIS DOCUMENT

AB	Assembly Bill
APE	Area of Potential Effect
ARB	California Air Resources Board
BNSF	Burlington Northern Santa Fe
CalEnviroScreen	California Communities Environmental Health Screening Tool
CDFW	California Department Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CO2e	carbon dioxide equivalent
dBA	A-weighted decibels
DTSC	California Department of Toxic Substances Control
DWSRF	Drinking Water State Revolving Fund
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
IS/MND	Initial Study/Mitigated Negative Declaration
NO_x	nitrogen oxide
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
PVC	polyvinyl chloride
RCEM	Road Construction Emissions Model
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TID	Turlock Irrigation District
VMT	vehicle miles traveled

NEGATIVE DECLARATION

A. General Project Information

Project Title:	United Pavement Project (USE22-0106)
Lead Agency Name and Address:	City of Hughson 7018 Pine Street Hughson, CA 95326
Contact Person and Phone Number:	Carla Jauregui, Community Development Director (209) 883-4054
Project Location:	West of Tully Road in southwestern Hughson
Project Sponsor Name and Address:	Rodolfo Ruvalcaba P.O. Box 1017 Hughson, CA 95326
General Plan Designation:	Industrial
Zoning:	I - Industrial
Description of Project:	The proposed project would be constructed in two phases. The first phase would involve construction and operation of an equipment maintenance/repair building with approximately 18,900 square feet of floor area, along with vehicle access ways, vehicle and bicycle parking areas, landscaping, frontage improvements and other site improvements, including a drainage basin designed to retain runoff from the entire site. The second phase of the project would involve construction and operation of a concrete mixing plant and rock crushing facility, along with storage facilities for rock, sand, and recycled paving material. Project would require a Conditional Use Permit for both the repair facility and the Phase 2 facilities.
Surrounding Land Uses and Setting:	Light industrial development is north and east of the project site. Agricultural land planted with orchards is south and west of the project site.
Other Public Agencies Whose Approval is Required:	Turlock Irrigation District

	San Joaquin Valley Air Pollution Control District, New Source Review
Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?	City of Hughson is conducting tribal outreach. Information to be added as available.

B. Environmental Factors Potentially Affected

The environmental factors checked below may be significantly affected by this project, involving at least one impact that is a "Potentially Significant Impact" prior to mitigation. Mitigation measures that would avoid potential effects or reduce them to a less than significant level have been prescribed for each of these effects, as described in the checklist and narrative on the following pages, and in the Summary Table at the end of Chapter 1.0.

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

C. Lead Agency Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

✓ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project and/or mitigation measures that would reduce potential effects to a less than significant level have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed 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 proposed 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 proposed project, nothing further is required.

CITY OF HUGHSON

Carla Jauregui, Director
Community Development Department

2-8-24
Date

1.0 INTRODUCTION

1.1 Project Brief

This document is an Initial Study/Mitigated Negative Declaration (IS/MND) for the United Pavement Project (project). The proposed project is in the southwestern area of the City of Hughson (Figures 1-1 through 1-5). United Pavement is the project proponent. The IS/MND has been prepared in compliance with the requirements of the California Environmental Quality Act (CEQA). For the purposes of CEQA, the City of Hughson (City) is the Lead Agency for the project.

The project proposes two phases of development on a 14.32-acre parcel fronting on and west of Tully Road. The first phase of the project would involve construction and operation of an equipment maintenance/repair building with approximately 18,900 square feet of floor area, vehicle access from Tully Road, frontage improvements along Tully Road, vehicle and bicycle parking areas, landscaping and other site improvements, including a drainage retention basin constructed during the first phase of development. The building would be constructed in the eastern portion of the site. The rear area would be used as a gravel equipment vehicle storage yard. The second phase would involve construction of a concrete mixing plant and rock crushing facility, along with storage facilities for rock, sand, and recycled paving material on the rear portion of the parcel. The project would require approval of a Conditional Use Permit from the City and approvals from the Turlock Irrigation District (TID).

1.2 Purpose of Initial Study

CEQA requires that public agencies document and consider the potential environmental effects of the agency's actions that meet CEQA's definition of a "project." Briefly summarized, a "project" is an action that has the potential to result in direct or indirect physical changes in the environment. A project includes the agency's direct activities as well as activities that involve public agency approvals or funding. Guidelines for an agency's implementation of CEQA are found in the CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3).

Provided that a project is not exempt from CEQA, the first step in the agency's consideration of its potential environmental effects is the preparation of an Initial Study. The purpose of an Initial Study is to determine whether the project would involve "significant" environmental effects, as defined by CEQA, and to describe any feasible mitigation measures that would avoid significant effects or reduce them to a level that is less than significant. If the Initial Study does not identify significant effects, then the agency ordinarily prepares a Negative Declaration. If the Initial Study notes significant effects but also identifies mitigation measures that would reduce these significant effects to a level that is less than significant, then the agency ordinarily prepares a Mitigated Negative Declaration. If a project involves significant effects that cannot be readily mitigated, then the agency must prepare an Environmental Impact Report (EIR). The agency may also decide to proceed directly with the preparation of an EIR without first preparing an Initial Study.

The proposed project is a "project" as defined by CEQA and is not exempt from CEQA consideration. The City has determined that the project may potentially have significant environmental effects and therefore requires preparation of an Initial Study. This Initial Study describes the proposed project and its environmental setting, discusses the potential environmental effects of the project, and identifies feasible mitigation measures that would eliminate any potentially significant environmental effects of the project or reduce them to a level that would be less than significant. The Initial Study considers the project's potential for significant environmental effects in the following subject areas:

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

This Initial Study concludes that the project would have potentially significant environmental effects, but that recommended mitigation measures would reduce all of these effects to a level that would be less than significant. As of the distribution of the IS/MND for public review, the project applicant has accepted and will implement all the mitigation measures recommended by the Initial Study. As a result, the City has prepared a Mitigated Negative Declaration and notified the public of the City's intent to adopt the Initial Study/Mitigated Negative Declaration. A copy of the City's Notice of Intent, which indicates the time available for comment, is inside the cover of this document.

1.3 Project Background

The proposed project is located west of and adjacent to Tully Road south of Whitmore Avenue in the southwestern area of the City. The project site was until recently planted with orchard trees, but these trees have been removed and the site is now vacant. Water supply for the orchard is provided by onsite irrigation pipelines and supporting structures managed by the TID. These TID facilities remain on the project site and will need to be modified in conjunction with the project. Land to the south and west of the project site is agricultural land, planted with orchards.

Hughson includes several areas dedicated to industrial uses. Most of the industrial lands are located southwest of the Burlington Northern Santa Fe (BNSF) railroad tracks railroad and Santa Fe Avenue, while others are scattered within the City limits and the City's Sphere of Influence; these include a triangular parcel between Santa Fe Avenue and Tully Road, and agricultural industrial uses along Geer Road. Industrial activities in Hughson include cold storage, light manufacturing, food processing and other agricultural-support facilities. Existing light industrial and commercial development is located north and east of the parcel on which the project is proposed. These uses include Hughson Farm Supply and Valley Tool and Manufacturing to the north, California Truss Company to the east, and Dollar Tree to the northeast.

The current version of the Hughson General Plan, adopted in 2005, designates the southwestern area, including the project site, for Industrial development. This is reflected in the zoning for the project site, which is I - Industrial. At the time the current General Plan was adopted, the project site was outside the City limits; since then, it has been annexed to and zoned by the City.

1.4 Environmental Evaluation Checklist Terminology

The project's potential environmental effects are evaluated in the Environmental Evaluation Checklist presented in Chapter 3.0 of this IS/MND. The checklist includes a list of environmental considerations against which the project is evaluated. For each question, the City determines whether the project would involve 1) a Potentially Significant Impact, 2) a Less Than Significant Impact with Mitigation Incorporated, 3) a Less Than Significant Impact, or 4) No Impact.

> A <u>Potentially Significant Impact</u> occurs when there is substantial evidence that the project would involve a substantial adverse change to the physical environment, i.e., the environmental effect may be significant, and mitigation measures have not been defined that would reduce the impact to a level that would be less than significant. If there is a Potentially Significant Impact entry in the Initial Study, then an EIR is required. No Potentially Significant Impacts are identified in this Initial Study.
>
> An environmental effect that is <u>Less Than Significant with Mitigation Incorporated</u> is a Potentially Significant Impact that can be avoided or reduced to a level that is less than significant with the application of defined mitigation measures.
>
> A <u>Less Than Significant Impact</u> occurs when the project would involve an environmental impact, but the impact would not cause a substantial adverse change to the physical environment that would require mitigation.
>
> A determination of <u>No Impact</u> is self-explanatory.

This IS/MND identifies certain potentially significant environmental effects that would be mitigated by implementation of existing provisions of law and standards of practice related to land use planning and environmental protection. Such provisions are identified and considered in the environmental impact analysis, and the degree to which they would reduce potential environmental effects is discussed. These protections are considered part of the existing regulatory environment and are assumed to counter the potential environmental effects of the project as discussed. The need for additional mitigation measures described in this Initial Study occurs when such existing environmental protections are not adequate to avoid potential environmental effects or to reduce them to a level that is less than significant.

1.5 Summary of Environmental Effects and Mitigation Measures

Table 1-1, which follows Figure 1-5, summarizes the results of the Environmental Evaluation Checklist and associated narrative discussion in Chapter 3.0 of this IS/MND. The potential environmental impacts of the proposed project are listed in the left-most column of this table. The level of significance of each impact is indicated in the second column. Feasible mitigation measures that are considered necessary to avoid or minimize the impacts are shown in the third column, and the significance of the impact after mitigation measures are applied is shown in the fourth column.

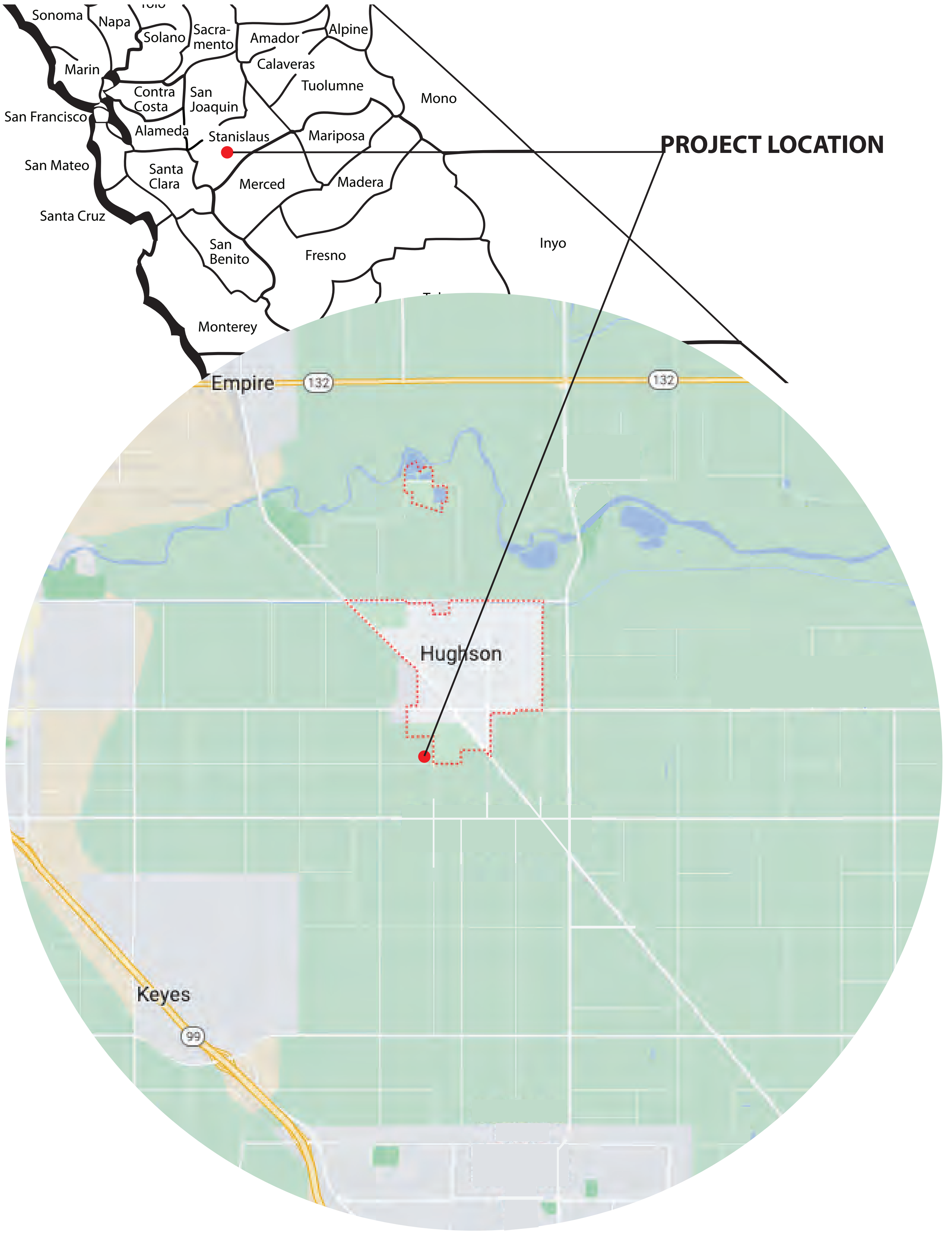

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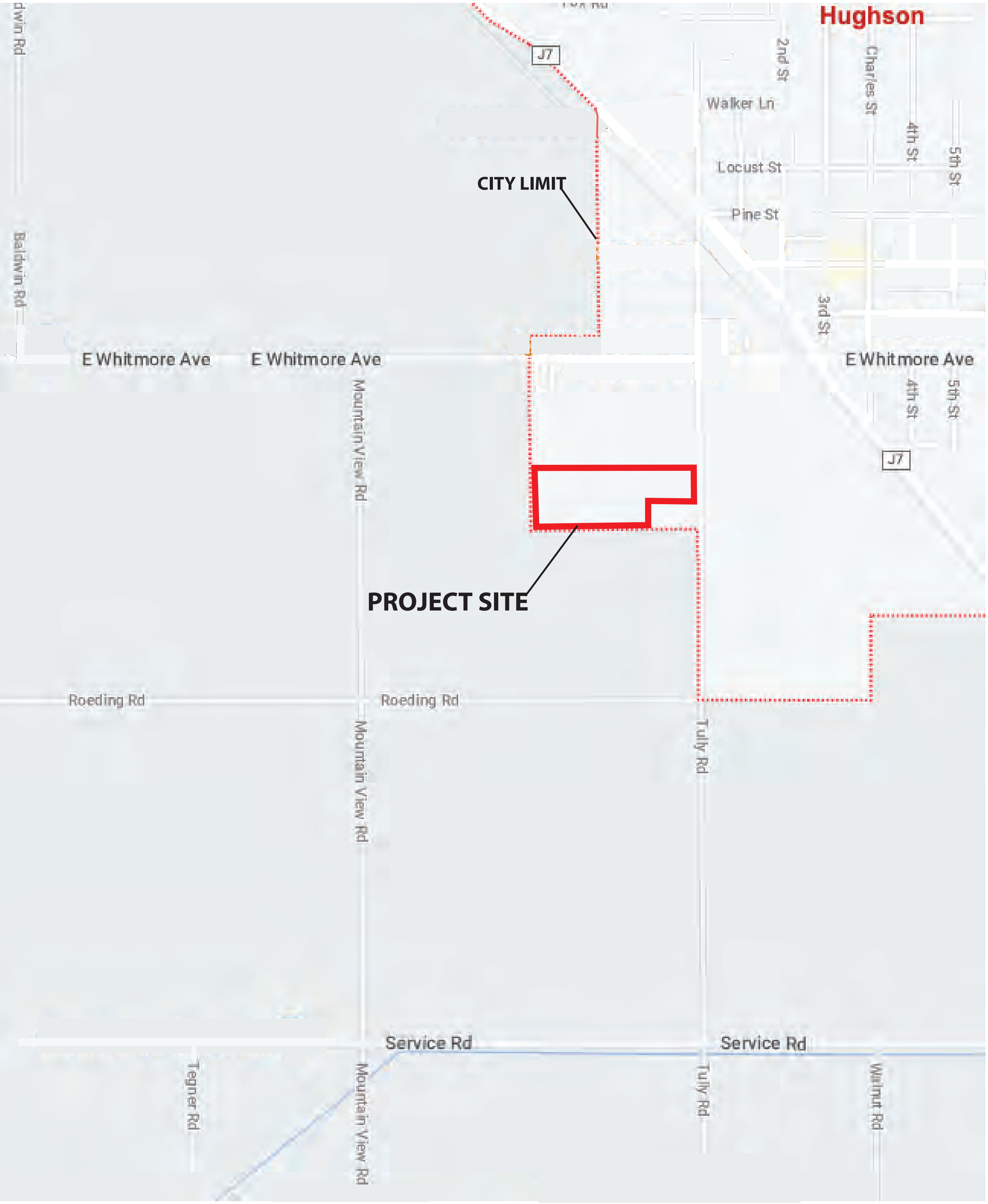
Figure 1-1
REGIONAL LOCATION MAP



SOURCE: Google Maps

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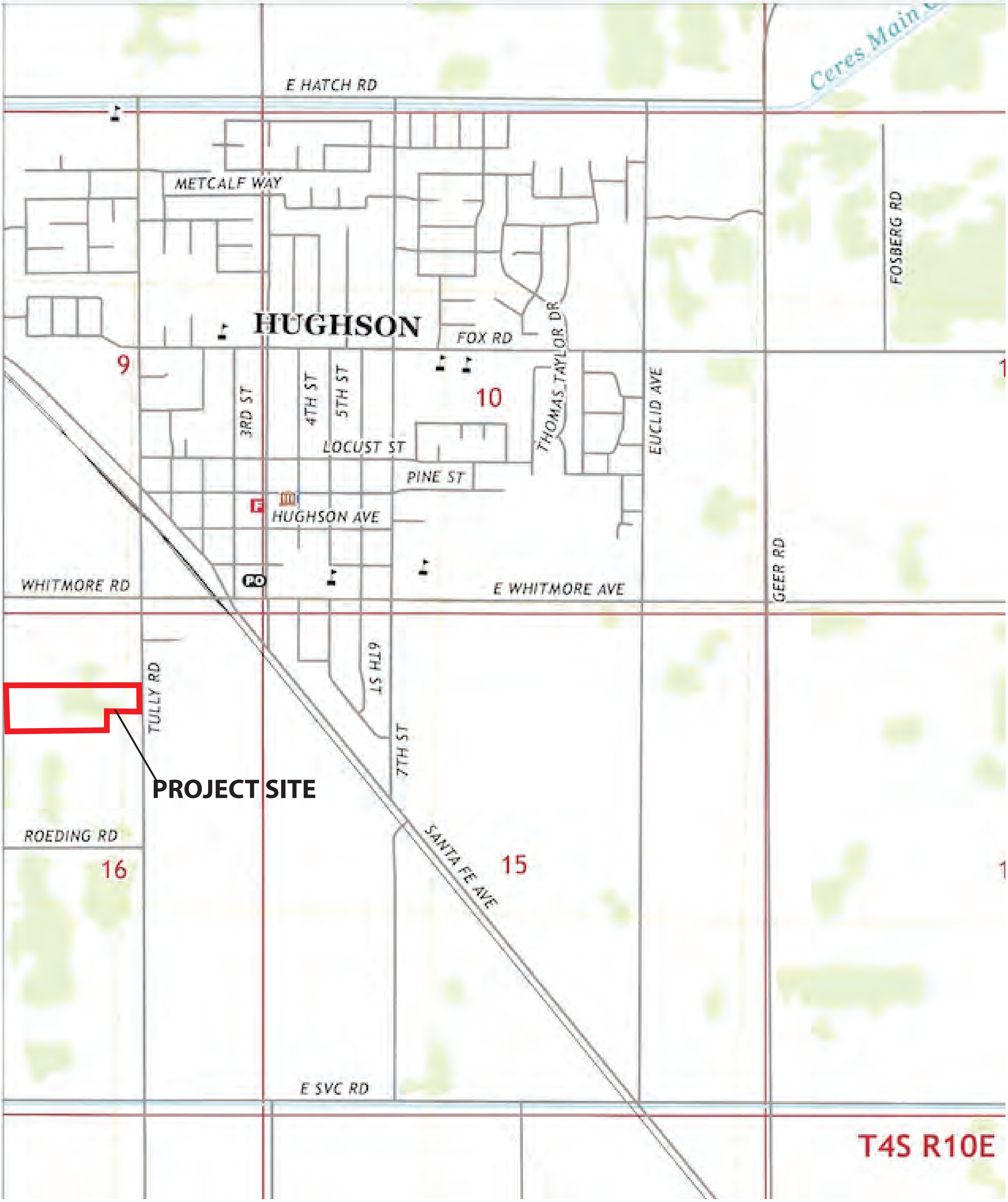
Figure 1-2
STREET MAP



SOURCE: USGS Quadrangle Map, Denair CA, 2021

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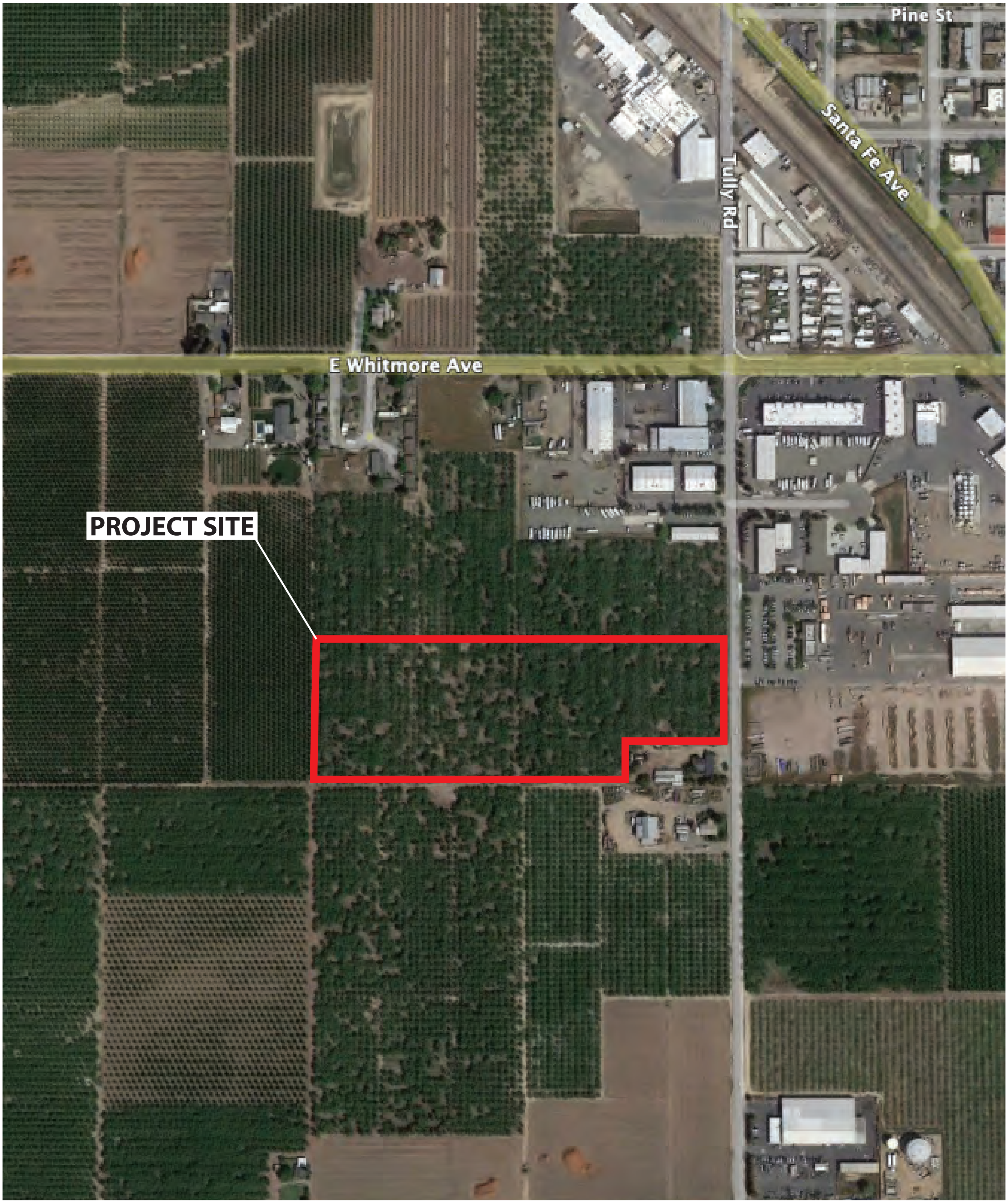
Figure 1-3
USGS MAP



SOURCE: Google Earth

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Figure 1-4
AERIAL PHOTO

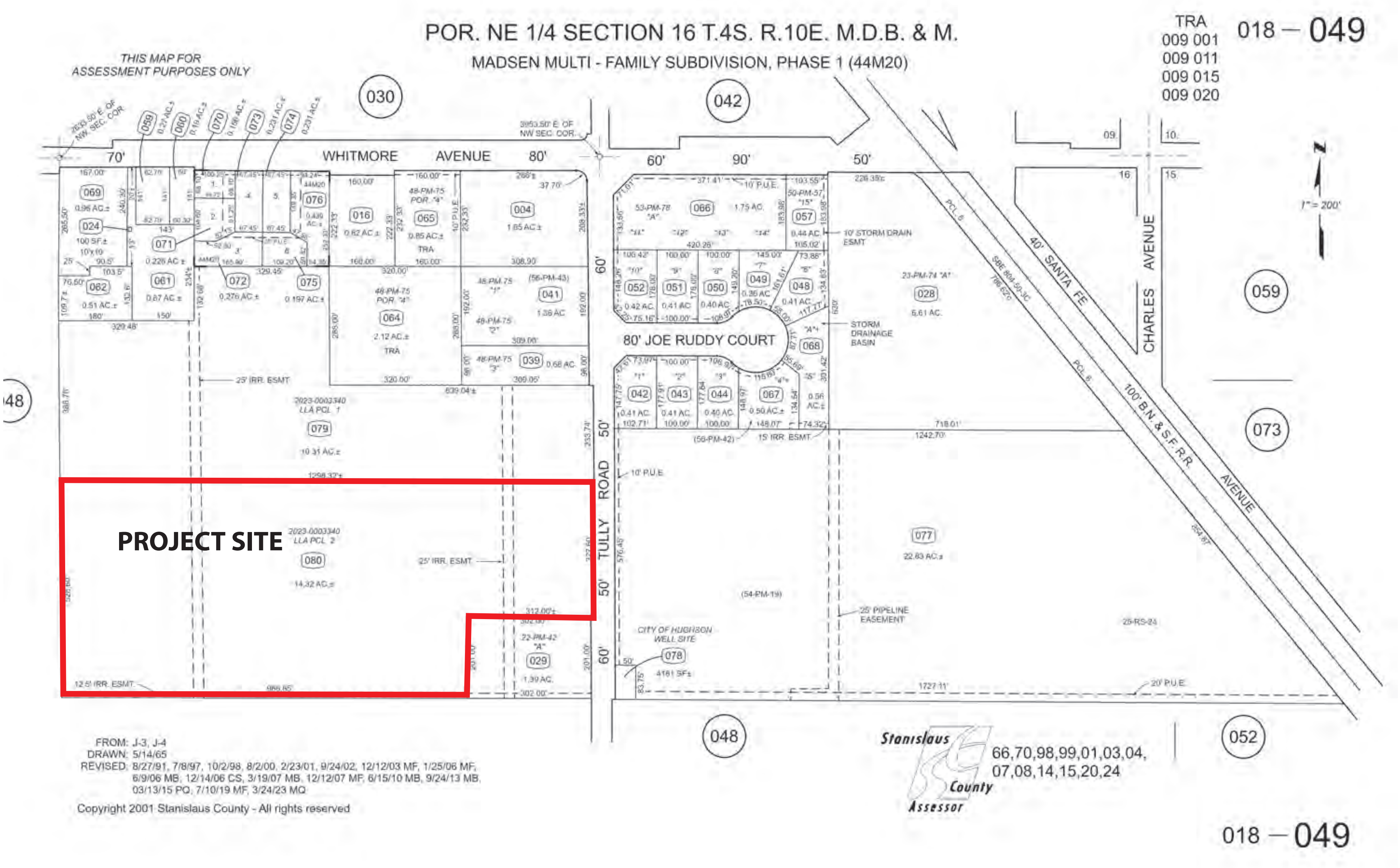

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Figure 1-5
ASSESSOR PARCEL MAP

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.1 AESTHETICS			
a) Scenic Vistas	LS	None required.	-
b) Scenic Routes and Resources	LS	None required.	-
c) Visual Character and Quality	LS	None required.	-
d) Light and Glare	PS		LS
		AESTH-1: The applicant shall modify the proposed exterior lighting system design as required to reduce spill light impacts to less than 1.0 fc on adjacent residential uses. The lighting system design shall incorporate specific pole location, pole height and luminaire type, including consideration of cut-off fixtures, and luminaire aiming and shielding specifications as required. Lighting system effectiveness shall be demonstrated in a revised photometric plan illustrating illumination levels on the adjoining residential properties, which shall be subject to City staff approval.	
3.2 AGRICULTURE AND FORESTRY RESOURCES			
a) Agricultural Land Conversion	LS	None required.	-
b) Agricultural Zoning and Williamson Act	NI	None required.	-
c, d) Forest Land Zoning and Conversion	NI	None required.	-
e) Indirect Conversion of Farmland and Forest Land	LS	None required.	-

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.3 AIR QUALITY			
a) Air Quality Plan Consistency	LS	None required. Proposed Condition of Approval: Prior to construction, the project shall apply to the SJVAPCD for approval under Regulation VIII and other SJVAPCD construction-related requirements. Proposed Condition of Approval: Prior to installation or operation of planned rock crushing, concrete batching or pavement recycling facilities, the project shall make application to the SJVAPCD for Authority to Construct/Permit to Operating Rule 2201 New and Modified Stationary Source Review.	-
b) Cumulative Emissions	NI	None required.	-
c) Exposure of Sensitive Receptors	LS	None required.	-
d) Odors	NI	None required.	-
3.4 BIOLOGICAL RESOURCES			
a) Special-Status Species	PS	BIO-1: If project construction commences during the Swainson's hawk nesting season (March 1 through July 31), a pre-construction survey for nesting Swainson's hawk shall be conducted within one-quarter mile of the project site. If active nests are found, then a qualified biologist shall determine the need, if any, for temporal restrictions on construction. The determination shall utilize criteria set forth by the California Department of Fish and Wildlife in its 1994 *Staff Report regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California*. No survey shall be required if construction occurs outside the Swainson's hawk nesting season.	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
b) Riparian and Other Sensitive Habitats	NI	None required.	-
c) Wetlands and Waters of the U.S.	NI	None required.	-
d) Fish and Wildlife Movement	PS	BIO-2: If project construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for all species of nesting birds shall be conducted. If active nests for any bird species are found, work in the vicinity of the nests shall be delayed until the young have fledged. No survey shall be required if construction occurs outside the general avian nesting season.	LS
e) Local Biological Requirements	NI	None required.	-
f) Conflict with Habitat Conservation Plans	NI	None required.	-
3.5 CULTURAL RESOURCES			
a) Historical Resources	LS	None required.	-
b) Archaeological Resources	LS	None required.	-
c) Human Burials	PS	CULT-1: In accordance with California Health and Safety Code Section 7050.5, if human remains are uncovered during project construction, then all work in the vicinity of the find shall be halted, and the County Coroner shall be immediately notified to determine if an investigation of the death is required. If it is determined that the remains are Native American in origin, then the County Coroner is required to contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission is required to identify the Most Likely Descendants of the deceased Native American, and the Most Likely Descendants may make recommendations on the disposition of the remains and any associated grave goods with appropriate dignity. If a Most Likely Descendant	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		cannot be identified or fails to make a recommendation, or the landowner rejects the recommendations of the Most Likely Descendant, then the landowner shall rebury the remains and associated grave goods with appropriate dignity on the property in a location not subject to further disturbance.	
3.6 ENERGY			
a) Project Energy Consumption	LS	None required.	-
b) Consistency with Energy Plans	NI	None required.	-
3.7 GEOLOGY AND SOILS			
a-i) Fault Rupture Hazards	NI	None required.	-
a-ii) Seismic Ground Shaking	LS	None required.	-
a-iii) Other Seismic Hazards	NI	None required.	-
a-iv) Landslides	NI	None required.	-
b) Soil Erosion	LS	None required.	-
c) Unstable Soils	LS	None required.	-
d) Expansive Soils	NI	None required.	-
e) Adequacy of Soils for Wastewater Disposal	NI	None required.	-
f) Paleontological Resources and Unique Geologic Features	PS	GEO-1: If any subsurface paleontological resources are encountered during construction of the project, the City of Hughson Community Development Department shall be notified and all construction activities within 50 feet of the encounter shall be halted until a qualified paleontologist can examine these materials and determine their significance. If the find is determined to be significant, then	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		the paleontologist shall recommend mitigation measures that would reduce potential effects on the find to a level that is less than significant. Recommended measures may include, but are not limited to, 1) preservation in place, or 2) excavation, recovery, and curation by qualified professionals. The project proponent shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in a written report to the City's Community Development Department, consistent with the requirements of the CEQA Guidelines.	
3.8 GREENHOUSE GAS EMISSIONS			
a) Project GHG Emissions	LS	None required.	-
b) Consistency with GHG Reduction Plans	NI	None required.	-
3.9 HAZARDS AND HAZARDOUS MATERIALS			
a) Hazardous Material Transport, Use and Storage	LS	None required.	-
b) Release of Hazardous Materials by Upset or Accident	LS	None required.	-
c) Hazardous Materials Releases near Schools	NI	None required.	-
d) Hazardous Materials Sites	LS	None required.	-
e) Airport Operations	NI	None required.	-
f) Emergency Response and Evacuation	PS	HAZ-1: Prior to the start of project construction, the contractor shall develop and implement a Traffic Control Plan that shall include traffic control requirements, notifications of access closure, and daily access restoration. The contractor shall specify dates and times of road or access closures or restrictions, if any, and shall ensure that adequate access will be provided for emergency vehicles.	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		The Traffic Control Plan shall be reviewed and approved by the City Department of Public Works and shall be coordinated with the Hughson Fire Protection District, the Hughson Police Department, and the Stanislaus County Sheriff's Department.	
g) Wildland Fire Hazards	NI	None required.	-
3.10 HYDROLOGY AND WATER QUALITY			
a) Violation of Water Quality Standards	LS	None required.	-
b) Groundwater Supplies and Recharge	LS	None required.	-
c-i, ii, iii) Drainage Patterns and Runoff	LS	None required.	-
c-iv) Flood Flows	NI	None required.	-
d) Release of Pollutants in Flood Zone	NI	None required.	-
e) Conflict with Water Quality or Sustainable Groundwater Plans	LS	None required.	-
3.11 LAND USE AND PLANNING			
a) Division of Established Communities	NI	None required.	-
b) Conflict with Applicable Plans, Policies and Regulations Avoiding or Mitigating Environmental Effects	LS	None required.	-
3.12 MINERAL RESOURCES			

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
a, b) Loss of Mineral Resource Availability	NI	None required.	-
3.13 NOISE			
a) Exposure to Noise Exceeding Local Standards	PS	The following measures shall be incorporated as conditions of approval for any permit that results in the use of construction equipment on the project site: ● Construction activities, excluding activities that would result in a safety concern to the public or construction workers, shall be limited to between the daytime hours of 7:00 a.m. and 7:00 p.m. daily. ● Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation. ● When not in use, and in accordance with State regulations, motorized construction equipment shall not be left idling for more than five minutes. ● Stationary equipment, including but not limited to power generators and compressors, shall be located at the furthest practical distance from nearby noise-sensitive land uses or sufficiently shielded to reduce noise-related impacts.	LS
b) Groundborne Vibrations	LS	None required.	-
c) Exposure to Airport/Airstrip Noise	NI	None required.	-
3.14 POPULATION AND HOUSING			

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
a) Unplanned Population Growth	LS	None required.	-
b, c) Displacement of Housing and People	NI	None required.	-
3.15 PUBLIC SERVICES			
a-i) Fire Protection	LS	None required.	-
a-ii) Police Protection	LS	None required.	-
a-iii) Schools	NI	None required.	-
a-iv) Parks	NI	None required.	-
a-v) Other Public Facilities	NI	None required.	-
3.16 RECREATION			
a, b) Recreational Facilities	NI	None required.	-
3.17 TRANSPORTATION			
a) Conflict with Transportation Plans, Ordinances and Policies	NI	None required.	-
b) Conflict with CEQA Guidelines Section 15064.3(b)	NI	None required.	-
c) Traffic Hazards	NI	None required.	-

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
d) Emergency Access	PS	Mitigation Measure HAZ-1.	LS
3.18 TRIBAL CULTURAL RESOURCES			
a-i, ii) Tribal Cultural Resources	PS	Mitigation Measure CULT-1.	LS
3.19 UTILITIES AND SERVICE SYSTEMS			
a) Construction or Relocation of Infrastructure	LS	None required.	-
b) Water Supply	LS	None required.	-
c) Wastewater Systems	LS	None required.	-
d, e) Solid Waste Services	LS	None required.	-
3.20 WILDFIRE			
a) Emergency Response and Emergency Evacuation Plans	PS	Mitigation Measure HAZ-1.	LS
b) Exposure of Project Occupants to Pollutants	NI	None required.	-
c) Installation and Maintenance of Infrastructure	NI	None required.	-
d) Risks from Runoff, Post-Fire Slope Instability, or Drainage Changes	NI	None required.	-
3.21 MANDATORY FINDINGS OF SIGNIFICANCE			
a) Findings on Biological and Cultural Resources	PS	Mitigation measures in Sections 3.4 and 3.5.	LS
b) Findings on Individually Limited but Cumulatively Considerable Impacts	LS	None required.	-
c) Findings on Adverse Effects on Human Beings	LS	None required.	-

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

2.0 PROJECT DESCRIPTION

2.1 Project Location

The project site is in the southwestern area of the City of Hughson (see Figures 1-1 to 1-5). The project site is adjacent to and west of Tully Road approximately one-tenth mile south of its intersection with Whitmore Avenue. The project site is shown on the U.S. Geological Survey's Denair, California, 7.5-minute quadrangle map as within Section 16, Township 4 South, Range 10 East, Mt. Diablo Base and Meridian. The approximate latitude of the project site is 37° 35′ 31″ North, and the approximate longitude is approximately 120° 52′ 16″ West.

2.2 Project Details

The project proposes a two-phase project on a 14.32-acre parcel fronting on and west of Tully Road. Maintenance/Repair Facility. The project proposes two phases. The first phase would involve the construction and operation of a maintenance/repair facility on approximately 2.49 acres of the eastern portion of the parcel (Figure 2-1). The facility is intended to replace an existing facility presently operating at 7017 Hughson Avenue in Hughson. It would provide maintenance services for United Pavement vehicles and equipment, along with a storage yard. No sales would be conducted from this facility.

Equipment service activities would occur in a steel-frame building with steel siding on three sides, and a concrete wall with steel siding on top on the west side (Figures 2-2 and 2-3). The building would have approximately 18,900 square feet in floor area and a maximum height of 20 feet. The interior would be occupied mostly by a maintenance area, where the repair work would occur, and a warehouse area (Figure 2-4). A service office area that would include offices, a cubicle area, restrooms, a breakroom, and a conference room would occupy the eastern interior of the building. A mezzanine area of approximately 960 square feet above the main floor would be used for storage.

Access to the maintenance/warehouse area of the building would be provided by three doors approximately 12 feet by 14 feet and one door approximately 16 feet by 16 feet along the southern side of the facility (see Figure 2-4). Access also would be provided by one door approximately 12 feet by 14 feet and one door approximately 16 feet by 16 feet along the northern side. A concrete apron would surround the building on the outside.

The maintenance facility would have an equipment storage yard in the rear and sides of the building. The project applicant indicates that the following would be kept in the storage yard:

- 4 semi-trucks
- 3 five-yard dump trucks
- 1 backhoe

- 1 paver
- 1 623K scraper
- 1 336GC excavator
- 1 low-boy trailer
- 12 message board trailers

The majority of the storage yard would be surfaced with gravel and enclosed by woven wire fencing six feet in height with an upper three-barb wire deterrent; adjacent to existing residential uses, and the storage area would be enclosed by a six-foot high masonry wall. As shown in Figure 2-5, the masonry wall sections would not include a three-barb wire deterrent. Vehicle access, controlled by a 30-foot-wide motorized sliding gate, and one door from the building would provide access to the storage yard.

Curb, gutter and other frontage improvements would be installed along the Tully Road frontage of the site in accordance with City standards. The front of the building, facing the east, would have a paved parking area with 28 parking spaces, which include two spaces for drivers with disabilities and one space for a clean air vehicle. Two bicycle parking stalls would be installed. An exit-only driveway onto Tully Road, approximately 32 feet in width, would be installed in the southeastern corner of the project site. Access to the repair facility would be provided by another driveway along the northern site boundary, which also would provide access to the proposed concrete batch plant to be constructed in Phase 2. This driveway is described in more detail below.

Concrete Batch Plant

The second phase of the project would involve the installation of a central mix concrete batch plant on 8.34 acres behind (west of) the proposed maintenance/repair facility (see Figure 2-1). Also proposed are a rock crushing facility, material storage, a concrete mixing truck and trailer storage area, and two truck scales with a scale house along the northern boundary. The layout of the plant area is expected to be what is depicted in Figure 2-1.

The concrete batch plant is proposed to be installed in the eastern portion of the project site. The project proposes to use a HT-12-12400C-65 plant that is mobile and can potentially process 160-220 cubic yards of concrete per hour. An overhead bin would have a capacity of 65 tons/48.1 cubic yards. The material for the concrete would be transported by a conveyor belt approximately 36 inches in width and driven at 30 horsepower at a speed of 380 feet per minute. The plant would have an aggregate batcher and a cement batcher, each of which would have a capacity of 12 cubic yards. The total height of the plant would be approximately 27.5 feet.

The plant is proposed to have a dust collection system that would control dust emissions from operations. It would consist of a freestanding, jet pulse dust collector with filter bags. Dust-laden air enters the collector through the bottom of the housing section. Dust particles are collected on the outside surface of the bags, and the filtered air goes to the clean air chamber and is then exhausted through the outlet from the system. Periodic pulsing by compressed air removes the accumulated dust from the bags, and the dust falls into a receptacle where it is removed. The project applicant estimates that the plant would produce approximately 700 cubic yards of concrete per day.

Aboveground rock storage chambers and a sand storage area, both south of the plant, would provide materials for concrete through a conveyor belt installed below them. The rock chambers would be steel-fabricated and a maximum of 12 feet in height. The chambers would be loaded from the top with the different materials for the cement product.

An area northwest of the plant would be designated for cement trailers to receive the processed materials for mixing. A portion of the plant area has been designated for the storage of concrete mixing trucks. The site plan for the project indicates that 20 mixing trucks would be stored on site. Parking for drivers of concrete trucks would be available south of the truck storage area.

The project proposes the use of a Rubble Master RM 120X rock crusher that would be installed near the southwestern corner of the project site. Material would be deposited in a hopper and sent to a chamber where the crushing occurs. The crushed material is ultimately sent to a radial stacker belt, which deposits the material onto a pile. The resultant pile would be moved by a Caterpillar 336 GC hydraulic excavator to a pile storage area north of the crusher. A 950-GC wheel loader would load the pile materials into trucks for transport to work sites. The project applicant estimates that the crusher would produce approximately 750 cubic yards of material per day and that 50 trucks per workday would deliver materials to the crusher, with each truck having a capacity of 15 cubic yards.

This facility would be connected to a storage facility that would contain ¾-inch recycled paving material. A storage facility for raw asphalt and concrete would be adjacent to the rock crushing facility.

The entire plant area would be covered by a gravel surface approximately six inches deep. It would be completely enclosed, mostly by a concrete fence six feet in height with an upper three-barb wire deterrent. Woven wire fencing six feet in height with an upper three-barb wire deterrent would separate the plant area from the maintenance/repair facility area. To control dust from the gravel cover and the storage, an onsite water truck would be available to apply water to these features as required.

Access to the plant area would be provided off Tully Road from a driveway approximately 61 feet in width. This driveway would be shared by the project and the adjacent northern parcel created by the proposed division of APN 018-049-032. Trucks entering and exiting the storage yard would use a paved route that passes north of the maintenance/repair facility. Approximately 80 feet from the entrance, the driveway would narrow to two lanes, each 15 feet in width. A 30-foot-wide motorized sliding gate would control access to the plant area.

Other Project Features

The project proposes the installation of landscaping along the site frontage with Tully Road. Chinese pistache trees would be planted along the roadway, along with shrubs such as dwarf olive, dwarf heavenly bamboo, and white myoporum, and grasses such as blue oat, dwarf mat rush, and New Zealand flax.

Exterior lighting would be installed as appropriate during each phase of the project. The maintenance/repair facility would have seven light emitting diode (LED) light fixtures attached to the exterior of the building approximately 30 feet above the ground. Another 32 LED fixtures would be attached to poles approximately 40 feet high throughout the project site. Three of these poles would be in the parking area in front of the building.

Water service to the project site would be provided by the City of Hughson, and the project site would connect to the City's potable water distribution system. An existing water line, 12 inches in diameter, is located beneath Tully Road along the site frontage. The project would extend an 8-inch water line onto the site from the existing water line beneath Tully Road. The project would connect to other new onsite water lines to the 8-inch line; these connections would include irrigation lines 1 to 4 inches in diameter, potable water lines 1.5 to 2 inches in diameter, and water lines 6 to 8 inches in diameter for firefighting purposes. The project applicant indicates that the concrete batch plant would use approximately 3,000 gallons of water per day for mixing and 2,000 gallons per day for watering to control dust, for a total of approximately 5,000 gallons per day.

Wastewater services would also be provided by the City; the project would connect to the City's wastewater collection system in Tully Road; an existing sanitary sewer line, 18 inches in diameter, is located beneath Tully Road near the site frontage. An onsite 6-inch sewer line would be extended along the northern boundary of the site from the City's line beneath Tully Road.

The project would install an on-site storm drainage system whose main feature would be a drainage basin to be constructed on 1.82 acres along the western boundary of the project site during Phase 1 of the project. The basin would accommodate storm drainage for the entire project site, including the concrete batch plant area.

Electricity service to the project would be provided by TID, which serves the Hughson area. The project is adjacent to an existing overhead 12-kilovolt electrical distribution line that runs along the west side of Tully Road. A site transformer would be installed in the northeastern corner of the project site. Natural gas service would be provided by Pacific Gas and Electric Company from existing natural gas lines adjacent to the project site.

Project Operations

The maintenance/repair facility proposes to employ a total of 22 people - 15 in the office and 7 in the shop. The facility would operate on one shift from 6:00 a.m. to 6:00 p.m. Monday through Saturday. The project applicant estimates the Phase 1 facility would generate a total of 16 truck trips per workday, along with two deliveries.

The concrete batch plant proposes to employ a total of 4 people. The batch plant would operate on one shift with the same schedule as the maintenance/repair facility.

Project Construction

As noted, the project would be constructed in two phases. The first phase would be the maintenance/repair facility with the storage yard and the parking area in the front, and the drainage basin in the rear. The second phase would include the concrete batch plant and the rock crushing facility with associated facilities. The first phase is scheduled to begin construction in 2024, and the second phase is scheduled to begin in 2032.

The project site is crossed by two existing 30-inch diameter TID irrigation water lines with a north-south orientation that provided water to the onsite orchard, now removed. TID noted that the first irrigation pipeline and 25-foot easement, which runs across the back third of the project site, belongs to Improvement District 637. Unless the downstream members of the improvement district abandon their right to use the facilities, TID states that the pipeline would have to be replaced to current standards. The second pipeline and 25-foot easement, near the front third of the project site, serves only the project site. TID states that this pipeline shall be removed and sealed at the property line upon development.

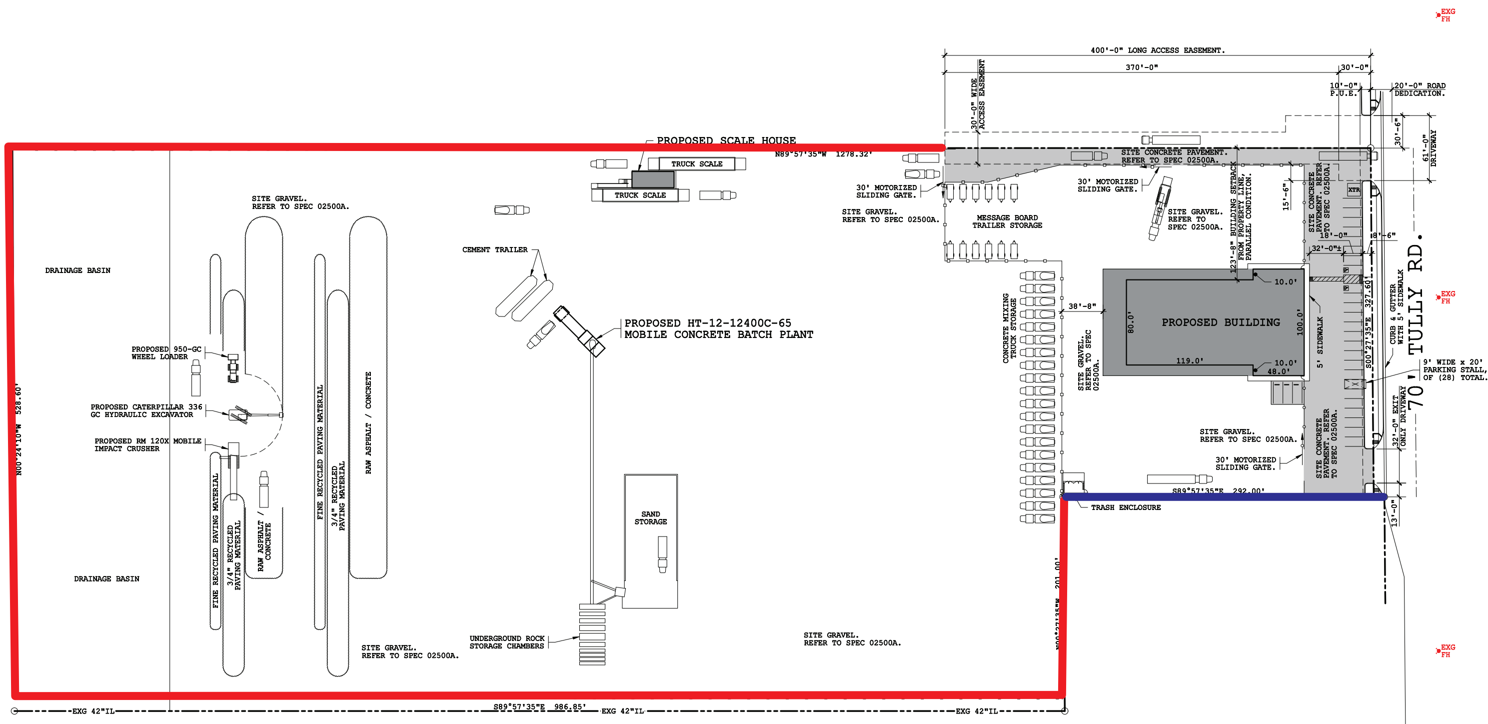
A third TID irrigation line, 42 inches in diameter and with an east-west orientation, is located on the southern boundary of the project site. The third irrigation pipeline, within a 12.5-foot easement, belongs to Improvement District 96C. Upon development of the second phase of the project, TID states that the pipeline would be subject to replacement to current development standards. All work on irrigation facilities can be performed only during the non-irrigation season, which typically runs from November 1 through March 1 but can vary.

2.3 Permits and Approvals

The project would require a Conditional Use Permit from the City. Conditional Use Permits are approved by the Hughson Planning Commission, with a right to appeal to the Hughson City Council. The City's Public Works Department would review and approve all connections to the City's water and wastewater systems, as well as issue encroachment permits for work in City streets.

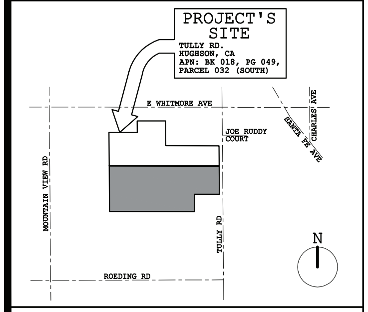
There are existing TID irrigation facilities on the project site. TID will need to review and approve all maps and plans of the project. Any improvements to the project site that affect irrigation facilities will be subject to TID's approval and meet all applicable TID standards and specifications. The project site is part of Improvement Districts 96C, 593 and 637. TID standards require that properties that will no longer irrigate or have direct access to water must apply for abandonment of the parcels from the improvement districts. The owner/developer must apply for a facility change for any TID pole or electrical facility relocation. Facility changes must be performed at the developer's expense.

The project would require an Authority to Construct and a Permit to Operate from the San Joaquin Valley Air Pollution Control District (SJVAPCD), in accordance with SJVAPCD Rules 2010, 2092, and 2201. Along with the application for the Authority to Construct and the Permit to Operate, the project also would be required to submit Supplemental Application Forms for the proposed concrete batch plant and for the processes requiring a baghouse/dust collector. The supplemental forms would provide additional information to the SJVAPCD related to potential air pollutant emissions.



KEY SITE PLAN

SCALE: 1" = 50.0'
APN: BK 018, PG 049, PARCEL 032 (SOUTH)
ACRES: 14.32 NET



VICINITY MAP

LEGEND

🟥 **6' HIGH WOVEN WIRE FENCE WITH UPPER THREE-BARB DETERRENT**

WITH SIZE NOTED.

🟦 **6' HIGH MASONRY WALL WITH NO UPPER DETERRENT (SEE FIGURE 2-5)**

PARKING REQUIREMENTS FOR OFFICE / INDUSTRIAL / WAREHOUSE UTILIZATION PER THE CITY OF HUGHSON'S ZONING ORDINANCE ARE AS FOLLOWS;

OFFICE; 5,232SF / 300 =	17.44STALLS.
MFR; 4,800SF / 1000 =	4.80STALLS.
WAREHOUSE; 9,828SF / 2000 =	4.91STALLS.
TOTAL REQUIRED =	27.15STALLS.

TOTAL PARKING SPACES PROVIDED;

1. STANDARD STALLS; ----------------------	25
2. ACCESSIBLE STALLS; --------------------	2
3. SMALL CAR STALLS; ---------------------	0
4. CLEAN AIR STALLS; ---------------------	1
TOTAL SPACES =	28

PARKING ANALYSIS

NOTE;

1. THE BUILDING'S FOLLOWING OCCUPANCY TYPES (USAGES) ARE BASED UPON THE FOLLOWING;
   a) THE ALLOWABLE HAZARDOUS MATERIALS AMOUNTS NOTED IN TABLE NO. 307.1(1) & 307.1(2) OF THE 2022CBC ARE NOT TO BE EXCEEDED.
   b) THE PROJECT'S BUILDING IS NOT DESIGNED FOR HIGH-PILED COMBUSTIBLE STORAGE (REF; CHAPTER 32 OF 2022CFC). THE STORAGE OF COMBUSTIBLE MATERIALS GREATER THAN 12 FEET IN HEIGHT IS NOT PERMITTED. IN ADDITION WHEN REQUIRED BY THE FIRE CHIEF, COMBUSTIBLE STORAGE OF CERTAIN HIGH-HAZARD COMMODITIES, SUCH AS RUBBER TIRES, GROUP "A" PLASTICS, FLAMMABLE LIQUIDS, IDLE PALLETS AND SIMILAR COMMODITIES GREATER THAN 6 FEET IN HEIGHT ARE NOT PERMITTED.
   c) FUEL-DISPENSING IS NOT PERMITTED.
   d) OWNER IS TO BE RESPONSIBLE IN MAINTAINING THE BUILDING'S OCCUPANCIES TYPES (USAGES).

ZONING: I (INDUSTRIAL)

CONSTRUCTION TYPE: V(B) (SINGLE STORY, WOOD CONSTRUCTION WITH AUTOMATIC SPRINKLER SYSTEM THROUGHOUT, REFER TO SPEC 13970).

PERMITTED OCCUPANCY TYPE:
   a) OFFICE AREA; TYPE "B" OCCUPANCY RATING FOR OFFICE, PROFESSIONAL OR SERVICE-TYPE TRANSACTIONS, INCLUDING STORAGE OF RECORDS AND ACCOUNTS.
   b) REPAIR GARAGE; TYPE "S-1" OCCUPANCY RATING FOR REPAIR GARAGE WHERE WORK PERTAINS TO THE EXCHANGE OF PARTS AND MAINTENANCE REQUIRING OPEN FLAME OR WELDING.
   c) STORAGE AREA; TYPE "S-1" OCCUPANCY RATING FOR MODERATE-HAZARD STORAGE OF COMBUSTIBLE MATERIALS.

ACTUAL 1ST FLOOR AREA: 18,900SF (INCLUDES ALL ROOF ONLY AREAS EXCEPT THE ARCHITECTURAL ENTRANCE FAÇADE).

ACTUAL 2ND FLOOR AREA: 960SF.

ALLOWABLE AREA; 36,000SF SINGLE STORY CONDITION CONTROLS!!!

BUILDING ANALYSIS

advanced
DESIGN GROUP, INC.
1128 SIXTH STREET, MODESTO, CA 95354
PHONE: (209) 577-3108
EMAIL: adgi@att.net

PROJECT: UNITED PAVEMENT MAINTENANCE FACILITY / CONCRETE MIXING & RECYCLING CENTER
OWNER: RODOLFO RUVALCABA AND MABEL M. RUVALCABA
LOCATION: TULLY RD. HUGHSON, CA

DRAWN BY: BAO
CHECKED BY:
DATE: 08/01/23

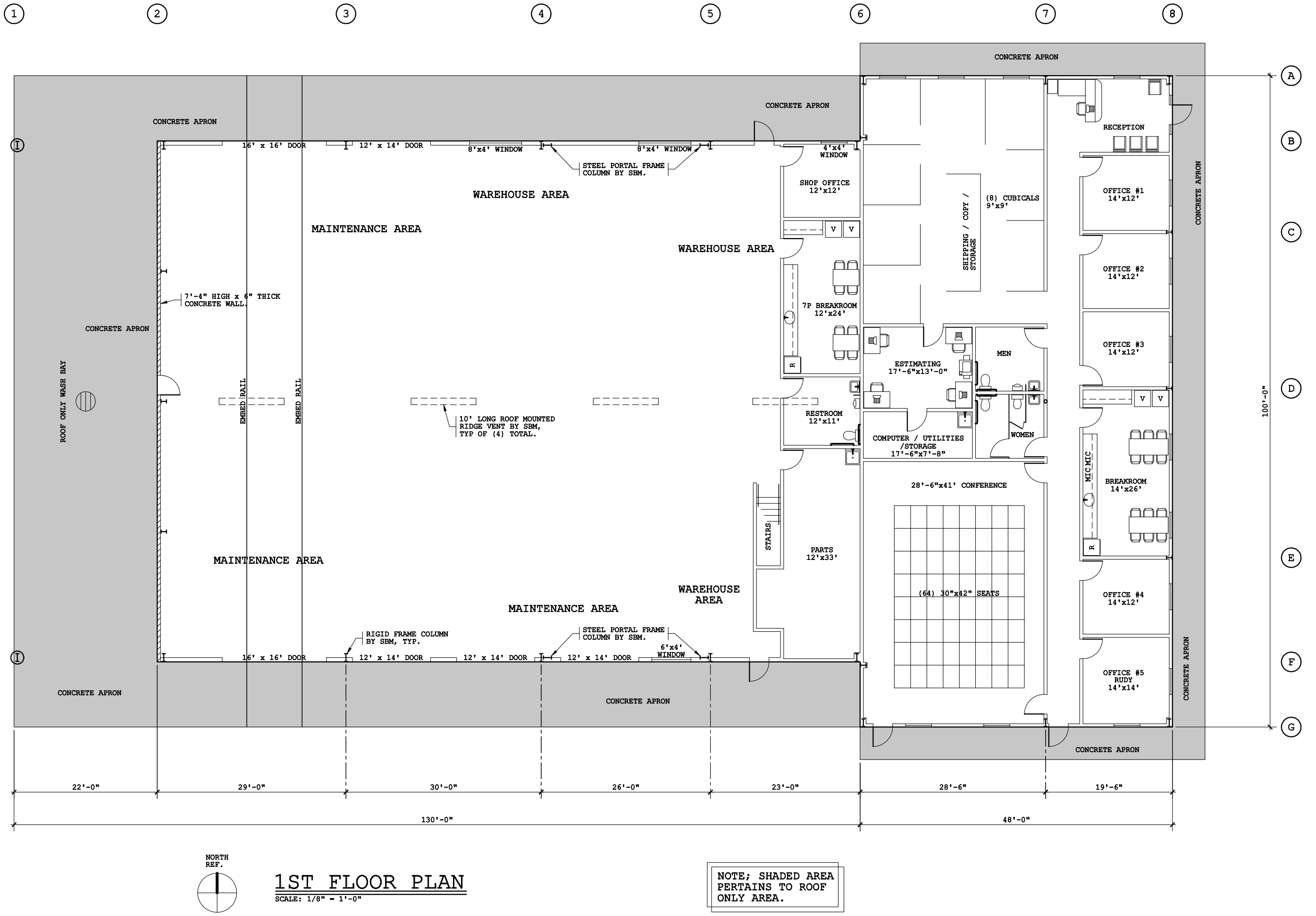
REV	DATE	BY

PROJECT
22028

SHEET NUMBER
UP1

NOTE; THIS DRAWING IS FOR THE USE PERMIT REVIEW.

Figure 2-1
SITE PLAN



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PROJECT: UNITED PAVEMENT MAINTENANCE FACILITY / CONCRETE MIXING & RECYCLING CENTER
OWNER: RODOLFO RUVALCABA AND MABEL M. RUVALCABA
LOCATION: TULLY RD. HUGHSON, CA

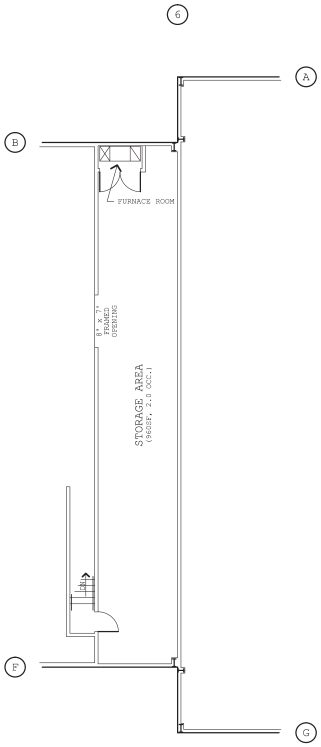
DRAWN BY: BAO
CHECKED BY:
DATE: 11/28/22

REV	DATE	BY

PROJECT
22028

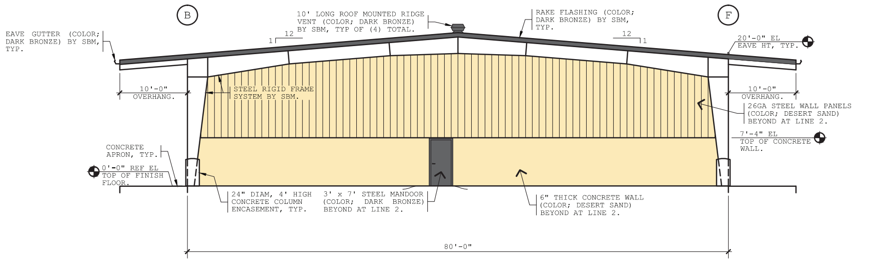
SHEET NUMBER
UP2

Figure 2-2
FLOOR PLAN



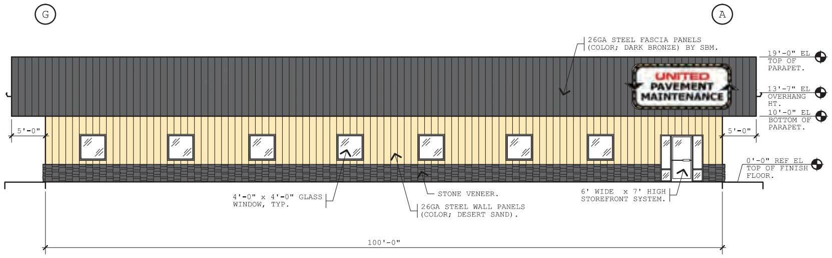
2ND FLOOR PLAN

SCALE: 1/8" = 1'-0"



WEST ELEVATION AT LINE 1

SCALE: 1/8" = 1'-0"



EAST ELEVATION AT LINE 9

SCALE: 1/8" = 1'-0"

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OWNER: RODOLFO RUVALCABA AND MABEL M. RUVALCABA
LOCATION: TULLY RD. HUGHSON, CA

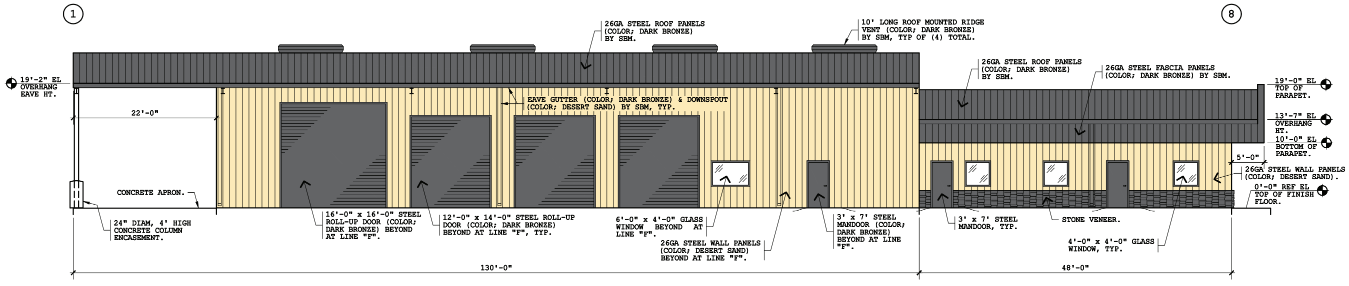
DRAWN BY: BAO
CHECKED BY:
DATE: 01/15/23

REV	DATE	BY

PROJECT
22028

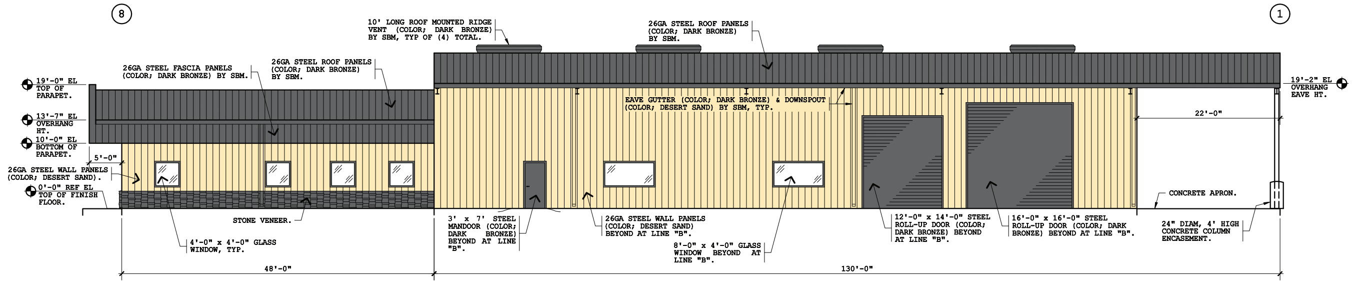
SHEET NUMBER
UP3

Figure 2-3A
ELEVATIONS, PART 1



SOUTH ELEVATION AT LINE "G"

SCALE: 1/8" = 1'-0"



NORTH ELEVATION AT LINE "A"

SCALE: 1/8" = 1'-0"

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OWNER: RODOLFO RUVALCABA AND MABEL M. RUVALCABA
LOCATION: TULLY RD. HUGHSON, CA

DRAWN BY: BAO
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DATE: 01/15/23

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22028

SHEET NUMBER
UP4

Figure 2-3B
ELEVATIONS, PART 2

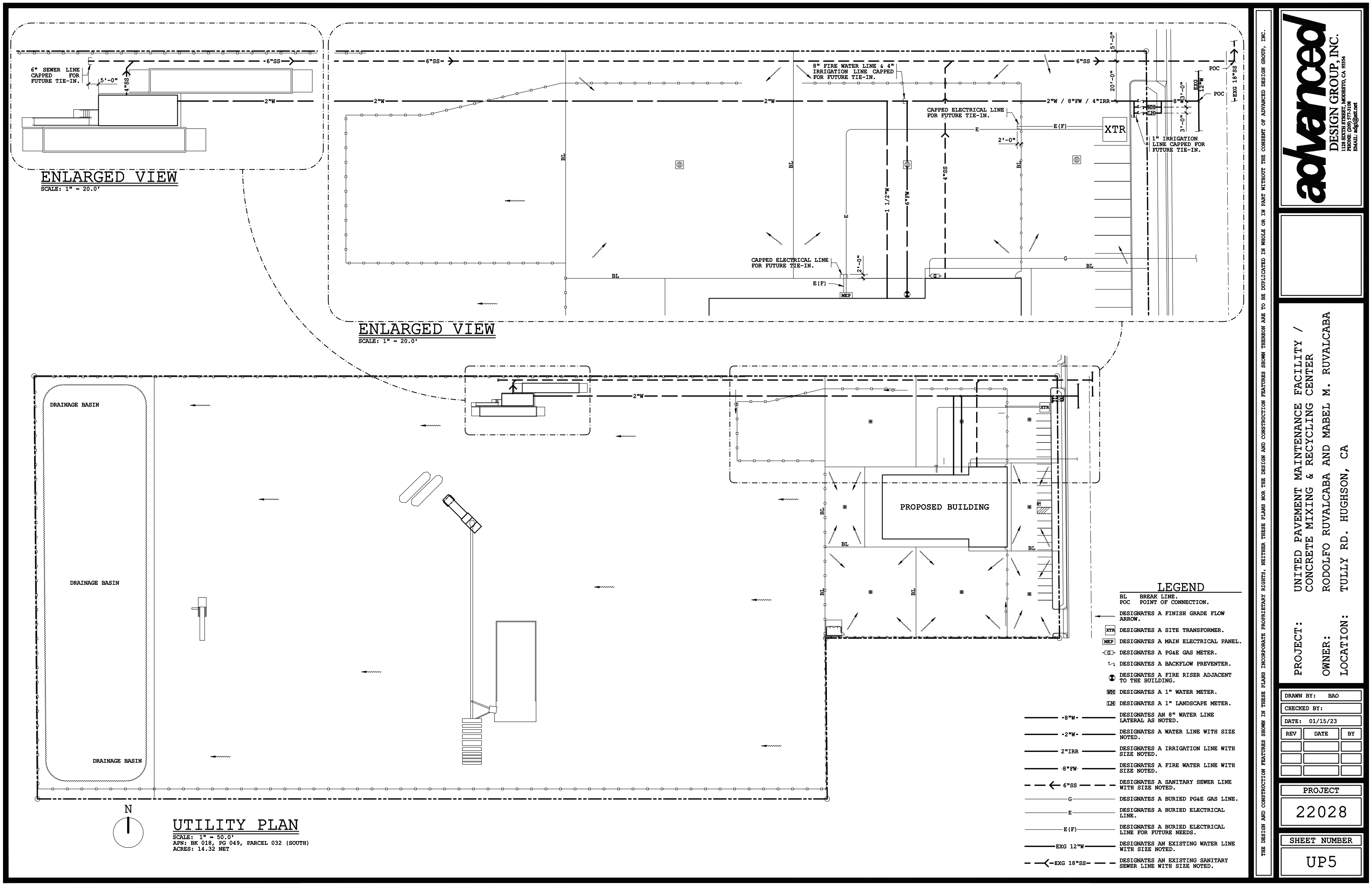
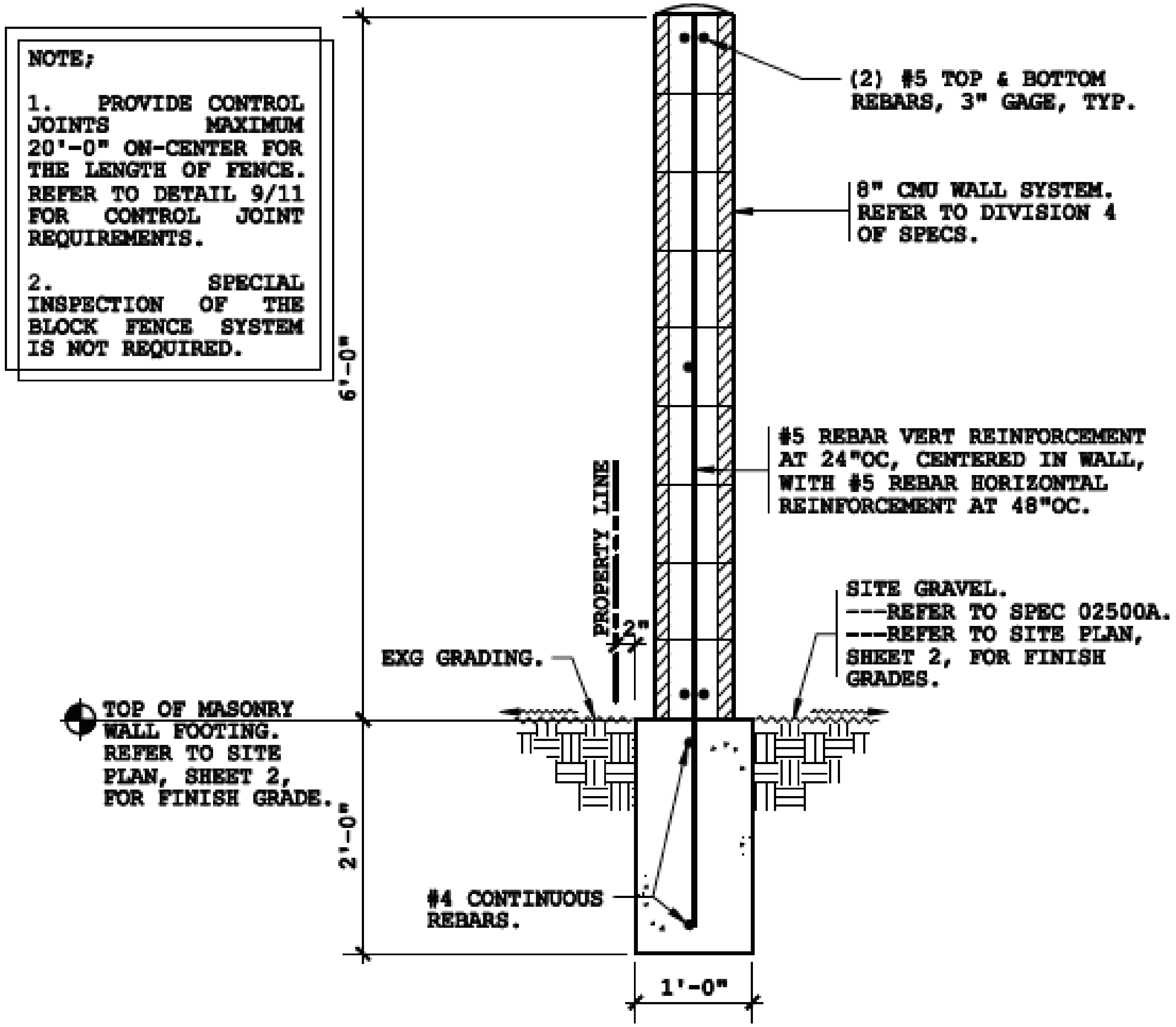


Figure 2-4
UTILITIES


NOTE;

1. PROVIDE CONTROL JOINTS MAXIMUM 20'-0" ON-CENTER FOR THE LENGTH OF FENCE. REFER TO DETAIL 9/11 FOR CONTROL JOINT REQUIREMENTS.

2. SPECIAL INSPECTION OF THE BLOCK FENCE SYSTEM IS NOT REQUIRED.

⑪ MASONRY FENCE

SCALE: 3/4" - 1'-0"

3.0 ENVIRONMENTAL EVALUATION CHECKLIST

3.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, 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?			✓	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			✓	
c) In non-urbanized areas, 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?			✓	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			✓	

Environmental Setting

The project is within the southwestern portion of the City of Hughson; the surrounding landscape is composed of industrial and commercial development to the north and east of the site and agricultural, primarily orchards, to the south and west. The landscape on the project site formerly consisted of an orchard but is now vacant. Land to the south and west of the project site is planted in orchard. By contrast, the landscape north and east of the project site consists of light industrial and commercial buildings. The parcel adjacent to and north of the project site is also vacant but is proposed for development as a truck maintenance and storage facility. In the distance, when conditions permit, views of the Sierra Nevada mountains are visible to the east.

Environmental Impacts and Mitigation Measures

a) Scenic Vistas.

The project would involve the construction of aboveground structures that could interfere with intermittent existing scenic vistas of the Sierra Nevada from areas west of the project site. However, the area to the west is orchard land with no development. Also, existing scenic vistas are already significantly obstructed by existing industrial and commercial development east of the project site. Because of this, project impacts on scenic vistas would be less than significant.

b) Scenic Routes and Resources.

The project site is currently vacant. There are no scenic resources of significant value on the project site, such as rock outcroppings or historic buildings. The orchard has been removed, and the site is now vacant, also consistent with rural uses.

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. According to the Caltrans list of designated scenic highways, there is only one officially designated state scenic highway within Stanislaus County: Interstate 5 from the San Joaquin County line to the Merced County line (Caltrans 2019). This scenic highway is in southwestern Stanislaus County, well away from the project site. Neither the City nor Stanislaus County have designated any scenic highways. Project impacts on scenic resources or scenic highways would be less than significant.

c) Visual Character and Quality.

A recent change to the Environmental Checklist in CEQA Guidelines Appendix G emphasizes aesthetic and visual resource impacts on public views in non-urbanized areas. As defined in Appendix G, "public views" are views that are experienced from publicly accessible vantage points. Although not specifically defined, "publicly accessible vantage points" are assumed to include, though not necessarily limited to, public roads, parks, trails, and vista turnouts. For this project, publicly accessible vantage points would include Tully Road adjacent to the project site.

As noted, the project site has until recently supported an existing orchard, which is consistent with the rural landscape in the vicinity. Rural landscapes are typically considered to have higher visual quality than urban landscapes. The project would convert the existing rural landscape to one that is urbanized. However, this landscape would be consistent with the developed landscapes to the north and east and with the proposed use of the adjacent property to the north. The Hughson General Plan anticipates this conversion with the Industrial designation of the project site. Also, as noted, orchards and vacant agricultural lands are fairly common features in the area.

The project proposes to add some landscaping along the Tully Road frontage. This would be part of a landscaping plan the project applicant would be required to submit to the City. The plan will be required to comply with the provisions of Hughson Municipal Code Sections 17.03.048 and 17.03.060(G), which specify landscaping requirements for new development. Compliance with the City's landscaping requirements would heighten the visual quality of the development. Overall, project impacts on visual character and quality are considered less than significant.

d) Light and Glare.

There is no existing lighting on the project site. Exterior security lighting would be installed in conjunction with the project, which would produce illumination on the project site of between 1.0 and 4.0 foot-candles (fc) and locally up to 5.0 fc. The project's outdoor lighting would in boundary areas also result in an increase in lighting levels on adjacent properties; depending on the location, off-site illumination could range up to 4.0 fc, approximately four times off-site residential impact level of about 1.0 fc commonly described in more detailed outdoor lighting standards. While of minor consequence along most of the project boundaries due to existing agricultural or industrial uses, spill light in the southeast corner of the site could affect existing agriculture-associated residences.

The project applicant would be required to submit a lighting plan to the City, which will be required to comply with the provisions of Hughson Municipal Code Section 17.03.056; among other provisions, the code limits the height of light fixtures to a maximum of 14 feet and requires fixtures to be shielded in order to direct light away from the sky, surrounding properties, and streets. Reflections or glare outside of the subject property must be minimized to achieve zoning compliance. Compliance with Section 17.03.056 would theoretically minimize project impacts on nearby properties, thereby reducing impacts to a level that would be less than significant.

Project compliance with Municipal Code requirements is complicated by proposed pole heights, pole locations adjacent to property lines and undefined luminaire specifications. Proposed 40-foot pole heights conflict with City maximum height requirements, which can be considered unusually restrictive for application to industrial development; pole height may need to be reduced or may require additional City approval. Pole locations adjacent to the property line result in increased illumination levels in boundary areas. The type of luminaire is not specified; cut-off-fixtures, if prescribed, would help control off-site lighting. As proposed, the project could result in a potentially significant spill light impact on the adjacent or nearby residences. These concerns would be addressed by the mitigation measure below.

Level of Significance: Potentially significant

Mitigation Measures:

AESTH-1: The applicant shall modify the proposed exterior lighting system design as required to reduce spill light impacts to less than 1.0 fc on adjacent residential uses. The lighting system design shall incorporate specific pole location, pole height and luminaire type, including consideration of cut-off fixtures, and luminaire aiming and shielding specifications as required. Lighting system effectiveness shall be demonstrated in a revised photometric plan illustrating illumination levels on the adjoining residential properties, which shall be subject to City staff approval.

Significance After Mitigation: Less than significant

3.2 AGRICULTURE AND FORESTRY RESOURCES

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?			✓	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
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))?				✓
d) Result in the loss of forest land or conversion of forest land to non-forest use?				✓
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?			✓	

Environmental Setting

As noted in Section 3.1, Aesthetics, the project site was formerly used for orchard production but is now vacant; although vacant, the site would remain available for agricultural use until developed. The project site is adjacent to agricultural lands to the south and west. The Important Farmland Maps, prepared by the California Department of Conservation as part of its Farmland Mapping and Monitoring Program, designate the viability of lands for farmland use, based on the physical and chemical properties of the soils. The maps categorize farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. Collectively, these three categories are referred to as "Farmland" by CEQA Guidelines Appendix G. There are also designations for other agricultural land and for urban/built-up areas, among others. According to the 2018 Important Farmland Map of Stanislaus County North, the project site is entirely designated as Prime Farmland (FMMP 2018).

The City has adopted a Farmland Preservation Program that requires the protection of farmland based on a 2:1 ratio to the amount of farmland converted to a residential use, either through direct acquisition of an agricultural conservation easement or payment of an in-lieu fee. This program applies to conversions of agricultural land to residential use;

therefore, it does not apply to the United Pavement project, which proposes an industrial use.

Environmental Impacts and Mitigation Measures

a) Agricultural Land Conversion.

As noted, the project site is designated as Prime Farmland, which is defined as Farmland by CEQA Guidelines Appendix G. The project would therefore involve conversion of Farmland to non-agricultural use.

The Hughson General Plan EIR analyzed the potential impacts of development under the General Plan on Farmland. At the time the EIR was prepared, the project site was not within the City limits but was within the City's Sphere of Influence (SOI). It was estimated that there were 990 acres of Prime Farmland in the SOI. The EIR stated that the General Plan designates the majority of the SOI for future urban development, except for particular areas within which the project site is not included. General Plan policies designed to minimize conversion impacts included a focus on infill development, maintenance of SOI land in agricultural production until conversion occurs and working cooperatively with land trusts and other non-profit organizations to preserve agricultural land. Nevertheless, the EIR concluded that impacts of Farmland conversion were significant and unavoidable. In accordance with CEQA, the City Council adopted a Statement of Overriding Considerations in conjunction with adoption of the General Plan. This Statement of Overriding Considerations remains operative.

The proposed project is consistent with Hughson General Plan policy guidance in that the site is proposed for development and is therefore ready for conversion, pending City approval of the project. In addition, CEQA Guidelines Section 15152(d) states that where an EIR has been prepared and certified for a plan, a lead agency for a later project consistent with the plan should limit an EIR on the later project to effects which 1) were not examined as significant effects on the environment in the prior EIR, or 2) are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means. The project is consistent with the land use designation of the General Plan and with current zoning. The project would not involve new or more severe environmental impacts associated with Farmland conversion. Therefore, project impacts related to Farmland conversion are considered less than significant.

b) Agricultural Zoning and Williamson Act.

The project site has been zoned for industrial use, and not for agricultural use. The Williamson Act is State legislation that seeks to preserve farmland by offering property tax breaks to farmers who sign a contract pledging to keep their land in agricultural use. There are some lands in the vicinity of the project that are under a Williamson Act contract. The project site is not, however, under a Williamson Act contract. The project would have no impact on agricultural zoning or Williamson Act contracts.

c, d) Forest Land Zoning and Conversion.

There is no forest land in the project vicinity or in the Central Valley portion of Stanislaus County. No land in the area is zoned for timber production. The project would have no impact on forest land zoning or conversion.

e) Indirect Conversion of Farmland and Forest Land.

The project would have no indirect effect on conversion of forest land to non-forest use, as there is no forest land in the area. The project would not involve any conflict with, or have an adverse effect on, the ongoing and continued use of agricultural land in the project vicinity. The land use proposed on the project site would not be sensitive to the noise or agricultural chemical applications used by nearby operations. The project site is within the City limits and would have access to City municipal systems. Adjacent and nearby agricultural lands are located outside the City limits and would not have ready access to City utilities. No water or sewer lines would be extended onto any agricultural lands outside the City limits.

An appendix to the Agriculture Element of the Stanislaus County General Plan describes guidelines for the implementation of agricultural buffers and setbacks between General Agriculture lands and lands adjacent to them. These guidelines apply to all new or expanding uses approved by discretionary permit on a parcel adjoining the A-2 zoning district. All projects shall incorporate a minimum 150-foot-wide buffer setback. Permitted uses within a buffer include parking lots, among other features.

The project site is adjacent to and east of A-2-zoned land. The proposed repair facility and surrounding area would be more than 150 feet from the A-2 land. The proposed batch plant would be within 150 feet of the A-2 land. However, the buffer allows for permitted non-agricultural uses adjoining or surrounding a project site which are of a permanent nature and not likely to be returned to agriculture. The batch plant would be in this category; therefore, the project would be consistent with the County's agricultural buffer and setback guidelines. Project impacts regarding indirect conversion of farmland are considered less than significant.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. 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 Attainment Plan?			✓	
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?				✓

c) Expose sensitive receptors to substantial pollutant concentrations?			✓	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				✓

Environmental Setting

Air Quality Background

The project site is within the San Joaquin Valley Air Basin. The San Joaquin Valley Air Pollution Control District (SJVAPCD), which includes San Joaquin County, has jurisdiction over most air quality matters in the Air Basin; vehicle emissions are the responsibility of the California Air Resources Board (ARB). The SJVAPCD is tasked with developing and implementing plans, programs and regulations that would enable the Air Basin to attain ambient air quality standards set under both the federal and California Clean Air Acts.

Under their respective Clean Air Acts, both the State of California and the federal government have established ambient air quality standards for six criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. California has four additional criteria pollutants under its Clean Air Act; none of these pollutants would be generated in the project area.

Table 3-1 shows the current attainment status of the Air Basin relative to the federal and State ambient air quality standards for criteria pollutants. Except for ozone and particulate matter, the Air Basin is in attainment of, or unclassified for, all federal and State ambient air quality standards.

Ozone is not emitted directly into the air but is formed when reactive organic gases (ROG) and nitrogen oxides (NO_x) react in the atmosphere in the presence of sunlight. The SJVAPCD currently has a 2022 Plan for the 2015 8-Hour Ozone Standard and the 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard to attain federal ambient air quality standards for ozone.

Particulate matter is a mixture of solid and liquid particles suspended in air, including dust, pollen, soot, smoke, and liquid droplets. In San Joaquin County, particulate matter is generated by a mix of rural and urban sources, including agricultural operations, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere. Two types of particulate matter are of concern: particulate matter 10 micrometers or less in diameter (PM_{10}), and particulate matter 2.5 micrometers or less in diameter ($PM_{2.5}$). The SJVAPCD currently has a 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards to attain federal ambient air quality standards for $PM_{2.5}$ and the 2007 PM10 Maintenance Plan to maintain its current PM_{10} attainment status.

contaminants (TACs) - pollutants that are carcinogenic (i.e., cause cancer) or that may cause other adverse short-term or long-term health effects. Diesel particulate matter, considered a carcinogen, is the most common TAC, as it is a product of combustion in diesel engines. It is present at some concentration in all developed areas of the state.

TABLE 3-1
SAN JOAQUIN VALLEY AIR BASIN ATTAINMENT STATUS

	Designation/Classification	
Pollutant	**Federal Primary Standards**	**State Standards**
Ozone - One hour	No Federal Standard[1]	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	[2]

[1] Effective June 15, 2005, EPA revoked the federal 1-hour ozone standard, including associated designations and classifications.

[2] Regulated by the State of California as part of its toxic air contaminant program.

Source: SJVAPCD 2023.

In addition to the criteria pollutants, the ARB has identified other air pollutants as toxic air In addition to diesel particulate matter, batch plant operations could also release amounts of fugitive dust that contain several TACs through the various stages of the concrete batch plant process: aluminum, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, zinc, and crystalline silica. These materials have a variety of health effects, including cancer, depending on the amounts generated and the length of exposure (VRPA Technologies 2020).

As noted, the SJVAPCD is tasked with implementing regulations designed to attain ambient air quality standards. SJVAPCD regulations that are potentially applicable to the project are summarized below.

Regulation VIII (Fugitive Dust PM_{10} Prohibitions)

Rules 8011-8081 are designed to reduce PM_{10} emissions - predominantly dust/dirt - generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc.

Rule 2201 (New and Modified Stationary Source Review)

The purpose of this rule is to provide for the review of new and modified stationary sources of air pollution and to provide mechanisms, including emission trade-offs, by which an Authority to Construct may be granted, without interfering with the attainment or maintenance of ambient air quality standards. Another purpose is to ensure that new and modified stationary sources generate no net increase in emissions of all nonattainment pollutants and their precursors above specified thresholds. Rule 2201 allows the SJVAPCD to place conditions on Permits to Operate batch plants that are intended to limit pollutant emissions. These may include, but are not limited to, limits on the amount of materials processed in a specified time period, maintenance of a minimum moisture content of materials processed, and limits on emission rates from specified components of the batch plant.

Rule 4101 (Visible Emissions)

This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.

Rule 9510 (Indirect Source Review)

Rule 9510, also known as the Indirect Source Rule, is intended to reduce or mitigate construction and operational emissions of NO_x and PM_{10} generated by new development, either directly and/or by payment of off-site mitigation fees. Construction emissions of NO_x and PM_{10} exhaust must be reduced by 20% and 45%, respectively. Operational emissions of NO_x and PM_{10} must be reduced by 33.3% and 50%, respectively. All projects subject to Rule 9510 are required to submit an Air Impact Assessment to the SJVAPCD.

Rule 9510 applies to projects of a land use not otherwise identified in the rule that is 9,000 square feet of space or greater. However, development projects that have a mitigated baseline below two tons per year of NO_x and two tons per year of PM_{10} are exempt from the requirements in Sections 6.0 and 7.0 of the rule, which involve general mitigation requirements and the off-site emission reduction fee.

Environmental Impacts and Mitigation Measures

a) Air Quality Plan Consistency.

In 2015, the SJVAPCD adopted a revised Guide for Assessing and Mitigating Air Quality Impacts. The Guide defines an analysis methodology, thresholds of significance, and mitigation measures for the assessment of air quality impacts for land development projects within SJVAPCD's jurisdiction. Table 3-2 shows the CEQA thresholds for significance for pollutant emissions within the SJVAPCD.

Table 3-2 also shows the estimated criteria air pollutant emissions that would be generated by the project, both from its construction and its operations. Most of these emissions were estimated using the CalEEMod computer modeling program that is accepted by SJVAPCD. For batch plant operational emissions, estimates were made based on U.S. Environmental Protection Agency (EPA) AP-42 emission factors, with refinements made by a study from the University of Texas. As indicated in Table 3-2, project construction and operational emissions would be substantially below the significance thresholds established by SJVAPCD for criteria pollutant emissions. As the significance thresholds were established in part to ensure consistency with the objectives of air quality attainment plans adopted by the SJVAPCD, project construction and operational emissions would not conflict with these plans. Project impacts related to air quality plans would be less than significant.

While project emissions would not be significant, the project would still be required to comply with applicable SJVAPCD rules and regulations, which would further reduce potential air quality impacts. As noted, SJVAPCD Regulation VIII contains measures to reduce fugitive dust emissions during construction. Dust control provisions are routinely included in site improvement plans and specifications, along with construction contracts. Project impacts related to air quality plans would be less than significant.

In addition to Regulation VIII, the proposed concrete batching, pavement recycling and rock crushing operations in Phase 2 would be subject to SJVAPCD review and approval under its adopted *Rule 2201 New and Modified Stationary Source Review*. The purpose of conformance with Rule 2201 is to identify and quantify new emission sources and to ensure that new and modified stationary sources do not generate net increases in emissions of all nonattainment pollutants. Rule 2201 allows the SJVAPCD to place necessary conditions on Permits to Operate that limit emissions by governing, among other things, the amount of materials processed in a certain time period, maintenance of minimum moisture content of materials processed, and limits on emission rates from specified project components. Conformance with Rule 2201 would further reduce the potential criteria pollutant emissions shown in Table 3-2 and help maintain the project's less than significant contribution to air quality impacts. Rule 2201 is a feature of the existing regulatory environment and therefore does not need to be applied as a mitigation measure; the City could, however, require Rule 2201 compliance as a condition of project approval and provide for monitoring of this requirement in the Mitigation Monitoring/Reporting Program for the project.

> Proposed Condition of Approval: Prior to construction, the project shall apply to the SJVAPCD for approval under Regulation VIII and other SJVAPCD construction-related requirements.
>
> Proposed Condition of Approval: Prior to installation or operation of planned rock crushing, concrete batching or pavement recycling facilities, the project shall make application to the SJVAPCD for Authority to Construct/Permit to Operating Rule 2201 New and Modified Stationary Source Review.

b) Cumulative Emissions.

As noted in a) above, the project would not generate any emissions exceeding significance thresholds. Future attainment of federal and State ambient air quality standards is a function of successful implementation of the SJVAPCD's attainment plans. Consequently, the application of significance thresholds for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. Pursuant to the SJVAPCD's guidance, if project-specific emissions would be less than the thresholds of significance for criteria pollutants, the project would not be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the SJVAPCD is in nonattainment under applicable federal or State ambient air quality standards. Therefore, the cumulative impacts of the project on air quality would be less than significant.

c) Exposure of Sensitive Receptors.

As defined in the Guide for Assessing and Mitigating Air Quality Impacts, "sensitive receptors" include residences, schools, parks and playgrounds, day care centers, nursing homes, and hospitals (SJVAPCD 2015). The nearest sensitive receptor is a residence approximately 300 feet south of the proposed repair building.

TABLE 3-2
SJVAPCD SIGNIFICANCE THRESHOLDS AND
PROJECT AIR POLLUTANT EMISSIONS

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Significance Thresholds	**10**	**10**	**100**	**27**	**15**	**15**
Phase 1						
Construction Emissions	0.08	0.35	0.36	<0.01	0.03	0.02
Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Operational Emissions	0.14	0.08	0.41	<0.01	0.05	0.02
Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Phase 2						
Construction Emissions	0.07	0.65	0.95	<0.01	0.20	0.11
Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Operational Emissions						
Batch Plant - Dust	-	-	-	-	4.97	0.94
Batch Plant - Other	0.04	1.20	0.46	0.01	0.27	0.08
Batch Plant - Total	0.04	1.20	0.46	0.01	5.24	1.02
Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Total Construction Emissions	**0.15**	**1.00**	**1.31**	**<0.01**	**0.23**	**0.13**

Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Total Operational Emissions	**0.18**	**1.28**	**0.87**	**0.01**	**5.29**	**1.04**
Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

Note: All figures are in tons per year and are unmitigated (i.e., do not include project features that reduce emissions).
Sources: CalEEMod v.2022.4.0, SJVAPCD 2015, University of Texas 2019.

Project construction emissions would not have a significant effect on this residence. Potential exposure to construction emissions would be limited and would cease once construction work is completed. In addition, as described in a) above, dust control measures would be applied, reducing the amount of dust to which sensitive receptors may be exposed. Project operational emissions are likewise limited, as indicated in Table 3-2 above. Given this and the distance to the residence, emissions would readily dissipate before reaching the residence. Project impacts on sensitive receptors would be less than significant. Project impacts on sensitive receptors would be less than significant.

d) Odors and Other Emissions.

The project does not involve any features that would generate any substantial or noticeable odors during either construction or operation. Construction equipment could generate exhaust that is considered odorous. However, exposure would be limited, and the exhaust emissions would readily dissipate. Repair operations would occur inside a building; as such, any odors from repair activities would be confined.

The project would generate emissions of diesel particulate matter (DPM), which is considered a toxic air contaminant that could lead to increased cancer risk with prolonged exposure. DPM emissions would be generated by the operation of off-road construction equipment and on-road diesel heavy-duty vehicles, mainly traffic associated with the truck storage yard. Construction DPM emissions are temporary, and measurable health risks from DPM emissions occur only with prolonged exposure. Therefore, the focus is on operational DPM emissions.

DPM operational emissions generated by the project would mainly come from idling trucks. These emissions were estimated at approximately 0.82 pounds per year. Toxic air contaminant emissions are considered significant if the emissions lead to a cancer risk of 10 cancers per million people and the Non-Cancer Hazard Index is 1.0. The need for a Health Risk Assessment is assessed using a facility prioritization screening based on a model accepted by SJVAPCD. A facility prioritization screening was conducted for the project, which found that for receptors closest to the project site (0 to 100 meters), the cancer risk would be approximately 1.89 per million – well below the significance threshold for cancer risk. The Non-Cancer Hazard Index at 0 to 100 meters would be approximately 0.006, also well below the significance threshold. As a result, no Health Risk Assessment for the project is needed, and the potential health risk to receptors in the vicinity of the project is considered less than significant.

Potential for DPM emissions from truck idling is also subject to control under existing state regulatory programs. Under the State's In-Use Off-Road Diesel Vehicle Regulation, trucks can idle for no more than five minutes. Therefore, DPM generation from idling trucks would be limited. Moreover, the State has adopted other regulations, such as the Advanced Clean Truck Regulation and the Advanced Clean Fleets Regulation, that would further reduce DPM emissions from trucks in the near future.

In summary, construction and operational emissions from the proposed project would not generate substantial criteria pollutant emissions, nor would it generate DPM emissions that would pose a substantial health risk to the nearby residence. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations, and the impact is considered less than significant.

3.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Adversely impact, either directly or through habitat modifications, any endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?		✓		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				✓
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?				✓
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?		✓		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				✓
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?				✓

Information in this section is based upon a biological resource report prepared by Moore Biological Consultants. Appendix B contains a copy of this report. Preparation of the report involved a search of California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), a review of the United States Fish and Wildlife Service (USFWS) IPaC Trust Resource Report, and field surveys of the project site on March and July 2023.

Environmental Setting

Vegetation

The site contained a mature almond orchard when a field survey was conducted by Moore Biological in March 2023. The floor of the orchard was highly maintained, consisting almost entirely of dirt with sparse amounts of ruderal grassland vegetation. By the July 2023 survey, the orchard trees had been removed, and there are now bare dirt fields throughout the project site.

Habitats on the project site have been highly disturbed from intensive farming for decades. The floor of the previously existing orchard was sandy and almost entirely bare dirt. At that time, the ruderal grassland vegetation in the site was constrained to the edges of the orchard, primarily long fence lines and along Tully Road. The sparse vegetation along the edges of the site is still present, although the orchard trees are now gone. The California annual grassland series best describes the vegetation along the edges of the site. Annual bluegrass and ripgut brome are the dominant grasses on the site. Other grassland species are intermixed with these grasses, such as Russian thistle, shepherd's purse, clasping henbit, common mallow, and filaree. A complete list of plants found on the project site is shown in Appendix B.

With the orchard now gone, there are no trees on the project site. Most of the trees near the site are either orchard trees or ornamental species and fruit trees associated with nearby homes and commercial parcels. No blue elderberry shrubs – habitat for the special-status species valley elderberry longhorn beetle – were observed on or adjacent to the project site.

Wildlife

Several representative bird species common to Stanislaus County were observed on and near the project site during the surveys: American crow, mourning dove, California scrub jay, white-crowned sparrow, yellow-rumped warbler, and Brewer's blackbird. While no mammals were observed on the site during the surveys, a few mammals common to urban and agricultural areas may occur on the project site on occasion. Common species such as coyote, striped skunk, black-tailed hare, desert cottontail, and Virginia opossum are expected to periodically occur in the site. Rodents such as mice and voles likely occur on the site. No California ground squirrels or their burrows, which are used by the special-status species burrowing owl, were observed on or adjacent to the site.

Due to lack of suitable habitat, few amphibians and reptiles are expected to use habitats on the site other than for moving through the area; none were observed during the field surveys. The site provides suitable habitat for common species such as Pacific chorus frog, western fence lizard, western skink, and western terrestrial garter snake.

Federal and State Waters and Wetlands

Waters of the U.S., including wetlands, are defined under 33 Code of Federal Regulations 328 to include navigable waterways, their tributaries, and adjacent wetlands. Jurisdictional Waters of the U.S. and wetlands include, but are not limited to, most perennial and intermittent creeks and lakes, as well as adjacent wetlands. Section 404 of the Clean Water Act requires that a permit be secured from the U.S. Army Corps of Engineers prior to the discharge of dredged or fill materials into any Waters of the U.S. Geographically and hydrologically isolated wetlands are outside federal jurisdiction but may be regulated by the jurisdictional Regional Water Quality Control Board (RWQCB) as "Waters of the State". No wetlands or Waters of the U.S. were identified on the project site.

Environmental Impacts and Mitigation Measures

a) Special-Status Species.

Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Act. Special-status species also include other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitats.

Special-status plants are those which are designated rare, threatened, or endangered and candidate species for listing by the USFWS. Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society. In addition, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on List 3 in the California Native Plant Society Inventory.

Table 3-3 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species on the site.

TABLE 3-3
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Fed. Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence
Plants						
Heartscale	*Atriplex cordulata var cordulata*	None	None	1B	Valley and foothill grassland, chenopod scrub.	Unlikely: the site does not provide suitable habitat for this species; no areas of alkaline or saline soils were observed.
Subtle orache	*Atriplex subtilis*	None	None	1B	Valley and foothill grassland, in areas with alkaline soils.	Unlikely: the site does not provide suitable habitat for this species; onsite soils are not alkaline.
Beaked clarkia	*Clarkia rostrata*	None	None	1B	Cismontane woodland and valley and foothill grassland.	Unlikely: the site does not provide suitable habitat for this species.
Colusa grass	*Neostapfia colusana*	T	E	1B	Large, deep vernal pools.	Unlikely: the site does not provide suitable habitat for this species; there are no vernal pools or seasonal wetlands on the site.
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	T	E	1B	Vernal pools	Unlikely: the site does not provide suitable habitat for this species; there are no vernal pools or seasonal wetlands on the site.
Greene's tuctoria	*Tuctoria greenei*	E	R	1B	Vernal pools within the Central Valley.	Unlikely: the site does not provide suitable habitat for this species; there are no vernal pools or seasonal wetlands on the site.
Birds						
Tricolored blackbird	*Agelaius tricolor*	None	T	N/A	Nests in dense brambles and emergent wetland vegetation associated with open water habitat.	Unlikely: the site does not provide suitable habitat for this species; no suitable nesting habitat was observed on or adjacent to the site.
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Breeds in stands of tall trees in open areas.	Unlikely: this species is not widespread in the project vicinity, and the

Common Name	Scientific Name	Fed. Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence
					Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	site has not provided suitable habitat for decades. The recently removed orchard did not provide suitable foraging habitat, and the orchard trees were too small to support nesting hawks. The bare dirt fields that are currently present provide very low-quality potential foraging habitat.
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Unlikely: only a few ground squirrel burrows were observed on the site, primarily located at the base of a few orchard trees. None of the burrows contained evidence of past or present burrowing owl activity.
Mammals						
Townsend's big-eared bat	*Corynorhinust ownsendii*	None	SC	N/A	Desert scrub, mixed conifer forest, and pinyon-juniper or pine forest; primarily roosts in caves, mines and buildings.	Unlikely: although this species may fly over the site on occasion, the site does not contain suitable roosting habitat.
Reptiles and Amphibians						
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Breeds in seasonal water bodies such as deep vernal pools or stock ponds. Requires small mammal burrows for summer refugia.	Unlikely: there are no areas within or near the site that could provide breeding habitat for this species, and the site is not suitable for aestivation.
Northern California legless lizard	*Anniella pulchra*	None	SC	N/A	Sandy or loose loamy soils under sparse vegetation.	Unlikely: the site does not provide suitable habitat for this species.
Fish						
Green sturgeon - southern DPS	*Acipenser medirostris pop. 1*	T	None	N/A	Spawns in the Sacramento, Feather, and	None: there is no aquatic habitat on the site.

Common Name	**Scientific Name**	**Fed. Status**[1]	**State Status**[2]	**CNPS List**[3]	**Habitat**	**Potential for Occurrence**
					Yuba Rivers. Delta important for rearing juveniles.	
Central Valley steelhead	*Oncorhynchus mykiss*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	None: there is no aquatic habitat on the site.
Hardhead	*Mylopharodon conocephalus*	None	SC	N/A	Clear, deep pools with sand and gravel bottoms in tributaries to the San Joaquin and Sacramento River.	None: there is no aquatic habitat on the site.
Invertebrates						
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley.	None: there are no vernal pools or seasonal wetlands on the site.
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools and seasonally inundated depressions within the Central Valley.	None: there are no vernal pools or seasonal wetlands on the site.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs in the Central Valley and surrounding foothills.	None: no blue elderberry shrubs were observed on the site.
Crotch bumble bee	*Bombus crotchii*	None	CE	N/A	Open grassland and scrub habitats throughout California; rarely found in the Central Valley.	Unlikely: the site does not provide suitable habitat for this species.
Monarch butterfly	*Danaus plexippus*	C	None	N/A	Variety of habitats in California, primarily	Unlikely: although this species may fly over the site during its migration, the site does not provide

Common Name	**Scientific Name**	**Fed. Status**[1]	**State Status**[2]	**CNPS List**[3]	**Habitat**	**Potential for Occurrence**
					associated with coastal environments; larvae dependent on milkweed.	suitable habitat for this species.

[1] T = Threatened; E = Endangered; C = Candidate.

[2] T = Threatened; E = Endangered; SC=State of California Species of Special Concern, R = Rare.

[3] 1B = Rare, threatened, or endangered in California and elsewhere; N/A = not applicable.

As indicated by Table 3-3, the likelihood of occurrence of listed, candidate, and other special-status species in the project site ranges from unlikely to none, due to a lack of suitable habitat for these species. Based on this information, the project is unlikely to affect any special-status species or their habitats.

However, the biological assessment does recommend a pre-construction survey for Swainson's hawk. While the quality of potential nesting and foraging habitat on the project site is poor, Swainson's hawk has occurred in the vicinity, and there are a few large trees near the site that could potentially be used by nesting raptors, although no large raptor stick nests were observed in trees visible from the site. The recommendation is incorporated as a mitigation measure presented below. Implementation of this mitigation measure would reduce project impacts on special-status species to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

BIO-1: If project construction commences during the Swainson's hawk nesting season (March 1 through July 31), a pre-construction survey for nesting Swainson's hawk shall be conducted within one-quarter mile of the project site. If active nests are found, then a qualified biologist shall determine the need, if any, for temporal restrictions on construction. The determination shall utilize criteria set forth by the California Department of Fish and Wildlife in its 1994 *Staff Report regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California*. No survey shall be required if construction occurs outside the Swainson's hawk nesting season.

Significance After Mitigation: Less than significant

b) Riparian and Other Sensitive Natural Communities.

There are no streams on or near the project site, so no riparian vegetation exists there. The biological resource report did not identify any sensitive natural communities on the project site. The project would have no impact on riparian or other sensitive natural communities.

c) State and Federally Protected Wetlands.

No potentially jurisdictional Waters of the U.S. and wetlands were observed on the project site. The body of the site has been leveled and farmed for decades. Soils on the site are sandy and appear to be well-draining, and the site supports upland grassland vegetation. There are no areas on the site that meet the technical and regulatory criteria of jurisdictional Waters of the U.S. or wetlands. Furthermore, there are no areas within the site mapped as aquatic features in the National Wetland Inventory.

As no wetlands or other waters were identified on the project site, it is unlikely that any water features that would fall under State jurisdiction would occur. No State wetlands were identified in the biological assessment. The project would have no impact on State or federally protected wetlands.

d) Fish and Wildlife Movement.

Well-developed riparian corridors are often utilized for movement by wildlife species such as deer, coyote, red fox, and bobcat, as well as a variety of amphibians, reptiles, and fish. There are no wildlife movement corridors in the site, as there are no riparian corridors. Due to the lack of streams on or near the project site, there are no fish movement corridors.

The biological assessment noted that there are no trees or shrubs on the site suitable for nesting birds. It is possible that ground-nesting birds, such as killdeer, may nest in the site in the future. If dense grasses and weeds become established on the site, this vegetation could also be used for nesting by songbirds such as red-winged blackbird. Smaller birds, such as songbirds, likely nest in trees adjacent to the site. Some of these birds could be protected by the Migratory Bird Treaty Act and the California Fish and Game Code. Mitigation presented below would reduce impacts on any nesting birds on the project site. Implementation of this mitigation measure would reduce impacts on nesting birds to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

BIO-2: If project construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for all species of nesting birds shall be conducted. If active nests for any bird species are found, work in the vicinity of the nests shall be delayed until the young have fledged. No survey shall be required if construction occurs outside the general avian nesting season.

Significance After Mitigation: Less than significant

e) Local Biological Requirements.

The City of Hughson does not have any local biological resource ordinances or other requirements applicable to the project. The project would have no impact on local biological requirements.

f) Conflict with Habitat Conservation Plans.

There are no Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans that apply to the project site. The project would have no impact on this issue.

3.5 CULTURAL RESOURCES

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 Section 15064.5?			✓	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			✓	
c) Disturb any human remains, including those interred outside of formal cemeteries?		✓		

Information in this section is based primarily upon a cultural resource report prepared by Solano Archaeological Services. Appendix C contains a copy of this report. The report is based upon a search of historical and archaeological records conducted by the Central California Information Center at CSU Stanislaus, along with additional archival research and a field survey of the project site.

Environmental Setting

The project area is within territory claimed by the Northern Valley Yokuts. Section 3.18, Tribal Cultural Resources, discusses the Yokuts in more detail.

A series of explorations in present-day Stanislaus County was conducted by the Spanish beginning with a 1776 expedition led by Jose Joaquin Moraga. Other expeditions were conducted by fur trappers, including Jedediah Smith and Ewing Young in 1820 and 1829–1830 respectively. Mission lands were granted to prestigious Mexican citizens in the form of large land grants, or ranchos. Within present-day Stanislaus County, five ranchos were awarded, none of which encompassed the Hughson area. Following the Mexican-American War, the United States annexed California until it was granted statehood via the Compromise of 1850. The Treaty of Guadalupe Hidalgo promised that the property rights of the Mexicans in California would be protected by the U.S. government. However, the U.S. ultimately did not protect the rancho lands from squatters, and the government required that the rancheros prove that they owned the land.

American settlers flooded California with the discovery of gold on the American River. Throughout the 19th and 20th centuries, agriculture was the primary economic driver of the region. Before the arrival of the railroad, much of Stanislaus County was grazed by large herds of cattle, hogs, horses, and sheep. A wheat boom ended in the late 1880s, leading to many growers being foreclosed in bankruptcy. One of those who took advantage of the economic shift was Hiram Hughson, who arrived in Stanislaus County in 1882 and purchased 1,000 acres for a grain ranch, gradually owning nearly 5,000 acres. In the early 1900s, the San Joaquin Railroad purchased land from Hughson for their tracks and developed a stop, which became known as the Hughson Stop. In 1907, Hughson placed his land in the hands of the Hughson Town Company, under the direction of Charles Flack and C.W. Minniear. John Tully, who owned a section of land to the south of Hughson, also opened up his land for settlement, which directly led to the establishment of the town of Hughson. Hughson remained a township until 1972, when it was incorporated as a city.

An examination of USGS mapping dating to as early as 1916 shows that Hughson was thoroughly laid out by the early 20th century, and residential, public, and commercial development was underway. This pattern continued throughout the 20th century and can be seen in mid-20th century aerial photos. In 1916, the USGS topographical map showed two buildings near the corner of Tully Road and Whitmore; by 1971, more buildings were depicted in the area. However, no developments, buildings, or structures appear within the project site.

Environmental Impacts and Mitigation Measures

a) Historical Resources.

Archival research and an intensive field survey did not identify any historic-period cultural resources within the project site. Historic mapping, aerial photographs, archival research, and the field survey indicate that no developments of any kind other than agricultural land uses occurred directly on the project site up to the present day. Based on this, the cultural resource report concluded that the project site would have a low level of sensitivity for potentially significant historic-era sites, features, or artifacts. The report recommended that the project would have no impact on historical resources.

b) Archaeological Resources.

Archival research and an intensive field survey did not identify any prehistoric cultural resources within the project site. Map and aerial photography reviews and the field survey also did not identify any potentially sensitive landforms or water sources in the project area, suggesting the project site has a low level of sensitivity for containing prehistoric materials. Due to a lack of identified cultural resources and sensitive landforms, along with past agricultural use, the cultural resources study recommends that the proposed project would have no impact on archaeological resources.

c) Human Burials.

The cultural resource report did not identify any sites where human remains, including those of Native Americans, would be encountered. However, the report did recommend that actions be taken should project construction encounter human remains. These actions are set forth in the mitigation measure below. Implementation of the mitigation measure, if necessary, would ensure that any human remains and associated grave goods encountered during project construction would be treated with appropriate dignity, thereby reducing project impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

CULT-1: In accordance with California Health and Safety Code Section 7050.5, if human remains are uncovered during project construction, then all work in the vicinity of the find shall be halted, and the County Coroner shall be immediately notified to determine if an investigation of the death is required. If it is determined that the remains are Native American in origin, then the County Coroner is required to contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission is required to identify the Most Likely Descendants of the deceased Native American, and the Most Likely Descendants may make recommendations on the disposition of the remains and any associated grave goods with appropriate dignity. If a Most Likely Descendant cannot be identified or fails to make a recommendation, or the landowner rejects the recommendations of the Most Likely Descendant, then the landowner shall rebury the remains and associated grave goods with appropriate dignity on the property in a location not subject to further disturbance.

Significance After Mitigation: Less than significant

3.6 ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?			✓	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				✓

Environmental Setting

Electricity and natural gas are major energy sources for residences and businesses in California. In Stanislaus County, electricity consumption in 2020 totaled approximately 5,056 million kilowatt-hours, of which approximately 2,015 million kilowatt-hours were consumed by residential uses and the remainder by non-residential uses (CEC 2022a). In 2019, natural gas consumption in Stanislaus County totaled approximately 199 million therms, of which approximately 63 million therms were consumed by residential uses and the remainder by non-residential uses (CEC 2022b). Motor vehicle use also accounts for substantial energy usage. Approximately 532 million gallons of fuel were consumed annually in Stanislaus County, of which approximately 474 million gallons were gasoline, and 58 million gallons were diesel fuel (StanCOG 2018).

The State of California has adopted comprehensive energy efficiency standards as part of its Building Standards Code, California Code of Regulations, Title 24. Part 6 of Title 24 is referred to as the California Energy Code. In 2009, the California Building Standards Commission adopted a voluntary Green Building Standards Code, also known as CALGreen, which became mandatory in 2011. CALGreen sets forth mandatory measures, applicable to new residential and nonresidential structures as well as additions and alterations, on water efficiency and conservation, building material conservation, and interior environmental quality. It also mentions energy efficiency, although CALGreen refers to the Energy Code for actions. The City has adopted the 2013 versions of both the California Energy Code and CALGreen.

Environmental Impacts and Mitigation Measures

a) Project Energy Consumption.

Project construction would involve fuel consumption, typically gasoline and diesel fuel. The same fuels typically are used for vehicles that transport equipment and workers to and from a construction site. However, construction-related fuel consumption would be finite, short-term, and consistent with construction activities of a similar character. This energy use would not be considered wasteful, inefficient, or unnecessary.

According to the 2012 Commercial Buildings Energy Consumption Survey by the U.S. Energy Information Administration, the most recent such survey conducted, vehicle repair shops consumed on average 8.7 kWh of electricity per square foot annually and 42.3 cubic feet of natural gas per square foot annually (EIA 2012). Based upon these factors, it is estimated that the proposed maintenance/repair facility would use 163,212 kWh of electricity and 793,548 cubic feet of natural gas annually. The energy consumption of a concrete batch plant depends on the type of equipment used and on climate conditions. On average, a concrete batch plant uses 31,000 British thermal units (BTUs) per cubic yard of concrete produced (EPA 2013). It is not known how much concrete would be produced by the batch plant.

As indicated in the CalEEMod run (see Appendix A), the vehicle miles traveled (VMT) generated by traffic associated with project development would be 699,438 annually under unmitigated conditions, or approximately 1,916 miles daily. Based on estimates by SJCOG, such vehicle traffic would consume approximately 246 gallons of gasoline and diesel fuel daily.

The project would be required to comply with the adopted California Energy Code and CALGreen in effect at the time of project approval. Compliance with these standards would reduce energy consumption associated with project operations, although reductions from compliance cannot be readily quantified. Overall, project construction and operations would not consume energy resources in a manner considered wasteful, inefficient, or unnecessary. Project impacts related to energy consumption are considered less than significant.

b) Consistency with Energy Plans.

No energy efficiency or renewable energy plans are applicable to this project. The project would have no impact on this issue.

3.7 GEOLOGY AND SOILS

Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				✓
ii) Strong seismic ground shaking?			✓	
iii) Seismic-related ground failure, including liquefaction?				✓
iv) Landslides?				✓
b) Result in substantial soil erosion or the loss of topsoil?			✓	
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			✓	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?				✓
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?				✓

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		✓		

Environmental Setting

The project area lies in southeastern Stanislaus County in the southern portion of the Great Valley Geomorphic Province. The Great Valley, also known as the Central Valley, is a topographically flat, northwest-trending, structural basin about 50 miles wide and 450 miles long. It is bordered by the Tehachapi Mountains on the south, the Klamath Mountains on the north, the Sierra Nevada on the east, and the Coast Ranges on the west. The southern portion of the Great Valley, in which the project is located, is filled with thick alluvial deposits up to 130 million years in age. The Geologic Map of the San Francisco – San Jose Quadrangle (Wagner et al. 1991) designates the underlying geology of the project site as the Modesto Formation, consisting of Quaternary (geologically recent) sediments.

There are no known active or potentially active faults located in the project vicinity. The nearest fault is the San Joaquin Fault approximately 20 miles west of the City. Hughson is located between two seismically active regions, the Sierra Nevada foothills and the Coast Ranges, and is therefore subject to risk of hazards associated with earthquakes. However, Hughson has a relatively low risk of seismic hazards when compared to the rest of California (City of Hughson 2005).

Hughson and its vicinity are underlain primarily by Hanford and Tujunga series soils. According to a custom soil survey, the soil underlying the project site is Hanford sandy loam, 0 to 3 percent slopes. Hanford sandy loam is a well-drained, nearly level soil formed in alluvium derived from igneous rock. The water erosion hazard of this soil ranges from none to moderate. The expansive (shrink-swell) potential of this soil is from none to low (City of Hughson 2005, NRCS 2023).

Environmental Impacts and Mitigation Measures

a-i) Fault Rupture Hazards.

The project site is not on or near a known earthquake fault, according to the criteria of Alquist-Priolo Special Studies Zones Act or as delineated on a seismic hazard zone map prepared under the Seismic Hazards Mapping Act. As noted, the nearest fault is 20 miles away. The project would have no impact related to fault rupture hazards.

a-ii) Seismic Ground Shaking.

The project area, along with the rest of Stanislaus County, is subject to seismic shaking from fault systems east and west of the County. Proposed building and other improvements would incorporate engineering design features that would be in accordance with the standard engineering practices and the adopted California Building Code, which contains design criteria for seismic shaking. Project impacts related to ground shaking would be less than significant.

a-iii) Other Seismic Hazards.

Earthquake-related hazards can include secondary effects, such as liquefaction. Liquefaction is a phenomenon primarily associated with saturated, cohesionless soil layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. As soils must be saturated to be at risk of liquefaction, the areas in Hughson most susceptible to liquefaction include areas along the Tuolumne River and where there are high groundwater levels (City of Hughson 2005). The project site is not along the Tuolumne River and, as discussed in Section 3.10, Hydrology and Water Quality, groundwater levels are not high in the Hughson area. Therefore, liquefaction at the project site is unlikely. The project would have no impact related to other seismic hazards.

a-iv) Landslides.

The project area is in a topographically flat area, which is not subject to landslides. The project would have no impact related to landslides.

b) Soil Erosion.

The soils on the project site have a relatively low potential for water erosion. However, project construction activities would temporarily loosen soils within the construction area, leaving them exposed to potential water erosion.

Since the project would disturb one acre of land or more, it would be required to obtain a Construction General Permit from the SWRCB. The Construction General Permit requirements include preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to address potential water quality issues. The SWPPP would include Best Management Practices (BMPs) to avoid or minimize adverse water quality impacts. BMPs fall within the categories of Temporary Soil Stabilization, Temporary Sediment Control, Wind Erosion Control, Tracking Control, Non-Storm Water Management, and Waste Management and Materials Pollution Control. Only BMPs applicable to the project would become part of the SWPPP. Hughson Municipal Code Section 8.30.120 states that all construction sites shall comply with the Construction General Permit.

In general, the potential for soil erosion on the project site would be minimal. Compliance with contract specifications, regulations, and Construction General Permit requirements would minimize project impacts related to soil erosion to a level that would be less than significant.

c) Unstable Soils.

The soils underlying the sites where the facilities would be constructed have not been identified as inherently unstable or prone to failure. However, since the project would likely involve excavation in soils with a sandy component, there is concern about the ability of the soils to maintain stability during pipeline installation. The Hanford soil has been rated as “moderately limited” for shallow excavations by the Natural Resources Conservation Service. This indicates that the soils have features that are moderately favorable for the specified use. The limitations can be overcome or minimized by engineering design, subject to the approval of the City Engineer and/or Building Official, during the review and approval of site improvement and building plans. Project impacts related to soil stability would be less than significant.

d) Expansive Soils.

As noted, the expansive potential of the Hanford soil is from none to low. Therefore, it is not expected that project development, including parking areas, would be exposed to potential damage from expansive soils. The project would have no impact related to expansive soils.

e) Adequacy of Soils for Wastewater Disposal.

The project would connect to the City's wastewater collection system. It would not use, and does not propose to install, any septic systems. The project would have no impact related to adequacy of soils for wastewater disposal.

f) Paleontological Resources and Unique Geologic Features.

The project area is predominantly flat land that contains no geologic features that may be considered unique. Since the project site has been disturbed by agricultural activities, it is unlikely that intact paleontological resources would exist. However, the project site is underlain by the Modesto Formation, which has in the past been a source of paleontological finds. Because of this, it is conceivable that currently unknown resources may be uncovered during project construction activities, especially deeper excavations. Procedures to address paleontological discoveries should they occur are set forth in the mitigation measure below. Implementation of this mitigation measure would reduce potential impacts on paleontological resources to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

GEO-1: If any subsurface paleontological resources are encountered during construction of the project, the City of Hughson Community Development Department shall be notified and all construction activities within 50 feet of the encounter shall be halted until a qualified paleontologist can examine these materials and determine their significance. If the find is determined to be significant, then the paleontologist shall recommend mitigation measures that would reduce potential effects on the find to a level that is less than significant. Recommended measures may include, but are not limited to, 1) preservation in place, or 2) excavation, recovery, and curation by qualified professionals. The project developer shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in a written report to the City's Community Development Department, consistent with the requirements of the CEQA Guidelines.

Significance After Mitigation: Less than significant

3.8 GREENHOUSE GAS EMISSIONS

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?			✓	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				✓

Environmental Setting

Background

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. GHGs are both naturally occurring and are emitted by human activity. GHGs include carbon dioxide, the most abundant GHG, as well as methane, nitrous oxide, and other gases.

The State of California has prepared Climate Change Assessments that provide scientific assessments on the potential impacts of climate change in California by region. Potential climate change impacts occurring in the San Joaquin Valley and adjacent areas include the following (Westerling et al. 2018):

- Acceleration of warming across the region and state.
- More intense and frequent heat waves.
- Higher frequency of catastrophic floods.
- More intense and frequent drought.
- More severe and frequent wildfires.

Unlike the criteria air pollutants described in Section 3.3, Air Quality, GHGs have no "attainment" standards established by the federal or State government. In fact, GHGs are not generally thought of as traditional air pollutants because their impacts are global in nature, while air pollutants mainly affect the general region of their release to the atmosphere (SJVAPCD 2015). Nevertheless, the U.S. Environmental Protection Agency (EPA) has found that GHG emissions endanger both the public health and public welfare under Section 202(a) of the Clean Air Act due to their impacts associated with climate change (EPA 2009).

GHG emissions in California in 2020, the most recent year for which data are available, were estimated at approximately 369.2 million metric tons CO_2e – a decrease of approximately 24% from the peak level in 2004. Transportation was the largest contributor to GHG emissions in California, with 37% of total emissions - a smaller share than in recent years, most likely due to reduced traffic volume during the COVID-19 lockdown. Other significant sources include industrial activities, with approximately 20% of total emissions, and electric power generation, both in-state and imported, with approximately 16% of total emissions (ARB 2022a). The most recent data available for Hughson indicates that the City generated approximately 32,643 metric tons CO_2e of GHG emissions in 2005 (City of Hughson 2013).

GHG Emission Reduction Plans

The State of California has implemented GHG emission reduction strategies through AB 32, the Global Warming Solutions Act of 2006, which requires total statewide GHG emissions to reach 1990 levels by 2020, or an approximately 29% reduction from 2004 levels. The 2020 state GHG emissions were 61.8 million metric tons CO2e below the AB 52 target (ARB 2022a).

In 2016, Senate Bill (SB) 32 was enacted. SB 32 extends the GHG reduction objectives of AB 32 by mandating statewide reductions in GHG emissions to levels that are 40% below 1990 levels by the year 2030. The State adopted an updated Scoping Plan in 2017 that sets forth strategies for achieving the SB 32 target. The updated Scoping Plan continues many of the programs that were part of the previous Scoping Plans, including the cap-and-trade program, low-carbon fuel standards, renewable energy, and methane reduction strategies. It also addresses, for the first time, GHG emissions from the natural and working lands of California, including the agriculture and forestry sectors (ARB 2017).

In 2022, ARB adopted an update to the Scoping Plan. The 2022 Scoping Plan assesses progress towards achieving the SB 32 2030 reduction target and lays out a path to achieve carbon neutrality no later than 2045. Proposed strategies to achieve these reductions include rapid movement to zero-emission transportation, phasing out fossil fuel use for heating homes and buildings, restricting use of chemicals and refrigerants that are thousands of times more powerful at trapping heat than carbon dioxide, expanded development of renewable energy sources, increased use of natural and working lands for incorporating and storing carbon, and greater employment of carbon removal technology (ARB 2022b).

Cities and counties throughout California have prepared Climate Action Plans that outline how the local government will reduce GHG emissions, which are typically related to the 2020 emission reduction target set in the State's Climate Change Scoping Plan. The City of Hughson adopted a Climate Action Plan in 2013. The City's Climate Action Plan sets a target for GHG emission reductions consistent with AB 32, which is 15 percent below 2005 GHG emission levels by 2020. This target would be attained through the implementation of goals, strategies, and actions in the sectors of energy, transportation and land use, solid waste management, and water conservation. The City also proposes to develop an adaptation plan to provide guidance on dealing with the changing climate (City of Hughson 2013). No GHG reduction targets have been set beyond 2020, and no adaptation plan has been adopted.

Environmental Impacts and Mitigation Measures

a, b) Project GHG Emissions and Consistency with GHG Reduction Plans.

Based on results from the CalEEMod run (see Section 3.3, Air Quality), potential construction GHG emissions would amount to a total of approximately 255 metric tons CO_2e per year for both phases. Construction GHG emissions would be temporary and would cease with the completion of construction work.

For project operations, including both the repair facility and the batch plant, GHG emissions were estimated to be approximately 907 metric tons CO_2e annually. It should be noted that the project is intended to replace an existing facility on Hughson Avenue to the southeast. GHG emissions from the new facility would at least be equivalent to emissions from the existing facility. It is likely that fewer GHG emissions would be generated at the new facility than at the existing facility for two reasons: 1) the new building would be constructed in accordance with more recently adopted building codes, which are designed to reduce energy consumption and the GHG emissions associated with generating the energy, and 2) the new site would be closer to the City, which would likely reduce VMT for project activities, particularly those associated with the repair facility.

Because of this, the project is unlikely to add to the total GHG emissions generated in the City and vicinity. Since it would not create additional GHG emissions, the project would not conflict with the GHG reduction objectives of the State's Climate Change Scoping Plan and the SJVAPCD's Climate Change Action Plan. Therefore, project impacts related to GHG emissions and GHG reduction plans would be less than significant.

3.9 HAZARDS AND HAZARDOUS MATERIALS

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?			✓	
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?			✓	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste				✓

within one-quarter mile of an existing or proposed school?				
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?			✓	
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?				✓
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		✓		
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				✓

Environmental Setting

This section focuses on hazards associated with hazardous materials, proximity to airports, and wildfires. Geologic and soil hazards are addressed in Section 3.7, Geology and Soils, and potential flooding hazards are addressed in Section 3.10, Hydrology and Water Quality.

Data on hazardous material sites are kept in the GeoTracker database, maintained by the SWRCB, and in the EnviroStor database, maintained by the California Department of Toxic Substances Control (DTSC). Both GeoTracker and EnviroStor provide the names and addresses of hazardous material sites, along with their cleanup status. A search of both GeoTracker and EnviroStor indicated no record of active hazardous material sites (i.e., sites not cleaned up) on or adjacent to the project site (SWRCB 2023, DTSC 2023).

Regulations of hazardous materials at the federal level primarily is under the Resource Conservation and Recovery Act, which creates a framework for the generation, transport, storage, treatment and disposal of hazardous wastes. The U.S. Department of Transportation sets regulations for the transport of hazardous materials, such as gasoline and diesel fuels. Several state agencies regulate the transportation and use of hazardous materials, including the California Environmental Protection Agency (CalEPA) and the Office of Emergency Services. The California Highway Patrol and California Department of Transportation (Caltrans) enforce regulations specifically related to hazardous materials transport. Within CalEPA, the DTSC has primary authority to enforce hazardous materials regulations.

On the local level, the Stanislaus County Environmental Resources Department is approved by the State as a Certified Unified Program Agency (CUPA). A CUPA administers the Hazardous Material Business Plan, California Accidental Release Prevention, Aboveground Petroleum Storage Act, Hazardous Waste Generator, Hazardous Waste Onsite Treatment and Underground Storage Tank programs to minimize potential risks to public health and safety. A Hazardous Material Business Plan is required for all activities that handle hazardous materials in quantities equal to or greater than 55 gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas. The requirements of the plan include an inventory of hazardous materials, an emergency plan addressing the release of hazardous materials, and a training program for employees. In addition, Standard No. 59 of the City's Standard Conditions of Approval requires that all commercial and industrial projects include a hazardous materials management plan.

Environmental Impacts and Mitigation Measures

a) Hazardous Materials Transportation, Use, and Disposal.

Proposed project development would likely require the storage, transport, use, and disposal of hazardous materials, generally motor vehicle fluids and accessories such as batteries, solvents, and products designed to maintain repair equipment. The Phase 2 concrete batch plant would involve the loading/unloading, storage and use of Portland cement and the potential release of cement dust. Handling and control of cement would be included in the SJVAPCD New Source Review permit for the plant.

Project site activities that would transport or store hazardous materials would be required to do so in compliance with applicable local, state, and federal regulations, including the terms of the SJVAPCD New Source permit. The project also would be required to submit a Hazardous Material Business Plan should it store hazardous materials of specific quantities, along with a hazardous materials management plan. Compliance with existing hazardous material regulations and the provisions of the Hazardous Material Business Plan and the hazardous materials management plan would reduce impacts related to routine transport, use, and storage of hazardous materials to a level that would be less than significant.

b) Release of Hazardous Materials by Upset or Accident.

Project construction activities may involve the use of hazardous materials such as fuels and solvents, and thus create a potential for hazardous material spills. Construction and maintenance vehicles would transport and use fuels in ordinary quantities. Fuel spills, if any occur, would be minimal and would not have significant adverse effects. Contractors typically have absorbent materials at construction sites to clean up minor spills. Other substances used in the construction process would be stored in approved containers and used in relatively small quantities, in accordance with the manufacturers' recommendations and/or applicable regulations.

The project site has until recently been used for agriculture. Agricultural operations may involve the use of pesticides and herbicides whose residues may have accumulated in the soil. Construction activities may release residual contamination into the local environment, mainly through fugitive dust emissions or runoff from loosened soils. Regulation VIII of the SJVAPCD would minimize fugitive dust emissions. As discussed in Section 3.7, Geology and Soils, project construction activities would be required to obtain a Construction General Permit with BMPs to minimize soil instability and to reduce water quality impacts. Project operations would not release residual contamination, as the project site would be covered with gravel or pavement.

As noted in a) above, hazardous materials transportation and storage on the project site would be subject to federal, state, and local regulations that would ordinarily prevent release of hazardous materials to the soil and/or groundwater and the creation of new hazardous material or waste sites. These requirements would include preparation and implementation of a Hazardous Materials Business Plan, which provides basic information to "first responders" (fire, police) so that threats to public safety or the environment can be minimized in the event of a release or threatened release.

If the project does not propose to store hazardous materials in quantities requiring a Hazardous Materials Business Plan, the most likely sources of releases would be fluid leaks from trucks parked in the storage yard and spills of motor vehicle fluids from activities in the repair facility. Spills in the repair facility would be minimal and would occur on building floors and pavement, which would prevent these materials from directly entering the soil. Leaks from trucks would likewise be minimal, and pollutants in any runoff from the storage yard would be collected in the onsite drainage basin. The City of Hughson Standard Condition of Approval No. 13 requires that new development be designed and constructed using BMPs to avoid negative impacts to water quality (see Section 3.10, Hydrology and Water Quality). Overall, project impacts related to upset and/or accident conditions involving the release of hazardous materials would be less than significant.

c) Hazardous Material Emissions near Schools.

The nearest schools to the project site are Hughson Elementary School and Hughson High School, which are more than one-half mile east of the project site. The project would not emit hazardous materials of any type that would be detectable beyond site boundaries. The project would have no impact related to hazardous material emissions near schools.

d) Hazardous Materials Sites.

As previously noted, a search of the GeoTracker and EnviroStor databases did not identify any active hazardous material sites on or adjacent to the project site. The nearest recorded hazardous material site is the Hughson Chemical Company on 6800 East Whitmore Avenue, approximately 750 feet to the northeast. The EnviroStor database noted that this site was identified as having heavy metal contamination in the soil, but a preliminary assessment report assigned a low priority to this site. The last recorded action on this site was in 1995. Given that the contamination is confined to the soils rather than the groundwater and due to the distance of the contaminated site from the project site, no impact to future uses of the project site from the Hughson Chemical site are expected. Project impacts related to known hazardous material sites would be less than significant.

e) Airport Operations.

There are no public or public-use airports within two miles of the project site. The nearest public airport is Modesto City-County Airport, approximately five miles to the northwest. At that distance, the project is not expected to interfere with airport operations. The project would have no impact related to airport hazards.

f) Emergency Response and Evacuation.

Tully Road is the only public road that would be adjacent to the project site. Project construction work would occur mainly on the project site and would be of temporary duration, and, other than briefly during truck movements onto and from the site, project operations would not obstruct any roads. However, the project would involve some limited work on Tully Road, mainly required frontage improvements and public water and sewer connections. This could temporarily restrict traffic flow on Tully Road, thereby slowing emergency vehicle responses and potential evacuations that require use of Tully Road. Mitigation presented below would ensure that adequate emergency access is maintained during project construction, thereby reducing potential impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

HAZ-1: Prior to the start of project construction, the contractor shall develop and implement a Traffic Control Plan that shall include traffic control requirements, notifications of access closure, and daily access restoration. The contractor shall specify dates and times of road or access closures or restrictions, if any, and shall ensure that adequate access will be provided for emergency vehicles. The Traffic Control Plan shall be reviewed and approved by the City Department of Public Works and shall be coordinated with the Hughson Fire Protection District, the Hughson Police Department, and the Stanislaus County Sheriff's Department.

Significance After Mitigation: Less than significant

g) Wildland Fire Hazards.

Wildland fires are an annual hazard in Stanislaus County. Wildland fires, which include rangeland, brush, and grass fires, burn natural vegetation on undeveloped lands. High hazard areas for wildland fires are generally limited to the foothills on the east and west sides of the County (Stanislaus County 2016a).

The project site is not located in a region susceptible to wildfires. Land in the project vicinity is either in agricultural use or developed for urban use, and neither has a high wildfire potential. Previously existing orchard trees have been removed from the site. The project would have no substantial impact on wildland fire hazards. Refer to Section 3.20, Wildfire, for more detailed information on wildfires.

3.10 HYDROLOGY AND WATER QUALITY

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?			✓	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			✓	
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 which would:				
i) Result in substantial erosion or siltation on- or offsite?			✓	
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?			✓	
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?			✓	
iv) Impede or redirect flood flows?				✓
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				✓
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			✓	

Environmental Setting

There are no natural surface waters on or near the project site. The nearest surface waters of any kind are canals operated by the Turlock Irrigation District (TID). The nearest TID canal is the Ceres Main Canal along Hatch Road, more than one mile north of the project site.

The project site is within the Turlock Groundwater Basin, which covers approximately 542 square miles of eastern Stanislaus and Merced Counties between the Tuolumne River and the Merced River. Percolation of rainfall and irrigation water is the main source of inflow to the basin. Groundwater levels in the Hughson area range from approximately 80 to 90 feet below ground surface. The City relies on groundwater for its water supply (see Section 3.19, Utilities and Service Systems).

In 2014, the State enacted the Sustainable Groundwater Management Act. This act requires the formation of local groundwater sustainability agencies that must assess conditions in their local water basins and adopt locally based Groundwater Sustainability Plans for sustainable use of groundwater and avoidance of overdraft. Plans for "critically overdrafted" basins must be completed and adopted by January 31, 2020, while plans for high- and medium-priority basins have an adoption deadline of January 31, 2022. Both the City and Stanislaus County are members of the West Turlock Subbasin Groundwater Sustainability Agency, which was formed in 2017. A Groundwater Sustainability Plan for the entire Turlock Groundwater Basin, including the West Turlock Subbasin, was submitted to the California Department of Water Resources on January 28, 2022. The Groundwater Sustainability Plan describes projects and management actions designed to carry out the objectives of the plan. None of these projects or actions apply directly to the City of Hughson or to individual development projects.

According to a Flood Insurance Rate Map prepared by the Federal Emergency Management Agency (FEMA), the project site lies within an area designated Zone X. Zone X denotes areas determined to be of minimal flood hazard. They are outside the 100-year annual floodplain, which is the flood hazard area of concern (FEMA 2008). The Stanislaus County General Plan Safety Element indicates that the project site is outside the 200-year floodplain, the designation of which is required by SB 5 and companion bills (Stanislaus County 2016a).

Hughson Municipal Code Chapter 8.30 contains the Urban Water Quality Control Ordinance, which is designed in part to control stormwater and the pollutants it may contain to minimize impacts on the water quality of surface waters and groundwater. The ordinance prohibits unlawful discharges to the City's storm drainage system. "Unlawful discharge" means any discharge to the storm drain system that is not composed entirely of stormwater or stormwater discharges from private property designed or intended to be disposed of on-site. As noted in Section 3.7, Section 8.30.120 requires construction contractors to comply with the Construction General Permit. Section 8.30.140 sets forth rules and regulations that apply to all persons using storm drainage facilities. Among these are a potential City requirement for certain businesses to prepare and implement a stormwater pollution prevention plan. Businesses that may be subject to this requirement include maintenance operations, storage facilities, manufacturing activity, equipment operations, vehicle loading or fueling, trucking, or cleanup procedures which are carried out partially or wholly out of doors. The proposed project would be subject to this requirement.

Environmental Impacts and Mitigation Measures

a) Violation of Water Quality Standards.

As discussed in Section 3.7, Geology and Soils, the project site does not contain soils that are highly erodible. However, there remains the potential that sediment from the site could be transported off the site during a storm event. The project would be required to obtain coverage under the State Construction General Permit. The Construction General Permit would require preparation and implementation of a SWPPP that would limit soil erosion. In addition, the project would likely be required to develop a stormwater pollution prevention plan, as well as comply with other provisions of the City's Urban Water Quality Control Ordinance.

As discussed in Section 3.9, Hazards and Hazardous Materials, project operations would use hazardous materials that potentially could enter runoff, mainly petroleum products such as gasoline and oil. Runoff generated on the project site would be collected in a drainage basin in the western portion of the site. The collected runoff would not be discharged into any water body but would likely percolate into the ground. Given the depth to the groundwater table, it is unlikely that any contaminants would reach groundwater. In addition, the storm drainage system would be evaluated for consistency with the City's storm water requirements during the site improvement review process, and revisions to this system would be made if required by the City. Given this, along with implementation of the conditions of the Construction General Permit and of the provisions of the Urban Water Quality Control Ordinance, project impacts related to potential violation of surface water quality standards would be less than significant.

b) Groundwater Supplies and Recharge.

The project does not propose to drill wells for its water supply, so it would have no direct impact on groundwater supplies. The project proposes to connect the site to the City's water system, which relies on groundwater for its supply. However, the project would replace an existing tire and truck repair facility in the City, and the truck storage portion of the project would not use any substantial amounts of water. As a result, the project would not substantially change overall groundwater use (see Section 3.19, Utilities and Service Systems for more information).

The project would add some impervious surfaces within the project site, but runoff generated by development would be collected in an onsite drainage basin that is anticipated to act as a retention basin; this project feature would allow runoff to percolate into the ground, and avoid project-related increases in runoff from the site. Project impacts related to groundwater supplies and recharge are considered less than significant.

c-i, ii, iii) Drainage Patterns and Runoff.

As noted in b) above, the project would add impervious surfaces, which would generate additional runoff as compared to existing conditions. Runoff would be collected in a drainage retention basin, which would be constructed in accordance with City standards, which include containment of runoff from a 10-year, 24-hour duration storm. With compliance with City standards, the project would not result in potential for off-site flooding. Since most of the project site would be graveled or paved, and since runoff would be collected to the proposed retention basin no onsite or offsite erosion impacts are expected to occur. Project impacts on drainage patterns and runoff would be less than significant.

c-iv) Flood Flows.

The project site is not located within an area susceptible to 100-year flooding; it is within an area of minimal flood hazard. Therefore, the project would have no impact on flood flows.

d) Release of Pollutants in Flood Zone.

As noted, the project site is within an area of minimal flood hazard. The project is in a topographically flat area that is distant from large bodies of water; therefore, the project would not be subject to seiche or tsunami hazards.

The project site would be exposed to flooding in the event of a catastrophic failure of the Don Pedro Dam on the Tuolumne River (City of Hughson 2005), which could lead to the release of pollutants from any hazardous materials used as a part of project operations (see Section 3.9, Hazards and Hazardous Materials). However, the risk of dam failure is low at any time, and Don Pedro Dam is regularly inspected for any potential structural problems. The project is considered to have no impact related to release of pollutants due to inundation.

e) Conflict with Water Quality or Sustainable Groundwater Plans.

As noted in a) above, the project is not expected to have a significant impact on water quality. Therefore, the project would not interfere with the attainment of the objectives of applicable water quality plans. It also would not interfere with attainment of the objectives of the Groundwater Sustainability Plan that has been adopted for the Turlock Groundwater Basin. As noted, the project would have no substantial impact on groundwater use, and the storm drainage system would be reviewed for consistency with the City's storm water requirements to ensure that water quality would be maintained. Also, as noted, there are no projects or management actions described in the Groundwater Sustainability Plan that are directly applicable to the project. Project impacts related to water quality or sustainable groundwater plans would be less than significant.

3.11 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				✓
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?			✓	

Environmental Setting

The project site is within the City limits of Hughson. Hughson is a relatively small city with a mix of residential, commercial, industrial and other urban land uses. As noted, the project site was annexed and zoned for industrial development; although formerly used for orchard production, the site is now vacant. As noted, land uses consist of light industrial and commercial development north and east of the project site and agricultural land to the south and west. The development is within the City limits, while the agricultural lands are within the jurisdiction of San Joaquin County, outside the City limits. Land adjacent to and north of the project site was previously planted with an orchard, but this land is now vacant and proposed to be developed. This land is also within the City limits.

Land development within the City of Hughson is guided by the City's General Plan, adopted in 2005. The General Plan is the principal policy document for guiding future conservation and development of the Hughson area. It includes goals, policies and actions designed to implement the community's vision for Hughson. The General Plan proposes land use designations for the planning area that would implement the overall goals and vision of the General Plan. These are reflected in the General Plan Land Use Map. The General Plan Land Use Map designates the project site for Industrial land use.

Title 17 of the Hughson Municipal Code contains the City's Zoning Ordinance. The Zoning Ordinance implements the General Plan by designating zoning districts with allowable land uses. It also includes regulations governing a range of other development controls including, but not limited to, the following: the uses of land, the density of population, the uses and locations of structures, the height and bulk of structures, the open spaces surrounding structures, the external appearance of certain uses and structures, the areas and dimensions of sites, and requiring the provisions of off-street parking, off-street loading facilities and landscaping.

The City has zoned the project site I – Industrial, which provides appropriate industrial development in areas exclusively for industrial use; industrial development is subject to regulations required to protect adjoining uses as described in the Ordinance. The maximum Floor Area Ratio in the "I" District is 0.6. A conditional use permit is required for industrial uses that may create dust, fumes, noise, odors, smoke or vibration in volumes that may be offensive or objectionable beyond the premises.

Environmental Justice

Environmental justice is not an issue that CEQA explicitly requires to be addressed; however, the State of California has recently emphasized the incorporation of environmental justice in land use and environmental planning. State law defines "environmental justice" as "the fair treatment of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." The State has enacted legislation, most notably SB 535 and SB 1000, that seeks to address the adverse environmental impacts of projects that disproportionately affect minority and/or lower-income communities that are substantially burdened with environmental problems, known as "disadvantaged communities."

The California Office of Environmental Health Hazard Assessment has developed the California Communities Environmental Health Screening Tool (CalEnviroScreen) to identify disadvantaged communities. CalEnviroScreen measures pollution and population characteristics using 20 indicators such as air and drinking water quality, waste sites, toxic emissions, asthma rates, and poverty. It applies a formula to each U.S. Census tract in California to generate a score that rates the level of cumulative impacts on each area. A census tract that scores in the top 25% is considered a disadvantaged community. The project site is within Census Tract 6099002902, which includes the City of Hughson and surrounding rural areas. This Census tract has a CalEnviroScreen score of 60, which does not define it as disadvantaged community as defined by State law (OEHHA 2023). Because of this, environmental justice will not be discussed further in this IS/MND.

Environmental Impacts and Mitigation Measures

a) Division of Established Communities.

The project is proposed to be constructed on undeveloped land in an area designated for, and partially developed with, industrial and commercial uses. It would not be constructed in or near a residential area and would not separate any existing commercial areas or community facilities. The project would have no impact related to division of established communities.

b) Conflict with Applicable Plans, Policies and Regulations Avoiding or Mitigating Environmental Effects.

The project would not conflict with existing or future land use plans related to development in Hughson; the project would be consistent with the existing land use designation and zoning of the site. The project would be constructed adjacent to existing or proposed industrial and commercial development; the adjacent property to the north is proposed for truck maintenance and parking, which is in turn adjacent to existing development along Whitmore Avenue and Tully Road.

This IS/MND analyzes the potential environmental effects of the project, and no significant effects have been identified that cannot be mitigated to a level that would be less than significant. As such, the project is not expected to conflict with General Plan policies or with City ordinances designed to avoid or mitigate environmental effects. Similarly, potential dust, fumes, noise, odors, smoke or vibration that would be of concern in the Conditional Use Permit application review have been considered in this IS/MND and found to be less than significant with proposed mitigation measures.

Project impacts related to conflict with applicable plans, policies and regulations are considered less than significant.

3.12 MINERAL RESOURCES

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?				✓
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?				✓

Environmental Setting

Stanislaus County's primary mineral resources are construction sand and gravel, together known as "aggregate." As of 2016, there were 12 operating aggregate mines in the County. Mining activities occur primarily within fluvial deposits along rivers and streams (Stanislaus County 2016). No mining activities are occurring on the project site or in the Hughson area.

The California Division of Mines and Geology, now part of the California Geological Survey, has classified portions of the state into Mineral Resource Zones that identify areas that contain mineral resources of conservation interest, or which have been evaluated and found not to contain mineral resources of concern.

The project site is not classified as being within a Mineral Resource Zone, indicating that no significant mineral deposits have been identified on or near the site. There are no oil or natural gas fields or wells in the project vicinity (DOGGR 2023).

Environmental Impacts and Mitigation Measures

a, b) Loss of Mineral Resource Availability.

No mineral resources have been identified and there are no active mineral resource operations on or near the project site. No Mineral Resource Zones have been designated on or near the project site. The project would have no impact on availability of mineral resources.

3.13 NOISE

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?		✓		
b) Generation of excessive groundborne vibration or groundborne noise levels?			✓	
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?				✓

Information in this section is based primarily upon an environmental noise assessment prepared by Saxelby Acoustics LLC. Appendix D contains a copy of this assessment. Preparation of the assessment involved continuous (24-hr.) noise level measurements at three locations on the project site on March 16, 2023, using Larson Davis Laboratories (LDL) model 820 precision integrating sound level meters. In addition, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to estimate traffic noise, and the SoundPLAN noise prediction model was used to predict noise levels at the project site. Cumulative noise impacts of the project are discussed in Section 3.21, Mandatory Findings of Significance.

Environmental Setting

Noise Conditions

Assessment of noise impacts focuses on the “ambient" noise level, which is the general noise level in a project area. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. Sound is measured by using the decibel scale, with a modification referred to as A-weighting. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. Some land uses are considered more sensitive to noise than others, such as residences, schools, libraries, hospitals, and passive recreational areas. In the vicinity of the project site, sensitive land uses include existing single-family residences to the south and north, agricultural land to the west, and commercial uses to the east.

The existing noise environment in the project area is primarily defined by traffic on East Whitmore Avenue and Tully Road. To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted noise level measurements at three locations on the project site, as mentioned above. Figure 3-1 shows the noise measurement locations. Noise results were obtained in dBA in terms of average sound level and day/night average level. The average, or equivalent, sound level (L_{eq}) corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period, usually one hour. The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.).

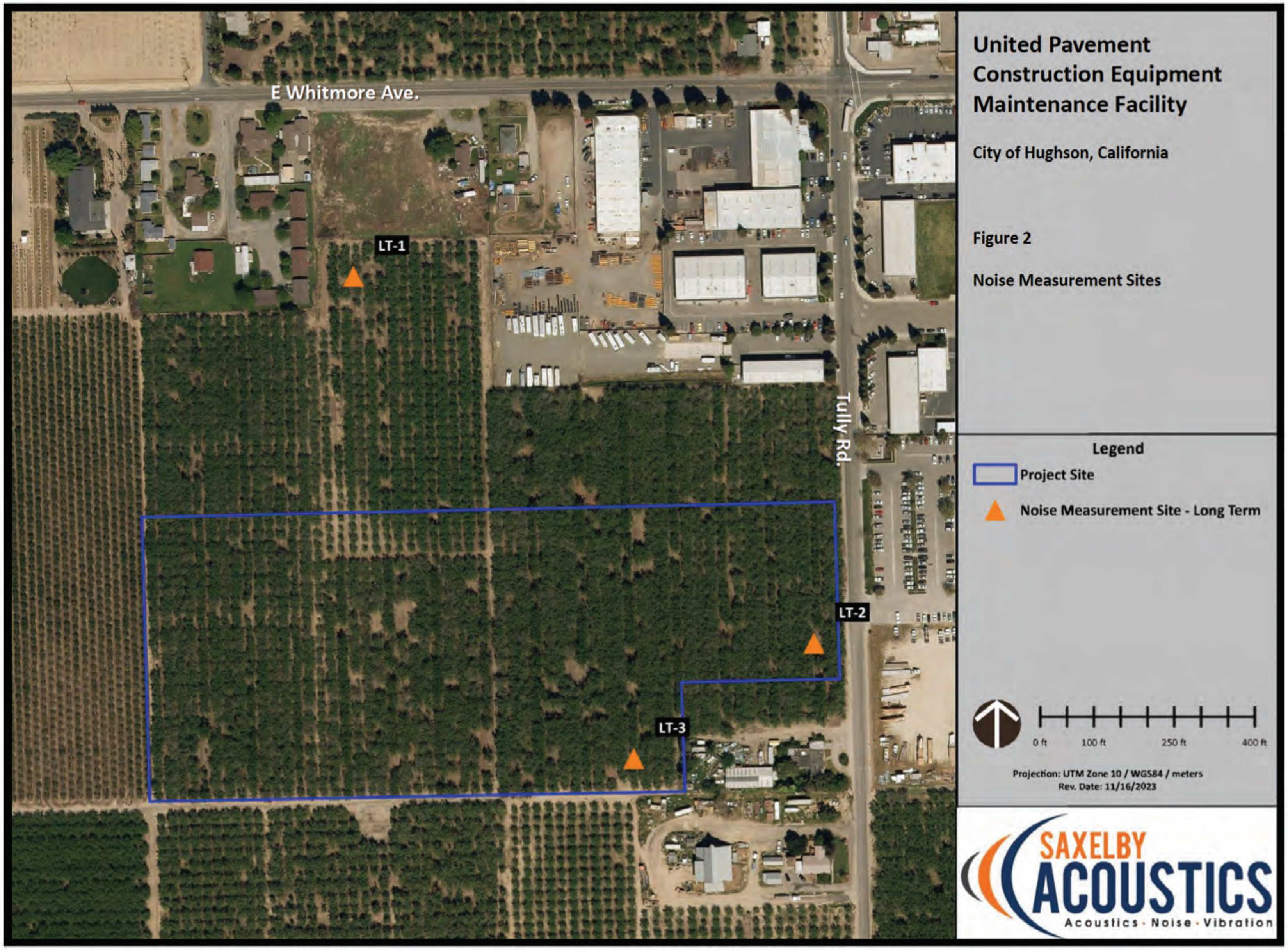


Figure 3-1
NOISE MEASUREMENTS

The Hughson Noise Ordinance, contained in Chapter 9.30 of the Municipal Code, states that it is unlawful to make "unnecessary or unusual noise which unreasonably disturbs the peace and quiet of any zone classified R-A, R-1, R-2, R-3, C-1, C-2 or C-3 which causes discomfort or annoyance" to an average person within those zones, and which is audible without amplification 50 feet or more from the source of the noise.

The project site is adjacent to unincorporated County lands. The County Noise Ordinance, contained in Chapter 10.46 of the County Code, limits exterior noise levels at noise-sensitive land uses to 45 decibels at all times, and at residential land uses to no greater than 50 decibels during the day and 45 decibels at night. Noise-sensitive land uses include any public or private school, hospital, church, convalescent home, cemetery, sensitive wildlife habitat, or public library. It also states that no person shall operate any construction equipment between the hours of 7:00 p.m. and 7:00 a.m. that causes an average sound level greater than 75 decibels at or beyond the line of any property upon which a dwelling unit is located.

Research into the human perception of changes in sound level indicates that a 3-dB change is barely perceptible, a 5-dB change is clearly perceptible, and a 10-dB change is perceived as being twice or half as loud. However, a limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project noise conditions. Table 3-4 shows recommendations made by the Federal Interagency Committee on Noise that provide guidance in discussing changes in ambient noise levels and their relation to existing ambient noise conditions. Although these recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}. The noise assessment used these recommendations to determine the significance of noise level changes associated with the project.

TABLE 3-4
SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

Ambient Noise Level without Project (L_{dn})	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise.

Groundborne Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Table 3-5 shows the vibration levels, in terms of peak particle velocity in inches per second, and their effects on humans and structures. As indicated in Table 3-5**,** the threshold for architectural damage to structures is 0.20 in/sec peak particle velocity. This is the threshold used in the noise analysis to determine the significance of project vibration impacts.

TABLE 3-5
EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity (in/sec)	**Human Reaction**	**Effect on Buildings**
0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings.
0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans 2013.

Environmental Impacts and Mitigation Measures

a) Exposure to Noise Exceeding Local Standards.

Traffic Noise

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels were predicted at sensitive receptors for existing project and no-project conditions, using the Highway Traffic Noise Prediction Model. The model used trip generation volumes from the traffic impact study for the project (see Section 3.17, Transportation). Traffic noise levels were predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment.

Table 3-6 summarizes the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the project area. The locations of these receptors and the extent of noise impact from proposed on-site operations are shown on Figure 3-2. Table 3-6 indicates that the maximum increase in traffic noise at the nearest sensitive receptor would be 0.6 dBA. None of the traffic noise increases would exceed the applicable significance thresholds set for noise increases in Table 3-4. Therefore, project impacts related to traffic noise would be less than significant.

TABLE 3-6
TRAFFIC NOISE LEVELS WITHOUT AND WITH PROJECT

		Exterior Noise Levels at Closest Sensitive Receptors (dBA L_{dn})			
Roadway	**Segment**	**Existing No Project**	**Existing With Project**	**Change**	***Exceeds Threshold?***
Tully Road	Between E. Whitmore Ave. and Roeding Rd	52.6	52.9	+0.3	*No*
E. Whitmore Ave.	West of Tully Road	61.3	61.4	+0.1	*No*
E. Whitmore Ave.	East of Tully Road	61.2	61.2	0.0	*No*

Source: Saxelby Acoustics 2023.

Noise from Project Operations

Mechanical equipment and truck circulation are considered the primary noise sources for this project. Equipment includes the batch plant, wheeled loader, hydraulic excavator, and crusher. The following describes the methodology used by the noise study to determine noise impacts of this equipment. All equipment was assumed by the noise study to operate during the hours of 6:00 a.m. to 6:00 p.m.

- *Concrete Batch Plant*: To determine typical noise levels associated with the operation of the proposed HT-12-12400C-65 mobile concrete batch plant, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicate that a busy hour generated an average noise level of 75 dBA L_{eq} and a maximum noise level of 83 dBA L_{max} at a distance of 50 feet from the concrete batch plant.
- *Wheeled Loader*: To determine typical noise levels associated with the operation of the proposed 950-GC wheeled loader, noise level measurements data from Federal

Highway Administration Roadway Construction Model was utilized. The noise measurement data indicate that a busy hour generated an average noise level of 80 dBA L_{eq} and a maximum noise level of 84 dBA L_{max} at a distance of 50 feet from the wheeled loader.

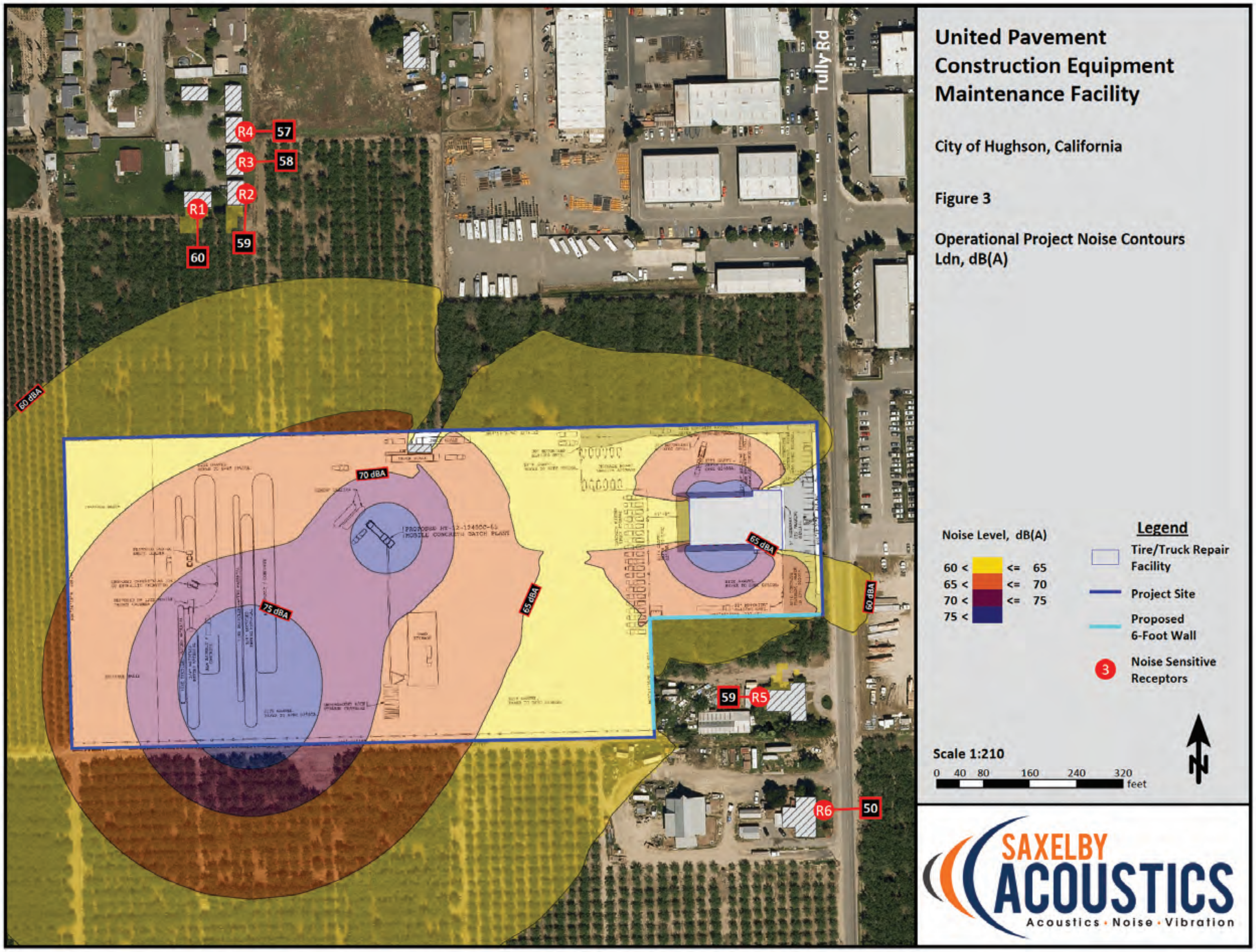


Figure 3-2

SENSITIVE RECEPTOR LOCATIONS AND NOISE CONTOURS

- *Impact Crusher*: To determine typical noise levels associated with the operation of the proposed RM120X mobile impact crusher, noise measurements data from the Hole Farm, Westfield Lane, Westfield, TN35 4SA Materials Processing Facility Noise Assessment was utilized. The noise measurement data indicate that a busy hour generated an average noise level of 81 dBA L_{eq} at a distance of 35 feet from the impact crusher.

- *Hydraulic Excavator*: To determine typical noise levels associated with the operation of the proposed 336GC hydraulic excavator, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicate that a busy hour generated an average noise level of 77 dBA L_{eq} and a maximum noise level of 81 dBA L_{max} at a distance of 50 feet from the hydraulic excavator.

To determine typical noise levels associated with the maintenance/repair facility, noise level measurement data from a Sacramento Unified School District bus repair facility was utilized. Noise generated by the bus repair facility was considered by the noise study to be comparable to the noise that would be generated by the proposed maintenance facility. The noise level measurements were conducted at a distance of 120 feet from the repair shop entrance. Noise from truck circulation was based on trip generation data from the traffic impact study for the project.

The SoundPLAN model used the data to develop estimates of noise levels at the nearest sensitive receptors, the locations of which are depicted on Figure 3-2, along with the predicted noise contours of the project. The noise contours indicate the combined noise levels generated by the concrete batch plant and the maintenance repair facility.

Table 3-7 shows the predicted noise levels at these receptors. As shown in Table 3-7, the predicted project noise levels at sensitive receptors within the City of Hughson would meet the City noise level standard. Also, the predicted project noise levels at sensitive receptors within Stanislaus County would meet the County noise level standard. Therefore, project operational noise impacts would be less than significant.

TABLE 3-7
PROJECT OPERATIONAL NOISE LEVELS AT SENSITIVE RECEPTORS

Location[1]	**Jurisdiction**	**Applicable Noise Standard**	**Predicted Noise Level**	***Complies with Standard?***
R1	City of Hughson	60 dBA L_{dn}	60 dBA L_{dn}	*Yes*
R2	City of Hughson	60 dBA L_{dn}	59 dBA L_{dn}	*Yes*
R3	City of Hughson	60 dBA L_{dn}	58 dBA L_{dn}	*Yes*
R4	City of Hughson	60 dBA L_{dn}	57 dBA L_{dn}	*Yes*
R5	City of Hughson	60 dBA L_{dn}	59 dBA L_{dn}	*Yes*
R6	Stanislaus County	50 dBA L_{eq} (day)	49 dBA L_{eq} (day)	*Yes*

		45 dBA L_{eq} (night)	41 dBA L_{eq} (night)	*Yes*

[1] See Figure 3-2.
Source: Saxelby Acoustics 2023.

Project Construction Noise

Construction activities associated with the project could expose land uses in the project vicinity to short-term elevated noise levels. Table 3-8 shows noise levels generated by various construction equipment. Based on the equipment that could be used, construction of the proposed project may generate maximum noise levels ranging from 76 to 90 dBA at a reference distance of 50 feet (FHWA 2006). Noise would also be generated during the construction phase by increased truck traffic associated with transport of heavy materials and equipment to and from the construction site.

Construction noise is a short-term occurrence that does not result in significant or long-term effects, provided that sleep interruption is not involved. The City enforces its Noise Ordinance from 10:00 p.m. to 7:00 a.m. Mondays through Fridays, and from 10:00 p.m. to 8:00 a.m. on Saturdays, Sundays, and legal holidays. Stanislaus County restricts noise levels from construction activities during nighttime.

Noise from localized point sources, such as construction sites, typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given this noise attenuation rate and assuming no noise shielding from either natural or human-made features, outdoor receptors within approximately 900 feet of construction sites could experience maximum instantaneous noise levels of greater than 60 dBA when on-site construction-related noise levels exceed approximately 90 dBA at the boundary of the construction site. These noise levels would exceed both the City and County noise standards.

TABLE 3-8
CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	**Maximum Level (dBA at 50 feet)**
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81

Generator	81
Jackhammer	89
Paver	77
Pneumatic Tools	85

Source: FHWA 2006.

During development of the project, construction activities occurring during the more noise-sensitive late evening and nighttime hours (7:00 p.m. to 7:00 a.m.) could result in increased levels of annoyance and potential sleep disruption for occupants of nearby existing noise sensitive land uses. Additionally, there are several residential uses approximately 30 feet from the project site which may be subject to construction noise. The project noise assessment recommended the mitigation described below to reduce noise generated from construction equipment. Implementation of this mitigation would reduce construction noise impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

NOISE-1: The following measures shall be incorporated as conditions of approval for any permit that results in the use of construction equipment on the project site:

- Construction activities, excluding activities that would result in a safety concern to the public or construction workers, shall be limited to between the daytime hours of 7:00 a.m. and 7:00 p.m. daily.
- Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- When not in use, and in accordance with State regulations, motorized construction equipment shall not be left idling for more than five minutes.
- Stationary equipment, including but not limited to power generators and compressors, shall be located at the furthest practical distance from nearby noise-sensitive land uses or sufficiently shielded to reduce noise-related impacts.

Significance After Mitigation: Less than significant

b) Groundborne Vibration.

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. Table 3-9 shows the typical vibration levels produced by construction equipment.

TABLE 3-9
VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity at 25 feet
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003
Auger/Drill Rigs	0.089
Jackhammer	0.035
Vibratory Hammer	0.070
Vibratory Compactor/Roller	0.210

Source: Caltrans 2013.

Table 3-9 indicates that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors which could be impacted by construction-related vibrations, especially vibratory compactors/rollers, are located 26 feet or further from typical construction activities. At these distances, construction vibration is predicted to not exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours. Project impacts related to groundborne vibration would be less than significant.

c) Exposure to Airport/Airstrip Noise.

As noted in Section 3.9, Hazards and Hazardous Materials, there are no public airports within two miles of the project site; the nearest public airport is more than five miles to the northwest. No private airstrips have been identified in the vicinity. The project would have no impact related to airport or airstrip noise.

3.14 POPULATION AND HOUSING

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)?			✓	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				✓

Environmental Setting

According to the 2020 U.S. Census, the population of Hughson in 2020 was 7,481 – an increase from the 2010 U.S. Census population of 6,640. There were 2,486 housing units in Hughson (U.S. Census Bureau 2020a, 2020b). Single-family detached units accounted for approximately 86% of the total housing units in the City of Hughson (California Department of Finance 2023).

There are no existing housing units or existing population located within the project site. There are two existing residences together with agriculture-related buildings in the area immediately southeast of the project site; there are no other residential units in the vicinity of the site.

Environmental Impacts and Mitigation Measures

a) Unplanned Population Growth.

The project would not directly induce population, as no housing would be constructed in conjunction with the project. The project would construct a maintenance facility, a concrete batch plant, a rock crusher and other related equipment which typically would provide employment opportunities that may attract people to the Hughson area. The project would replace an existing facility. Employment opportunities in the Hughson area could be expected to increase incrementally but would not be expected to result in any substantial population increase as employees for the proposed project would likely be recruited from the existing population in and around Hughson. Moreover, the project would be consistent with the Industrial designation of the City General Plan; therefore, the project is not expected to induce population growth that is not accounted for by the General Plan. Project impacts related to unplanned population growth are considered less than significant.

b) Displacement of Housing and People.

The project site currently is used for an orchard; there is no housing or people residing on the site. Therefore, the project would not displace or otherwise affect existing housing or residents. The project would have no impact on this issue.

3.15 PUBLIC SERVICES

a) Would the project 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:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Fire protection?			✓	
ii) Police protection?			✓	
iii) Schools?				✓
iv) Parks?				✓
v) Other public facilities?				✓

Environmental Setting

The project site is within the boundaries of the Hughson Fire Protection District. The Fire District provides fire suppression, emergency medical services, technical rescue, hazardous materials response, fire prevention, public education, and disaster preparedness to approximately 35 square miles in and around the City of Hughson. The Fire District currently has two paid staff and 29 volunteers. Its station is located at 2310 Charles Street, approximately 0.4 miles northeast of the project site.

Police protection services in the City are provided by Hughson Police Services, which is located within Hughson City Hall at 7018 Pine Street, approximately 0.45 miles northeast of the project site. Hughson Police Services are provided under contract with the Stanislaus County Sheriff's Department. Both full-time and extra-help employees of the Sheriff's Department staff Hughson Police Services, with five deputy sheriff positions and one legal clerk position fully funded by the City.

The project site is within the boundaries of the Hughson Unified School District, which provides educational services to students from preschool to 12th grade. As noted in Section

3.9, Hazards and Hazardous Materials, the nearest school to the project site is Hughson Elementary School, approximately 0.4 miles to the east.

The City operates and maintains parks and recreational facilities through its Parks and Recreation Department. These include one mini-park, one neighborhood park, and two community parks, along with the Hughson Senior Community Center at 2307 Fourth Street. Other public facilities include the Hughson branch of the Stanislaus County Library on 2412 Third Street.

Environmental Impacts and Mitigation Measures

a-i) Fire Protection.

The project proposes the construction of a maintenance facility that would involve the relocation of an existing facility in the City. Moreover, as discussed in Section 3.14, Population and Housing, the project is not expected to generate population growth. While the batch plant would be a new facility, it would not include buildings. The Fire Protection District reviewed the project as to sprinklers, hydrants, and water pressure and flow, and it had no comment. Moreover, the Fire Protection District had a fire flow test conducted for the project vicinity, and the result was that flows would be adequate (Hydronics Engineering 2023).

Based on this information, the project would not increase demand for fire protection such that new or expanded facilities would need to be constructed. Project impacts on fire protection services would be less than significant.

A-ii) Police Protection.

As noted, the project is not expected to generate any substantial population growth. Also, the project proposes the construction of a maintenance facility that would involve the relocation of an existing facility in the City. Moreover, the project proposes fencing and other security features that would discourage crime. As such, demand for police protection services is not expected to increase, and no new or expanded facilities for police services would be required to serve the project. Project impacts on police protection services would be less than significant.

a-iii) Schools.

The project is not expected to generate population growth. As such, demand for school services would not increase, and no new or expanded school facilities would be required. The project would have no impact on school services.

a-iv) Parks.

The project is not expected to generate population growth. As such, demand for parks would not increase, and no new or expanded park facilities would be required. There are no City or County parks in the vicinity of the project that would be subject to potential impacts from project construction or operation. The project would have no impact on parks.

a-v) Other Public Facilities.

The project is not expected to generate population growth. As such, the project is not expected to generate demand for other public services or facilities, such as libraries. The project would have no impact on other public services.

3.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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?				✓
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				✓

Environmental Setting

As noted in Section 3.15, Public Services, the City provides parks and recreational facilities through its Parks and Recreation Department. The nearest recreational facility to the project site is the Community/Senior Center on Fourth Street, approximately 0.45 miles to the northeast. Starn Park, a community park, is approximately three-quarters of a mile to the north.

Environmental Impacts and Mitigation Measures

a, b) Recreational Facilities.

As discussed in Section 3.14, Population and Housing, the project is not expected to generate population growth. As such, demand for parks and recreational services would not increase, and no new or expanded parks or recreational facilities would be required. There are no City or County parks in the vicinity of the project that would be subject to potential impacts from project construction or operation. The project would have no impact on park or recreational facilities.

3.17 TRANSPORTATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				✓
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?				✓
c) Substantially increase hazards to a geometric design feature (e g., sharp curves or dangerous intersections) or incompatible uses (e g, farm equipment)?				✓
d) Result in inadequate emergency access?		✓		

The transportation analysis is based primarily upon a transportation impact analysis prepared by Wood Rodgers; Appendix E contains a copy of this analysis. This section evaluates transportation impacts of the project on existing conditions. Cumulative transportation impacts of the project are discussed in Section 3.21, Mandatory Findings of Significance.

Vehicle Miles Traveled (VMT)

SB 743, signed in 2013, required changes to CEQA guidelines on the measurement and identification of transportation impacts due to new projects in California. Revised CEQA Guidelines were adopted in 2018 which identified vehicles miles traveled (VMT) as the most appropriate metric to evaluate transportation impacts, rather than LOS. VMT accounts for the total environmental impact of transportation associated with a project, including use of travel modes such as buses or bicycles. Statewide implementation of assessment of VMT as a metric of transportation impact occurred for all jurisdictions on July 1, 2020. The City has not currently adopted VMT guidelines or thresholds.

The Governor’s Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018), contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. Since the City has not adopted VMT guidelines or thresholds, the transportation impact analysis of this project evaluated project VMT using recommendations and methodologies consistent with the Technical Advisory.

Traffic operations were quantified through the determination of Level of Service (LOS). LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. Intersection LOS was calculated for all intersection control types using methods documented in the Transportation Research Board publication *Highway Capacity Manual, 6th Edition.* Roadway segment LOS has been calculated based on Table 4.13-1 of the City of Hughson General Plan EIR (City of Hughson 2005).

Environmental Setting

Roadways and Intersections

The following roadways are within the transportation impact analysis study area:

- *Santa Fe Avenue,* also known as County Road J7, is a north-south roadway that provides connectivity between the Cities of Modesto and Merced. Santa Fe Avenue is currently classified as a two-lane collector by the City of Hughson General Plan EIR (City of Hughson 2005). The posted speed limit is 45 miles per hour through downtown Hughson.

- *East Whitmore Avenue* is classified as a two-lane arterial by the City of Hughson General Plan EIR (City of Hughson 2005). East Whitmore Avenue runs east-west and connects the City of Hughson with the City of Ceres and State Route (SR) 99 to the west. The posted speed limit on East Whitmore Avenue within the project vicinity is 35 miles per hour.

- *Tully Road* is a north-south roadway that provides connectivity between the City of Hughson and the City of Turlock. Tully Road is currently classified as a two-lane collector by the by the City of Hughson General Plan EIR (City of Hughson 2005). The posted speed limit on Tully Road is 40 miles per hour.

Study intersections and roadway segments were selected for analysis based on the project trip generation estimate and distribution (Figure 3-4), and input from City staff. The locations of the study intersections and roadway segments are shown in Figure 3-3. The following seven intersections were analyzed in the transportation impact analysis, three of which are proposed as part of the project:

- Tully Road and Santa Fe Avenue
- Tully Road and East Whitmore Avenue
- Tully Road and North Project Driveway (proposed)
- Tully Road and Central Project Driveway (proposed)
- Tully Road and South Parcel Driveway (proposed)
- Tully Road and Roeding Road
- East Whitmore Avenue and Santa Fe Avenue

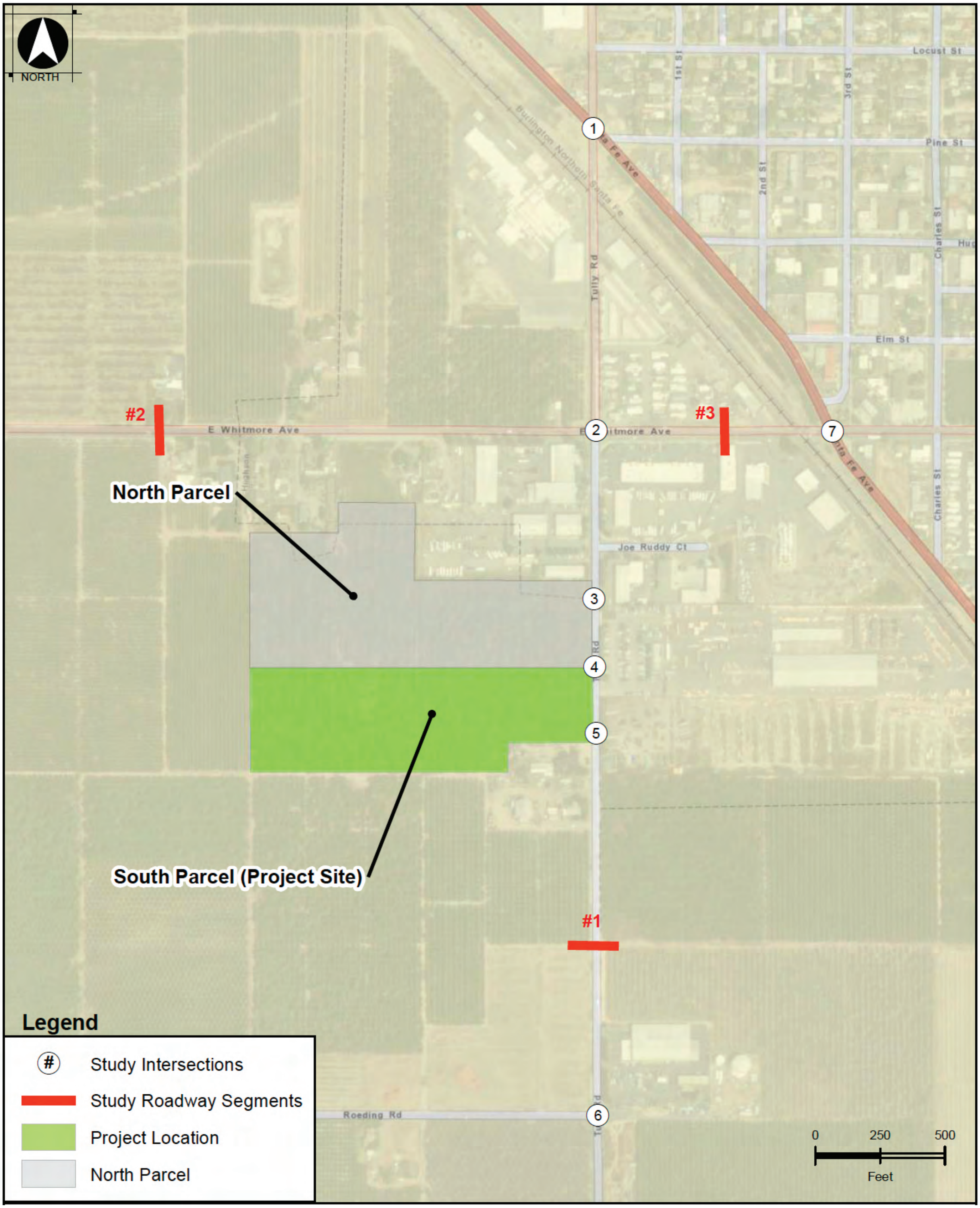
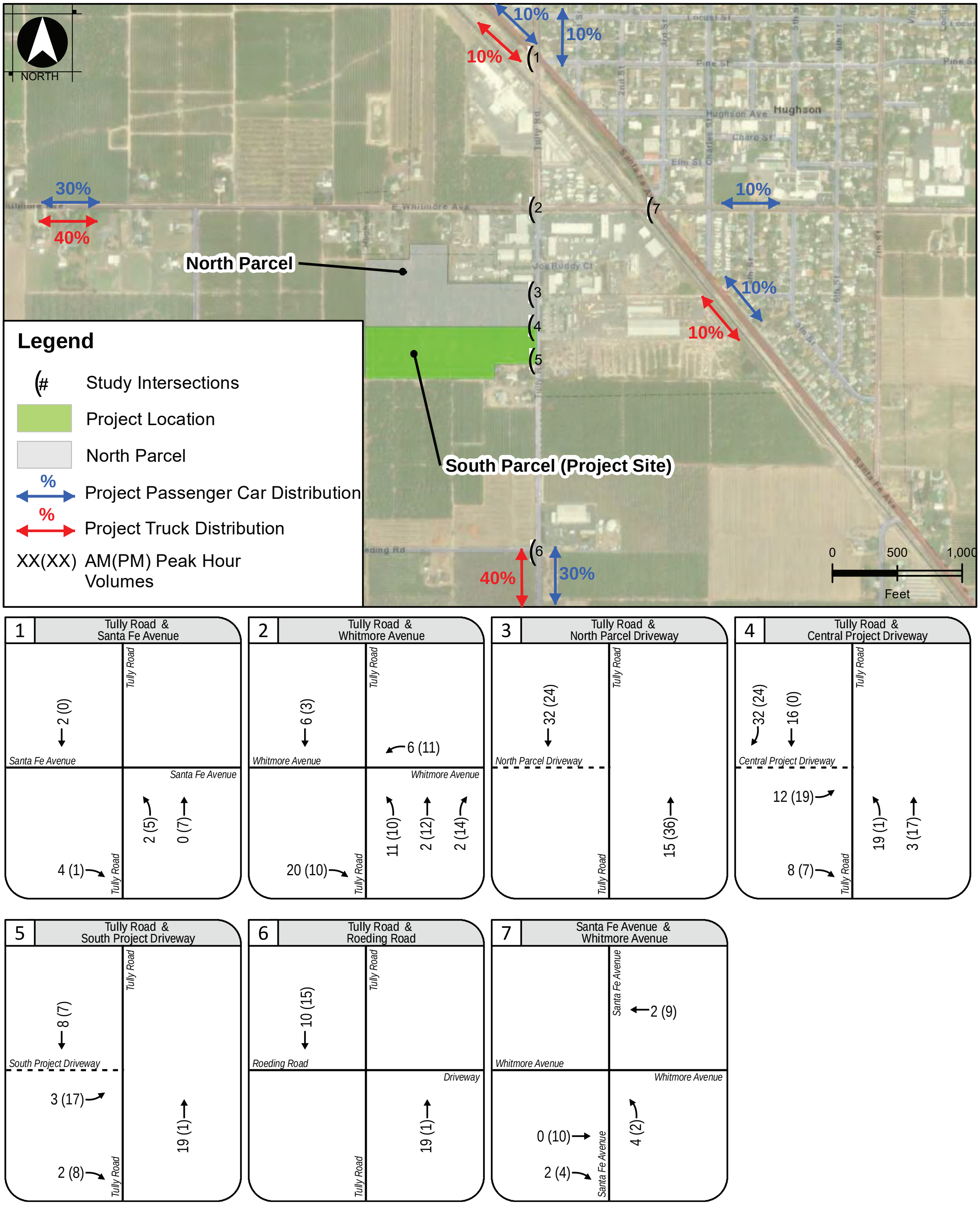


Figure 3-3
PROJECT AND STUDY VICINITY



SOURCE: Wood Rodgers Traffic Consultants

Figure 3-4
PROJECT ONLY TRIPS AND DISTRIBUTION

The following three roadway segments were also analyzed:

- Tully Road between East Whitmore Avenue and Roeding Road
- East Whitmore Avenue west of Tully Road
- East Whitmore Avenue between Tully Road and Santa Fe Avenue

Intersections

Intersection traffic operations were evaluated for the weekday AM and PM peak hours under existing traffic conditions without and with the project and then compared to City standards. The General Plan Circulation Element Policy C-1.2 states that all major intersections and roadway segments should maintain LOS D or better. Table 3-10 shows the traffic conditions at the study area intersections without and with the project.

As shown in Table 3-10, all study intersections are projected to operate at acceptable LOS under existing conditions without and with the project, except for Tully Road/Santa Fe Avenue and Santa Fe Avenue/East Whitmore Avenue. Both intersections would operate at an unacceptable LOS during the PM peak hour, but the LOS would not change with the addition of project traffic.

Roadway segment traffic operations were evaluated under existing traffic conditions without and with the project, based on 24-hour average daily traffic counts. Under existing conditions without the project, all three study roadway segments operated at LOS C.

Pedestrian, Bicycle, and Transit Facilities

There are currently intermittent pedestrian sidewalks on the east side of Tully Road between Joe Ruddy Court and Santa Fe Avenue, and no pedestrian sidewalks on the west side of Tully Road or on Tully Road south of Joe Ruddy Court. The intersection of Tully Road and East Whitmore Avenue has pedestrian ramps on the northeast and southeast corners of the intersection and a crosswalk on the east leg. East Whitmore Avenue has intermittent pedestrian sidewalks throughout the study area. Santa Fe Avenue and Roeding Road currently have no pedestrian sidewalks or crosswalks present within the study area.

A Class II Bike Lane is present on Tully Road between East Whitmore Avenue and Santa Fe Road. No other bikeways have been designated in the area.

Transit service to the City is available with Stanislaus Regional Transit Route 61, which serves the cities of Modesto, Empire, Waterford, Hickman, and Ceres. Within the study area, Route 61 provides approximately one-hour headways between 7:20 a.m. and 7:20 p.m. on weekdays, between 8:23 a.m. and 6:23 p.m. on Saturdays, and between 9:08 a.m. and 5:08 p.m. on Sundays. The closest bus stop to the project site is located near the intersection of Tully Road and East Whitmore Avenue.

TABLE 3-10
INTERSECTION OPERATIONS UNDER EXISTING CONDITIONS
WITHOUT AND WITH THE PROJECT

Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions		Existing Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
Tully Road/Santa Fe Avenue	AWSC	D	AM	22.2	C	22.7	C
			PM	**38.6**	**E**	**41.0**	**E**
Tully Road/E. Whitmore Avenue	AWSC	D	AM	11.5	B	12.0	B
			PM	16.8	C	18.2	C
Tully Road/North Project Driveway	OWSC	D	AM	-	-	0.0	A
			PM	-	-	0.0	A
Tully Road/Central Project Driveway	OWSC	D	AM	-	-	10.1	B
			PM	-	-	10.7	B
Tully Road/South Project Driveway	OWSC	D	AM	-	-	9.6	A
			PM	-	-	10.4	B
Tully Road/Roeding Road	AWSC	D	AM	7.8	A	8.0	A
			PM	8.0	A	8.1	A
Santa Fe Avenue/E. Whitmore Avenue	AWSC	D	AM	20.3	C	20.7	C
			PM	**68.5**	**F**	**75.6**	**F**

Bold indicates LOS does not meet City criteria.
AWSC – all-way stop controlled; OWSC – one-way stop controlled
Source: Wood Rodgers 2023.

Environmental Impacts and Mitigation Measures

a) Conflict with Transportation Plans, Ordinances, and Policies.

The transportation impact analysis indicates that the project would generate 228 trips by passenger cars and trucks. When truck trips are converted to equivalent passenger car trips, the total project trips would be 520. As indicated in Table 3-10 above, the project trips are not projected to cause a new LOS deficiency at the intersections of Tully Road/Santa Fe Avenue and Santa Fe Avenue/East Whitmore Avenue. However, both intersections are currently operating at unacceptable LOS, and the addition of project trips would cause additional delay. Moreover, the City General Plan identifies the need for signalization at both intersections.

As a result of SB 743, LOS deficiencies may not be regarded as significant transportation effects under CEQA. However, the transportation impact analysis recommends that the project contribute its fair share to the costs of the planned traffic signal improvements at both intersections. For this project, the fair-share percentages would be 0.53 percent for the Tully Road/Santa Fe Avenue traffic signal and 0.96 percent for the Santa Fe Avenue/East Whitmore Avenue traffic signal. It is expected that compliance with this recommendation would contribute towards bringing LOS at these intersections into compliance with City criteria set forth in the General Plan.

The transportation impact analysis also conducted a queueing analysis of the study intersections for all stop-controlled movements and movements with turn pockets that the project would add trips to. The following movements would exceed available vehicle storage under both Existing and Existing Plus Project conditions:

- Tully Road and Santa Fe Avenue: WB approach (AM and PM)
- Santa Fe Avenue and East Whitmore Avenue: SB approach (PM); EB approach (PM)

The addition of project trips is projected to lengthen existing queue deficiencies by less than one vehicle length. Construction of a signal at the above intersections would alleviate the above queueing deficiencies which is recommended by the transportation impact analysis to resolve inconsistencies with LOS criteria.

Roadway Segments

Roadway segment traffic operations were evaluated under existing traffic conditions without and with the project, based on 24-hour average daily traffic counts. Under existing conditions without the project, all three study roadway segments operated at LOS C. With project traffic included, all three study roadway segments continued to operate at LOS C. All roadway segments would operate at a LOS that meets City criteria set forth in the General Plan.

Pedestrian, Bicycle, and Transit Facilities

The project is not anticipated to cause a significant increase in pedestrian, bicycle, or transit demand in the study area that would put existing facilities over capacity. The project would not adversely affect existing or proposed pedestrian, bicycle, or transit facilities in a way that would discourage their use.

No other potential conflicts with transportation plans, ordinances, or policies were identified in the transportation impact analysis. In summary, the project is not expected to generate transportation impacts that would conflict with transportation plans, ordinances, and policies. Project impacts would be less than significant.

b) Conflict with CEQA Guidelines Section 15064.3(b).

Section 15064.3 of the CEQA Guidelines states that vehicle miles traveled (VMT) is the preferred metric for evaluating transportation impacts, rather than the LOS metric commonly used. Section 15064.3(b) sets forth the criteria for analyzing transportation impacts using the preferred VMT metric.

As noted, the transportation impact analysis evaluated project VMT using recommendations and methodologies consistent with the Technical Advisory. The Technical Advisory contains the following guidance for project attributes that may be presumed to produce a less-than-significant VMT impact:

> *By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact.*

Technical Advisory guidance states that retail uses that are less than 50,000 square feet can typically be defined as local-serving. The proposed maintenance facility would be less than 50,000 square feet and would serve the local community. Additionally, the proposed batch plant/asphalt crushing facility would provide a local service, reducing the need for patrons to make longer-distance or out-of-direction trips to the next-closest facility. Based on these attributes, the transportation impact analysis concluded that the project as a whole may be presumed to be local-serving and to produce a VMT impact that would be less than significant.

c) Traffic Hazards.

Chapter 10.44 of the Hughson Municipal Code allows the City Engineer to designate Truck Traffic Routes for use by any vehicle exceeding a gross weight of eight tons. However, based on information in the City of Hughson 2005 General Plan EIR, the City does not have any designated truck route system (City of Hughson 2005). Truck traffic currently travels along SR 99 and the major roadways surrounding Hughson, including Santa Fe Avenue, East Whitmore Avenue, Tully Road, Hatch Road, Geer Road, and Service Road. Truck traffic to the project site would likely utilize East Whitmore Avenue and Tully Road to access the site from SR 99 and would likely utilize Tully Road and Santa Fe Avenue to access SR 132. Current truck routes to the project site appear to be sufficient to accommodate design vehicles.

Truck turn swept path analysis was performed for ingress movements at the South Project Driveway and ingress and egress movements at the Central Project Driveway using an STAA Standard design vehicle with a total length of 69 feet. The transportation impact analysis concluded that the design vehicle would be able to navigate ingress or egress movements at the driveways without conflicting with the driveway curb return or vehicles making opposing movements. Therefore, the proposed project driveways are appropriately sized to accommodate the design vehicle.

The project is not expected to introduce any design features that could increase traffic safety hazards. The traffic that would be generated by the project would be the same in character as existing traffic on the main roadways. Project impacts related to traffic hazards would be less than significant.

d) Emergency Access.

Emergency access would be provided to the project site by three driveways, which would provide adequate access for emergency vehicles. As discussed in Section 3.9, Hazards and Hazardous Materials, the project may have a temporary impact on emergency vehicle access during construction. Implementation of Mitigation Measure HAZ-1 would reduce potential impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures: Implementation of Mitigation Measure HAZ-1.

Significance After Mitigation: Less than significant

3.18 TRIBAL CULTURAL RESOURCES

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

Information in this section is based primarily upon a cultural resource report prepared by Solano Archaeological Services, a copy of which is available in Appendix C, and upon City efforts to provide AB 52 notification and opportunities for Native American tribal consultation where requested.

Environmental Setting

Ethnographic Context

As noted in Section 3.5, the project site is within the ethnographic boundaries of the Northern Valley Yokuts. The traditional territory of the Yokuts included lands on either side of the San Joaquin River from the Sacramento-San Joaquin Delta to south of Mendota. The Diablo Range probably marked their western boundary, while the eastern extent would have lain along the Sierra Nevada foothills. The late prehistoric Yokuts may have been the largest ethnic group in pre-contact California.

The Yokuts were organized into at least 11 small political units or tribes. Each tribe had a population of approximately 300 people, most of whom lived within one principal settlement. The closest well-documented village site to the project site was probably Tationes, which was located about 13 miles southeast on the east side of the San Joaquin River. An unnamed site, possibly associated with the Tagualames Yokuts band, was noted about 9.4 miles to the east/northeast on the north side of the Tuolumne River, just to the east of the current town of Waterford.

Euro-American contact with the Northern Valley Yokuts began with infrequent excursions by Spanish explorers traveling through the Sacramento, and San Joaquin Valleys in the late 1700s to early 1800s. Many Yokuts were lured or captured by missionaries and taken to Mission San Jose or Mission Santa Clara. A probable malaria epidemic in 1833 decimated the indigenous population, killing thousands. The influx of Europeans during the Gold Rush era further reduced the population because of disease and violent encounters with the miners. Though little or no gold at all was found in the Yokuts territory, miners passing through on their way to the diggings in the Sierra Nevada foothills resulted in a significant degree of cultural upheaval. Former miners later returned to settle and farm the former Yokuts lands.

Presently, the Nototome/North Valley Yokut Tribe, Inc., represents the Northern Valley Yokuts in the region. The group is dedicated to the perpetuation of their cultural heritage which involves the preservation, documentation, and interpretation of their past including ethnographic, archaeological, and human remains.

Regulatory Framework

In 2015, the California Legislature enacted AB 52, which focuses on consultation with Native American tribes on land use issues potentially affecting the tribes. The intent of this consultation is to avoid or mitigate potential impacts on “tribal cultural resources,” which are defined as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe.”

Under AB 52, when a tribe requests notification from a CEQA lead agency on projects within its traditionally and culturally affiliated geographical area, the lead agency must provide the tribe with notice of a proposed project within 14 days of a project application being deemed complete or when the lead agency decides to undertake the project if it is the agency’s own project. The tribe has up to 30 days to respond to the notice and request consultation; if consultation is requested, then the local agency has up to 30 days to initiate consultation. Matters which may be subjects of AB 52 consultation include the type of CEQA environmental review necessary, the significance of tribal cultural resources, and project alternatives or appropriate measures for preservation or mitigation of the tribal cultural resource that the tribe may recommend to the lead agency.

The consultation process ends when either (1) the resource in question is not considered significant, (2) the parties agree to mitigate or avoid a significant effect on a tribal cultural resource, or (3) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. Regardless of the outcome, a lead agency is still obligated under CEQA to mitigate any significant environmental effects, as explicitly noted in AB 52.

As part of the preparation of its cultural resource report, Solano Archaeological Services mailed letters to the following individuals and organizations, suggested by the Native American Heritage Commission, to solicit any information they might have regarding cultural properties situated within or near the project site:

- Gloria Grimes, Chair - Calaveras Band of Mi-Wuk Indians
- Debra Grimes, Cultural Resources Specialist – Calaveras Band of Mi-Wuk Indians
- California Valley Miwok Tribe / Sheep Ranch Rancheria of Me-Wuk Indians of California
- California Valley Miwok Tribe
- Katherine Perez, Chair – North Valley Yokuts Tribe
- Timothy Perea, North Valley Yokuts Tribe
- Sandra Chapman, Chair – Southern Sierra Miwuk Nation
- Joey Garfield, Tribal Archaeologist – Tule River Indian Tribe
- Neil Peyron, Chair – Tule River Indian Tribe
- Kerri Vera, Environmental Department – Tule River Indian Tribe
- Kenneth Woodrow, Chair – Wuksachi Indian Tribe / Eshom Valley Band

To date, none of these organizations and individuals have responded to the letters sent by Solano Archaeological Service.

Environmental Impacts and Mitigation Measures

a-i, ii) Tribal Cultural Resources.

Solano Archaeological Services emailed a letter and a map depicting the project site and vicinity to the Native American Heritage Commission requesting a Sacred Lands File (SLF) search, and a list of Native American community representatives who might have an interest in, or concerns with project. On July 18th, the Commission responded, stating that no culturally significant properties were known to be present within or near the project site. As noted in Section 3.5, Cultural Resources, archival research and an intensive field survey did not identify any prehistoric cultural resources within the project site. Map and aerial photography reviews, along with the field survey, did not identify any potentially sensitive landforms or water sources on the project site, suggesting the site has a low level of sensitivity for containing prehistoric materials.

In addition, and as discussed in Section 3.5, it is possible, though unlikely, that human burials, including Native American burials with associated grave goods, may be encountered during project construction. Implementation of Mitigation Measure CULT-1 would ensure compliance with applicable regulations in the disposition of human remains with appropriate dignity. Implementation of this mitigation measure would reduce potential impacts on tribal cultural resources to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures: Implementation of Mitigation Measures CULT-1.

<u>Significance After Mitigation</u>: Less than significant

3.19 UTILITIES AND SERVICE SYSTEMS

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, wastewater treatment facilities or storm drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			✓	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			✓	
c) Result in a determination by the wastewater treatment provider which serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			✓	
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?			✓	
e) Comply with federal, state and local management and reduction statutes and regulations related to solid waste?			✓	

Environmental Setting

The City of Hughson provides drinking water to its residents and businesses through its municipal potable water system. Water supply for this system is provided by three groundwater wells, two of which were recently drilled to replace two other groundwater wells that had contaminants exceeding State and/or federal drinking water standards. The City's system also includes a large water tank to store water for drinking and fire suppression purposes (City of Hughson 2019).

Currently, irrigation water is provided to the project site by TID. As noted in Chapter 2.0, Project Description, the project site has two 30-inch diameter pipelines that provide TID water - one located in the back third of the project site, and one in the front third. A third pipeline is located along the southern boundary of the project site. The approximate location of these lines is shown on the Assessor's Parcel Map, Figure 1-5.

The City also provides wastewater collection and treatment services. Currently, the wastewater collection system has approximately 2,000 connections; an existing wastewater collection line is located in Tully Road near the project site. Wastewater is treated at the existing municipal wastewater sewer treatment plant west of Charles Street and south of Leedom Road; the WWTP has the capacity to treat 1.8 million gallons per day (mgd) of sewage. Depending on the time of year, the City typically uses between 0.8 mgd and 1.0 mgd of its existing treatment capacity (City of Hughson 2015).

The City also manages a stormwater system composed of neighborhood collection systems, detention/retention basins, rockwells, stormwater pump stations, stormwater trunks, and discharge points to existing TID canals located along Hatch Road and Service Road.

Solid waste disposal services are provided by Gilton Solid Waste Management of Modesto as a franchisee of the City. Collected solid waste is transported first to a transfer station in Modesto, where it is sorted to remove items that can be recycled. About 60 percent of the remaining waste that cannot be recycled is then sent to the County's Fink Road landfill, located in Crows Landing. The other 40 percent is split between various facilities located both in and outside of the County (City of Hughson 2005).

As noted in Chapter 2.0, Project Description, TID provides electrical service to the Hughson area. An existing 12-kilovolt overhead distribution line runs along the west side of Tully Road. Natural gas services are provided by Pacific Gas and Electric Company; natural gas lines are adjacent to the project site.

Environmental Impacts and Mitigation Measures

a) Construction or Relocation of Infrastructure.

The project proposes to construct internal water and wastewater lines that would connect to existing water and sewer mains beneath Tully Road. As such, the project would not require the extension of new offsite water and sewer mains to the project site. Runoff generated by the project would be transported to an onsite drainage basin that would be constructed in the western portion of the site in conjunction with other proposed facilities.

The project proposes the removal of one of the onsite TID irrigation lines in conjunction with project construction. As discussed in Chapter 2.0, Project Description, TID requires removal and capping of this pipeline, which serves only the project site. TID will require replacement of the other two onsite pipelines, to current development standards, unless downstream members of Improvement District (ID) 637 abandon their right to use the pipeline serving the owners within this district; the ID 637 pipeline is located within the back third of the project site. The same would be true for the 42-inch irrigation line owned by ID 96C. Compliance with TID requirements would reduce impacts on TID irrigation facilities and on services in the area.

The project would also connect to TID's electrical system. As noted in Chapter 2.0, TID would design and install new electrical services from the existing overhead line along Tully Road to new electrical service panels. The project would also be responsible for dedication of a 10-foot Public Utility Easement and conformance with TID has setback and tree planting requirements. If pole or electrical facility relocation is needed, the applicant will need to apply to TID for a facility change. Compliance with TID requirements would reduce potential project impacts on TID electrical facilities.

Based on the above analysis, potential project impacts related to construction or relocation of infrastructure would be less than significant.

b) Water Supply.

As noted in Section 3.10, Hydrology and Water Quality, the project proposes to connect the site to the City's existing water system, which relies on groundwater for its supply. The project would replace an existing maintenance facility in the City, so the new development would not substantially increase overall water or groundwater use. With the removal of the previous agricultural use of the site, demand for TID irrigation water would be reduced. Project impacts on water supply would be less than significant.

c) Wastewater Treatment Capacity.

Project-generated wastewater would be collected in onsite lines and routed to existing City of Hughson wastewater collection lines in Tully Road. As noted, the project would replace an existing maintenance facility in the City, so the proposed new development would not involve a substantial increase in demand for wastewater treatment capacity. Project impacts on the Hughson wastewater collection system and wastewater treatment capacity would be less than significant.

d, e) Solid Waste Services.

As noted, the project would replace an existing facility in the City and would therefore not generate substantial additional solid waste that would materially affect available landfill capacity. Likewise, the project would not result in any substantial effect on the City's compliance with applicable federal, State, or local solid waste regulations. The project would have a less than significant effect on solid waste services.

3.20 WILDFIRE

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?		✓		
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?				✓
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?				
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?				✓

Environmental Setting

Wildfires are considered a significant hazard in potions of Stanislaus County. Generally, from May to October of each year, Stanislaus County experiences its wildfire season. Most of the fire-susceptible areas are in the extreme eastern and western portion of the County, due to the underdeveloped, rugged terrain and the highly flammable grass and brush covered land. Areas that are typically considered to be safe from wildfires include intensively farmed or highly urbanized, developed areas that are not contiguous with vast areas of wildlands (Stanislaus County 2010).

The Fire and Resource Assessment Program of the California Department of Forestry and Fire Protection (Cal Fire) identifies fire threat based on a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior (hazard). These two factors are combined in determining the following Fire Hazard Severity Zones: Moderate, High, Very High, Extreme. Fire Hazard Severity are designated within State Responsibility Areas - areas in which fire protection service is provided by Cal Fire. The project site is not within a State Responsibility Area and has not been placed in a Fire Hazard Severity Zone (Cal Fire 2022).

Environmental Impacts and Mitigation Measures

a) Emergency Response and Emergency Evacuation Plans.

As noted, the project site is not within a State Responsibility Area and has not been classified within a Fire Hazard Severity Zone and is therefore not exposed to significant wildfire hazards.

As discussed in Section 3.9, Hazards and Hazardous Materials, the project could temporarily interfere with emergency vehicle access, but no interference would occur after project completion; Mitigation Measure HAZ-1 would require a Traffic Control Plan applicable to construction work that could affect traffic movement on Tully Road. With implementation of this mitigation measure, project impacts related to emergency response plans or emergency evacuation plans would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures: Implementation of Mitigation Measure HAZ-1.

Significance After Mitigation: Less than significant

b) Exposure of Project Occupants to Pollutants.

The project site has not been designated by Cal Fire as being within a Fire Hazard Severity Zone. The project site is not in the extreme eastern and western portion of the County, where wildfire risk is high. The project is within an area of urban development and intensive agriculture. Neither land use is subject to a substantial wildfire risk. The project would have no impact related to exposure of project occupants to pollutants.

c) Installation and Maintenance of Infrastructure.

As noted in b) above, the project site is not in an area of substantial wildfire risk. As such, the installation and maintenance of associated infrastructure that supports proposed development would not exacerbate fire risk or would result in temporary or ongoing impacts to the environment. The project would have no impact on this issue.

d) Risks from Runoff, Post-Fire Slope Instability, or Drainage Changes.

The project site is in a relatively flat area that is not classified as being in a Fire Hazard Severity Zone. As noted in b) above, the project site is not in the extreme eastern and western portion of the County, land slopes contribute to the risks of flooding and landslides downslope of wildland fires. The project would not expose people or structures to downslope or downstream flooding or landslides, post-fire slope instability, or drainage changes. The project would have no impact on this issue.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project 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?		✓		
b) Does the project 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)?				✓

c) Does the project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?			✓	

a) Findings on Biological and Cultural Resources.

The project’s potential biological resource, cultural resource, and tribal cultural resource impacts were described in Sections 3.4, 3.5, and 3.18, respectively. Potentially significant environmental effects on biological and cultural resources were identified, but implementation of mitigation measures that would be incorporated into the project would reduce these effects to a level that would be less than significant. The mitigation measures are described in the appropriate technical sections and are listed in Table 1-1.

b) Findings on Cumulatively Considerable Impacts.

The project would be constructed on a parcel adjacent to and south of another proposed development – the Jimenez Truck Maintenance and Storage Facility project, a tire and truck facility and a truck storage yard. Both projects would occur at approximately the same time. No other development projects in the City are proposed at this time. Other projects proposed in the City of Hughson include the Tully Road Subdivision, a 34-lot, industrial project at the intersection of Tully Road and Roeding Road southeast of the project site, and Hughson Ventures, a commercial center project at the intersection of Tully Road and Whitmore Avenue.

As described in this IS/MND, the potential environmental effects of the project would either be less than significant, or the project would have no impact at all, when compared to baseline conditions. Where the project involves potentially significant effects, these effects would be reduced to a less-than-significant level with proposed mitigation measures and compliance with required permits and applicable regulations. The same conditions apply to the adjacent project to the north.

The potential environmental effects identified in this IS/MND have been considered in conjunction with each other as to their potential to generate other potentially significant effects. In particular, potential cumulative impacts were evaluated for two environmental issues – noise and transportation.

Noise

Traffic Noise

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels were predicted at sensitive receptors for future project and no-project conditions, using the Highway Traffic Noise Prediction Model. The model used trip generation volumes from the traffic impact study for the project (see Section 3.17, Transportation). Traffic noise levels were predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment.

Table 3-11 summarizes the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the project area. Table 3-11 indicates that the maximum increase in traffic noise at the nearest sensitive receptor would be 0.2 dBA. None of the traffic noise increases would exceed the applicable significance thresholds set for noise increases in Table 3-4. Therefore, cumulative project impacts related to traffic noise would be less than significant.

TABLE 3-11
CUMULATIVE TRAFFIC NOISE LEVELS WITHOUT AND WITH PROJECT

		Exterior Noise Levels at Closest Sensitive Receptors (dBA L_{dn})			
Roadway	**Segment**	**Future No Project**	**Future With Project**	**Change**	***Exceeds Threshold?***
Tully Road	Between E. Whitmore Ave. and Roeding Rd	55.7	55.9	+0.2	*No*
E. Whitmore Ave.	West of Tully Road	64.1	64.1	0.0	*No*
E. Whitmore Ave.	East of Tully Road	64.0	64.0	0.0	*No*

Source: Saxelby Acoustics 2023.

Noise from Project Operations

The noise study for the project, available in Appendix B, conducted an assessment of the cumulative noise impacts of the project, when combined with the adjacent Jimenez Truck Maintenance and Storage Facility. A full description of the methodology used to determine the cumulative noise effects of the two projects is provided in Pages 11 and 12 of the noise study. The SoundPLAN model used the data to develop estimates of noise levels at the nearest sensitive receptors, the locations of which are depicted on Figure 3-5. The SoundPLAN model used the data to develop estimates of noise levels at the nearest sensitive receptors, the locations of which are depicted on Figure 3-5, along with the predicted cumulative noise contours associated with the project .

TABLE 3-12
CUMULATIVE OPERATIONAL NOISE LEVELS AT SENSITIVE RECEPTORS

Location[1]	**Jurisdiction**	**Applicable Noise Standard**	**Predicted Noise Level**	***Complies with Standard?***
R1	City of Hughson	60 dBA L_{dn}	59 dBA L_{dn}	*Yes*
R2	City of Hughson	60 dBA L_{dn}	57 dBA L_{dn}	*Yes*
R3	City of Hughson	60 dBA L_{dn}	57 dBA L_{dn}	*Yes*
R4	City of Hughson	60 dBA L_{dn}	56 dBA L_{dn}	*Yes*

R5	City of Hughson	60 dBA L_{dn}	59 dBA L_{dn}	*Yes*
R6	Stanislaus County	50 dBA L_{eq} (day) 45 dBA L_{eq} (night)	49 dBA L_{eq} (day) 41 dBA L_{eq} (night)	*Yes* *Yes*

[1] See Figure 3-2.
Source: Saxelby Acoustics 2023.

Table 3-12 shows the predicted noise levels at these receptors. As shown in Table 3-12, the predicted project noise levels at sensitive receptors within the City of Hughson would meet the City noise level standard. Also, the predicted project noise levels at sensitive receptors within Stanislaus County would meet the County noise level standard. Therefore, project operational noise impacts under cumulative conditions would be less than significant.

Transportation

Intersections

Intersection traffic operations were evaluated for the weekday AM and PM peak hours under cumulative traffic conditions without and with the project and then compared to City standards. The General Plan Circulation Element Policy C-1.2 states that all major intersections and roadway segments should maintain LOS D or better. Table 3-13 shows the traffic conditions at the study area intersections without and with the project.

TABLE 3-13
INTERSECTION OPERATIONS UNDER CUMULATIVE CONDITIONS
WITHOUT AND WITH THE PROJECT

				Cumulative Conditions		**Cumulative Plus Project**	
Intersection	**Control Type**	**LOS Criteria**	**Peak Hour**	**Delay (sec.)**	**LOS**	**Delay (sec.)**	**LOS**
Tully Road/Santa Fe Avenue	Signal	D	AM	17.9	B	18.2	B
			PM	23.8	C	24.1	C
Tully Road/E. Whitmore Avenue	Signal	D	AM	21.3	C	23.0	C
			PM	26.8	C	28.9	C
Tully Road/North Project Driveway	OWSC	D	AM	-	-	7.9	A
			PM	-	-	8.0	A
Tully Road/Central Project Driveway	OWSC	D	AM	11.3	B	12.7	B
			PM	13.5	B	15.8	C
Tully Road/South Project Driveway	OWSC	D	AM	10.9	B	11.2	B
			PM	13.0	B	13.5	B
Tully Road/Roeding Road	AWSC	D	AM	8.8	A	9.1	A
			PM	10.0	A	10.4	B
	Signal	D	AM	25.2	C	25.9	C

Santa Fe Avenue/E. Whitmore Avenue			PM	31.2	C	32.5	C

AWSC – all-way stop controlled; OWSC – one-way stop controlled
Source: Wood Rodgers 2023.

As shown in Table 3-13, all study intersections are projected to operate at acceptable LOS under cumulative conditions without and with the project. The queueing analysis indicated that queues would fit within available storage at all intersections under all cumulative conditions. The project would not have a cumulatively considerable impact on intersections.

Roadway Segments

Roadway segment traffic operations were evaluated under existing traffic conditions without and with the project, based on 24-hour average daily traffic counts. Cumulative conditions average daily traffic volumes were developed by applying a 3.1% per year growth rate to existing conditions average daily traffic, as well as adding daily traffic generated by the proposed Tully Road Subdivision Project and Jimenez Tires and Truck Repair Facility Project.

Under cumulative conditions without the project, all three study roadway segments would operate at LOS C. With project traffic included, LOS on all three roadway segments would remain the same. All roadway segments would operate at a LOS that meets City criteria set forth in the General Plan. The project would not have a cumulatively considerable impact on roadway segments.

VMT Analysis

The transportation impact analysis did not identify any changes to VMT associated with cumulative conditions. The project is presumed to be local-serving and would produce a VMT impact that would be less than significant.

In summary, the various potential environmental effects of the project would not combine to generate any potentially significant cumulative effects. Moreover, the proposed project and the other project would be consistent with the land use designations of the City General Plan, the EIR of which evaluated potential impacts of development under the General Plan. The project would not introduce any environmental impacts that were not analyzed in the General Plan EIR, nor would it increase the severity of impacts identified in the EIR. Therefore, the project would not have impacts that are cumulatively considerable.

c) Findings on Adverse Effects on Human Beings.

Potential adverse effects on human beings were discussed in Section 3.3, Air Quality (TACs); Section 3.7, Geology and Soils (seismic hazards); Section 3.9, Hazards and Hazardous Materials; Section 3.10, Hydrology and Water Quality (flooding); Section 3.17, Transportation/Traffic (traffic hazards); and Section 3.20, Wildfire. No significant adverse effects were identified in these sections that would not be mitigated to a level that would be less than significant. Project impacts related to potential adverse effects on human beings would be less than significant.

4.0 REFERENCES

4.1 DOCUMENT PREPARERS

This IS/MND was prepared by BaseCamp Environmental, Inc. for use by and under the supervision of the City of Hughson. The following persons were involved in preparation of the IS/MND:

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4.3 PERSONS CONSULTED

Elwyn Heiman, P.E.

5.0 NOTES ON EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [CEQA Guidelines Section 15063(c)(3)(D)]. In this case, a brief discussion should identify the following:

   a) Earlier Analyses Used: Identify and state where they are available for review.

   b) Impacts Adequately Addressed: Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures: For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document, and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) The checklist in CEQA Guidelines Appendix G is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

    a) the significance criteria or threshold, if any, used to evaluate each question; and

    b) the mitigation measure identified, if any, to reduce the impact to less than significance.

APPENDIX A
AIR QUALITY MODELING RESULTS

Source	Daily Concrete Production (tons)	Annual Concrete Production (tons)	Emission Factor PM10 (lbs/ton)
Aggregate Transfer	700	219100	0.0033
Sand Transfer	700	219100	0.00099
Cement Unloading to Elevated Storage Silo	700	219100	0.0003
Cement Supplement Unloading to Elevated Storage Silo	700	219100	0.0049
Weigh Hopper Loading	700	219100	0.0028
Mixer Loading	700	219100	0.0055
Truck Loading	700	219100	0.0263
Aggregate Stock Pile	700	219100	0.00031
Truck Unloading - Fragmented Stone	750	234750	0.000016
Tertiary Crushing	750	234750	0.00054
Conveyor Transfer Point	750	234750	0.000046
Recycled Base Pile	750	234750	0.00031

* All PM2.5 factors except for tertiary crushing, conveyor transfer point, and stock piles are 6% of emission

Total PM10 Daily Emission (lbs/day)	Total PM10 Annual Emission (lbs/year)	Total PM10 Annual Emission (tons/year)	Emission Factor PM2.5* (lbs/ton)	Total PM2.5 Daily Emission (lbs/day)
2.31	723.03	0.361515	0.0004	0.28
0.693	216.909	0.1084545	0.00013	0.091
0.21	65.73	0.032865	0.00006	0.042
3.43	1073.59	0.536795	0.0005	0.35
1.96	613.48	0.30674	0.0003	0.21
3.85	1205.05	0.602525	0.0011	0.77
18.41	5762.33	2.881165	0.0059	4.13
0.217	67.921	0.0339605	0.00005	0.035
	Total	**4.86402**		
0.012	3.756	0.001878	0.000006	0.0045
0.405	126.765	0.0633825	0.0001	0.075
0.0345	10.7985	0.00539925	0.000013	0.00975
0.2325	72.7725	0.03638625	0.00005	0.0375
	Total	**0.107046**		

factor for total PM (University of Texas 2019). All other factors from EPA AP-42 Emission Factors.

Total PM2.5 Annual Emission (lbs/year)	Total PM2.5 Annual Emission (tons/year)
87.64	0.04382
28.483	0.0142415
13.146	0.006573
109.55	0.054775
65.73	0.032865
241.01	0.120505
1292.69	0.646345
10.955	0.0054775
Total	**0.924602**
1.4085	0.00070425
23.475	0.0117375
3.05175	0.001525875
11.7375	0.00586875
Total	**0.019836375**

United Pavement Phase 1 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	United Pavement Phase 1
Construction Start Date	10/1/2023
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.10
Precipitation (days)	29.2
Location	37.59183594160734, -120.87131847106
County	Stanislaus
City	Hughson
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2226
EDFZ	14
Electric Utility	Turlock Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Automobile Care Center	18.8	1000sqft	2.49	18,760	1,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Water	W-7	Adopt a Water Conservation Strategy

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.57	17.5	29.8	19.6	0.14	1.00	9.56	10.6	0.93	4.09	5.03	—	11,668	11,668	0.30	1.45	0.57	12,108
Mit.	2.57	17.5	29.8	19.6	0.14	1.00	5.20	6.20	0.93	2.00	2.93	—	11,668	11,668	0.30	1.45	0.57	12,108
% Reduced	—	—	—	—	—	—	46%	41%	—	51%	42%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	0.45	1.94	1.95	< 0.005	0.08	0.07	0.16	0.08	0.03	0.10	—	414	414	0.02	0.01	0.08	418
Mit.	0.27	0.45	1.94	1.95	< 0.005	0.08	0.04	0.12	0.08	0.01	0.09	—	414	414	0.02	0.01	0.08	418
% Reduced	—	—	—	—	—	—	43%	20%	—	47%	12%	—	—	—	—	—	—	—

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.08	0.35	0.36	< 0.005	0.01	0.01	0.03	0.01	< 0.005	0.02	—	68.5	68.5	< 0.005	< 0.005	0.01	69.2
Mit.	0.05	0.08	0.35	0.36	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.02	—	68.5	68.5	< 0.005	< 0.005	0.01	69.2
% Reduced	—	—	—	—	—	—	43%	20%	—	47%	12%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	2.57	2.02	29.8	19.6	0.14	1.00	9.56	10.6	0.93	4.09	5.03	—	11,668	11,668	0.30	1.45	0.57	12,108
2024	1.61	17.5	11.4	12.2	0.02	0.46	0.11	0.52	0.42	0.03	0.44	—	2,317	2,317	0.09	0.03	0.01	2,328
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.27	0.22	1.94	1.95	< 0.005	0.08	0.07	0.16	0.08	0.03	0.10	—	414	414	0.02	0.01	0.08	418
2024	0.23	0.45	1.64	1.79	< 0.005	0.07	0.01	0.08	0.06	< 0.005	0.06	—	334	334	0.01	< 0.005	0.03	335
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.05	0.04	0.35	0.36	< 0.005	0.01	0.01	0.03	0.01	< 0.005	0.02	—	68.5	68.5	< 0.005	< 0.005	0.01	69.2
2024	0.04	0.08	0.30	0.33	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	55.2	55.2	< 0.005	< 0.005	< 0.005	55.5

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	2.57	2.02	29.8	19.6	0.14	1.00	5.20	6.20	0.93	2.00	2.93	—	11,668	11,668	0.30	1.45	0.57	12,108
2024	1.61	17.5	11.4	12.2	0.02	0.46	0.11	0.52	0.42	0.03	0.44	—	2,317	2,317	0.09	0.03	0.01	2,328
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.27	0.22	1.94	1.95	< 0.005	0.08	0.04	0.12	0.08	0.01	0.09	—	414	414	0.02	0.01	0.08	418
2024	0.23	0.45	1.64	1.79	< 0.005	0.07	0.01	0.08	0.06	< 0.005	0.06	—	334	334	0.01	< 0.005	0.03	335
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.05	0.04	0.35	0.36	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.02	—	68.5	68.5	< 0.005	< 0.005	0.01	69.2
2024	0.04	0.08	0.30	0.33	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	—	55.2	55.2	< 0.005	< 0.005	< 0.005	55.5

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.59	0.97	0.56	4.17	0.01	0.02	0.51	0.53	0.02	0.13	0.15	42.0	1,190	1,232	4.38	0.22	3,892	5,299
Mit.	0.59	0.97	0.56	4.17	0.01	0.02	0.51	0.53	0.02	0.13	0.15	41.3	1,188	1,229	4.31	0.22	3,892	5,294
% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	< 0.5%	< 0.5%	2%	1%	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.79	0.61	2.88	0.01	0.02	0.51	0.53	0.02	0.13	0.15	42.0	1,136	1,178	4.38	0.22	3,889	5,244
Mit.	0.40	0.79	0.61	2.88	0.01	0.02	0.51	0.53	0.02	0.13	0.15	41.3	1,134	1,176	4.31	0.22	3,889	5,238

% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	< 0.5%	< 0.5%	2%	1%	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.39	0.78	0.43	2.25	< 0.005	0.02	0.28	0.30	0.02	0.07	0.09	42.0	881	923	4.37	0.21	3,890	4,984
Mit.	0.39	0.78	0.43	2.25	< 0.005	0.02	0.28	0.30	0.02	0.07	0.09	41.3	879	920	4.30	0.21	3,890	4,979
% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	< 0.5%	< 0.5%	2%	1%	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.14	0.08	0.41	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	6.95	146	153	0.72	0.03	644	825
Mit.	0.07	0.14	0.08	0.41	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	6.84	145	152	0.71	0.03	644	824
% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	< 0.5%	< 0.5%	2%	1%	—	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.43	0.40	0.37	3.20	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	641	641	0.03	0.03	2.71	654
Area	0.14	0.56	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.36	3.36	< 0.005	< 0.005	—	3.37
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	536	536	0.14	0.18	—	591
Water	—	—	—	—	—	—	—	—	—	—	—	3.38	9.64	13.0	0.35	0.01	—	25.8
Waste	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	0.59	0.97	0.56	4.17	0.01	0.02	0.51	0.53	0.02	0.13	0.15	42.0	1,190	1,232	4.38	0.22	3,892	5,299

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.38	0.35	0.42	2.72	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	591	591	0.03	0.03	0.07	602
Area	—	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	536	536	0.14	0.18	—	591
Water	—	—	—	—	—	—	—	—	—	—	—	3.38	9.64	13.0	0.35	0.01	—	25.8
Waste	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	0.40	0.79	0.61	2.88	0.01	0.02	0.51	0.53	0.02	0.13	0.15	42.0	1,136	1,178	4.38	0.22	3,889	5,244
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.30	0.28	0.24	1.69	< 0.005	< 0.005	0.28	0.28	< 0.005	0.07	0.07	—	334	334	0.02	0.02	0.64	341
Area	0.07	0.49	< 0.005	0.40	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.65	1.65	< 0.005	< 0.005	—	1.66
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	536	536	0.14	0.18	—	591
Water	—	—	—	—	—	—	—	—	—	—	—	3.38	9.64	13.0	0.35	0.01	—	25.8
Waste	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	0.39	0.78	0.43	2.25	< 0.005	0.02	0.28	0.30	0.02	0.07	0.09	42.0	881	923	4.37	0.21	3,890	4,984
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	0.05	0.04	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.2	55.2	< 0.005	< 0.005	0.11	56.4
Area	0.01	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	88.7	88.7	0.02	0.03	—	97.9
Water	—	—	—	—	—	—	—	—	—	—	—	0.56	1.60	2.16	0.06	< 0.005	—	4.28
Waste	—	—	—	—	—	—	—	—	—	—	—	6.39	0.00	6.39	0.64	0.00	—	22.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	644	644
Total	0.07	0.14	0.08	0.41	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	6.95	146	153	0.72	0.03	644	825

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.43	0.40	0.37	3.20	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	641	641	0.03	0.03	2.71	654
Area	0.14	0.56	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.36	3.36	< 0.005	< 0.005	—	3.37
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	536	536	0.14	0.18	—	591
Water	—	—	—	—	—	—	—	—	—	—	—	2.71	7.72	10.4	0.28	0.01	—	20.7
Waste	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	0.59	0.97	0.56	4.17	0.01	0.02	0.51	0.53	0.02	0.13	0.15	41.3	1,188	1,229	4.31	0.22	3,892	5,294
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.38	0.35	0.42	2.72	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	591	591	0.03	0.03	0.07	602
Area	—	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	536	536	0.14	0.18	—	591
Water	—	—	—	—	—	—	—	—	—	—	—	2.71	7.72	10.4	0.28	0.01	—	20.7
Waste	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	0.40	0.79	0.61	2.88	0.01	0.02	0.51	0.53	0.02	0.13	0.15	41.3	1,134	1,176	4.31	0.22	3,889	5,238
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.30	0.28	0.24	1.69	< 0.005	< 0.005	0.28	0.28	< 0.005	0.07	0.07	—	334	334	0.02	0.02	0.64	341
Area	0.07	0.49	< 0.005	0.40	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.65	1.65	< 0.005	< 0.005	—	1.66
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	536	536	0.14	0.18	—	591
Water	—	—	—	—	—	—	—	—	—	—	—	2.71	7.72	10.4	0.28	0.01	—	20.7

Waste	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	0.39	0.78	0.43	2.25	< 0.005	0.02	0.28	0.30	0.02	0.07	0.09	41.3	879	920	4.30	0.21	3,890	4,979
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	0.05	0.04	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.2	55.2	< 0.005	< 0.005	0.11	56.4
Area	0.01	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	88.7	88.7	0.02	0.03	—	97.9
Water	—	—	—	—	—	—	—	—	—	—	—	0.45	1.28	1.73	0.05	< 0.005	—	3.42
Waste	—	—	—	—	—	—	—	—	—	—	—	6.39	0.00	6.39	0.64	0.00	—	22.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	644	644
Total	0.07	0.14	0.08	0.41	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	6.84	145	152	0.71	0.03	644	824

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	1.37	13.7	11.6	0.03	0.60	—	0.60	0.55	—	0.55	—	2,716	2,716	0.11	0.02	—	2,725
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.17	0.17	—	—	—	—	—	—	—

Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.3	22.3	< 0.005	< 0.005	—	22.4
Dust From Material Movemen	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.70	3.70	< 0.005	< 0.005	—	3.71
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.1	57.1	< 0.005	< 0.005	0.01	57.9
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49

Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	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	0.00
Hauling	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	0.00

3.2. Site Preparation (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	1.37	13.7	11.6	0.03	0.60	—	0.60	0.55	—	0.55	—	2,716	2,716	0.11	0.02	—	2,725
Dust From Material Movement	—	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.3	22.3	< 0.005	< 0.005	—	22.4

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.70	3.70	< 0.005	< 0.005	—	3.71
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.37	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.1	57.1	< 0.005	< 0.005	0.01	57.9
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	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	0.00

Hauling	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	0.00

3.3. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	—	2,453	2,453	0.10	0.02	—	2,462
Dust From Material Movemen	—	—	—	—	—	—	7.15	7.15	—	3.44	3.44	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.4	13.4	< 0.005	< 0.005	—	13.5
Dust From Material Movemen	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	0.01	< 0.005	0.01	77.3
Vendor	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	0.00
Hauling	0.40	0.20	12.3	2.83	0.11	0.17	2.34	2.50	0.17	0.64	0.81	—	9,138	9,138	0.20	1.43	0.56	9,569
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.43	0.43	< 0.005	< 0.005	< 0.005	0.44
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.1	50.1	< 0.005	0.01	0.05	52.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.07
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.29	8.29	< 0.005	< 0.005	0.01	8.69

3.4. Grading (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	—	2,453	2,453	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	—	2.79	2.79	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.4	13.4	< 0.005	< 0.005	—	13.5
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	76.1	76.1	0.01	< 0.005	0.01	77.3
Vendor	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	0.00
Hauling	0.40	0.20	12.3	2.83	0.11	0.17	2.34	2.50	0.17	0.64	0.81	—	9,138	9,138	0.20	1.43	0.56	9,569
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.43	0.43	< 0.005	< 0.005	< 0.005	0.44
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.1	50.1	< 0.005	0.01	0.05	52.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.07
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.29	8.29	< 0.005	< 0.005	0.01	8.69

3.5. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.38	11.7	12.0	0.02	0.50	—	0.50	0.46	—	0.46	—	2,201	2,201	0.09	0.02	—	2,209

Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.65	1.70	< 0.005	0.07	—	0.07	0.07	—	0.07	—	310	310	0.01	< 0.005	—	311
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.30	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	—	51.3	51.3	< 0.005	< 0.005	—	51.5
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.29	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	45.7	45.7	< 0.005	< 0.005	0.01	46.4
Vendor	< 0.005	< 0.005	0.11	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.9	71.9	< 0.005	0.01	< 0.005	75.1
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.64	6.64	< 0.005	< 0.005	0.01	6.75
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.6
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.10	1.10	< 0.005	< 0.005	< 0.005	1.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.75
Hauling	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	0.00

3.6. Building Construction (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.38	11.7	12.0	0.02	0.50	—	0.50	0.46	—	0.46	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.65	1.70	< 0.005	0.07	—	0.07	0.07	—	0.07	—	310	310	0.01	< 0.005	—	311
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.30	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	—	51.3	51.3	< 0.005	< 0.005	—	51.5
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.03	0.03	0.29	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	45.7	45.7	< 0.005	< 0.005	0.01	46.4
Vendor	< 0.005	< 0.005	0.11	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.9	71.9	< 0.005	0.01	< 0.005	75.1
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.64	6.64	< 0.005	< 0.005	0.01	6.75
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.6
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.10	1.10	< 0.005	< 0.005	< 0.005	1.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.75
Hauling	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	0.00

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	1.32	11.2	11.9	0.02	0.46	—	0.46	0.42	—	0.42	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.21	0.18	1.52	1.61	< 0.005	0.06	—	0.06	0.06	—	0.06	—	297	297	0.01	< 0.005	—	298
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.2	49.2	< 0.005	< 0.005	—	49.4
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.27	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	44.8	44.8	< 0.005	< 0.005	0.01	45.4
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	70.9	70.9	< 0.005	0.01	< 0.005	74.1
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.23	6.23	< 0.005	< 0.005	0.01	6.33
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.57	9.57	< 0.005	< 0.005	0.01	10.0
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.58	1.58	< 0.005	< 0.005	< 0.005	1.66
Hauling	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	0.00

3.8. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	1.32	11.2	11.9	0.02	0.46	—	0.46	0.42	—	0.42	—	2,201	2,201	0.09	0.02	—	2,209
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.18	1.52	1.61	< 0.005	0.06	—	0.06	0.06	—	0.06	—	297	297	0.01	< 0.005	—	298
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.2	49.2	< 0.005	< 0.005	—	49.4
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.27	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	44.8	44.8	< 0.005	< 0.005	0.01	45.4
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	70.9	70.9	< 0.005	0.01	< 0.005	74.1

Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.23	6.23	< 0.005	< 0.005	0.01	6.33
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.57	9.57	< 0.005	< 0.005	0.01	10.0
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.58	1.58	< 0.005	< 0.005	< 0.005	1.66
Hauling	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	0.00

3.9. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.89	0.75	6.44	8.26	0.01	0.31	—	0.31	0.29	—	0.29	—	1,244	1,244	0.05	0.01	—	1,248
Paving	—	1.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.0	17.0	< 0.005	< 0.005	—	17.1

Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.82	2.82	< 0.005	< 0.005	—	2.83
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.67	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	112	112	0.01	< 0.005	0.01	114
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.58	1.58	< 0.005	< 0.005	< 0.005	1.61
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.26	0.26	< 0.005	< 0.005	< 0.005	0.27
Vendor	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	0.00
Hauling	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	0.00

3.10. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.89	0.75	6.44	8.26	0.01	0.31	—	0.31	0.29	—	0.29	—	1,244	1,244	0.05	0.01	—	1,248
Paving	—	1.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.0	17.0	< 0.005	< 0.005	—	17.1
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.82	2.82	< 0.005	< 0.005	—	2.83
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.67	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	112	112	0.01	< 0.005	0.01	114
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.58	1.58	< 0.005	< 0.005	< 0.005	1.61
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.26	0.26	< 0.005	< 0.005	< 0.005	0.27
Vendor	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	0.00
Hauling	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	0.00

3.11. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	17.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.83	1.83	< 0.005	< 0.005	—	1.84
Architectural Coatings	—	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.30	0.30	< 0.005	< 0.005	—	0.30
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.95	8.95	< 0.005	< 0.005	< 0.005	9.09
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Vendor	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	0.00

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Vendor	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	0.00
Hauling	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	0.00

3.12. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	17.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.83	1.83	< 0.005	< 0.005	—	1.84
Architectural Coatings	—	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.30	0.30	< 0.005	< 0.005	—	0.30
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.95	8.95	< 0.005	< 0.005	< 0.005	9.09
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.43	0.40	0.37	3.20	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	641	641	0.03	0.03	2.71	654
Total	0.43	0.40	0.37	3.20	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	641	641	0.03	0.03	2.71	654
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.38	0.35	0.42	2.72	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	591	591	0.03	0.03	0.07	602
Total	0.38	0.35	0.42	2.72	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	591	591	0.03	0.03	0.07	602
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.05	0.05	0.04	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.2	55.2	< 0.005	< 0.005	0.11	56.4
Total	0.05	0.05	0.04	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.2	55.2	< 0.005	< 0.005	0.11	56.4

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.43	0.40	0.37	3.20	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	641	641	0.03	0.03	2.71	654
Total	0.43	0.40	0.37	3.20	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	641	641	0.03	0.03	2.71	654
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.38	0.35	0.42	2.72	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	591	591	0.03	0.03	0.07	602
Total	0.38	0.35	0.42	2.72	0.01	0.01	0.51	0.52	0.01	0.13	0.14	—	591	591	0.03	0.03	0.07	602
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.05	0.05	0.04	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.2	55.2	< 0.005	< 0.005	0.11	56.4
Total	0.05	0.05	0.04	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.2	55.2	< 0.005	< 0.005	0.11	56.4

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369
Total	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369
Total	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	52.0	52.0	0.02	0.03	—	61.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	52.0	52.0	0.02	0.03	—	61.2

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369
Total	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369
Total	—	—	—	—	—	—	—	—	—	—	—	—	314	314	0.12	0.17	—	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	52.0	52.0	0.02	0.03	—	61.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	52.0	52.0	0.02	0.03	—	61.2

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222

Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.7	36.7	< 0.005	< 0.005	—	36.8
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.7	36.7	< 0.005	< 0.005	—	36.8

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	222
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.7	36.7	< 0.005	< 0.005	—	36.8
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.7	36.7	< 0.005	< 0.005	—	36.8

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.14	0.13	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.36	3.36	< 0.005	< 0.005	—	3.37
Total	0.14	0.56	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.36	3.36	< 0.005	< 0.005	—	3.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Total	0.01	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.14	0.13	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.36	3.36	< 0.005	< 0.005	—	3.37
Total	0.14	0.56	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.36	3.36	< 0.005	< 0.005	—	3.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Total	0.01	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	3.38	9.64	13.0	0.35	0.01	—	25.8
Total	—	—	—	—	—	—	—	—	—	—	—	3.38	9.64	13.0	0.35	0.01	—	25.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	3.38	9.64	13.0	0.35	0.01	—	25.8
Total	—	—	—	—	—	—	—	—	—	—	—	3.38	9.64	13.0	0.35	0.01	—	25.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	0.56	1.60	2.16	0.06	< 0.005	—	4.28
Total	—	—	—	—	—	—	—	—	—	—	—	0.56	1.60	2.16	0.06	< 0.005	—	4.28

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.71	7.72	10.4	0.28	0.01	—	20.7
Total	—	—	—	—	—	—	—	—	—	—	—	2.71	7.72	10.4	0.28	0.01	—	20.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	2.71	7.72	10.4	0.28	0.01	—	20.7
Total	—	—	—	—	—	—	—	—	—	—	—	2.71	7.72	10.4	0.28	0.01	—	20.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Automobile	—	—	—	—	—	—	—	—	—	—	—	0.45	1.28	1.73	0.05	< 0.005	—	3.42
Total	—	—	—	—	—	—	—	—	—	—	—	0.45	1.28	1.73	0.05	< 0.005	—	3.42

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Total	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Total	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	6.39	0.00	6.39	0.64	0.00	—	22.4
Total	—	—	—	—	—	—	—	—	—	—	—	6.39	0.00	6.39	0.64	0.00	—	22.4

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Total	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Total	—	—	—	—	—	—	—	—	—	—	—	38.6	0.00	38.6	3.86	0.00	—	135
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	6.39	0.00	6.39	0.64	0.00	—	22.4
Total	—	—	—	—	—	—	—	—	—	—	—	6.39	0.00	6.39	0.64	0.00	—	22.4

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	644	644
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	644	644

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,889	3,889
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	644	644
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	644	644

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	10/4/2023	10/7/2023	5.00	3.00	—
Grading	Grading	10/10/2023	10/11/2023	5.00	2.00	—
Building Construction	Building Construction	10/21/2023	3/9/2024	5.00	100	—
Paving	Paving	3/10/2024	3/17/2024	5.00	5.00	—
Architectural Coating	Architectural Coating	3/18/2024	3/25/2024	5.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41

Site Preparation	Tractors/Loaders/Backh	Diesel	Average	1.00	7.00	84.0	0.37
Site Preparation	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	7.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Site Preparation	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Grading	Tractors/Loaders/Backh	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	7.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	10.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.17	HHDT,MHDT

Grading	Hauling	126	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	6.00	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	3.07	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.20	10.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.17	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	10.8	LDA,LDT1,LDT2

Grading	Vendor	—	7.17	HHDT,MHDT
Grading	Hauling	126	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	6.00	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	3.07	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.20	10.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.17	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	28,140	9,380	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	4.50	0.00	—
Grading	2,009	—	1.50	0.00	—
Paving	0.00	0.00	0.00	0.00	2.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Automobile Care Center	2.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	609	0.24	0.34
2024	0.00	609	0.24	0.34

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Automobile Care Center	79.9	79.9	0.00	25,003	401	713	0.00	141,572

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Automobile Care Center	79.9	79.9	0.00	25,003	401	713	0.00	141,572

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	28,140	9,380	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Automobile Care Center	188,246	609	0.2373	0.3390	690,948

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Automobile Care Center	188,246	609	0.2373	0.3390	690,948

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Automobile Care Center	1,764,962	13,811

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Automobile Care Center	1,411,969	11,049

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)

Automobile Care Center	71.7	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Automobile Care Center	71.7	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Automobile Care Center	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Automobile Care Center	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	23.3	annual days of extreme heat
Extreme Precipitation	2.00	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	72.5
AQ-PM	58.0
AQ-DPM	23.0
Drinking Water	98.7
Lead Risk Housing	54.6
Pesticides	96.4
Toxic Releases	43.5
Traffic	11.3
Effect Indicators	—

CleanUp Sites	0.00
Groundwater	31.5
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	58.7
Solid Waste	52.9
Sensitive Population	—
Asthma	38.7
Cardio-vascular	82.7
Low Birth Weights	24.8
Socioeconomic Factor Indicators	—
Education	52.9
Housing	79.9
Linguistic	30.0
Poverty	46.8
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	34.76196587
Employed	42.16604645
Median HI	37.22571539
Education	—
Bachelor's or higher	28.11497498
High school enrollment	21.68612858
Preschool enrollment	7.391248556

Transportation	—
Auto Access	35.49339151
Active commuting	27.61452586
Social	—
2-parent households	22.0967535
Voting	58.71936353
Neighborhood	—
Alcohol availability	66.80354164
Park access	27.10124471
Retail density	15.73206724
Supermarket access	44.33465931
Tree canopy	67.7659438
Housing	—
Homeownership	58.4370589
Housing habitability	58.36006673
Low-inc homeowner severe housing cost burden	36.80225844
Low-inc renter severe housing cost burden	31.29731811
Uncrowded housing	69.47260362
Health Outcomes	—
Insured adults	57.69280123
Arthritis	0.0
Asthma ER Admissions	51.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0

Diagnosed Diabetes	0.0
Life Expectancy at Birth	43.3
Cognitively Disabled	35.0
Physically Disabled	7.8
Heart Attack ER Admissions	5.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	35.2
Elderly	42.0
English Speaking	61.2
Foreign-born	18.8
Outdoor Workers	21.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	69.1
Traffic Density	11.6
Traffic Access	0.0

Other Indices	—
Hardship	70.1
Other Decision Support	—
2016 Voting	71.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	60.0
Healthy Places Index Score for Project Location (b)	30.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	No demolition.
Land Use	Lot acreage.
Construction: Dust From Material Movement	Anticipated import for grading based on lot size.

Construction: Paving	Estimated paved area.
Operations: Vehicle Data	Proposed activity closed on Sunday.

United Pavement Phase 2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	United Pavement Phase 2
Construction Start Date	4/28/2032
Operational Year	2034
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.10
Precipitation (days)	29.2
Location	37.59201213561283, -120.87353896974335
County	Stanislaus
City	Hughson
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2226
EDFZ	14
Electric Utility	Turlock Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Light Industry	2.00	1000sqft	8.34	2,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Water	W-7	Adopt a Water Conservation Strategy
Waste	S-1/S-2	Implement Waste Reduction Plan

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.27	2.75	22.3	26.3	0.05	0.93	19.8	20.7	0.85	10.1	11.0	—	5,538	5,538	0.22	0.42	4.15	5,673
Mit.	3.27	2.75	22.3	26.3	0.05	0.93	7.80	8.73	0.85	3.97	4.82	—	5,538	5,538	0.22	0.42	4.15	5,673
% Reduced	—	—	—	—	—	—	61%	58%	—	61%	56%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.07	0.90	7.88	12.8	0.02	0.22	0.01	0.23	0.21	< 0.005	0.21	—	2,408	2,408	0.10	0.02	< 0.005	2,417
Mit.	1.07	0.90	7.88	12.8	0.02	0.22	0.01	0.23	0.21	< 0.005	0.21	—	2,408	2,408	0.10	0.02	< 0.005	2,417
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.48	0.40	3.57	5.19	0.01	0.11	0.98	1.10	0.10	0.48	0.58	—	1,111	1,111	0.04	0.03	0.10	1,121
Mit.	0.48	0.40	3.57	5.19	0.01	0.11	0.42	0.53	0.10	0.20	0.30	—	1,111	1,111	0.04	0.03	0.10	1,121
% Reduced	—	—	—	—	—	—	58%	52%	—	59%	49%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	0.07	0.65	0.95	< 0.005	0.02	0.18	0.20	0.02	0.09	0.11	—	184	184	0.01	< 0.005	0.02	186
Mit.	0.09	0.07	0.65	0.95	< 0.005	0.02	0.08	0.10	0.02	0.04	0.05	—	184	184	0.01	< 0.005	0.02	186
% Reduced	—	—	—	—	—	—	58%	52%	—	59%	49%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	3.27	2.75	22.3	26.3	0.05	0.93	19.8	20.7	0.85	10.1	11.0	—	5,538	5,538	0.22	0.42	4.15	5,673
2033	0.74	0.63	5.94	10.3	0.01	0.18	0.11	0.30	0.17	0.03	0.20	—	1,617	1,617	0.06	0.01	0.20	1,623
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	1.07	0.90	7.88	12.8	0.02	0.22	0.01	0.23	0.21	< 0.005	0.21	—	2,408	2,408	0.10	0.02	< 0.005	2,417
2033	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	0.48	0.40	3.57	5.19	0.01	0.11	0.98	1.10	0.10	0.48	0.58	—	1,111	1,111	0.04	0.03	0.10	1,121
2033	0.04	0.03	0.33	0.56	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	88.1	88.1	< 0.005	< 0.005	< 0.005	88.4

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	0.09	0.07	0.65	0.95	< 0.005	0.02	0.18	0.20	0.02	0.09	0.11	—	184	184	0.01	< 0.005	0.02	186
2033	0.01	0.01	0.06	0.10	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.6	14.6	< 0.005	< 0.005	< 0.005	14.6

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	3.27	2.75	22.3	26.3	0.05	0.93	7.80	8.73	0.85	3.97	4.82	—	5,538	5,538	0.22	0.42	4.15	5,673
2033	0.74	0.63	5.94	10.3	0.01	0.18	0.11	0.30	0.17	0.03	0.20	—	1,617	1,617	0.06	0.01	0.20	1,623
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	1.07	0.90	7.88	12.8	0.02	0.22	0.01	0.23	0.21	< 0.005	0.21	—	2,408	2,408	0.10	0.02	< 0.005	2,417
2033	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	0.48	0.40	3.57	5.19	0.01	0.11	0.42	0.53	0.10	0.20	0.30	—	1,111	1,111	0.04	0.03	0.10	1,121
2033	0.04	0.03	0.33	0.56	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	88.1	88.1	< 0.005	< 0.005	< 0.005	88.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	0.09	0.07	0.65	0.95	< 0.005	0.02	0.08	0.10	0.02	0.04	0.05	—	184	184	0.01	< 0.005	0.02	186
2033	0.01	0.01	0.06	0.10	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.6	14.6	< 0.005	< 0.005	< 0.005	14.6

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.34	0.27	7.33	2.95	0.05	0.10	1.62	1.71	0.09	0.43	0.53	2.22	5,050	5,052	0.33	0.80	6.72	5,305
Mit.	0.34	0.27	7.33	2.95	0.05	0.10	1.62	1.71	0.09	0.43	0.53	1.04	5,049	5,050	0.21	0.80	6.72	5,300
% Reduced	—	—	—	—	—	—	—	—	—	—	—	53%	< 0.5%	< 0.5%	36%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.23	7.83	2.90	0.05	0.10	1.62	1.71	0.09	0.43	0.53	2.22	5,053	5,055	0.33	0.80	0.68	5,302
Mit.	0.30	0.23	7.83	2.90	0.05	0.10	1.62	1.71	0.09	0.43	0.53	1.04	5,053	5,054	0.21	0.80	0.68	5,298
% Reduced	—	—	—	—	—	—	—	—	—	—	—	53%	< 0.5%	< 0.5%	36%	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.28	0.22	6.55	2.50	0.04	0.08	1.38	1.47	0.08	0.37	0.45	2.22	4,334	4,336	0.31	0.69	2.82	4,551
Mit.	0.28	0.22	6.55	2.50	0.04	0.08	1.38	1.47	0.08	0.37	0.45	1.04	4,334	4,335	0.20	0.69	2.82	4,547
% Reduced	—	—	—	—	—	—	—	—	—	—	—	53%	< 0.5%	< 0.5%	38%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.04	1.20	0.46	0.01	0.02	0.25	0.27	0.01	0.07	0.08	0.37	718	718	0.05	0.11	0.47	754
Mit.	0.05	0.04	1.20	0.46	0.01	0.02	0.25	0.27	0.01	0.07	0.08	0.17	717	718	0.03	0.11	0.47	753
% Reduced	—	—	—	—	—	—	—	—	—	—	—	53%	< 0.5%	< 0.5%	38%	< 0.5%	—	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.32	0.21	7.31	2.84	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,010	5,010	0.10	0.79	6.20	5,253
Area	0.02	0.06	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.0	38.0	0.01	0.01	—	40.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.89	1.08	1.97	0.09	< 0.005	—	5.08
Waste	—	—	—	—	—	—	—	—	—	—	—	1.34	0.00	1.34	0.13	0.00	—	4.68
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	0.34	0.27	7.33	2.95	0.05	0.10	1.62	1.71	0.09	0.43	0.53	2.22	5,050	5,052	0.33	0.80	6.72	5,305
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.30	0.19	7.81	2.88	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,014	5,014	0.10	0.79	0.16	5,252
Area	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.0	38.0	0.01	0.01	—	40.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.89	1.08	1.97	0.09	< 0.005	—	5.08
Waste	—	—	—	—	—	—	—	—	—	—	—	1.34	0.00	1.34	0.13	0.00	—	4.68
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	0.30	0.23	7.83	2.90	0.05	0.10	1.62	1.71	0.09	0.43	0.53	2.22	5,053	5,055	0.33	0.80	0.68	5,302
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.27	0.17	6.53	2.44	0.04	0.08	1.38	1.47	0.08	0.37	0.45	—	4,295	4,295	0.08	0.68	2.30	4,500
Area	0.01	0.05	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.18	0.18	< 0.005	< 0.005	—	0.18
Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.0	38.0	0.01	0.01	—	40.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.89	1.08	1.97	0.09	< 0.005	—	5.08
Waste	—	—	—	—	—	—	—	—	—	—	—	1.34	0.00	1.34	0.13	0.00	—	4.68
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	0.28	0.22	6.55	2.50	0.04	0.08	1.38	1.47	0.08	0.37	0.45	2.22	4,334	4,336	0.31	0.69	2.82	4,551

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	0.03	1.19	0.45	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	711	711	0.01	0.11	0.38	745
Area	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.30	6.30	< 0.005	< 0.005	—	6.73
Water	—	—	—	—	—	—	—	—	—	—	—	0.15	0.18	0.33	0.02	< 0.005	—	0.84
Waste	—	—	—	—	—	—	—	—	—	—	—	0.22	0.00	0.22	0.02	0.00	—	0.77
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	0.05	0.04	1.20	0.46	0.01	0.02	0.25	0.27	0.01	0.07	0.08	0.37	718	718	0.05	0.11	0.47	754

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.32	0.21	7.31	2.84	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,010	5,010	0.10	0.79	6.20	5,253
Area	0.02	0.06	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.0	38.0	0.01	0.01	—	40.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.71	0.87	1.58	0.07	< 0.005	—	4.06
Waste	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.17
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	0.34	0.27	7.33	2.95	0.05	0.10	1.62	1.71	0.09	0.43	0.53	1.04	5,049	5,050	0.21	0.80	6.72	5,300
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.30	0.19	7.81	2.88	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,014	5,014	0.10	0.79	0.16	5,252
Area	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.0	38.0	0.01	0.01	—	40.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.71	0.87	1.58	0.07	< 0.005	—	4.06

Waste	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.17
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	0.30	0.23	7.83	2.90	0.05	0.10	1.62	1.71	0.09	0.43	0.53	1.04	5,053	5,054	0.21	0.80	0.68	5,298
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.27	0.17	6.53	2.44	0.04	0.08	1.38	1.47	0.08	0.37	0.45	—	4,295	4,295	0.08	0.68	2.30	4,500
Area	0.01	0.05	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.18	0.18	< 0.005	< 0.005	—	0.18
Energy	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.0	38.0	0.01	0.01	—	40.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.71	0.87	1.58	0.07	< 0.005	—	4.06
Waste	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.17
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	0.28	0.22	6.55	2.50	0.04	0.08	1.38	1.47	0.08	0.37	0.45	1.04	4,334	4,335	0.20	0.69	2.82	4,547
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	0.03	1.19	0.45	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	711	711	0.01	0.11	0.38	745
Area	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.30	6.30	< 0.005	< 0.005	—	6.73
Water	—	—	—	—	—	—	—	—	—	—	—	0.12	0.14	0.26	0.01	< 0.005	—	0.67
Waste	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.19
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	0.05	0.04	1.20	0.46	0.01	0.02	0.25	0.27	0.01	0.07	0.08	0.17	717	718	0.03	0.11	0.47	753

3. Construction Emissions Details

3.1. Site Preparation (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.22	2.70	22.3	25.7	0.05	0.93	—	0.93	0.85	—	0.85	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movemen	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.61	0.71	< 0.005	0.03	—	0.03	0.02	—	0.02	—	145	145	0.01	< 0.005	—	146
Dust From Material Movemen	—	—	—	—	—	—	0.54	0.54	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movemen	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.57	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	126	126	< 0.005	< 0.005	0.27	126
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.17	3.17	< 0.005	< 0.005	< 0.005	3.19
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.53
Vendor	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	0.00
Hauling	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	0.00

3.2. Site Preparation (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.22	2.70	22.3	25.7	0.05	0.93	—	0.93	0.85	—	0.85	—	5,296	5,296	0.21	0.04	—	5,314

Dust From Material Movemen	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.61	0.71	< 0.005	0.03	—	0.03	0.02	—	0.02	—	145	145	0.01	< 0.005	—	146
Dust From Material Movemen	—	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movemen	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.57	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	126	126	< 0.005	< 0.005	0.27	126
Vendor	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	0.00
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.17	3.17	< 0.005	< 0.005	< 0.005	3.19
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.53
Vendor	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	0.00
Hauling	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	0.00

3.3. Grading (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.64	1.38	11.4	16.4	0.03	0.45	—	0.45	0.41	—	0.41	—	2,959	2,959	0.12	0.02	—	2,969
Dust From Material Movemen	—	—	—	—	—	—	7.11	7.11	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.62	0.90	< 0.005	0.02	—	0.02	0.02	—	0.02	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	—	0.39	0.39	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.49	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	108	108	< 0.005	< 0.005	0.23	108
Vendor	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	0.00
Hauling	0.10	0.05	2.97	0.76	0.02	0.06	0.78	0.84	0.04	0.21	0.25	—	2,472	2,472	0.05	0.40	3.92	2,596
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.44	5.44	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00

Hauling	0.01	< 0.005	0.17	0.04	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.09	142
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.90	0.90	< 0.005	< 0.005	< 0.005	0.90
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.4	22.4	< 0.005	< 0.005	0.02	23.5

3.4. Grading (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.64	1.38	11.4	16.4	0.03	0.45	—	0.45	0.41	—	0.41	—	2,959	2,959	0.12	0.02	—	2,969
Dust From Material Movemen	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.62	0.90	< 0.005	0.02	—	0.02	0.02	—	0.02	—	162	162	0.01	< 0.005	—	163
Dust From Material Movemen	—	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.49	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	108	108	< 0.005	< 0.005	0.23	108
Vendor	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	0.00
Hauling	0.10	0.05	2.97	0.76	0.02	0.06	0.78	0.84	0.04	0.21	0.25	—	2,472	2,472	0.05	0.40	3.92	2,596
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.44	5.44	< 0.005	< 0.005	0.01	5.46
Vendor	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	0.00
Hauling	0.01	< 0.005	0.17	0.04	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.09	142
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.90	0.90	< 0.005	< 0.005	< 0.005	0.90
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.4	22.4	< 0.005	< 0.005	0.02	23.5

3.5. Building Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.25	2.16	3.50	0.01	0.06	—	0.06	0.06	—	0.06	—	657	657	0.03	0.01	—	659
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.64	< 0.005	0.01	—	0.01	0.01	—	0.01	—	109	109	< 0.005	< 0.005	—	109
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.03	6.03	< 0.005	< 0.005	0.01	6.06
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.17	6.17	< 0.005	< 0.005	0.01	6.45
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	< 0.005	5.47
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.17	6.17	< 0.005	< 0.005	< 0.005	6.45
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.69	1.69	< 0.005	< 0.005	< 0.005	1.77
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.25
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.29
Hauling	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	0.00

3.6. Building Construction (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.25	2.16	3.50	0.01	0.06	—	0.06	0.06	—	0.06	—	657	657	0.03	0.01	—	659
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.64	< 0.005	0.01	—	0.01	0.01	—	0.01	—	109	109	< 0.005	< 0.005	—	109
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.03	6.03	< 0.005	< 0.005	0.01	6.06
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.17	6.17	< 0.005	< 0.005	0.01	6.45
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	< 0.005	5.47

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.17	6.17	< 0.005	< 0.005	< 0.005	6.45
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.69	1.69	< 0.005	< 0.005	< 0.005	1.77
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.25
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.29
Hauling	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	0.00

3.7. Paving (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.91	9.84	0.01	0.18	—	0.18	0.17	—	0.17	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.03	0.32	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.46	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.20	107
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.36	5.36	< 0.005	< 0.005	< 0.005	5.38
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.89	0.89	< 0.005	< 0.005	< 0.005	0.89
Vendor	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	0.00
Hauling	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	0.00

3.8. Paving (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.91	9.84	0.01	0.18	—	0.18	0.17	—	0.17	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.02	0.46	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.20	107
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.36	5.36	< 0.005	< 0.005	< 0.005	5.38
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.89	0.89	< 0.005	< 0.005	< 0.005	0.89
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.32	0.21	7.31	2.84	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,010	5,010	0.10	0.79	6.20	5,253

Total	0.32	0.21	7.31	2.84	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,010	5,010	0.10	0.79	6.20	5,253
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.30	0.19	7.81	2.88	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,014	5,014	0.10	0.79	0.16	5,252
Total	0.30	0.19	7.81	2.88	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,014	5,014	0.10	0.79	0.16	5,252
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.05	0.03	1.19	0.45	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	711	711	0.01	0.11	0.38	745
Total	0.05	0.03	1.19	0.45	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	711	711	0.01	0.11	0.38	745

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.32	0.21	7.31	2.84	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,010	5,010	0.10	0.79	6.20	5,253
Total	0.32	0.21	7.31	2.84	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,010	5,010	0.10	0.79	6.20	5,253
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.30	0.19	7.81	2.88	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,014	5,014	0.10	0.79	0.16	5,252
Total	0.30	0.19	7.81	2.88	0.05	0.10	1.62	1.71	0.09	0.43	0.53	—	5,014	5,014	0.10	0.79	0.16	5,252
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.05	0.03	1.19	0.45	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	711	711	0.01	0.11	0.38	745
Total	0.05	0.03	1.19	0.45	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	711	711	0.01	0.11	0.38	745

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39	< 0.005	< 0.005	—	2.81
Total	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39	< 0.005	< 0.005	—	2.81

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	14.4	14.4	0.01	0.01	—	17.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39	< 0.005	< 0.005	—	2.81
Total	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39	< 0.005	< 0.005	—	2.81

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7

Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7
Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.91	3.91	< 0.005	< 0.005	—	3.92
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.91	3.91	< 0.005	< 0.005	—	3.92

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7
Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7
Total	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.6	23.6	< 0.005	< 0.005	—	23.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.91	3.91	< 0.005	< 0.005	—	3.92
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.91	3.91	< 0.005	< 0.005	—	3.92

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.01	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Total	0.02	0.06	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Total	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.01	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Total	0.02	0.06	< 0.005	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Total	< 0.005	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.89	1.08	1.97	0.09	< 0.005	—	5.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.89	1.08	1.97	0.09	< 0.005	—	5.08

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.89	1.08	1.97	0.09	< 0.005	—	5.08
Total	—	—	—	—	—	—	—	—	—	—	—	0.89	1.08	1.97	0.09	< 0.005	—	5.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.15	0.18	0.33	0.02	< 0.005	—	0.84
Total	—	—	—	—	—	—	—	—	—	—	—	0.15	0.18	0.33	0.02	< 0.005	—	0.84

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.87	1.58	0.07	< 0.005	—	4.06
Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.87	1.58	0.07	< 0.005	—	4.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.87	1.58	0.07	< 0.005	—	4.06
Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.87	1.58	0.07	< 0.005	—	4.06
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.12	0.14	0.26	0.01	< 0.005	—	0.67
Total	—	—	—	—	—	—	—	—	—	—	—	0.12	0.14	0.26	0.01	< 0.005	—	0.67

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1.34	0.00	1.34	0.13	0.00	—	4.68
Total	—	—	—	—	—	—	—	—	—	—	—	1.34	0.00	1.34	0.13	0.00	—	4.68
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1.34	0.00	1.34	0.13	0.00	—	4.68
Total	—	—	—	—	—	—	—	—	—	—	—	1.34	0.00	1.34	0.13	0.00	—	4.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.22	0.00	0.22	0.02	0.00	—	0.77
Total	—	—	—	—	—	—	—	—	—	—	—	0.22	0.00	0.22	0.02	0.00	—	0.77

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.17
Total	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.17
Total	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.19
Total	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.19

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	5/27/2032	6/10/2032	5.00	10.0	—
Grading	Grading	6/11/2032	7/9/2032	5.00	20.0	—
Building Construction	Building Construction	7/10/2032	11/26/2032	5.00	100	—
Paving	Paving	5/29/2033	6/26/2033	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	10.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.17	HHDT,MHDT
Grading	Hauling	42.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.84	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	0.33	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	10.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.17	HHDT,MHDT
Grading	Hauling	42.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.84	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	0.33	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	15.0	0.00	—
Grading	6,728	—	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	8.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	8.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2032	0.00	609	0.24	0.34
2033	0.00	609	0.24	0.34

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	200	200	0.00	62,571	1,783	1,783	0.00	557,866

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	200	200	0.00	62,571	1,783	1,783	0.00	557,866

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	3,000	1,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	20,069	262	0.1022	0.1460	73,662

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	20,069	262	0.1022	0.1460	73,662

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	462,500	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	370,000	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	2.48	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	0.62	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	23.3	annual days of extreme heat
Extreme Precipitation	2.00	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	72.5
AQ-PM	58.0
AQ-DPM	23.0
Drinking Water	98.7
Lead Risk Housing	54.6
Pesticides	96.4
Toxic Releases	43.5
Traffic	11.3
Effect Indicators	—

CleanUp Sites	0.00
Groundwater	31.5
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	58.7
Solid Waste	52.9
Sensitive Population	—
Asthma	38.7
Cardio-vascular	82.7
Low Birth Weights	24.8
Socioeconomic Factor Indicators	—
Education	52.9
Housing	79.9
Linguistic	30.0
Poverty	46.8
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	34.76196587
Employed	42.16604645
Median HI	37.22571539
Education	—
Bachelor's or higher	28.11497498
High school enrollment	21.68612858
Preschool enrollment	7.391248556

Transportation	—
Auto Access	35.49339151
Active commuting	27.61452586
Social	—
2-parent households	22.0967535
Voting	58.71936353
Neighborhood	—
Alcohol availability	66.80354164
Park access	27.10124471
Retail density	15.73206724
Supermarket access	44.33465931
Tree canopy	67.7659438
Housing	—
Homeownership	58.4370589
Housing habitability	58.36006673
Low-inc homeowner severe housing cost burden	36.80225844
Low-inc renter severe housing cost burden	31.29731811
Uncrowded housing	69.47260362
Health Outcomes	—
Insured adults	57.69280123
Arthritis	0.0
Asthma ER Admissions	51.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0

Diagnosed Diabetes	0.0
Life Expectancy at Birth	43.3
Cognitively Disabled	35.0
Physically Disabled	7.8
Heart Attack ER Admissions	5.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	35.2
Elderly	42.0
English Speaking	61.2
Foreign-born	18.8
Outdoor Workers	21.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	69.1
Traffic Density	11.6
Traffic Access	0.0

Other Indices	—
Hardship	70.1
Other Decision Support	—
2016 Voting	71.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	60.0
Healthy Places Index Score for Project Location (b)	30.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Actual site acreage.
Construction: Construction Phases	No demolition.
Construction: Paving	No asphalt to be used.

Operations: Vehicle Data	No Sunday trips.
Operations: Fleet Mix	Mostly dump trucks and haulers.

APPENDIX B
BIOLOGICAL RESOURCES REPORT

MOORE BIOLOGICAL CONSULTANTS

August 11, 2023

Mr. Charlie Simpson
BaseCamp Environmental
802 West Lodi Avenue
Lodi, CA 95240

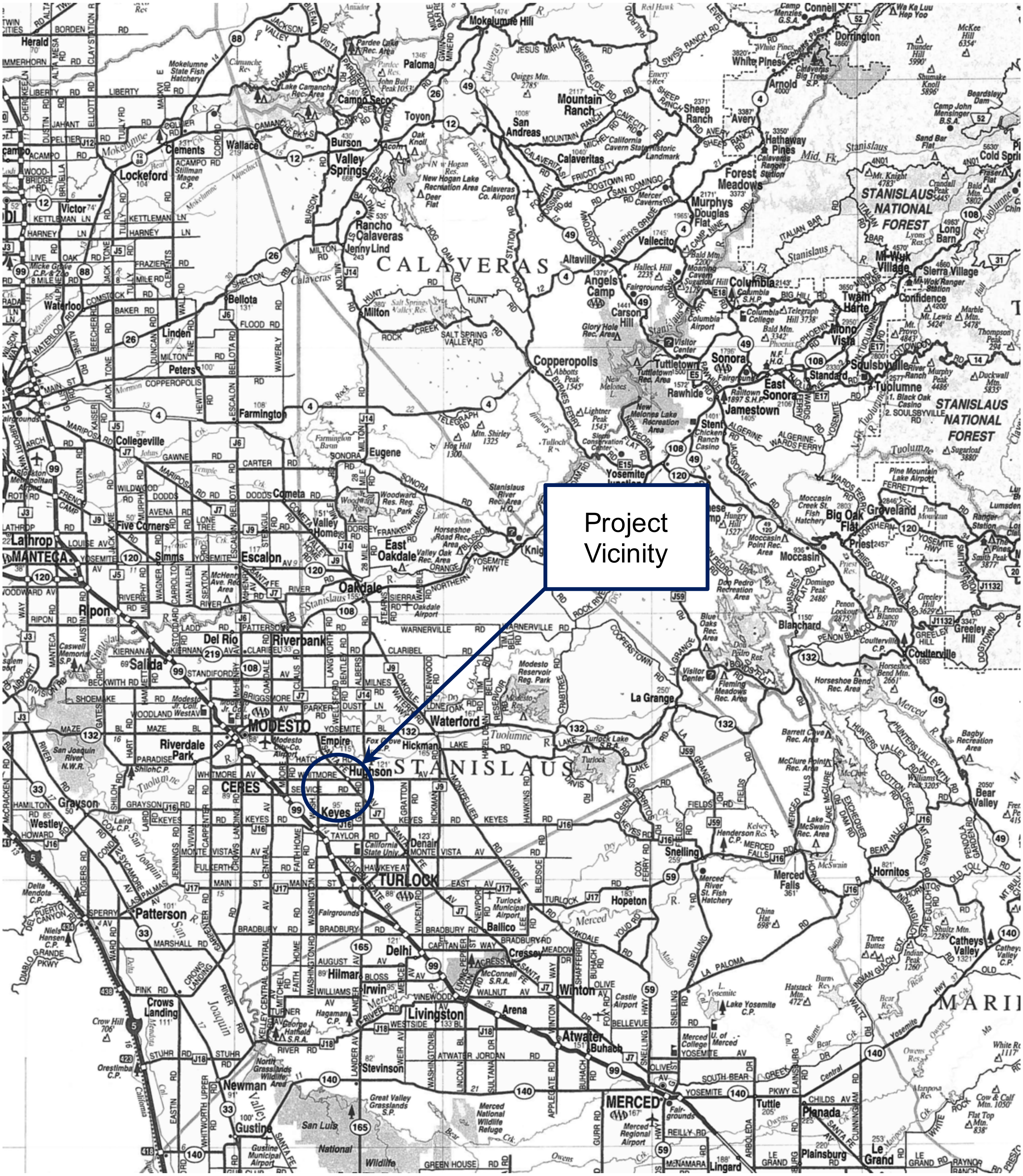
SUBJECT: 14.5+/- ACRE “UNITED PAVEMENT” PROJECT, HUGHSON, CALIFORNIA: BIOLOGICAL ASSESSMENT

Dear Charlie:

Thank you for asking Moore Biological Consultants to prepare a biological assessment for this 14.5+/- acre site in Hughson, Stanislaus County, California (Figures 1 and 2). The purposes of this assessment are to describe existing biological resources in the project site, identify potentially significant impacts to biological resources from the project, and provide recommendations for how to reduce those impacts to a less-than-significant level. The work involved reviewing databases, aerial photographs, and documents, and conducting field surveys to document vegetation communities, potentially jurisdictional Waters of the U.S. and/or wetlands, and potentially suitable habitat for or presence of special-status species. This report details the methodology and results of our investigation.

Project Overview

This 14.5+/- acre parcel (i.e., the “project site”) is envisioned for development of United Pavement’s new maintenance facility, including a concrete batch plant (see Site Plan in Attachment A). Access in to the site will be from Tully Road, which runs along the east edge of the site. Construction will occur in two phases. Phase 1 development will involve development of the maintenance facility

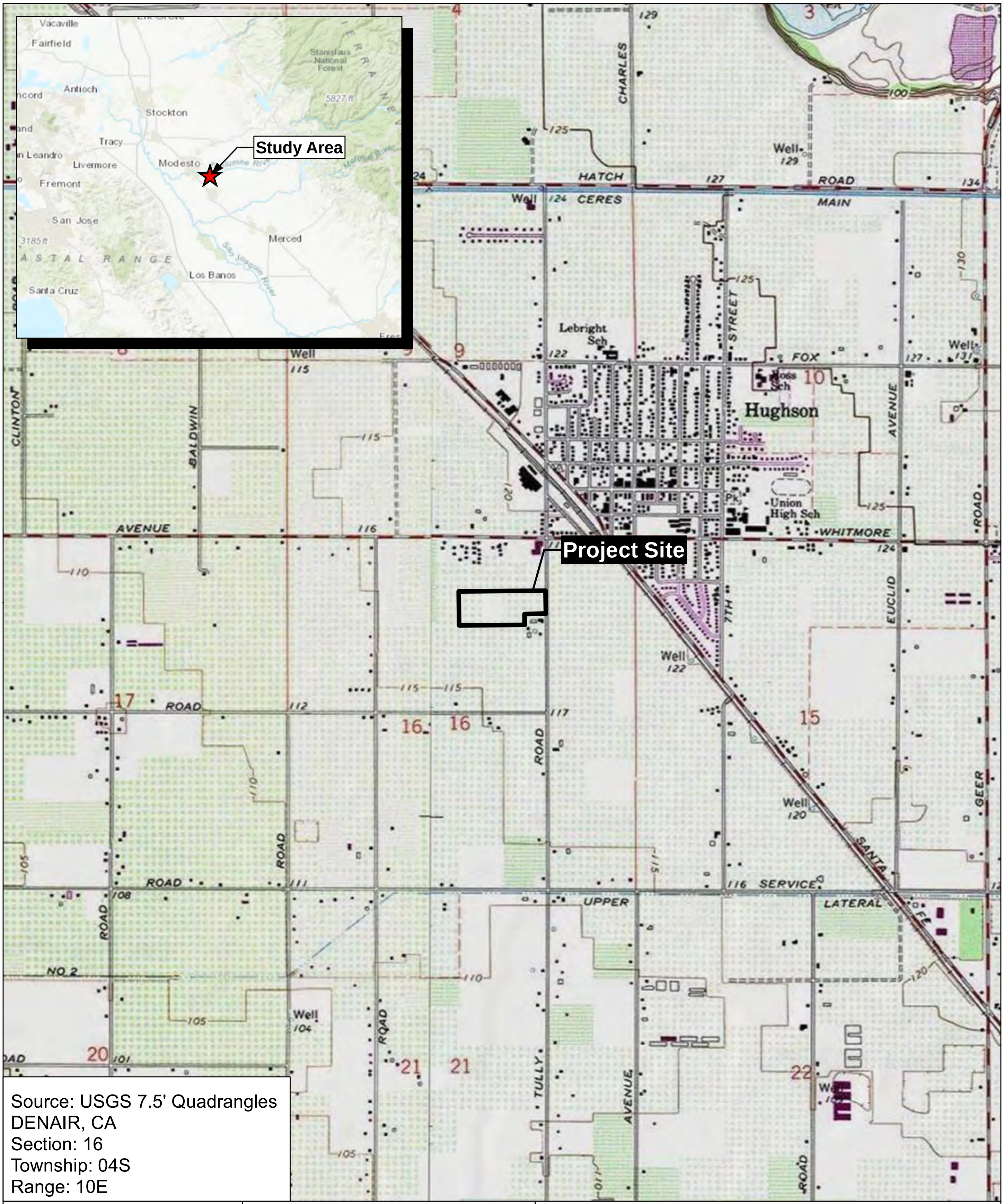


Source: California State Automobile Association

Moore Biological Consultants

FIGURE 1

PROJECT VICINITY



Source: USGS 7.5' Quadrangles
DENAIR, CA
Section: 16
Township: 04S
Range: 10E

Figure 2

Moore Biological Consultants

0 1,000 2,000

N
W E
S

Map Date: 02/28/2023

USGS

United Pavement

Stanislaus County, CA

C:\FEC_INC\Projects\Moore Biological\United_Pavement\MXD\united_pavement_usgs_figure_2.mxd in the east part of the site. Phase 2 development will include construction of graveled yards and the batch plant in the central part of the site as well as construction of a 1.8+/- acre detention basin in the west part of the site.

Stormwater will be detained and treated in the basin prior to discharge into the City's storm drain system. The proposed project will connect to existing City infrastructure to provide sewer and water to the site. Electrical service will be provided by Turlock Irrigation District.

Methods

California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2023) was searched prior to the initial field survey; an updated search was conducted in August 2023. The CNDDB search included the USGS 7.5-minute Riverbank, Ceres, Denair, and Waterford topographic quadrangles, which encompass approximately 240 square miles surrounding the site. The United States Fish and Wildlife Service (USFWS) IPaC Trust Report of Federally Threatened and Endangered species that may occur in or be affected by projects in the project's geographical area was also reviewed (Attachment B). This information was used to identify wildlife and plant species that have been previously documented in the project vicinity or have the potential to occur based on suitable habitat and geographical distribution. The USFWS on-line-maps of designated critical habitat were also downloaded.

Field surveys were conducted on March 2 and July 7, 2023. The surveys consisted of walking throughout the site making observations of habitat conditions and noting surrounding land uses, general habitat types, and plant and wildlife species. The surveys included an assessment of the site for potentially jurisdictional Waters of the U.S. (a term that includes wetlands) as defined by the ACOE (1987; 2008), special-status species, and suitable habitat for special-status species (e.g., vernal pools, blue elderberry shrubs). Additionally, trees in and near the site were assessed for the potential use by nesting raptors, especially Swainson's hawk (*Buteo swainsoni*). The site was also searched for burrowing owls (*Athene cunicularia*) or ground squirrel burrows that could be utilized by burrowing owls.

Results

GENERAL SETTING: The project site is in southwest Hughson, in Stanislaus County, California (Figure 1). The site is in Section 16, in Township 4 South, Range 10 East of the USGS 7.5-minute Denair topographic quadrangle (Figure 2). The site has been leveled and is at an elevation of approximately 115 feet above mean sea level.

The site consisted of a mature almond orchard during the March 2023 survey (Figure 3 and photographs in Attachment C). The floor of the orchard was highly maintained, consisting almost entirely of dirt with sparse amounts of ruderal grassland vegetation. By the July 7, 2023 survey, the orchard trees had been removed and there are now bare dirt fields throughout the site (see photographs in Attachment C).

Land uses in this portion of Stanislaus County are primarily commercial and agricultural. Tully Road borders the east edge of the site and there are industrial parcels on the east side of Tully Road (Figure 3). There is a cherry orchard just west of the site. Land to the south of the site includes a mature almond orchard, a small block of a younger almond orchard, and a home site. Land to the south of the site was also an almond orchard, and is now also a dirt field.

VEGETATION: Habitats in the site are highly disturbed from intensive farming for decades. The floor of the orchard was sandy and almost entirely bare dirt. At that time, the ruderal grassland vegetation in the site was constrained to the edges of the orchard, primarily long fence lines and along Tully Road (see photographs in Attachment C). The sparse vegetation along the edges of the site is still present now that the trees are gone.

Figure 3

Moore Biological
Consultants

0 100 200

N
W E
S

Map Date: 02/28/2023
Aerial Source: Google Earth (04/06/2022)

Aerial

United Pavement

Stanislaus County, CA

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The California annual grassland series (Sawyer and Keeler-Wolf, 1995) best describes the vegetation along the edges of the site. Annual bluegrass (*Poa annua*) and ripgut brome (*Bromus diandrus*) are the dominant grasses in the site. Other grassland species such as Russian thistle (*Salsola tragus*), shepherd’s purse (*Capsella bursa-pastoris*), clasping henbit (*Lamium amplexicaule*), common mallow (*Malva neglecta*), and filaree (*Erodium botrys*) are intermixed with the grasses. Plant species observed in the site are listed in Table 1.

With the orchard now gone, there are no trees in the site. Most of the trees in close proximity to the site are either orchard trees or ornamental species and fruit trees associated with nearby homes and commercial parcels. No blue elderberry (*Sambucus nigra ssp. caerulea*) shrubs were observed in or adjacent to the site.

WILDLIFE: Several bird species common to Stanislaus County were observed during the surveys. American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), California scrub jay (*Aphelocoma californica*), white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Setophaga coronata*), and Brewer’s blackbird (*Euphagus cyanocephalus*) are representative bird species observed in and near the site (Table 2).

There are no trees or shrubs in the site for nesting birds. It is possible that ground-nesting birds such as killdeer (*Charadrius vociferous*) may nest in the site in the future. If dense grasses and weeds become established in the site, this vegetation could also be used by songbirds such as red-winged blackbird (*Agelaius phoeniceus*) for nesting. There are a few large trees near the site that could potentially be used by nesting raptors, but no large raptor stick nests were observed in trees visible from the site. Smaller birds, such as songbirds, likely nest in trees adjacent to the site.

While no mammals were observed in the site during the surveys, a few mammals common to urban and agricultural areas may occur on the project site on occasion. No California ground squirrels (*Otospermophilus beecheyi*) or their

TABLE 1
PLANT SPECIES OBSERVED IN THE SITE

Amsinckia menziesii	rancher’s fireweed
Avena sp.	oat
Bromus diandrus	ripgut brome
Capsella bursa-pastoris	shepherd’s purse
Cerastium glomeratum	mouse ear chickweed
Cynodon dactylon	Bermuda grass
Dittrichia graveolens	stinkwort
Epilobium brachycarpum	fireweed
Erigeron bonariensis	flax-leaved horseweed
Erigeron canadensis	Canada horseweed
Erodium botrys	long beak stork’s bill
Lactuca serriola	prickly lettuce
Lamium amplexicaule	clasping henbit
Malva neglecta	common mallow
Poa annua	annual bluegrass
Salsola tragus	Russian thistle
Sonchus oleraceus	common sowthistle
Trifolium hirtum	rose clover

burrows were observed in or adjacent to the site. Common species such as coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), black-tailed hare (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), and Virginia opossum (*Didelphis virginiana*) are expected to periodically occur in the site. Rodents such as mice (*Mus musculus, Peromyscus maniculatus*) and voles (*Microtus californicus*) likely occur in the site.

TABLE 2

WILDLIFE SPECIES DOCUMENTED IN THE SITE

Birds	
Red-shouldered hawk	*Buteo lineatus*
Rock dove	*Columba livia*
Mourning dove	*Zenaida macroura*
Black phoebe	*Sayornis nigricans*
California scrubjay	*Aphelocoma californica*
Yellow-billed magpie	*Pica nuttalli*
American crow	*Corvus brachyrhynchos*
Northern mockingbird	*Mimus polyglottos*
European starling	*Sturnus vulgaris*
Yellow-rumped warbler	*Zonotrichia atricapilla*
White crowned sparrow	*Zonotrichia leucophrys*
Golden crowned sparrow	*Zonotrichia atricapilla*
Brewer’s blackbird	*Euphagus cyanocephalus*
Oak titmouse	*Baeolophus inornatus*

Due to lack of suitable habitat, few amphibians and reptiles are expected to use habitats in the site other than for moving through the area and none were observed during the field surveys. The site provides suitable habitat for common species such as Pacific chorus frog (*Pseudacris regilla*), western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), and western terrestrial garter snake (*Thamnophis elegans*).

WATERS OF THE U.S. AND WETLANDS: Waters of the U.S., including wetlands, are defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, their tributaries, and adjacent wetlands. Section 404 of the Clean Water Act requires that a permit be secured from the ACOE prior to the discharge of dredged or fill materials into any waters of the U.S. The California Regional Water Quality Control Board (RWQCB) implements Section 401 of the Clean Water Act by issuing 401 Certification in support of 404 permits. Many jurisdictional Waters of the U.S. also fall under the jurisdiction of CDFW.

“Waters of the U.S.”, as defined in 33 CFR 328.4, encompasses Territorial Seas, Tidal Waters, and Non-Tidal Waters; Non-Tidal Waters includes interstate and intrastate rivers and streams, as well as their tributaries. The limit of federal jurisdiction of Non-Tidal Waters of the U.S. extends to the “ordinary high water mark” (OHWM). The OHWM is established by physical characteristics such as a natural water line impressed on the bank, presence of shelves, destruction of terrestrial vegetation, or the presence of litter and debris. Jurisdictional Waters of the U.S. and wetlands include, but are not limited to, most perennial and intermittent creeks and lakes, as well as adjacent wetlands.

Wetlands are vegetated areas that meet specific vegetation, soil, and hydrologic criteria defined by the ACOE *Wetlands Delineation Manual* and Regional Supplement (ACOE, 1987; 2008). Wetlands that are adjacent to and hydrologically very closely associated with jurisdictional lakes, rivers, streams, and tributaries can also fall under ACOE jurisdiction as “adjacent wetlands”. Pursuant to a May 2023 Supreme Court decision, adjacent wetlands must have a continuous surface connection with a jurisdictional Water of the U.S. such that the wetland is indistinguishable from the adjacent water. Geographically and hydrologically isolated wetlands are outside federal jurisdiction, but may be regulated by RWQCB as “Waters of the State”.

No potentially jurisdictional Waters of the U.S. and wetlands were observed in the site. The body of the site has been leveled and farmed for decades. Soils in the site are sandy and appear to be well draining and the site supports upland grassland vegetation. There are no areas in the site that meet the technical and regulatory criteria of jurisdictional Waters of the U.S. or wetlands. Interestingly, there is a Freshwater Pond depicted on the National Wetland Inventory (NWI) map (Attachment D). This pond is not currently present in the site and was likely related to historical agriculture in the site prior to orchard development.

SPECIAL-STATUS SPECIES: Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Act or other regulations. The Federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

Special-status species also include other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitats. The presence of species with legal protection under the Endangered Species Act often represents a constraint to development, particularly when the species are wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a take of these species.

Special-status plants are those which are designated rare, threatened, or endangered and candidate species for listing by the USFWS. Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society (CNPS, 2023). Finally, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on List 3 in the CNPS Inventory.

The likelihood of occurrence of listed, candidate, and other special-status species in the project site is very low. Table 3 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species in the site. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

SPECIAL-STATUS PLANTS: Heartscale (*Atriplex cordulata*), subtle orache (*Atriplex subtilis*), beaked clarkia (*Clarkia rostrata*), Colusa grass (*Neostapfia colusana*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), and Greene's tuctoria (*Tuctoria greenei*) are the only special-status plants identified in the CNDDB (2023) search area (Attachment B). San Joaquin Valley Orcutt grass is the only special-status plant species in the USFWS IPaC Trust Report (Attachment B).

Special-status plants generally occur in relatively undisturbed areas in vegetation communities such as vernal pools, marshes and swamps, seasonal wetlands, riparian scrub, and areas with unusual soils. All of the special-status plants identified in Table 3 occur in habitat types that do not occur in the site. The site has been historically farmed for decades and is not suitable for special-status plants. The site was formerly an orchard that was routinely disked, mowed, and/or sprayed and is now bare dirt with sparse amounts of ruderal grassland species. No special-status plants or potentially suitable habitat for special-status plants were observed in the site. Due to lack of suitable habitat, it is highly unlikely that special-status plants occur in the site.

SPECIAL-STATUS WILDLIFE: Special-status wildlife species recorded in project area in the CNDDB (2023) query include Swainson's hawk, tricolored blackbird (*Agelaius tricolor*), burrowing owl, Townsend's big-eared bat (*Corynorhinus townsendii*), northern California legless lizard (*Anniella pulchra*), Central valley steelhead (*Oncorhynchus mykiss*), hardhead (*Mylopharodon*

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
PLANTS						
Heartscale	*Atriplex cordulata*	None	None	1B	Valley and foothill grassland, chenopod scrub; within areas with alkaline or saline soils.	Unlikely: the site does not provide suitable habitat for heartscale; no areas of alkaline or saline soils were observed. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 4.5 miles southwest of the site.
Subtle orache	*Atriplex subtilis*	None	None	1B	Valley and foothill grassland, in areas with alkaline soils.	Unlikely: the site does not provide suitable habitat for subtle orache; on-site soils are not alkaline. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 4.5 miles southwest of the site.
Beaked clarkia	*Clarkia rostrata*	None	None	1B	Cismontane woodland and valley and foothill grassland.	Unlikely: the site does not provide suitable habitat for beaked clarkia. The nearest occurrence of beaked clarkia in the CNDDB (2023) search area is approximately 8 miles northeast of the site.
Colusa grass	*Neostapfia colusana*	T	E	1B	Large, deep vernal pools.	Unlikely: the site does not provide suitable habitat for Colusa grass; there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of Colusa grass in the CNDDB (2023) search area is approximately 7 miles northeast of the site. The site is not in designated critical habitat for Colusa grass (USFWS 2005a).
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	T	E	1B	Vernal pools.	Unlikely: the site does not provide suitable habitat for San Joaquin Valley Orcutt grass; there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of this species recorded in the CNDDB (2023) search area is approximately 6 miles east of the site.
Greene's tuctoria	*Tuctoria greenei*	E	R	1B	Vernal pools within the Central Valley.	Unlikely: the site does not provide suitable habitat for Greene's tuctoria; there are no vernal pools or seasonal wetlands in the site. The nearest occurrences of Greene's tuctoria recorded in the CNDDB (2023) search area is approximately 6.5 miles northeast of the site.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
WILDLIFE						
BIRDS						
Tricolored blackbird	*Agelaius tricolor*	None	T	N/A	Nests in dense brambles and emergent wetland vegetation associated with open water habitat.	Unlikely: the site does not provide suitable habitat for tricolored blackbird and no suitable nesting habitat was observed in or adjacent to the site. This species may fly over the site on occasion. The nearest occurrence of tricolored blackbird in the CNDDB (2023) search area is approximately 10 miles southwest of the site.
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	Unlikely: this species is not widespread in the project vicinity and the site has not provided suitable habitat for Swainson's hawks for decades. The recently removed orchard did not provide suitable foraging habitat for Swainson's hawk; the orchard trees were also too small to support nesting Swainson's hawks. The bare dirt fields that are currently present provide very low-quality potential foraging habitat for Swainson's hawk. The nearest occurrence of nesting Swainson's hawks in the CNDDB (2023) search area is approximately 3.5 miles northwest of the site.
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Unlikely: only a few ground squirrel burrows were observed in the site, primarily located at the base of a few orchard trees. None of the burrows in the site contained evidence of past or present burrowing owl activity. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 10 miles northwest of the site.
MAMMALS						
Townsend's big-eared bat	*Corynorhinus townsendii*	None	SC	N/A	Desert scrub, mixed conifer forest, and pinyon-juniper or pine forest; primarily roosts in caves, mines and buildings.	Unlikely: the site does not contain suitable roosting habitat for this species; this species may fly over the site on occasion. The nearest occurrence of Townsend's big-eared bat in the CNDDB (2023) search area is approximately 2.5 miles northwest of the site along the Tuolumne River.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status1	State Status1	CNPS List2	Habitat	Likeliness of Occurrence in the Project Site
REPTILES & AMPHIBIANS						
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Breeds in seasonal water bodies such as deep vernal pools or stock ponds. Requires small mammal burrows for summer refugia.	Unlikely: there are no areas within or near the site that could provide breeding habitat for California tiger salamander and the site is not suitable for aestivation. There are no occurrences of this species in the CNDDB (2023) search area. The site is not within an area designated critical habitat for California tiger salamander (USFWS, 2005b).
Northern California legless lizard	*Anniella pulchra*	None	SC	N/A	Sandy or loose loamy soils under sparse vegetation.	Unlikely: the site does not provide suitable habitat for northern California legless lizard. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 7 miles southeast of the site.
FISH						
Green sturgeon (southern DPS)	*Acipenser medirostris pop. 1*	T	None	N/A	Spawns in the Sacramento, Feather and Yuba Rivers. Delta important for rearing juveniles.	None: there is no aquatic habitat in the site. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 10 miles northwest of the project site. The site is not in designated critical habitat for green sturgeon (NMFS, 2009).
Central Valley steelhead	*Oncorhynchus mykiss*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	None: there is no aquatic habitat in the site. The nearest occurrence of Central Valley steelhead in the CNDDB (2023) search is in the Tuolumne River, approximately 2 miles northeast of the site. The Tuolumne River is designated critical habitat for Central Valley steelhead (NOAA, 2005).
Hardhead	*Mylopharodon conocephalus*	None	SC	N/A	Clear, deep pools with sand and gravel bottoms in tributaries to the San Joaquin and Sacramento River.	None: there is no aquatic habitat in or near the site. The nearest occurrence of hardhead in the CNDDB (2023) search area is 2 miles northeast of the site in the Tuolumne River.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
INVERTEBRATES						
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley.	None: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of vernal pool tadpole shrimp in the CNDDB (2023) search area is approximately 8.5 miles northwest of the site. The site is not within designated critical habitat for vernal pool tadpole shrimp (USFWS, 2005a).
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools and seasonally inundated depressions in the Central Valley.	None: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of vernal pool fairy shrimp in the CNDDB (2023) search area is approximately 8.5 miles northwest of the site. The site is not in designated critical habitat for this species (USFWS, 2005a).
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs in the Central Valley and surrounding foothills	None: no blue elderberry shrubs were observed in the site. The nearest occurrence of valley elderberry longhorn beetle in the CNDDB (2023) search area is approximately 2.5 miles northeast of the site along the Tuolumne River.
Crotch bumble bee	*Bombus crotchiii*	None	CE	N/A	Open grassland and scrub habitats throughout California; rarely found in the Central Valley.	Unlikely: the site does not provide suitable habitat for Crotch bumble bee. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 7 miles southeast of the site.
Monarch butterfly	*Danaus plexippus*	C	None	None	Variety of habitats in California, primarily associated with coastal environments; larvae dependent on milkweed.	Unlikely: there is no suitable habitat in the site to support monarch butterfly. Monarch butterfly may fly over the site during its migration. There are no occurrences of this species in the CNDDB (2023) search area.

Notes:

[1] T= Threatened; E = Endangered; CE= Candidate for Endangered; C = Candidate for Listing; R = Rare; SC = Species of Special Concern per California Department of Fish and Wildlife.

2 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere.

conocephalus), green sturgeon (*Acipenser medirostris pop.1*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*), and Crotch bumble bee (*Bombus crotchii*).

California tiger salamander (*Ambystoma californiense*) and monarch butterfly (*Danaus plexippus*) are not recorded in the CNDDB (2023) within the search area, but are on the USFWS IPaC Trust Report (Attachment B).

While the project site may have provided habitat for several of the special-status wildlife species listed in Table 3 at some time in the past, intensive farming and development have substantially modified natural habitats in the greater project vicinity, including those in the site. None of the species identified in the CNDDB have much potential to occur in the site on more than a transitory or very occasional basis.

Special-status birds including Swainson's hawk, tricolored blackbird, and burrowing owl may fly over the site on occasion, but are not expected to nest in the site due to a lack of suitable habitat. For example, there are no trees in the site for nesting Swainson's hawks and there is no suitable nesting habitat in the site to support tricolored blackbird. No ground squirrel burrows were observed in or adjacent to the site; burrowing owls are also rare in this part of the County.

Swainson's hawks are not widespread in the project vicinity and the site has not provided suitable habitat for Swainson's hawks for decades. The recently removed orchard did not provide suitable foraging habitat for Swainson's hawk; the orchard trees were also too small to support nesting Swainson's hawks. The bare dirt fields that are currently present provide very low-quality potential foraging habitat for Swainson's hawk.

Townsend’s big-eared bat my fly over the site on occasion and could potentially roost in the large trees near the site, however, this species is more known to roost in caves, mines, and old buildings.

The bare dirt and sparse grassland in the site do not provide suitable habitat for northern California legless lizard. The site does not provide suitable aquatic or upland habitat for California tiger salamander.

There are no creeks or rivers in the site to support central valley steelhead or other species of fish.

There are no vernal pools or seasonal wetlands in the site for vernal pool branchiopods (i.e., fairy and tadpole shrimp). No blue elderberry shrubs were observed in or adjacent to the site, precluding the presence of valley elderberry longhorn beetle. The site lacks the floristic requirements to support Crotch bumble bee, which also rarely occurs in the Central Valley. Monarch butterfly may fly over the site during its migration, but is not be expected to occur in the site due to a lack of suitable habitat.

CRITICAL HABITAT: The site is not in designated critical habitat for federally listed vernal pool shrimp or plants (USFWS, 2005a), California tiger salamander (USFWS, 2005b), valley elderberry longhorn beetle (USFWS, 1980), Central Valley steelhead (NOAA, 2005), or other federally listed species (Attachment E). The Tuolumne River, which is approximately 2 miles north of the site is designated as critical habitat for Central Valley steelhead.

WILDLIFE MOVEMENT CORRIDORS: Well-developed riparian corridors are often utilized for movement by wildlife species such as deer, coyote, red fox (*Vulpes vulpes*), and bobcat (*Felis rufus*), as well as a variety of amphibians, reptiles, and fish. There are no wildlife movement corridors in the site.

HABITAT CONSERVATION PLANS: The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Conclusions and Recommendations

- The site was an almond orchard that was subject to routine mowing, disking, and/or spraying. The site is now bare dirt. On-site habitats are biologically unremarkable.

- No potentially jurisdictional wetlands or Waters of the U.S. were observed in the site.

- Due to a lack of suitable habitat, it is highly unlikely that special-status plants occur in the site.

- Due to a lack of suitable habitat, no special-status wildlife species are expected to occur in the project site on more than a transitory or very occasional basis.

- Swainson's hawks are not widespread in the project vicinity and the site has not provided suitable habitat for Swainson's hawks for decades. The bare dirt fields that are currently present provide very low-quality potential foraging habitat for Swainson's hawk. The conversion of 14.5+/- acres of potential very low-quality potential Swainson's hawk foraging habitat to developed uses is viewed as less than significant.

- A pre-construction survey for nesting Swainson's hawks within 0.25 miles of the project site is conservatively recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction. The determination should utilize criteria set forth by CDFW (CDFG, 1994).

- The site is not within designated critical habitat for any federally listed species.

- The project will not result in adverse impacts to wildlife movement.

- The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

- Vegetation in or near the site could be used by birds protected by the Migratory Bird Treaty Act of 1918 and Fish and Game Code of California. If construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for all species of nesting birds is recommended. If active nests are found, work in the vicinity of the nests should be delayed until the young fledge.

We hope this information is useful. Please call me at (209) 745-1159 with any questions.

Sincerely,

Diane S. Moore, M.S.
Principal Biologist

References and Literature Consulted

ACOE (U.S. Army Corps of Engineers). 1987. Technical Report Y87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MI.

ACOE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. U.S. Army Engineer Research and Development Center, Vicksburg, MS. September.

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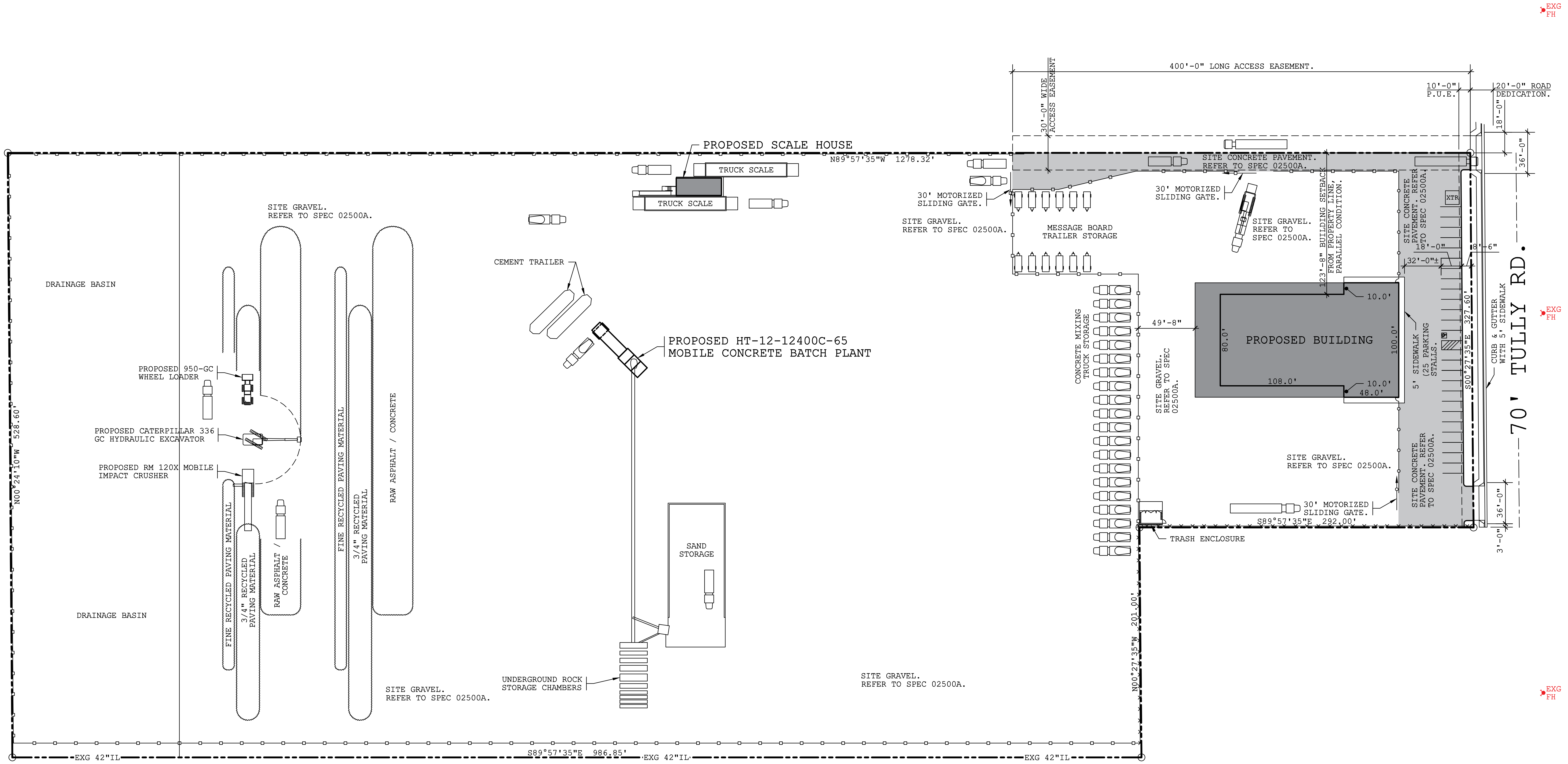
USFWS. 2006. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for California Red-Legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities, Final Rule. Federal Register Vol. 71, No. 71, April 13.

USFWS. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28pp.

Attachment A

Site Plan



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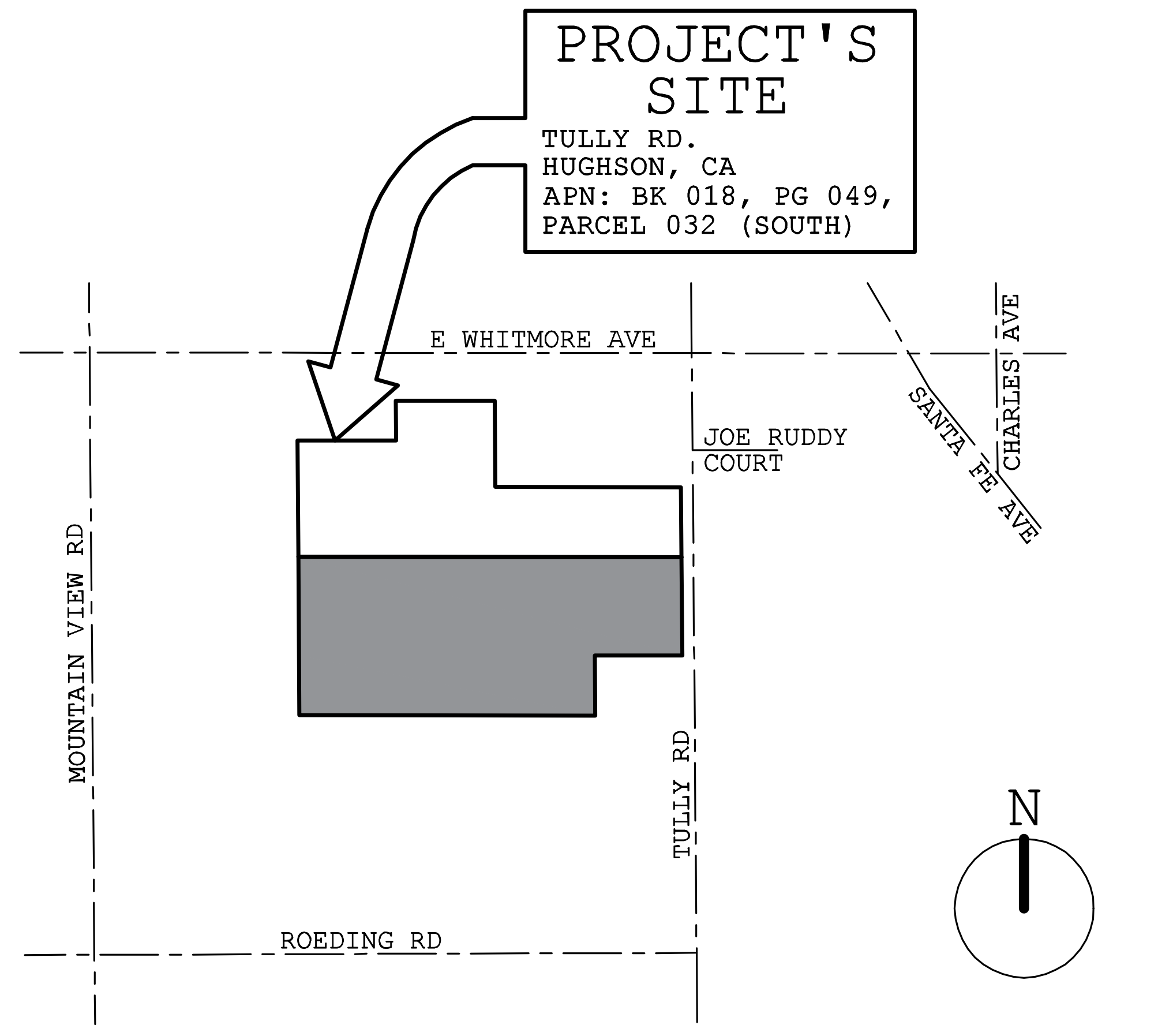
KEY SITE PLAN

SCALE: 1" = 50.0'
APN: BK 018, PG 049, PARCEL 032 (SOUTH)
ACRES: 14.32 NET



VICINITY MAP

LEGEND

─○─○─○─○─○─	DESIGNATES A 6' HIGH DECORATIVE FENCE.
─□─□─□─□─□─	DESIGNATES A 6' HIGH WOVEN WIRE FENCE WITH UPPER 3-BARB DETERRENT.
─×─×─×─×─×─×─×─×─×─	DESIGNATES A 6' HIGH CONCRETE / CMU FENCE WITH UPPER 3-BARB DETERRENT.
━━‒‒‒‒EXG 42"IL‒‒‒‒━━	DESIGNATES AN EXISTING IRRIGATION LINE WITH SIZE NOTED.

PARKING REQUIREMENTS FOR OFFICE / INDUSTRIAL / WAREHOUSE UTILIZATION PER THE CITY OF HUGHSON'S ZONING ORDINANCE ARE AS FOLLOWS;

OFFICE; 5,235SF / 300 =	17.44STALLS.
MFR; 4,800SF / 1000 =	4.80STALLS.
WAREHOUSE; 5,328SF / 2000 =	2.66STALLS.
TOTAL REQUIRED =	24.90STALLS.

TOTAL PARKING SPACES PROVIDED;

1. STANDARD STALLS; ------------------------	23
2. ACCESSIBLE STALLS; --------------------	1
3. SMALL CAR STALLS; ---------------------	0
4. CLEAN AIR STALLS; ---------------------	1
TOTAL SPACES =	25

PARKING ANALYSIS

NOTE;

1. THE BUILDING'S FOLLOWING OCCUPANCY TYPES (USAGES) ARE BASED UPON THE FOLLOWING;
   - a) THE ALLOWABLE HAZARDOUS MATERIALS AMOUNTS NOTED IN TABLE NO. 307.1(1) & 307.1(2) OF THE 2022CBC ARE NOT TO BE EXCEEDED.
   - b) THE PROJECT'S BUILDING IS NOT DESIGNED FOR HIGH-PILED COMBUSTIBLE STORAGE (REF; CHAPTER 32 OF 2022CFC). THE STORAGE OF COMBUSTIBLE MATERIALS GREATER THAN 12 FEET IN HEIGHT IS NOT PERMITTED. IN ADDITION WHEN REQUIRED BY THE FIRE CHIEF, COMBUSTIBLE STORAGE OF CERTAIN HIGH-HAZARD COMMODITIES, SUCH AS RUBBER TIRES, GROUP "A" PLASTICS, FLAMMABLE LIQUIDS, IDLE PALLETS AND SIMILAR COMMODITIES GREATER THAN 6 FEET IN HEIGHT ARE NOT PERMITTED.
   - c) FUEL-DISPENSING IS NOT PERMITTED.
   - d) OWNER IS TO BE RESPONSIBLE IN MAINTAINING THE BUILDING'S OCCUPANCIES TYPES (USAGES).

ZONING: I (INDUSTRIAL)

CONSTRUCTION TYPE: V(B) (SINGLE STORY, WOOD CONSTRUCTION WITH AUTOMATIC SPRINKLER SYSTEM THROUGHOUT, REFER TO SPEC 13970).

PERMITTED OCCUPANCY TYPE:
- a) OFFICE AREA; TYPE "B" OCCUPANCY RATING FOR OFFICE, PROFESSIONAL OR SERVICE-TYPE TRANSACTIONS, INCLUDING STORAGE OF RECORDS AND ACCOUNTS.
- b) REPAIR GARAGE; TYPE "S-1" OCCUPANCY RATING FOR REPAIR GARAGE WHERE WORK PERTAINS TO THE EXCHANGE OF PARTS AND MAINTENANCE REQUIRING OPEN FLAME OR WELDING.
- c) STORAGE AREA; TYPE "S-1" OCCUPANCY RATING FOR MODERATE-HAZARD STORAGE OF COMBUSTIBLE MATERIALS.

ACTUAL 1ST FLOOR AREA: 16,800SF (INCLUDES ALL ROOF ONLY AREAS EXCEPT THE ARCHITECTURAL ENTRANCE FAÇADE).

ACTUAL 2ND FLOOR AREA: 960SF.

ALLOWABLE AREA; 36,000SF SINGLE STORY CONDITION CONTROLS!!!

BUILDING ANALYSIS

advanced
DESIGN GROUP, INC.
1128 SIXTH STREET, MODESTO, CA 95354
PHONE: (209) 577-3108
EMAIL: adgi@att.net

PROJECT: UNITED PAVEMENT MAINTENANCE FACILITY / CONCRETE MIXING & RECYCLING CENTER
OWNER: RODOLFO RUVALCABA AND MABEL M. RUVALCABA
LOCATION: TULLY RD. HUGHSON, CA

DRAWN BY: BAO
CHECKED BY:
DATE: 01/15/23

REV	DATE	BY

PROJECT
22028

SHEET NUMBER
UP1

NOTE; THIS DRAWING IS FOR THE USE PERMIT REVIEW.

Attachment B

CNDDB Summary Report and Exhibits

& USFWS IPaC Trust Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

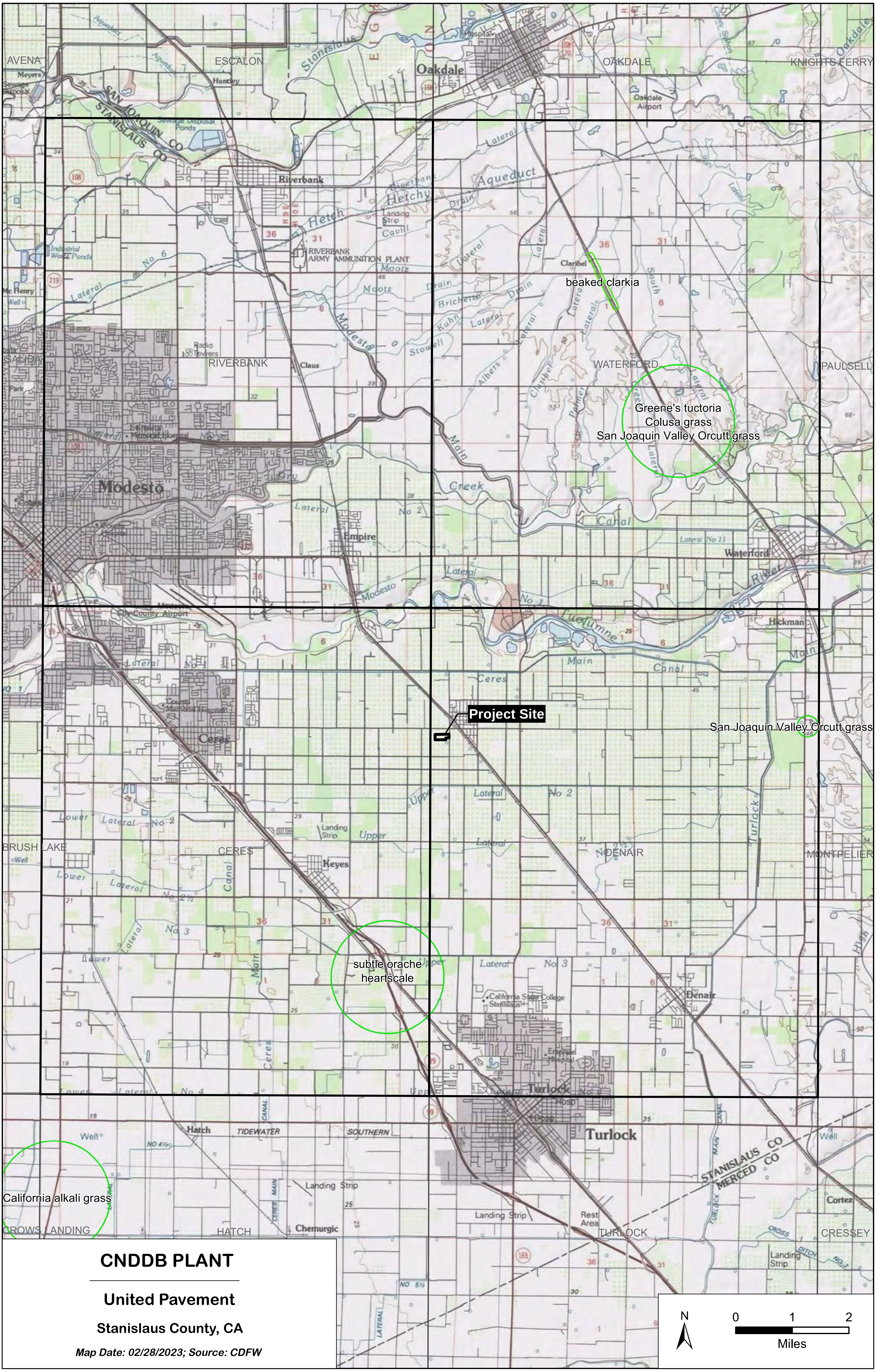
California Natural Diversity Database

Query Criteria: Quad IS (Riverbank (3712068) OR Ceres (3712058) OR Denair (3712057) OR Waterford (3712067))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S2S3	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Clarkia rostrata beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S2	
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
Lytta moesta moestan blister beetle	IICOL4C020	None	None	G2	S2	
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Orcuttia inaequalis San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Tuctoria greenei Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1

Record Count: 24

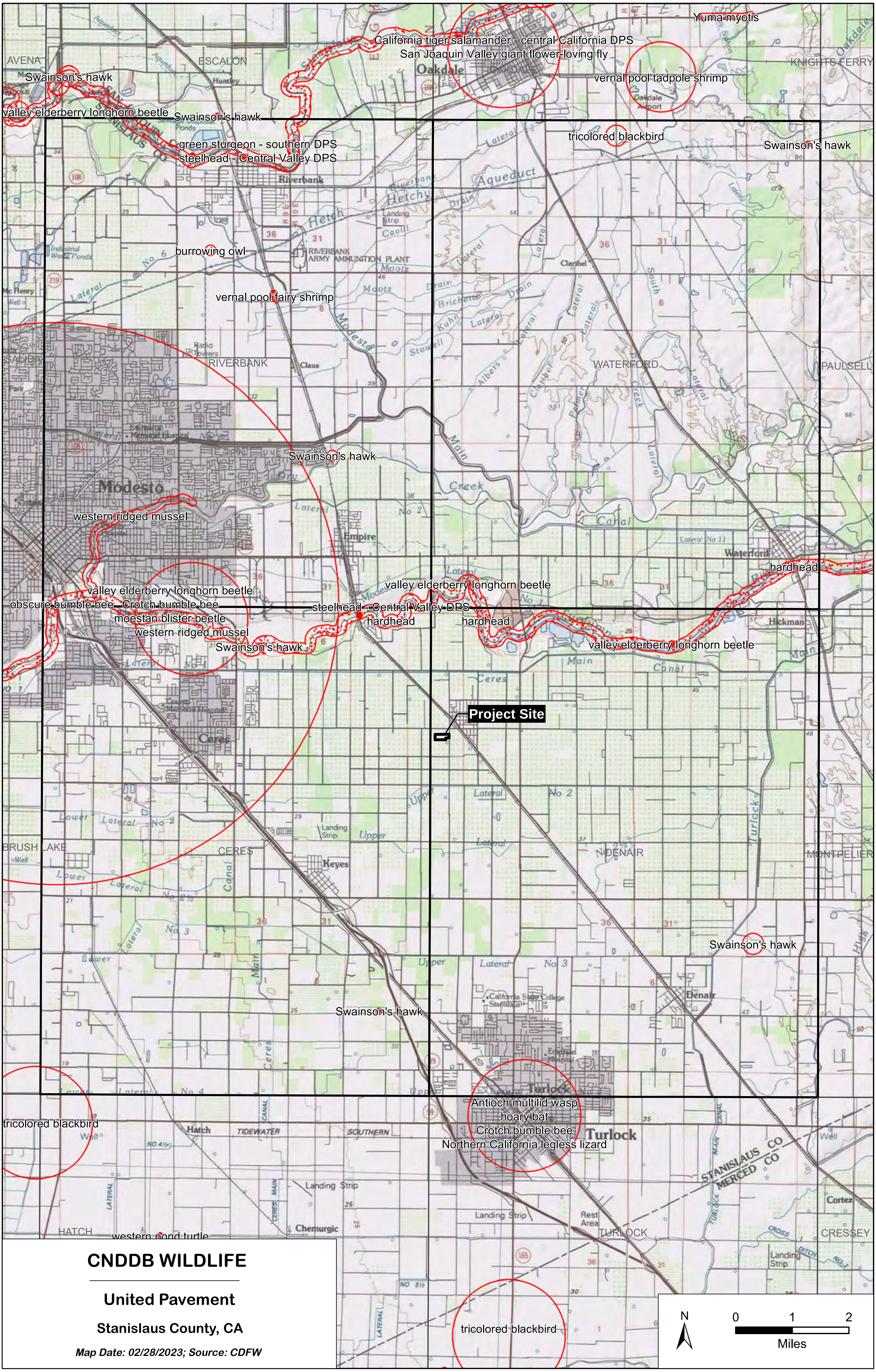


CNDDB PLANT

United Pavement

Stanislaus County, CA

Map Date: 02/28/2023; Source: CDFW



CNDDB WILDLIFE

United Pavement

Stanislaus County, CA

Map Date: 02/28/2023; Source: CDFW

IPaC **U.S. Fish & Wildlife Service**

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

Stanislaus County, California

Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600
📠 (916) 414-6713

Federal Building

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 species[1] 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 Fisheries[2]).

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. IPaC only shows species that are regulated by USFWS (see FAQ).

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:

Amphibians

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
San Joaquin Valley Orcutt Grass Orcuttia inaequalis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5506	Threatened

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 Act[1] and the Bald and Golden Eagle Protection Act[2].

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 https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.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
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.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi 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/8	Breeds Apr 1 to Aug 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
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 Jun 1 to Aug 31

Common Yellowthroat Geothlypis trichas sinuosa 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
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker Picoides nuttallii 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 Baeolophus inornatus 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
Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird Agelaius tricolor 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
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31

Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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.

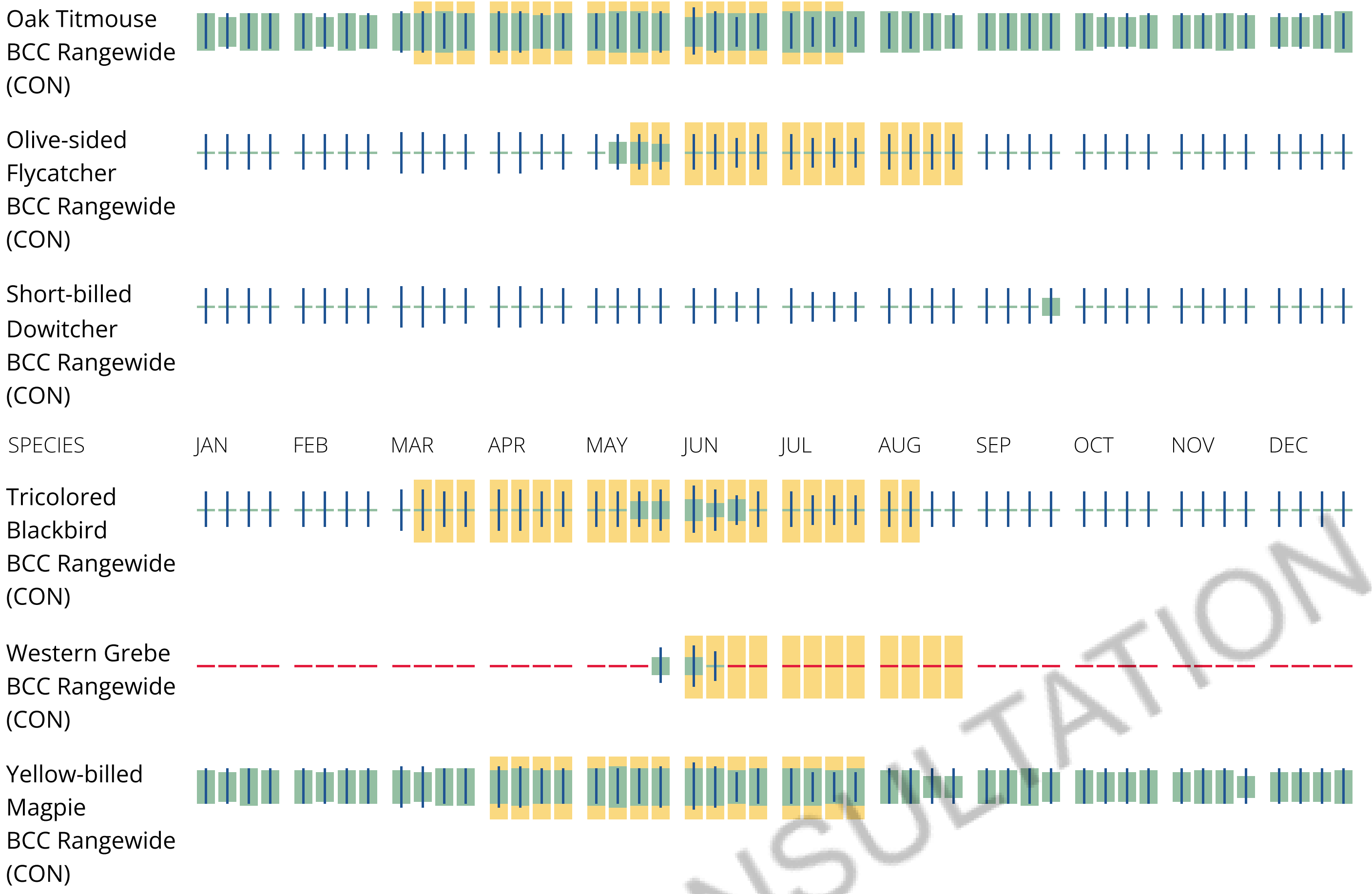
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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 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 list of migratory birds that potentially occur 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 Rapid Avian Information Locator (RAIL) 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 or migrating in my 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 query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. 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 (NWI)

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.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view 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 tuberficid 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

Photographs

North edge of the site, looking east from the northwest corner of the site; 03/02/23.

West edge of the site, looking south from the northwest corner of the site; 03/02/23.

Row of almond trees in the body of the site, looking south from the north edge of the site; 03/02/23.

Row of almond trees in the east part of the site, looking west from the east edge of the site; 03/02/23.

South edge of the site, looking east from the southwest corner of the site; 03/02/23.

East edge of the site, looking north along Tully Road from the southeast corner of the site; 03/02/23.

Body of the site, looking southeast from the northwest corner of the site; 07/07/23.

Irrigation line in the body of the site, looking north from the south edge of the site; 07/07/23. The site previously supported an orchard, which was recently removed.

West edge of the site, looking douth from the northwest corner of the site; 07/07/23.

South edge of the site, looking east from the southwest corner of the site; 07/07/23.

Body of the site, looking west from the east part of the site; 07/07/23. The site primarily consists of bare dirt and there are a few mounds of mulch from the previous orchard in the site.

East edge of the site, looking north along Tully Road from the southeast corner of the site; 07/07/23.

Attachment D

National Wetland Inventory Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

United Pavement

U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

March 6, 2023

Wetlands

🟦 Estuarine and Marine Deepwater

🟩 Estuarine and Marine Wetland

🟩 Freshwater Emergent Wetland

🟩 Freshwater Forested/Shrub Wetland

🟦 Freshwater Pond

🟪 Lake

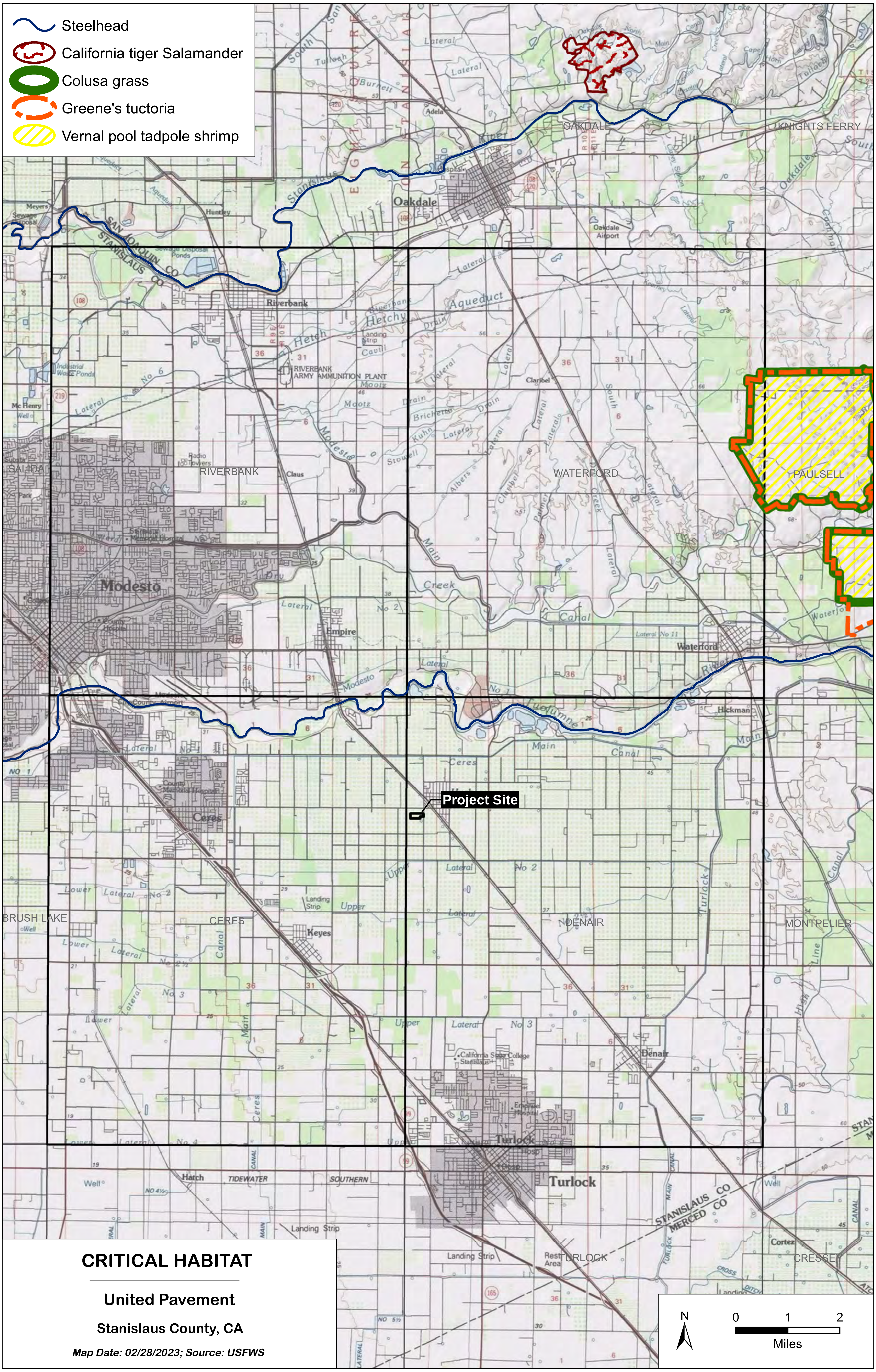
🟫 Other

🟦 Riverine

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Attachment E

Designated Critical Habitat



CRITICAL HABITAT

United Pavement

Stanislaus County, CA

Map Date: 02/28/2023; Source: USFWS

APPENDIX C
CULTURAL RESOURCES REPORT

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

CULTURAL RESOURCES TECHNICAL MEMORANDUM

Date: August 10th, 2023
To: BaseCamp Environmental, Inc.
From: Solano Archaeological Services, LLC

Subject: Cultural Resources Investigation – United Pavement Maintenance Inc., Central Mix Concrete Batch Project, City of Hughson, Stanislaus County, California

INTRODUCTION

This technical memorandum summarizes the background research, Native American community outreach, archaeological survey, and study findings for United Pavement Maintenance Inc.'s proposed Central Mix Concrete Batch Plant Project located in the City of Hughson, Stanislaus County, California (the Project). As a discretionary effort, the Project is subject to California Environmental Quality Act (CEQA) requirements, and Solano Archaeological Services, LLC (SAS) has prepared this report to support compliance with the cultural resources provisions of CEQA.

PROJECT LOCATION

The project area consists of an approximately 13.26-acre (ac.) lot within Assessor's Parcel Number (APN) 018-049-032 located on Tully Road, just south of the intersection with Whitmore Avenue, and southeast of downtown Hughson. (Attachment A, Figure 1). The project area is depicted on the *Denair, California* U.S. Geological Survey (USGS) topographic 7.5 minute quadrangle in Township 4 South, Range 10 East, Section 16 (Attachment A, Figures 2, 3).

PROJECT DESCRIPTION

The proposed Project would consist of the construction of a central mix concrete batch plant, a rock crushing facility, material storage, a concrete mixing truck storage area, and two truck scales with a scale house. The concrete batch plant is proposed to be installed in the eastern portion of the project area. The Project proposes to use a HT-12-12400C-65 plant that is mobile and can potentially process 160–220 cubic yards (yd^3) of concrete per hour. An overhead bin would have a capacity of 65 tons/48.1 yd^3. The material for the concrete would be transported by a conveyor belt approximately 36 inches in width and driven at 30 horsepower at a speed of 380 feet (ft.) per minute. The plant would have an aggregate batcher and a cement batcher, each of which would have a capacity of 12 yd^3. The total height of the plant would be approximately 27.5 ft.

The entire plant area would be covered by a gravel surface approximately six inches deep. It would be completely enclosed, mostly by a concrete fence six ft. in height with an upper three-barb deterrent. Woven wire fencing six ft. in height with an upper three-barb deterrent would separate the plant area from an adjacent vehicle and tire repair and maintenance facility. Access to the plant area would be provided off Tully Road from a driveway approximately 36 ft. in width. This driveway would be shared by the project and the adjacent northern parcel created by a proposed division of APN 018-049-032. Trucks entering and exiting the storage yard would use a paved route that passes north of the maintenance/repair facility.

REGULATORY SETTING

CEQA requires that public agencies having authority to finance or approve public or private projects assess the effects of those projects on cultural resources. Cultural resources include buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA states that if a proposed project would result in an effect that may cause a substantial adverse change in the significance of a significant cultural resource (termed a "historical resource"), alternative plans or mitigation measures must be considered. Because only significant cultural resources need to be addressed, the significance of cultural resources must be determined before mitigation measures are developed.

CEQA §5024.1 (Public Resources Code [PRC] §5024.1) and §15064.5 of the State CEQA Guidelines (14 California Code of Regulations [CCR] §15064.5) define a *historical resource* as "a resource listed or eligible for listing on the California Register of Historical Resources." A historical resource may be eligible for inclusion in the California Register of Historical Resources if it:

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

In addition, CEQA also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource, and "unique archaeological resources." An archaeological resource is considered unique if it:

- Is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind
- Is at least 100 years old and possesses substantial stratigraphic integrity; or
- Involves important research questions that historical research has shown can be answered only with archaeological methods (Public Resources Code §21083.2)

According to the CEQA Guidelines, a project with an effect that may cause a substantial adverse change in the significance of a historical resource, or a unique archaeological resource is a project that may have a significant effect on the environment (14 CCR §15064.5[b]). CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

NATURAL AND CULTURAL SETTING

The project area and surrounding region is within the climatic band classified as the Lower Sonoran Zone (Storer and Usinger 1970). The climatic pattern is characterized as Mediterranean, with cool, wet winters and hot, dry summers. The dominant vegetative communities in the region consist of prairie grasslands and tule marshes, with some areas of riparian woodland also being present (Kuchler 1977).

Prehistorically, Valley oak, cottonwood, sycamore, and willow trees once grew on the verge of streams and rivers. Vegetation tended to be sparse within the prairie grasslands, limited to grasses and flowering herbs. However, a single valley oak could produce 300–500 pounds of acorns each year (Baumhoff 1963) and tule roots could be ground into a meal to supplement the abundant faunal resources (Wallace 1978). Faunal species that frequented the prehistoric prairie grasslands and tule marshes included mule deer, tule elk, pronghorn antelope, weasel, river otter, raccoon, and beaver, geese and swans, great blue and black-crowned herons, ibis, cranes, cormorants, bald eagles, badgers, coyotes, skunks, jackrabbits, and cottontail rabbits. Within the waterways, Chinook salmon, steelhead trout, Pacific lamprey, and white sturgeon seasonally joined other fish species indigenous to the area (Moratto 1984).

Prehistoric Setting

California prehistory can be divided into three periods that reflect similar cultural characteristics throughout the state: Paleo-Indian period (ca. 12,000 years before the present [BP] – 8,000 BP), Archaic period (8,000 – 1,500 BP), and Emergent period (1,500 BP – Euro-American contact) (Fredrickson 1973, 1974, 1993). The Archaic is divided further into Lower (8,000 –5,000 BP), Middle (5,000 –3,000 BP), and Upper (3,000 BP – 1,500 BP) periods which are defined by dramatic environmental changes and variability in subsistence, settlement, and technological systems seen in the archaeological record.

Human occupation in the Sacramento-San Joaquin Delta region may have occurred as early as 12,000 years ago, but few archaeological sites pre-dating 5,000 years BP have actually been documented in the Delta or the broader Central Valley. It is possible that Holocene alluvial deposits buried many prehistoric sites and the dynamic nature of the Delta and Central Valley waterways have obscured and destroyed earlier sites. For example, Moratto (1984:214) estimates that as much as 10 meters of sediment accumulated along the lower stretch of the Sacramento River drainage system during the last 5,000–6,000 years. One of the few early sites documented in the general region is CA-CCO-637 in eastern Contra Costa County which dates to approximately 8,500 BP and was found in an alluvial fan near present-day Kellogg Creek (Meyer and Rosenthal 1998).

Prehistoric material culture found in central California subsequent to the Paleo-Indian and Lower Archaic periods has been categorized according to "horizons" or "patterns" that define broad technological, economic, social, and ideological elements over long periods of time and large areas. Fredrickson (1973, 1974) defined three regional patterns that are most relevant to the APE. Referred to as the Windmiller, Berkeley, and Augustine patterns, each represents a general pattern of resource exploitation and cultural manifestations and occurred between about 4,500 BP and Euro-American contact around the year 1800.

Windmiller Pattern (4,500 - 2,500 BP)

Middle Archaic Windmiller Pattern sites date to as early as 4,500 BP and extend to and as late as 2,500 years ago. Windmiller sites appear to indicate an extensive reliance on plant foods although a wide variety of faunal remains have been noted as well. The presence of fishhooks and probable net and line sinkers along with the remains of sturgeon, salmon, and smaller species, indicate that fishing was an additional and important source of food (Fredrickson 1973; Heizer 1949; Ragir 1972). Items made of baked clay included net sinkers, pipes and manufactured cooking "stones" in an environment where suitable natural cobbles were generally scarce. Ground and polished charmstones, impressions of twined basketry, shell beads, and bone tools also have been found at Windmiller Pattern sites. Some items, such as shell beads, obsidian tools, and quartz crystals, were obtained by trade. Windmiller people appear to have resided in the Sacramento Valley during the winter months but shifted to higher elevations during the summer (Moratto 1984:206). Mortuary practices included the frequent addition of grave goods in the interments and the deceased were buried in cemeteries that were separate from the habitation sites.

Berkeley Pattern (2,500 BP - 1,500 BP)

By around 2,500 BP the archaeological record begins to show changes to more specialized adaptive patterns characteristic of the Berkeley Pattern. Acorns become a significant dietary staple and this shift can be seen in a dramatic increase in the occurrence of mortars and pestles on sites as opposed to manos and metates which were far more common during the Windmiller. Mortars and pestles are better suited to crushing and grinding acorns, whereas manos and metates were used primarily for grinding wild grass grains and seeds (Moratto 1984:209–210). The archaeological record, however, clearly indicates that hunting continued to be an important source of food and useful materials (Fredrickson 1973:125–126). In addition, Berkeley Pattern sites adjacent to Bay and coastal shorelines often include significant shell mounds and middens indicating an intensive use of both fresh and saltwater aquatic resources.

Artifact assemblages and radiocarbon dates from Berkeley Pattern sites suggest the subsistence and technological patterns characteristic of this time may have developed in the San Francisco Bay region and later spread into central California. Moratto (1984:207–211) suggests the pattern may be associated with an expansion of Eastern Miwok populations from the San Francisco Bay area to the Central Valley and into the Sierra foothills.

Augustine Pattern (1,500 BP - historic contact)

The Augustine Pattern is marked by shifts in subsistence and land-use patterns that begin to resemble those noted in ethnographic observations. Tools and cooking implements include shaped mortars and pestles, hopper mortars, bone awls used for producing coiled baskets, and the bow and arrow. A type of pottery, referred to as Cosumnes Brownware, appears in some parts of the Central Valley and appears to have evolved from the baked clay industry so prominent during earlier times.

During this period, increased sedentism, social stratification, and the rise of elaborate ceremonies and social organizations can be seen. Exchange networks expanded and became more complex, also developed during this time (see Fredrickson 1973; Moratto 1984). Distinctive artifacts including flanged tubular pipes, harpoons, and Gunther barbed series projectile points are found on these sites. Moratto (1984: 211–214) suggests that these occurrences accompanied by the other notable aspects of the Augustine Pattern may represent a southward expansion of Wintu populations and territory.

Ethnographic Context

Ethnographically, the Northern Valley Yokuts occupied the project area and vicinity within a larger traditional territory including lands on either side of the San Joaquin River from the Sacramento-San Joaquin Delta to south of Mendota. The Diablo Range probably marked their western boundary (Wallace 1978:462) while the eastern extent would have lain along the Sierra Nevada foothills. The Yokuts occupied the APE and vicinity during the Spanish colonial period, as evidenced by mixed assemblages of historic-era and prehistoric artifacts on archaeological sites. The late prehistoric Yokuts may have been the largest ethnic group in pre-contact California and were organized into at least 11 small political units or tribes (Wallace 1978). Each tribe had a population of approximately 300 people, most of whom lived within one principal settlement that usually had the same name as the political unit. The closest well-documented village site to the APE was probably *Tationes*, which was located about 13 mi. southeast on the east side of the San Joaquin River (Cook 1955). An un-named site possibly associated with the *Tagualames* Yokuts band was noted by Bennyhoff (1977) about 9.4 mi. to the east/northeast on the north side of the Tuolumne River, just to the east of Waterford.

In many respects, the Yokuts' lifeways were very similar to that of other Central Valley groups. The hunting of terrestrial game such as tule elk, mule deer, antelope, pronghorn, rabbits, squirrels, and gophers was considered important, but it was subsidiary to collected foods that could be stored year-round. According to Powers in 1877, the typical California Native American diet consisted mainly of acorn, fish, and small seeds (Heizer and Elsasser 1980:83) although nearly 500 plant and animal species were commonly utilized. Subsistence practices of their Miwok neighbors were no different, as fresh greens, seeds, and acorn were harvested during their appropriate seasons. Bedrock outcroppings were frequently utilized for creating fixed, non-portable mortars used in grinding nuts and seeds. In locales where bedrock outcroppings were nonexistent, smaller, portable mortars and stone pestles were used. Acorn by itself is not edible due to the bitter tannins inside the nut, but like many other California Native American groups, the Yokuts processed acorn by first grinding the nuts into flour. The acorn flour was then water-processed to leach out the bitter tannins, making the flour usable for making mush or bread (Heizer and Elsasser 1980:91–93).

Euro-American contact with the Northern Valley Yokuts began with infrequent excursions by Spanish explorers traveling through the Sacramento, and San Joaquin Valleys in the late 1700s to early 1800s. Cook (1955) attempted to identify San Joaquin Valley village and tribal groups based on early accounts from Spanish explorers and Mission records. Many Yokuts were lured or captured by missionaries and taken to Mission San Jose or Mission Santa Clara. A probable malaria epidemic in 1833 decimated the indigenous population, killing thousands. The influx of Europeans during the Gold Rush era further reduced the population because of disease and violent encounters with the miners. Though little or no gold at all was found in the Yokuts territory, miners passing through on their way to the rich diggings in the Sierra Nevada foothills resulted in a significant degree of cultural upheaval. Former miners, who had seen the richness of the San Joaquin Valley on their way east to the diggings later returned to settle and farm the former Yokuts lands (Wallace 1978).

Presently, the Nototome/North Valley Yokut Tribe, Inc., represents the Northern Valley Yokuts in the Stockton region. The group is dedicated to the perpetuation of their cultural heritage which involves the preservation, documentation, and interpretation of their past including ethnographic, archaeological, and human remains.

Historic Period Setting

A series of explorations in present-day Stanislaus County was conducted by the Spanish beginning with a 1776 expedition led by Jose Joaquin Moraga. That expedition followed the San Joaquin River into the vicinity of present-day Modesto. Another journey in 1806, led by Moraga’s son Gabriel, revisited the area and traveled east as far as present-day Knight’s Ferry, followed by another expedition in 1810 (Beck and Haase 1974:32; Heizer and Almquist 1971:4-22). Other expeditions were conducted by fur trappers including Jedediah Smith and Ewing Young in 1820 and 1829–1830 respectively. Smith and Young traversed Walker’s Pass to enter the valley and frequently exploited fur resources along the Tuolumne and San Joaquin Rivers (Tinkham 1921).

After Mexico declared its independence in 1821, the mission system established by Spain in the coastal regions was gradually reduced to destitution. Mission lands were granted to prestigious Mexican citizens in the form of large land grants, or ranchos. Within Stanislaus County, five ranchos, none of which encompassed the Hughson area, were awarded: *Orestimba* (16,500 ac.), *El Pescadero* (16,148 ac.), *Rancho del Puerto* (13,340 ac.), *Rancheria del Rio Estanislao* (36,300 ac.), and *Thompson Rancho* (30,852 ac.). American settlers flooded California with the discovery of gold (1848) on the American River, resulting in an influx in population, while the Mexican regime struggled to gain control over the land. Following the Mexican-American War, the United States annexed California until it was granted statehood via the Compromise of 1850 (Tinkham 1921).

The Mexican-American War ended with the 1848 Treaty of Guadalupe Hidalgo, which promised that the property rights of the Mexicans in California would be protected by the U.S. government. However, the U.S. ultimately did not protect the rancho lands from squatters and the government required that the rancheros prove that they owned the land. In 1851 the U.S. government set up a three-member Board of Land Commissioners in San Francisco to consider land claims. Those who had some proof that they owned the land presented their evidence to the Land Commission, but it took an average of 17 years before the Commission issued a decision that the applicant could retain ownership (Hoover et al. 2002).

Throughout the 19th and 20th centuries, agriculture was the primary economic driver of the region. The first agricultural product produced in massive quantities in Stanislaus County was wheat, cultivated by a Mormon colony led by Samuel Brannan around 1846. Before the arrival of the railroad, much of Stanislaus County was grazed by large herds of cattle, hogs, horses, and sheep. Cattlemen prospered during the Gold Rush by supplying beef to miners. Following the Gold Rush, farmers began to till the fertile river bottom lands and cultivate crops, signaling a significant shift in land use. Prosperous cattlemen suffered a series of natural disasters beginning with thousands of cattle drowning in the catastrophic floods of 1861-1862, followed immediately by two years of severe drought killing over 550,000 head of cattle statewide (Cleland 1951:126-132). Cattle prices plunged and ranches burdened with heavy debts accrued during flush times were broken up and sold. The passage of "fence laws" required cattle ranchers to enclose their once-open range lands to prevent cattle from trampling and eating crops; this was the final blow to the vitality of the ranching economy.

The wheat boom ended in the late 1880s due to production competition from growers in Europe, Asia, South America, and Australia, many using techniques developed in California. Having overextended themselves by borrowing and speculating heavily in harvest yields, California growers watched helplessly as many were foreclosed in bankruptcy (Vaught 2007:203-205). One of those who took advantage of the economic shift was Hiram Hughson who arrived in Stanislaus County in 1882 area and purchased 1,000 acres for a grain ranch and gradually came to own nearly 5,000 ac. In the early 1900's, the San Joaquin Railroad purchased land from Hughson for their tracks and developed a stop, which became known as the Hughson Stop. In the surrounding areas new settlements began to spring up, such as Ceres and Denair. As a result, Hiram Hughson could demand a better price for his land. In 1907 he placed his land in the hands of the Hughson Town Company, under the direction of Charles Flack and C.W. Minniear. John Tully, who owned a section of land to the south of Hughson, also opened up his land for settlement which directly led to the establishment of the town of Hughson. Hughson remained a township until 1972 when it was incorporated as a City.

NATIVE AMERICAN COMMUNITY OUTREACH

Public Resources Code (PRC) Sections 21080.1, 21080.3.1, and 21080.3.2 require public agencies to consult with the appropriate California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of mitigating impacts to cultural resources. To meet PRC requirements, on June 30th, 2023, SAS emailed a letter and a map depicting the project area and surrounding vicinity to the NAHC requesting a Sacred Lands File (SLF) search, and a list of Native American community representatives who might have an interest in, or concerns with the proposed Project (Attachment B). On July 18th, the NAHC responded and stated that no culturally significant properties were known to be present within or near the APE. The NAHC also provided the following list of tribal contacts:

- Gloria Grimes, Chair - Calaveras Band of Mi-Wuk Indians
- Debra Grimes, Cultural Resources Specialist – Calaveras Band of Mi-Wuk Indians
- California Valley Miwok Tribe / Sheep Ranch Rancheria of Me-Wuk Indians of California
- California Valley Miwok Tribe
- Katherine Perez, Chair – North Valley Yokuts Tribe
- Timothy Perea, North Valley Yokuts Tribe
- Sandra Chapman, Chair – Southern Sierra Miwuk Nation
- Joey Garfield, Tribal Archaeologist – Tule River Indian Tribe

- Neil Peyron, Chair – Tule River Indian Tribe
- Kerri Vera, Environmental Department – Tule River Indian Tribe
- Kenneth Woodrow, Chair – Wuksachi Indian Tribe / Eshom Valley Band

On July 21st, 2023, SAS mailed letters to each of the above-listed individuals and organizations to solicit any information they might have regarding cultural properties situated within or near the project area and if they had any concerns with the proposed Project. As of this report, none of the contacted tribes and tribal representatives have yet to respond. However, if substantive communications occur at a later time, SAS will prepare an addendum to this report as necessary.

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

The Central California Information Center (CCIC) of the California Historical Resources Information System provided the results of a record search request to SAS on July 5th, 2023 (CCIC File No. 12583N). This search included a review of the CCIC archives for previously known or recorded cultural resources, studies, and isolates within the APE and a half-mi. radius (Attachment C). The CCIC search also included, but was not necessarily restricted to, a review of the following sources:

- The *National Register of Historic Places* (Historic Properties Directory, California Office of Historic Preservation)
- The *California Register of Historic Places* (Historic Properties Directory, California Office of Historic Preservation)
- The *California Historical Landmarks* (California Office of Historic Preservation)
- The *California Points of Historical Interest* (California Office of Historic Preservation)
- The *California Inventory of Historic Resources* (California Department of Parks and Recreation).

The CCIC record search indicated that no cultural resources had been previously documented in the project area but that one (P-50-002006, a segment of the Burlington Northern Santa Fe Railroad line) had been recorded within the half-mile search area. The CCIC research also noted that no past cultural resources investigations incorporated the project area although 10 were conducted within the half-mile search radius.

ADDITIONAL RESEARCH

In order to ascertain patterns of public-private land ownership within the APE and identify potential undocumented cultural resources and sensitive landforms, SAS conducted additional archival research focused on historic mapping and federal land transfer records. This research consisted of reviews of the Bureau of Land Management's General Land Office (GLO) archives including patent records, and plat maps, historical USGS topographic quadrangle maps, and other archival sources.

A review of the GLO's plat map for Township 4 South, Range 10 East dating to 1854 showed that no historic-era developments or natural features such as creek channels, landforms, or survey markers, were depicted in the northeast ¼ of Section 16 where the project area is located. Two road alignments, however, were depicted that intersected in the adjacent northwest ¼. Both of these routes were un-named and one extended from the northwest to the southeast, and the other from the southwest to northeast. No other developments were shown in any of the surrounding sections.

GLO land patent records documenting transfers of public land to private individuals and non-federal entities (e.g., states, companies) show that all of Section 16, was granted to the State of California in 1854 under the 1853 California Enabling Act. Enabling Acts of each of the public-land states admitted into the Union since 1802 included grants of designated sections of federal lands for the purpose of supporting public schools. The lands were not literally meant to be sites for school buildings. Instead, the state was able to sell and lease these lands to fund its school system. On March 3, 1853, "An Act to Provide for the Survey of the Public Lands in California, the Granting of Pre-Emption Rights Therein, and for Other Purposes" was adopted by the U.S. Congress. This Act provided that public lands in California, specifically sections 16, and 36 in each Township, other than those claimed by recipients of Spanish or Mexican land grants, could be granted to the State for public schools or reserved as mineral lands (Flushman and Barbieri 1986).

An examination of USGS mapping dating to as early as 1916 shows that Hughson was thoroughly laid out by the early 20th century and residential, public, and commercial development was underway. This pattern continued throughout the 20th century and can also be seen in historic aerial photos, the earliest of which dates to 1957. Specifically in the northeast ¼ of Section 16, aerial photography from 1957, and 1967 generally confirms what the USGS mapping shows. In 1916, the topographic quadrangle shows a building at the corner of present-day Tully Road, and Whitmore Road, and a building immediately to the south of the project area. By 1955 (the next available USGS map), several additional buildings appear in the same areas and by 1971, still more buildings are depicted but no developments, buildings, or structures appear directly within the project area.

FIELD SURVEY

Methods

On July 7th, 2023, SAS archaeologists conducted an intensive pedestrian survey of the project area utilizing pedestrian transects spaced no greater than approximately five meters apart. A sub-meter accurate Trimble GPS unit was utilized to verify project area boundaries and to record locations of landscape features and cultural resources.

Results

The project area consists of a completely open and level field where an orchard was recently cleared. No trees, grasses or other vegetation remain, and ground surface visibility was approximately 100%. Four large piles of wood chips (presumably the remains of the former orchard) were noted roughly in the center of the project area. No prehistoric or historic-era sites, features, artifacts, or potentially sensitive soil types (i.e., midden) were noted. However, agricultural water distribution infrastructure consisting of two cast concrete features that appear to constitute irrigation line access points were noted in the easternmost extent of the project area. These appear to be associated with the City of Hughson (Water District 1546) which services the surrounding area. These features appear to be of recent construction, likely dating no earlier than the 1980s based solely on condition and the feature's components and construction. Representative photographs of these features and the overall project area are provided in Attachment D.

SUMMARY AND RECOMMENDATIONS

Archival research and an intensive field survey did not identify any prehistoric or historic-period cultural resources within the project area. Map and aerial photography reviews, and the field survey also did not identify any potentially sensitive landforms or water sources in the project area, suggesting a low level of sensitivity for containing prehistoric materials. Concerning historic period resources, historic mapping, aerial photographs, archival research, and the field survey indicate that no developments of any kind other than agricultural land uses occurred directly in the project area up to the present day. Consequently, SAS proposes a low level of sensitivity for the project area to contain potentially significant historic-era sites, features, or artifacts. Due to a lack of identified cultural resources and sensitive landforms, SAS recommends that the proposed project would have *no impact on historical resources* per CEQA.

If human remains or any associated funerary artifacts are discovered during construction, all work must cease within the immediate vicinity of the discovery. In accordance with the California Health and Safety Code (Section 7050.5), the Stanislaus County Sheriff/Coroner must be contacted immediately. If the Coroner determines the remains to be Native American, the Coroner will notify the Native American Heritage Commission, which will in turn appoint a Most Likely Descendent (MLD) to act as a tribal representative. The MLD will work with the Applicant and a qualified archaeologist to determine the proper treatment of the human remains and any associated funerary objects. Construction activities will not resume until either the human remains are exhumed, or the remains are avoided via Project construction design change.

REFERENCES

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ATTACHMENT A

Figures

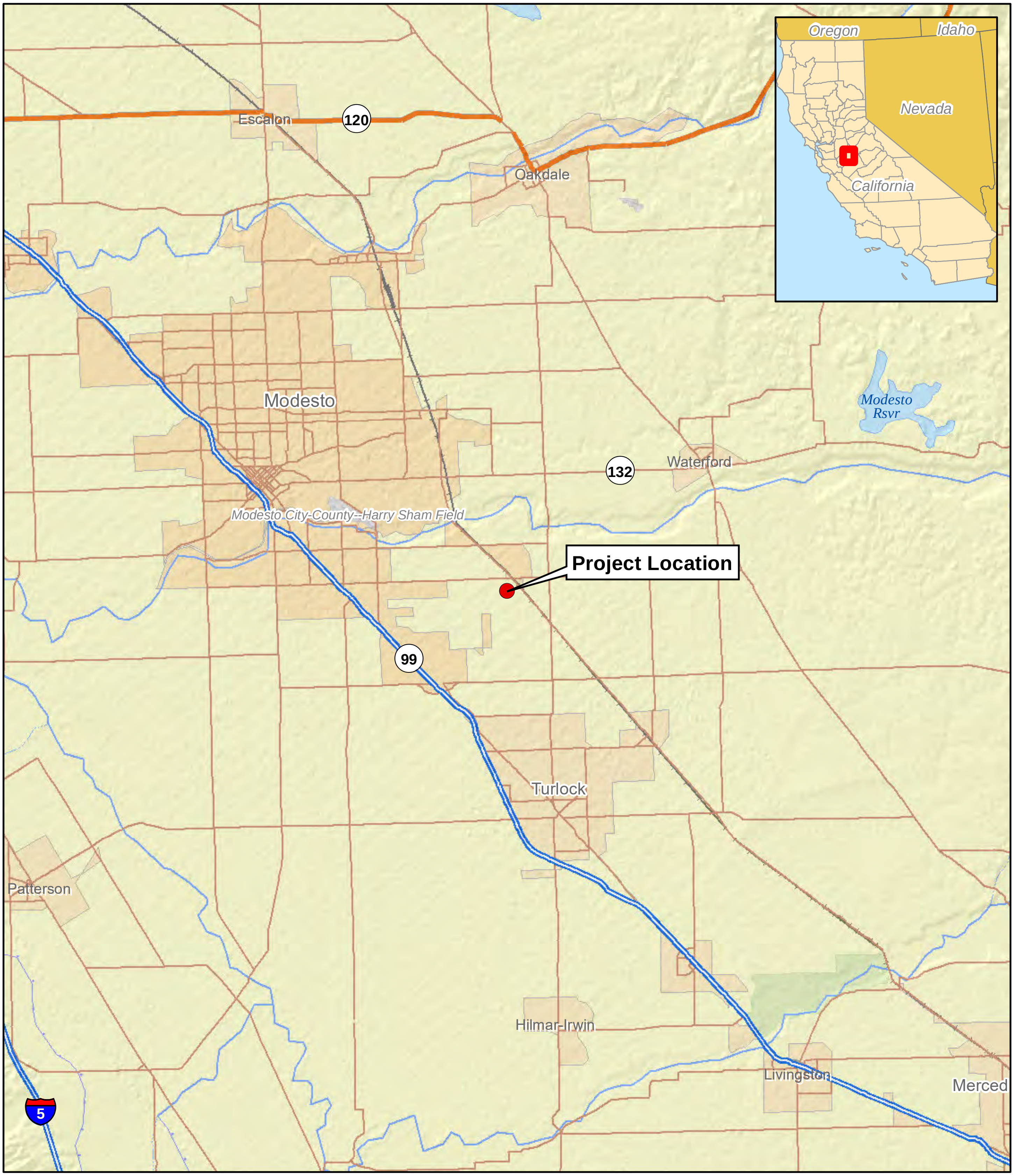

Figure 1. Project Vicinity Map.

● Hughson Concrete Mixing Plant Development Project Area

Sources: *USA Base Map* [layer],*Data and Maps* [CD]. ESRI, 2006.

1:250,000

0 3 Miles

0 6 Kilometers

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Figure 2. Project Location Map.

🟥 Hughson Concrete Mixing Plant Development Project Area

T04S, R10E, Section 16.
Denair, 7.5' Series Quadrangle, USGS, 1978.

1:24,000

0.5 Miles

1 Kilometers

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 3. Project Area Map.

🟥 Hughson Concrete Mixing Plant Development Project Area

Total Acres: 13.26

1:3,200

0 200 Feet

0 100 Meters

SOLANO ARCHAEOLOGICAL SERVICES SAS

ATTACHMENT B

Native American Community Outreach

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

July 18, 2023

Dr. Brian Ludwig
Solano Archaeological Services

Via Email to: brian@solanoarchaeology.com

Re: Hughson Concrete Mixing Plant Project, Stanislaus County

Dear Dr. Ludwig:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Native American Heritage Commission
Native American Contact List
Stanislaus County
7/18/2023

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Stanislaus	Calaveras Band of Mi-Wuk Indians	N	Gloria Grimes, Chairperson	P.O. Box 899 West Point, CA, 95255	(209) 419-5675		calaverasband.miwukindians@gmail.com	Mi-wuk	Alpine,Amador,Calaveras,Stanislaus	
	Calaveras Band of Mi-Wuk Indians - Grimes	N	Debra Grimes, Cultural Resources Specialist	P.O. Box 1015 West Point, CA, 95255	(209) 470-8688		calaverasmiwukpreservation@gmail.com	Mi-wuk	Alpine,Amador,Calaveras,Stanislaus	
	California Valley Miwok Tribe	F	AKA Sheep Rancheria of Me-Wuk Indians of CA,	P.O. Box 395 West Point, CA, 95255	(209) 293-4179		l.ewilson@yahoo.com	Miwok	Calaveras,Madera,San Joaquin,Stanislaus	7/22/2020
	California Valley Miwok Tribe	F	,	14807 Avenida Central La Grange, CA, 95329	(209) 931-4567	(209) 931-4333		Miwok	Calaveras,Madera,San Joaquin,Stanislaus	
	North Valley Yokuts Tribe	N	Katherine Perez, Chairperson	P.O. Box 717 Linden, CA, 95236	(209) 887-3415		canutes@verizon.net	Costanoan Northern Valley Yokut	Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa	
	North Valley Yokuts Tribe	N	Timothy Perez,	P.O. Box 717 Linden, CA, 95236	(209) 662-2788		huskanam@gmail.com	Costanoan Northern Valley Yokut	Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa	5/12/2020
	Southern Sierra Miwuk Nation	N	Sandra Chapman, Chairperson	P.O. Box 186 Mariposa, CA, 95338	(559) 580-7871		sandra47roy@gmail.com	Miwok Northern Valley Yokut Paiute	Madera,Mariposa,Merced,Stanislaus	
	Tule River Indian Tribe	F	Joey Garfield, Tribal Archaeologist	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	joey.garfield@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	7/22/2016
	Tule River Indian Tribe	F	Neil Peyron, Chairperson	P.O. Box 589 Porterville, CA, 93258	(559) 781-4271	(559) 781-4610	neil.peyron@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	
	Tule River Indian Tribe	F	Kerri Vera, Environmental Department	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	kerri.vera@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	7/22/2016
	Wuksachi Indian Tribe/Eshom Valley Band	N	Kenneth Woodrow, Chairperson	1179 Rock Haven Ct. Salinas, CA, 93906	(831) 443-9702		kwood8934@aol.com	Foothill Yokut Mono	Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San	6/19/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Hughson Concrete Mixing Plant Project, Stanislaus County.

Record: PROJ-2023-003553
Report Type: List of Tribes
Counties: Stanislaus
NAHC Group: All

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

July 21st, 2023

California Valley Miwok Tribe
14807 Avenida Central
La Grange, CA 95329

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

To Whom it May Concern:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the project area. However, if you have any concerns with the proposed Project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Project Location Map

🟥 Hughson Concrete Mixing Plant Development Project Area

T04S, R10E, Section 16.
Denair, 7.5' Series Quadrangle, USGS, 1978.

1:24,000

0.5
Miles

1
Kilometers

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July 21st, 2023

Debra Grimes, Cultural Resource Specialist
Calaveras Band of Mi-Wuk Indians
P.O. Box 1015
West Point, CA 92555

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Ms. Grimes:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

July 21st, 2023

Gloria Grimes, Chairperson
Calaveras Band of Mi-Wuk Indians
P.O. Box 899
West Point, CA 92555

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Ms. Grimes:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

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Principal Investigator

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July 21st, 2023

Joey Garfield, Tribal Archaeologist
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Mr. Garfield:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

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July 21st, 2023

Katherine Perez
P.O. Box 717
Linden, CA 95236

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Ms. Perez:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

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July 21st, 2023

Kenneth Woodrow, Chair
Wuksachi Indian Tribe/Eshom Valley Band
1179 Rock Haven Ct.
Salinas, CA 93906

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Mr. Woodrow:

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Elmira, CA 95625

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www.solanoarchaeology.com

July 21st, 2023

Kerri Vera, Environmental Department
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Ms. Vera:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

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July 21st, 2023

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Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

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July 21st, 2023

Sandra Chapman, Chair
Southern Sierra Miwuk Nation
P.O. Box 186
Mariposa, CA 95338

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Ms. Chapman:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

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If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

SOLANO ARCHAEOLOGICAL SERVICES
SAS

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

July 21st, 2023

Sheep Ranch Rancheria of Me-Wuk Indians of California
P.O. Box 395
West Point, CA 95255

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

To Whom it May Concern:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▲ Fax 707-451-4775
www.solanoarchaeology.com

July 21st, 2023

Timothy Perez
P.O. Box 717
Linden, CA 95236

Re: Hughson Concrete Mixing Plant Project, City of Hughson, Stanislaus County, California

Dear Mr. Perez:

Basecamp Environmental has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act-compliant cultural resources inventory of an approximately 12-acre project area situated on Tully Road in the City of Hughson, Stanislaus County, California. The proposed Project would construct a concrete mixing plant and the project area is situated in Township 4 South, Range 10 East, Section 16 on the attached *Denair, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the project area. However, if you have any concerns with the proposed Project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig

Brian Ludwig, Ph.D.
Principal Investigator

ATTACHMENT C

Records Search Documentation

CENTRAL CALIFORNIA INFORMATION CENTER
California Historical Resources Information System
Department of Anthropology – California State University, Stanislaus
One University Circle, Turlock, California 95382
(209) 667-3307

Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 7/5/2023

Records Search File No.: 12583N
Project: Hughson Concrete Mixing Plant, Tully Road

Dr. Brian Ludwig
Solano Archaeological Services LLC brian@solanoarchaeology.com
P.O. Box 367
Elmira, CA 95625
530-417-7007
707-718-1416 Invoice to: jason@solanoarchaeology.com

Dear Dr. Ludwig:

The Central California Information Center received your record search request for the project area/radius referenced above, located on the Ceres and Denair 7.5' quadrangles in Stanislaus County. The following reflects the results of the records search for the project study area and radius:

As per data currently available at the CCaIC, the locations of resources/reports are provided in the following format: ☒ custom GIS maps ☐ GIS Data/shape files

Summary Data:

Resources within the project area:	None formally reported to the Information Center.
Resources within the 1/2-mile radius:	1: P-50-002006
Reports within the project area:	None formally reported to the Information Center.
Reports within the 1/2-mile radius:	10: ST-01451, 2930, 4155, 4177, 4914, 6977, 7969, 8284, 8578, 8579

Resource Database Printout (list): ☐ enclosed ☒ not requested ☐ nothing listed
Resource Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed
Resource Digital Database Records: ☐ enclosed ☒ not requested ☐ nothing listed
Report Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed
Report Database Printout (details): ☐ enclosed ☒ not requested ☐ nothing listed
Report Digital Database Records: ☐ enclosed ☒ not requested ☐ nothing listed
Resource Record Copies: ☐ enclosed ☒ not requested ☐ nothing listed
Report Copies: ☐ enclosed ☒ not requested ☐ nothing listed

OHP Historic Properties Directory: New Excel File: Built Environment Resource Directory (BERD) Dated 9/23/2022
Not all resources listed in the BERD in Twain Harte are mapped in GIS, nor do we have records on file for; if you identify additional resources in the BERD that you need copies of, contact the IC.
☐ enclosed ☐ not requested ☒ nothing listed
Archaeological Determinations of Eligibility: ☐ enclosed ☐ not requested ☒ nothing listed
CA Inventory of Historic Resources (1976): ☐ enclosed ☐ not requested ☒ nothing listed
Caltrans Bridge Survey: ☐ enclosed ☒ not requested ☐ nothing listed
Ethnographic Information: ☐ enclosed ☒ not requested ☐ nothing listed
Historical Literature: ☐ enclosed ☒ not requested ☐ nothing listed
Historical Maps: ☐ enclosed ☒ not requested ☐ nothing listed
Local Inventories: ☐ enclosed ☒ not requested ☐ nothing listed
GLO and/or Rancho Plat Maps: ☐ enclosed ☒ not requested ☐ nothing listed
Shipwreck Inventory: ☒ not available at CCIC; please go to
http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp
Soil Survey Maps: ☒ not available at CCIC; please go to
http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Note: Billing will be transmitted separately via email by our Financial Services office * ($225.60), payable within 60 days of receipt of the invoice.

If you wish to include payment by Credit Card, you must wait to receive the official invoice from Financial Services so that you can reference the CMP # (Invoice Number), and then contact the link below:

https://commerce.cashnet.com/ANTHROPOLOGY

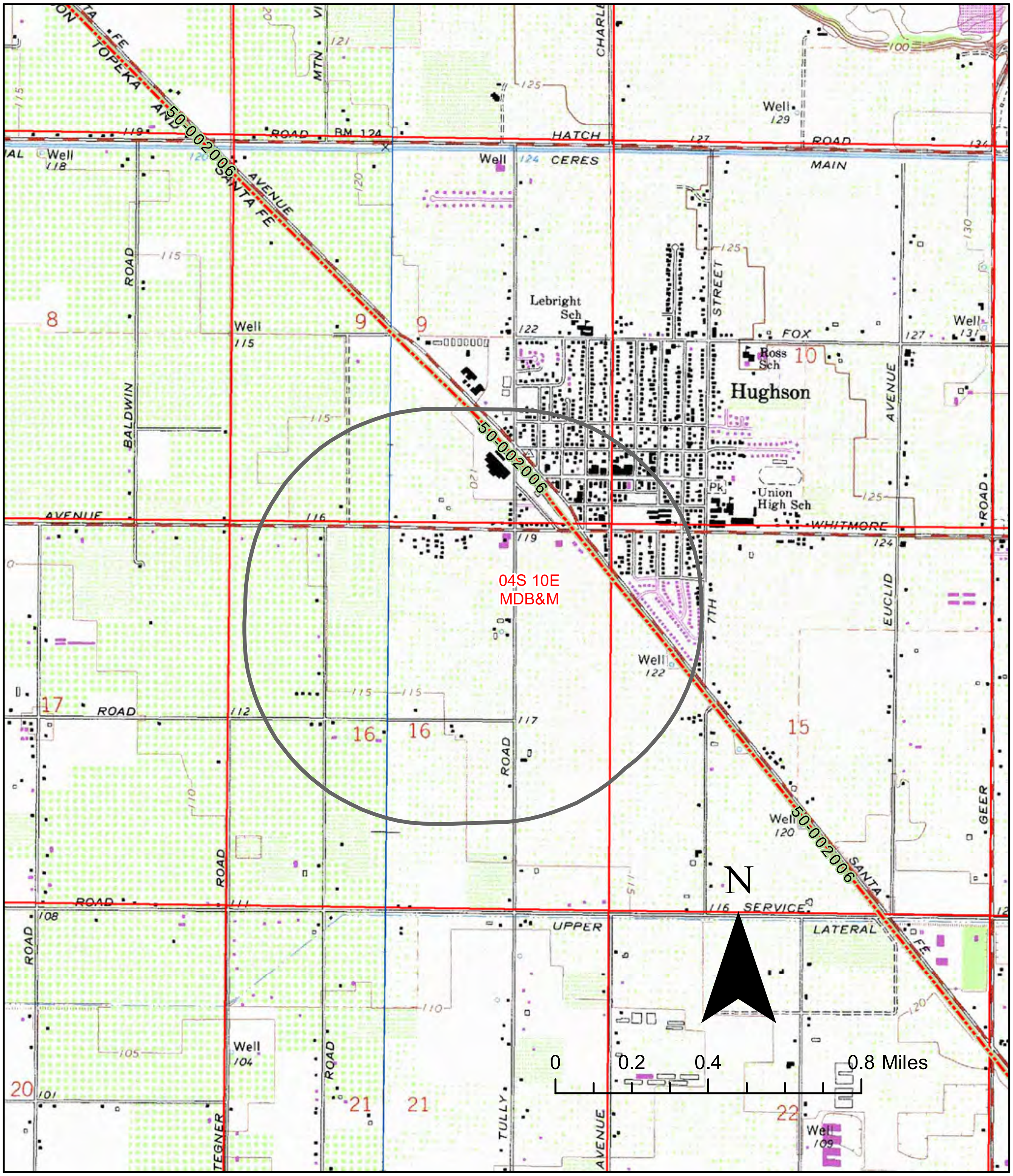
Sincerely,

E. A. Greathouse

E. A. Greathouse, Coordinator
Central California Information Center
California Historical Resources Information System

* Invoice Request sent to: ARBilling@csustan.edu, CSU Stanislaus Financial Services

CCaIC 12583N Hughson Concrete Mixing Plant
Resources 1/2-mile radius 1:24,000-scale
Denair & Ceres USGS 7.5' Quadrangles



Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
ST-01451	NADB-R - 1366363	1992	Napton, L. K.	Cultural Resources Investigation of the Proposed Livingston Cogeneration Project, Merced and Stanislaus Counties, California	CSU Stanislaus Institute for Archaeological Research; prepared for Russell Associates	
ST-02930	NADB-R - 1366249	1996	Jensen, Peter	Archaeological Inventory Survey; Tracy to Fresno Longhaul Fiberoptics Data Transmission Line, Portions of Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties, California.	Jensen & Associates; prepared for North State Resources, Inc.	39-000088, 39-000098, 39-000104
ST-04155	NADB-R - 1363974	2000	Davis-King, S.	Department of Transportation Negative Archaeological Survey Report: 10-STA, Whitmore Avenue Overlay.	Davis-King and Associates; for Caltrans District 10 and the City of Hughson	
ST-04177	NADB-R - 1364050	2001	Davis-King, Shelly	Department of Transportation Negative Archaeological Survey Report: 10-STA, Whitmore Avenue Street Widening.	Shelly Davis-King	
ST-04914	NADB-R - 1364824	2003	Davis-King, S.	Department of Transportation Negative Archaeological Survey Report: 10-STA, Reconstruction of Charles Street, Project Number CML-5411(004) 10-4A 1894, E. A. 10-STA-O-HUSN.	Davis-King & Associates	
ST-06977	NADB-R - 1367281	2009	Arrington, C., L. Harrington, and P. Daly	Cultural Resources Inventory for the Hughson-Grayson 115kV Transmission Line and Substation Project in Stanislaus County, California.	Cultural Research Associates; for Parus Consulting	50-000001, 50-000070, 50-000073, 50-000083, 50-000493, 50-001905, 50-002006
ST-07969	Caltrans - STPL-5411(014)	2014	Kile, M.C.	Archaeological Survey Report of Tully Road Reconstruction, Federal Aid Number: STL-5411-(014) Stanislaus County, California	M.C. Kile, MA RPA, for Caltrans District 10	
ST-08284		2011	AECOM	Cultural Resources Inventory Report for the Central Valley Independent Network Fiber Optic Communications Network Project, California (Calaveras, Merced, San Joaquin, Stanislaus and Tuolumne Counties in the CCaIC Area of Responsibility)	AECOM; prepared for Central Valley Independent Network, Fresno, Ca	
ST-08578		2013	Jensen, S. M.	Archaeological Inventory Survey, Hughson Well Project, circa 1-acre, Stanislaus County, California	Genesis Society for MCR Engineering	
ST-08579		2016	Jensen, S. M.	Archaeological Inventory Survey, Hughson Well Pipeline Project, 0.5-mile Linear Corridor and <1-acre Well Site, Stanislaus County, California	Genesis Society for Baseline Environmental	

Resource Detail: P-50-002006

Identifying information

Primary No.: P-50-002006

Trinomial: CA-STA-000424H

Name: Burlington Northern & Santa Fe (1996 to present); Atchison Topeka and Santa Fe Railroad

Other IDs:

Type	*Name*
Resource Name	Burlington Northern & Santa Fe (1996 to present)
Other	San Francisco and San Joaquin Valley Railroad
Resource Name	Atchison Topeka and Santa Fe Railroad

Cross-refs: Extends into another county as 39-000112
Is an element of district 50-001747

Attributes

Resource type: Structure

Age: Historic

Information base: Survey

Attribute codes: AH07 (Roads/trails/railroad grades) - Railroad line; HP04 (Ancillary building); HP19 (Bridge); HP39 (Other) - Railroad line

Disclosure: Unrestricted

Collections: No

Accession no(s):

Facility:

General notes

Also more currently known as Burlington Northern and Santa Fe Railroad Co. (BNSF); One AT&SF spur is part of the RR that served the Riverbank Ammunition Plant (P-50-001747 District) in Riverbank.

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
3/19/2009	Pamela Daley	Cultural Research Associates	
8/13/2007	Carey & Co.	Carey & Co.	Evaluated by E. Schultz and A. Vanderslice of Carey & Co.
6/3/2014	Vallaire K., and M. Kile	LSA Associates, Inc.	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
SJ-07527	2009	San Joaquin Pipeline System Project, Historic Resources Inventory and Evaluation Report.	Carey & Co., Inc.
ST-06977	2009	Cultural Resources Inventory for the Hughson-Grayson 115kV Transmission Line and Substation Project in Stanislaus County, California.	Cultural Research Associates; for Parus Consulting
ST-07244	2007	North County Corridor Environmental Constraints Analysis: Cultural Resources.	Far Western A.R.G, Inc.& JRP Historical Consulting; for Circle Point and Stanislaus Council of Governments
ST-07527	2009	San Joaquin Pipeline System Project, Historic Resources Inventory and Evaluation Report.	Carey & Co., Inc., for USACE and SFPUC
TO-07527	2009	San Joaquin Pipeline System Project, Historic Resources Inventory and Evaluation Report	Carey & Co., Inc., for USACE

Location information

County: Stanislaus

USGS quad(s): Denair, Riverbank

Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
	Ceres		
	Riverbank		

PLSS: T4S R10E SW¼ of NW¼ of Sec. 15 MDBM
T2S R9E SW¼ of Sec. 36 MDBM

Resource Detail: P-50-002006

T3S R9E NE¼ of SE¼ of Sec. 36 MDBM

UTMs:	Zone 10 689649mE 4161408mN NAD27
	Zone 10 689036mE 4162112mN NAD27
	Zone 10 682422mE 4176164mN NAD27

Management status

Database record metadata

	Date	*User*	
Entered:	7/29/2010	ccic-admin	
Last modified:	1/13/2022	egreathouse	
IC actions:	*Date*	*User*	*Action taken*
	9/29/2017	EGreathouse	NM
Record status:			

ATTACHMENT D

Representative Project Area Photographs


Photo 1618. Project area overview, view to west


Photo 1622. Project area overview, view to south


Photo 3431, Project area overview, view to south


Photo 3435. Project area overview, view to north


Photo 4949. Irrigation line access feature, view to west


Photo 0524. Wood chip piles, view to west

APPENDIX D
NOISE ASSESSMENT

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Environmental Noise Assessment

United Pavement Construction Equipment Maintenance Facility

City of Hughson, California

July 21, 2023

Project #230205

Prepared for:

BaseCamp Environmental, Inc.
802 West Lodi Avenue
Lodi, CA 95240

Prepared by:

Saxelby Acoustics LLC

Luke Saxelby
12004
Expires January 31, 2027

Luke Saxelby, INCE Bd. Cert.
Principal Consultant
Board Certified, Institute of Noise Control Engineering (INCE)

(916) 760-8821
www.SaxNoise.com | Luke@SaxNoise.com
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

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Appendices

INTRODUCTION

The United Pavement Construction Equipment Maintenance Facility project is located in the City of Hughson, California. The project site is adjacent to and west of Tully Road approximately one-tenth mile south of its intersection with Whitmore Avenue on a 15-acre parcel. The project will consist of a maintenance and repair facility located on a 2.5-acre portion of the project site on the eastern side of the parcel, a 10-acre concrete batch plant, a proposed hydraulic excavator, wheeled loader, and impact crusher.

It should be noted that the United Pavement Construction Equipment Maintenance Facility may be built and operate injunction with the Jimenez Truck Maintenance and Storage Facility. This analysis will assess the predicted operational project noise levels of the United Pavement Construction Equipment Maintenance Facility and the cumulative operational project noise levels of the United Pavement Construction Equipment Maintenance Facility and the Jimenez Truck Maintenance Facility.

Figure 1 shows the project site plan. **Figure 2** shows an aerial photo of the project site.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

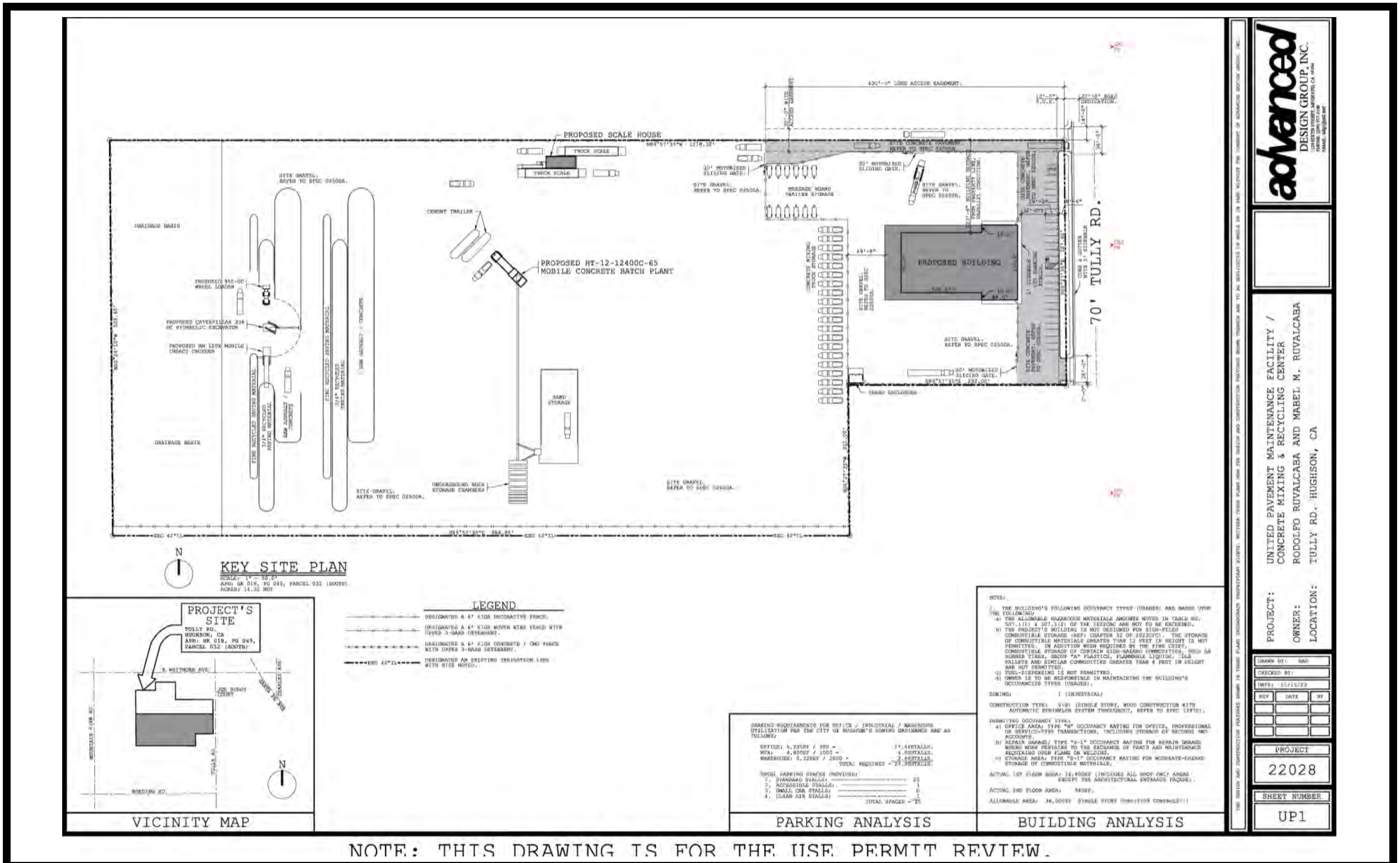
Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.



PARKING REQUIREMENTS FOR OFFICE / INDUSTRIAL / WAREHOUSE UTILIZATION PER THE CITY OF HUGHSON'S ZONING ORDINANCE ARE AS FOLLOWS:

OFFICE: 5,235SF / 300 = 17.44STALLS.
MFR: 4,800SF / 1000 = 4.80STALLS.
WAREHOUSE: 5,328SF / 2000 = 2.66STALLS.
TOTAL REQUIRED = 24.90STALLS.

TOTAL PARKING SPACES PROVIDED:
1. STANDARD STALLS: 23
2. ACCESSIBLE STALLS: 1
3. SMALL CAR STALLS: 0
4. CLEAN AIR STALLS: 1
TOTAL SPACES = 25

NOTE:

1. THE BUILDING'S FOLLOWING OCCUPANCY TYPES (USAGES) ARE BASED UPON THE FOLLOWING:
 a) THE ALLOWABLE HAZARDOUS MATERIALS AMOUNTS NOTED IN TABLE NO. 307.1(1) & 307.1(2) OF THE 2022CBC ARE NOT TO BE EXCEEDED.
 b) THE PROJECT'S BUILDING IS NOT DESIGNED FOR HIGH-PILED COMBUSTIBLE STORAGE (REF: CHAPTER 32 OF 2022CFC). THE STORAGE OF COMBUSTIBLE MATERIALS GREATER THAN 12 FEET IN HEIGHT IS NOT PERMITTED. IN ADDITION WHEN REQUIRED BY THE FIRE CHIEF, COMBUSTIBLE STORAGE OF CERTAIN HIGH-HAZARD COMMODITIES, SUCH AS RUBBER TIRES, GROUP "A" PLASTICS, FLAMMABLE LIQUIDS, IDLE PALLETS AND SIMILAR COMMODITIES GREATER THAN 6 FEET IN HEIGHT ARE NOT PERMITTED.
 c) FUEL-DISPENSING IS NOT PERMITTED.
 d) OWNER IS TO BE RESPONSIBLE IN MAINTAINING THE BUILDING'S OCCUPANCIES TYPES (USAGES).

ZONING: I (INDUSTRIAL)

CONSTRUCTION TYPE: V(B) (SINGLE STORY, WOOD CONSTRUCTION WITH AUTOMATIC SPRINKLER SYSTEM THROUGHOUT, REFER TO SPEC 13970).

PERMITTED OCCUPANCY TYPE:
 a) OFFICE AREA: TYPE "B" OCCUPANCY RATING FOR OFFICE, PROFESSIONAL OR SERVICE-TYPE TRANSACTIONS, INCLUDING STORAGE OF RECORDS AND ACCOUNTS.
 b) REPAIR GARAGE: TYPE "S-1" OCCUPANCY RATING FOR REPAIR GARAGE WHERE WORK PERTAINS TO THE EXCHANGE OF PARTS AND MAINTENANCE REQUIRING OPEN FLAME OR WELDING.
 c) STORAGE AREA: TYPE "S-1" OCCUPANCY RATING FOR MODERATE-HAZARD STORAGE OF COMBUSTIBLE MATERIALS.

ACTUAL 1ST FLOOR AREA: 16,800SF (INCLUDES ALL ROOF ONLY AREAS EXCEPT THE ARCHITECTURAL ENTRANCE FAÇADE).

ACTUAL 2ND FLOOR AREA: 960SF.

ALLOWABLE AREA: 36,000SF (SINGLE STORY CONDITION CONTROLS!!!)

United Pavement Construction Maintenance Facility

City of Hughson, California

Figure 1

Project Site Plan

SAXELBY ACOUSTICS
Acoustics - Noise - Vibration

United Pavement Construction Equipment Maintenance Facility

City of Hughson, California

Figure 2

Noise Measurement Sites

Legend

▭ Project Site

▲ Noise Measurement Site - Long Term

0 ft 100 ft 250 ft 400 ft

Projection: UTM Zone 10 / WGS84 / meters
Rev. Date: 11/16/2023

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, 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.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (DNL or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. **Appendix A** provides a summary of acoustical terms used in this report.

TABLE 1: TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. September, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regards to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- 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 human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE AND VIBRATION ENVIRONMENTS

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, sensitive land uses includes existing single-family residential uses to the south and north of the project site, agriculture land use to the west, and commercial uses to the east of the project site.

EXISTING GENERAL AMBIENT NOISE LEVELS

The existing noise environment in the project area is primarily defined by traffic on E. Whitmore Ave and Tully Road. To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at three locations on the project site. Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**. **Appendix B** contains the complete results of the noise monitoring.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Location	Date	L_{dn}	Daytime L_{eq}	Daytime L_{50}	Daytime L_{max}	Nighttime L_{eq}	Nighttime L_{50}	Nighttime L_{max}
LT-1: 340 ft. to CL of E Whitmore Rd.	3/16/2023	62	57	50	73	56	46	75
LT-2: 70 ft. to CL of Tully Rd.	3/16/2023	64	58	52	77	58	46	78
LT-3: 420 ft. to CL of Tully Rd.	3/16/2023	60	54	50	71	54	46	72

- *All values shown in dBA*
- *Daytime hours: 7:00 a.m. to 10:00 p.m.*
- *Nighttime Hours: 10:00 p.m. to 7:00 a.m.*
- *Source: Saxelby Acoustics, 2023.*

FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

OFF-SITE TRAFFIC NOISE IMPACT ASSESSMENT METHODOLOGY

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at sensitive receptors for existing and future, project and no-project conditions.

Existing and Cumulative noise levels due to traffic are calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Project trip generation volumes were provided by the project traffic engineer (Wood Rodgers, Inc 2023), truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for Existing, EPAP, and Cumulative conditions which would result from the project are provided in terms of L_{dn}.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers or may be located at distances which vary from the assumed calculation distance.

Tables 3 and 4 summarizes the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the Project area. **Appendix C** provides the complete inputs and results of the FHWA traffic modeling.

TABLE 3: PREDICTED TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Predicted Exterior Noise Level (dBA Ldn) at Closest Sensitive Receptors		
		Existing No Project	Existing + Project	Change
Tully Road	Between East Whitmore Ave and Roeding Rd	52.6	52.9	0.3
East Whitmore Ave	West of Tully Rd.	61.3	61.4	0.1
East Whitmore Ave	East of Tully Rd.	61.2	61.2	0.0

TABLE 4: CUMULATIVE TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	**Segment**	**Predicted Exterior Noise Level (dBA L_{dn}) at Closest Sensitive Receptors**		
		Cumulative No Project	**Cumulative + Project**	**Change**
Tully Road	Between East Whitmore Ave and Roeding Rd	55.7	55.9	0.2
East Whitmore Ave	West of Tully Rd.	64.1	64.1	0.0
East Whitmore Ave	East of Tully Rd.	64.0	64.0	0.0

Based upon Tables **3 and 4** data, the proposed project is predicted to result in an increase in a maximum traffic noise level increase of 0.3 dBA.

EVALUATION OF PROJECT OPERATIONAL NOISE ON EXISTING SENSITIVE RECEPTORS

Proposed mechanical equipment on the project site and on-site circulation noise are considered to be the primary noise sources for this project. The following is a list of assumptions used for the noise modeling. The data used is based upon a combination of manufacturer's provided data and Saxelby Acoustics data from similar operations.

UNITED PAVEMENT CONSTRUCTION EQUIPMENT MAINTENANCE FACILITY

On-Site Circulation:	The project is estimated to generate 26 trucks trips per peak hour (Wood Rodgers, Inc 2023). Six trucks are projected to use the services provided by the Tire/Truck Repair Facility and 20 trucks are projected to use the services provided by the truck storage yard. Parking lot movements are predicted to generate a sound exposure level (SEL) of 71 dBA SEL at 50 feet for cars and 85 dBA SEL at 50 feet for trucks. Saxelby Acoustics data.
Concrete Batch Plant:	To determine typical noise levels associated with the operation of the proposed HT-12-12400C-65 mobile concrete batch plant, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 75 dBA L_{eq} and a maximum noise level of 83 dBA L_{max} at a distance of 50 feet from the

concrete batch plant. Saxelby Acoustics assumed that the concrete batch plant would operate during the hours of 6:00 a.m. to 6:00 p.m.

Wheeled Loader: To determine typical noise levels associated with the operation of the proposed 950-GC wheeled loader, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 80 dBA L_{eq} and a maximum noise level of 84 dBA L_{max} at a distance of 50 feet from the wheeled loader. Saxelby Acoustics assumed that the wheeled loader would operate during the hours of 6:00 a.m. to 6:00 p.m.

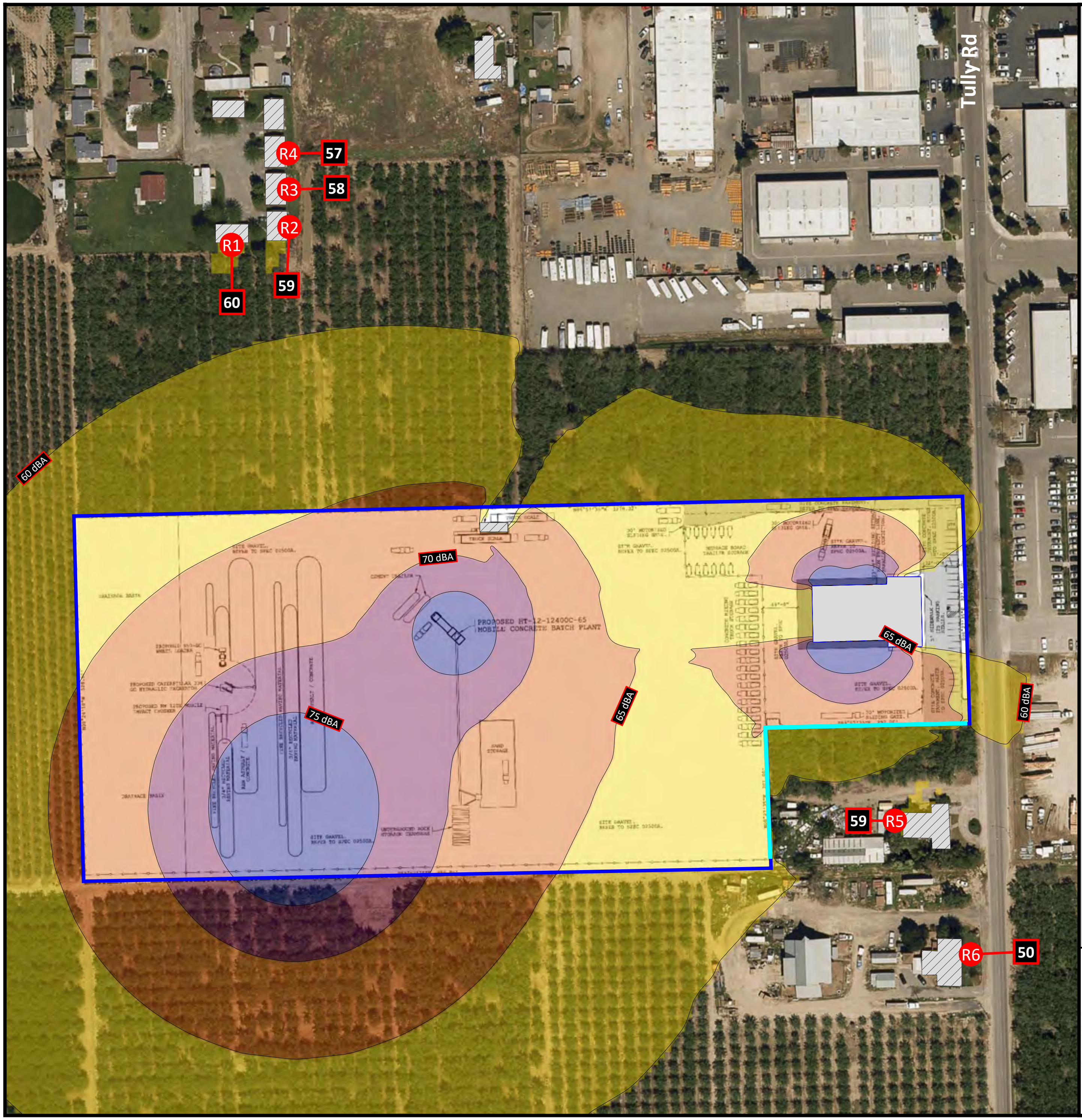
Impact Crusher: To determine typical noise levels associated with the operation of the proposed RM 120X mobile impact crusher, noise measurements data from the Hole Farm, Westfield Lane, Westfield, TN35 4SA Materials Processing Facility Noise Assessment was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 81 dBA L_{eq} at a distance of 35 feet from the impact crusher. Saxelby Acoustics assumed that impact crusher would operate during the hours of 6:00 a.m. to 6:00 p.m.

Hydraulic Excavator: To determine typical noise levels associated with the operation of the proposed 336 GC hydraulic excavator, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 77 dBA L_{eq} and a maximum noise level of 81 dBA L_{max} at a distance of 50 feet from the hydraulic excavator. Saxelby Acoustics assumed that the hydraulic excavator would operate during the hours of 6:00 a.m. to 6:00 p.m.

Maintenance Facility: To determine typical noise levels associated with the construction equipment maintenance shop on the project site, noise level measurement data from a Sacramento Unified School District bus repair facility was utilized. The noise level measurements were conducted at a distance of 120 feet from the repair shop entrance. Primary noise generation emanated from pneumatic tools.

The results of the bus repair shop noise measurements indicate that a busy hour generated an average noise level of 61 dBA L_{eq} and 76 dBA L_{max} at a distance of 120 feet from the bay of the bus repair shop. This analysis conservatively assumes that each repair bay could operate continuously at this level of activity in a busy hour. Saxelby Acoustics assumed that the construction equipment maintenance facility would operate during the hours of 6:00 a.m. to 6:00 p.m.

Saxelby Acoustics used the SoundPLAN noise prediction model. Inputs to the model included sound power levels for the proposed amenities, existing and proposed buildings, terrain type, and locations of sensitive receptors. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors). ISO 9613 is the most commonly used method for calculating exterior noise propagation. **Figure 3** shows the noise level contours resulting from operation of the project.



United Pavement Construction Equipment Maintenance Facility

City of Hughson, California

Figure 3

Operational Project Noise Contours
Ldn, dB(A)

Noise Level, dB(A)

60 <	🟨	<=	65
65 <	🟧	<=	70
70 <	🟪	<=	75
75 <	🟦		

Legend

- ▭ Tire/Truck Repair Facility
- ― Project Site
- ― Proposed 6-Foot Wall
- ③ Noise Sensitive Receptors

Scale 1:210

0 40 80 160 240 320 feet

N

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EVALUATION OF CUMULATIVE PROJECT OPERATIONAL NOISE ON EXISTING SENSITIVE RECEPTORS

In this analysis, the two proposed projects, United Pavement Construction Equipment Maintenance Facility and Jimenez Truck Maintenance and Storage Facility, are expected to operate simultaneously. On-site machinery and truck circulation noise are considered to be the primary noise sources for this project. The following is a list of assumptions used for the noise modeling. The data used is based upon a combination of manufacturer's provided data and Saxelby Acoustics data from similar operations.

UNITED PAVEMENT CONSTRUCTION EQUIPMENT MAINTENANCE FACILITY

On-Site Circulation:	The project is estimated to generate 26 trucks trips per peak hour (Wood Rodgers, Inc 2023). Six trucks are projected to use the services provided by the Tire/Truck Repair Facility and 20 trucks are projected to use the services provided by the truck storage yard. Parking lot movements are predicted to generate a sound exposure level (SEL) of 71 dBA SEL at 50 feet for cars and 85 dBA SEL at 50 feet for trucks. Saxelby Acoustics data.
Concrete Batch Plant:	To determine typical noise levels associated with the operation of the proposed HT-12-12400C-65 mobile concrete batch plant, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 75 dBA L_{eq} and a maximum noise level of 83 dBA L_{max} at a distance of 50 feet from the concrete batch plant. Saxelby Acoustics assumed that the concrete batch plant would operate during the hours of 6:00 a.m. to 6:00 p.m.
Wheeled Loader:	To determine typical noise levels associated with the operation of the proposed 950-GC wheeled loader, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 80 dBA L_{eq} and a maximum noise level of 84 dBA L_{max} at a distance of 50 feet from the wheeled loader. Saxelby Acoustics assumed that the wheeled loader would operate during the hours of 6:00 a.m. to 6:00 p.m.
Impact Crusher:	To determine typical noise levels associated with the operation of the proposed RM 120X mobile impact crusher, noise measurements data from the Hole Farm, Westfield Lane, Westfield, TN35 4SA Materials Processing Facility Noise Assessment was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 81 dBA L_{eq} at a distance of 35 feet from the impact crusher. Saxelby Acoustics assumed that impact crusher would operate during the hours of 6:00 a.m. to 6:00 p.m.
Hydraulic Excavator:	To determine typical noise levels associated with the operation of the proposed 336 GC hydraulic excavator, noise level measurements data from Federal Highway Administration Roadway Construction Model was utilized. The noise measurement data indicates that a busy hour generated an average noise level of 77 dBA L_{eq} and a maximum noise level of 81 dBA L_{max} at a distance of 50 feet from the hydraulic excavator. Saxelby Acoustics assumed that the hydraulic excavator would operate during the hours of 6:00 a.m. to 6:00 p.m.

Maintenance Facility: To determine typical noise levels associated with the construction equipment maintenance shop on the project site, noise level measurement data from a Sacramento Unified School District bus repair facility was utilized. The noise level measurements were conducted at a distance of 120 feet from the repair shop entrance. Primary noise generation emanated from pneumatic tools.

The results of the bus repair shop noise measurements indicate that a busy hour generated an average noise level of 61 dBA L_{eq} and 76 dBA L_{max} at a distance of 120 feet from the bay of the bus repair shop. This analysis conservatively assumes that each repair bay could operate continuously at this level of activity in a busy hour. Saxelby Acoustics assumed that the construction equipment maintenance facility would operate during the hours of 6:00 a.m. to 6:00 p.m.

JIMENEZ TRUCK MAINTENANCE AND STORAGE FACILITY

Site Circulation: The project is estimated to generate sixty trucks trips per workday. Ten trucks are projected to use the services provided by the Tire/Truck Repair Facility and fifty trucks are projected to use the services provided by the truck storage yard. Saxelby Acoustics assumed that the truck yard could be operational during daytime (7:00 a.m. to 10:00 p.m.) hours and nighttime (10:00 a.m. to 7:00 p.m.) hours.

Truck and Tire Repair: To determine typical noise levels associated with the four bay truck repair shop on the project site, noise level measurement data from a Sacramento Unified School District bus repair facility was utilized. The noise level measurements were conducted at a distance of 120 feet from the repair shop entrance. Primary noise generation emanated from pneumatic tools.

The results of the bus repair shop noise measurements indicate that a busy hour generated an average noise level of 61 dBA L_{eq} and 76 dBA L_{max} at a distance of 120 feet from the bay of the bus repair shop. This analysis conservatively assumes that each repair bay could operate continuously at this level of activity during any busy daytime (7:00 a.m. to 10:00 p.m.) hour.

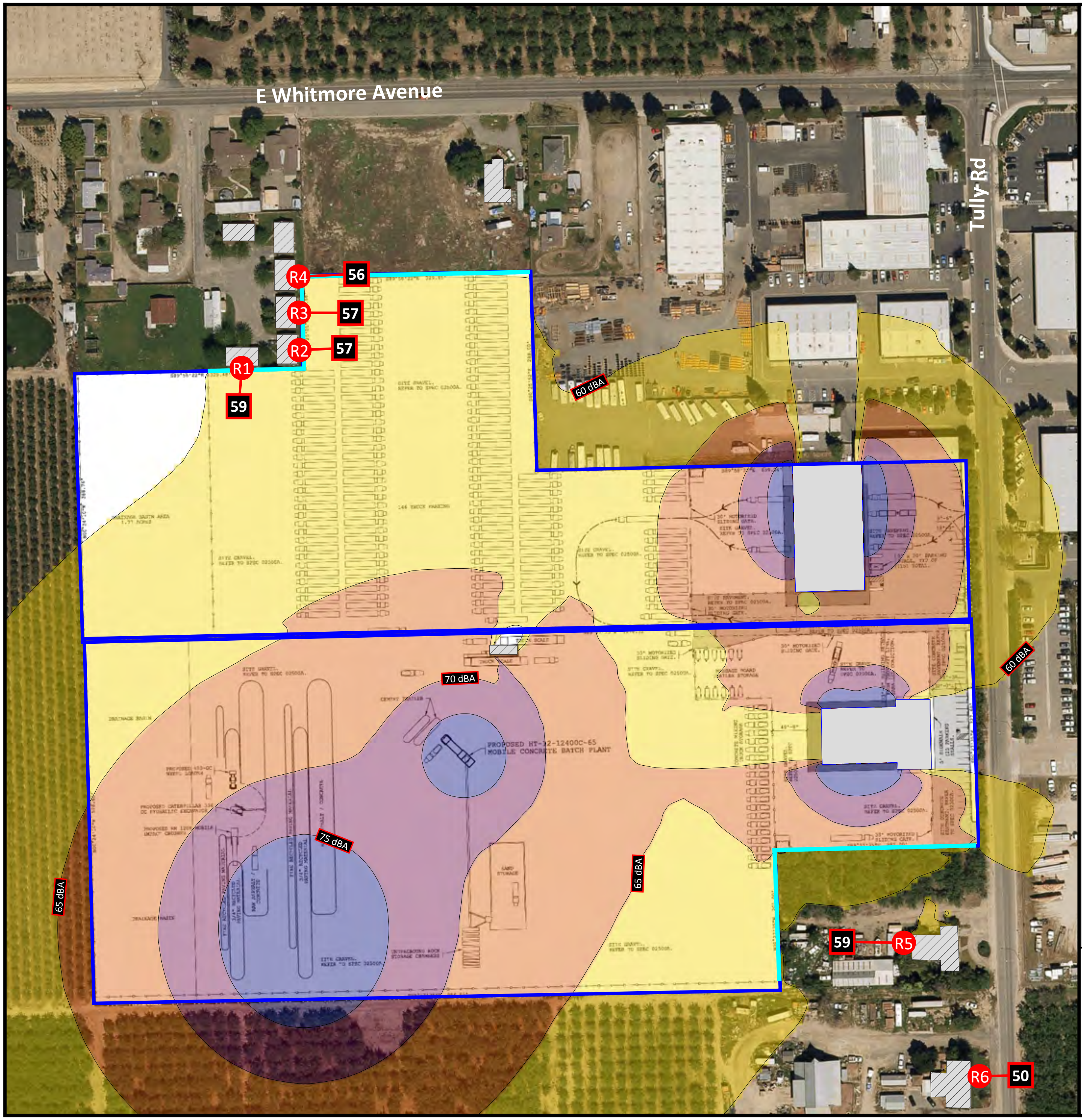
Saxelby Acoustics used the SoundPLAN noise prediction model. Inputs to the model included sound power levels for the proposed amenities, existing and proposed buildings, terrain type, and locations of sensitive receptors. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors). ISO 9613 is the most commonly used method for calculating exterior noise propagation. **Figure 4** shows the noise level contours resulting from the operation of the project.

United Pavement Construction Equipment Maintenance Facility

City of Hughson, California

Figure 4

Predicted Cumulative Noise Levels
Ldn, dB(A)



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CONSTRUCTION NOISE ENVIRONMENT

During the construction of the proposed project, noise from construction activities would temporarily add to the noise environment in the project vicinity. As shown in **Table 5**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 5: CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dBA at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: Roadway Construction Noise Model User's Guide. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

CONSTRUCTION VIBRATION ENVIRONMENT

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. **Table 6** shows the typical vibration levels produced by construction equipment.

TABLE 6: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

Source: Transit Noise and Vibration Impact Assessment Guidelines. Federal Transit Administration. May 2006.

REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

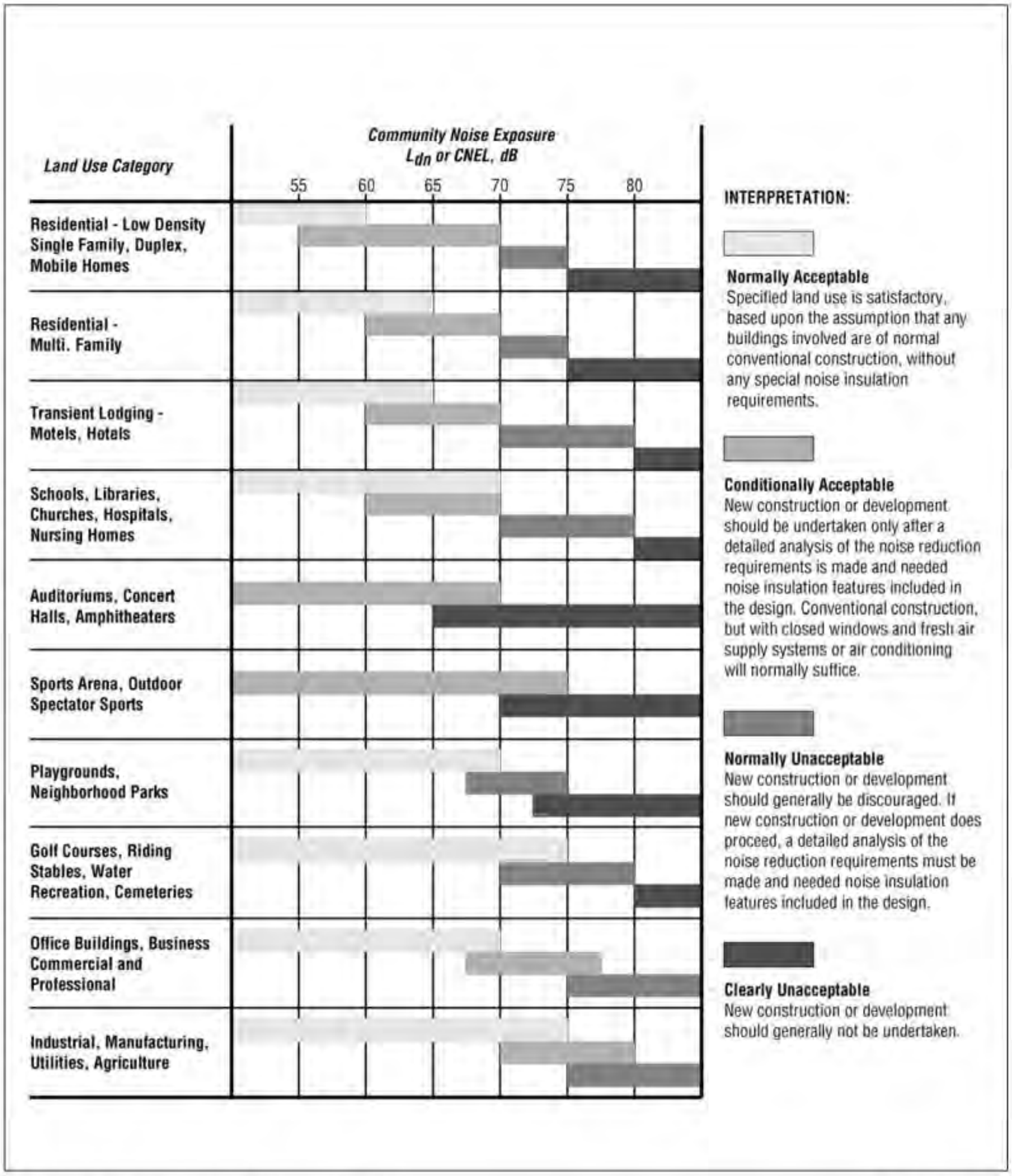
STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed more below under the Thresholds of Significance section.

LOCAL

City of Hughson



Normally Acceptable
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable
New construction or development should generally not be undertaken.

Source: State of California, General Plan Guidelines 2003, page 250

FIGURE N-1

LAND USE AND NOISE COMPATIBILITY

FIGURE 5: LAND USE AND NOISE COMPATIBILITY

Policies

Policy N-1.3 New development of residential or other noise sensitive land uses should not be allowed in noise impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels in outdoor activity areas to 60 dBA L_{dn} or less. Interior levels should be reduced to 45 dBA L_{dn} or less in all new residential developments.

Policy N-1.5 During all phases of construction activity, the City will require project developers to incorporate mitigation measures that minimize the exposure of neighboring properties to excessive noise levels.

Actions

Action N-1.1 Enforce the Hughson Noise Ordinance to avoid unnecessary and unusual noise during the hours of 10 p.m. to 7 a.m. Monday through Friday, and 10 p.m. to 8 a.m. Saturday, Sunday and holidays.

Action N-1.2 Require acoustical analyses for proposed sensitive land uses to be located within the 60 dBA L_{dn} noise contour, or in the vicinity of existing and proposed commercial and industrial areas. Acoustical analyses will also be required for commercial and industrial uses proposed in the vicinity of existing or proposed sensitive land uses. Where the noise analyses indicate that the noise compatibility standards contained in the Noise Element will be exceeded, require noise control measures to be incorporated into the proposed development to reduce noise levels to the extent feasible.

Stanislaus County General Plan

Policies

Policy 2-2 New development of industrial, commercial, or other noise generating land uses will not be permitted if resulting noise levels exceed 60 L_{dn} (or CNEL) in noise-sensitive areas. Additionally, the development of new noise-generating land uses, which are not preempted from local noise regulation, will not be permitted if resulting noise levels will exceed the performance standards contained within **Table 7** in areas containing residential or other noise sensitive land uses.

TABLE 7: MAXIMUM ALLOWABLE NOISE EXPOSURE – STATIONARY NOISE SOURCES[1]

	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Hourly L_{eq}, dBA	55	45
Maximum level, dBA	75	65

Source: Stanislaus County, Table IV-2

[1] As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.

Policy 3-1 Require the evaluation of mitigation measures for projects that would cause the L_{dn} at noise sensitive uses to increase by 3 dBA or more and exceed the normally acceptable" level, cause the L_{dn} at noise-sensitive uses to increase 5 dBA or more and remain normally acceptable, or cause new noise levels to exceed the noise ordinance limits (after adoption).

Stanislaus County Municipal Code

10.46.050 Exterior Noise Level Standards

A. It is unlawful for any person at any location within the unincorporated area of the county to create any noise or to allow the creation of any noise which causes the exterior noise level when measured at any property situated in either the incorporated or unincorporated area of the county to exceed the noise level standards as set forth below:

1. Unless otherwise provided herein, the following exterior noise level standards shall apply to all properties within the designated noise zone:

TABLE 8: EXTERIOR NOISE LEVEL STANDARDS

Designated Noise Zone	**Maximum A-Weighted Sound Level as Measured on a Sound Level Meter (L_{max})**	
	7:00 a.m. – 9:59 p.m.	**10:00 p.m. – 6:59 a.m.**
Noise Sensitive	45	45
Residential	50	45
Commercial	60	55
Industrial	75	75

Source: Stanislaus County Municipal Code: 10.46.050 Exterior Noise Level Standards – Table A

2. Exterior noise levels shall not exceed the following cumulative duration allowance standards:

TABLE 9: CUMULATIVE DURATION ALLOWANCE STANDARDS

Cumulative Duration	**Allowance Decibels**
Equal to or greater than 30 minutes per hour	Table A plus 0 dB
Equal to or greater than 15 minutes per hour	Table A plus 5 dB
Equal to or greater than 5 minutes per hour	Table A plus 10 dB
Equal to or greater than 1 minute per hour	Table A plus 15 dB
Less than 1 minute per hour	Table A plus 20 dB

Source: Stanislaus County Municipal Code: 10.46.050 Exterior Noise Level Standards – Table B

3. Pure Tone Noise, Speech and Music. The exterior noise level standards set forth in Table A shall be reduced by five dB(A) for pure tone noises, noises consisting primarily of speech or music, or reoccurring impulsive noise.

4. In the event the measured ambient noise level exceeds the applicable noise level standard above, the ambient noise level shall become the applicable exterior noise level standard.

10.46.060 Specific noise source standards.

E. Construction Equipment. No person shall operate any construction equipment so as to cause at or beyond the property line of any property upon which a dwelling unit is located an average sound level greater than seventy-five decibels between the hours of seven p.m. and seven a.m.

Summary of Applicable Noise Level Standards

Figure 5 shows the City of Hughson Land Use Compatibility Chart. The table indicates that development of industrial uses is "Normally Acceptable" where the ambient noise level is 70 dBA L_{dn} or less. Construction where the ambient noise level exceeds 70 dBA L_{dn} is considered "Unacceptable." Construction may occur where noise levels range from 60 dBA L_{dn} to 70 dBA L_{dn} if noise reduction measures are implemented to ensure interior and exterior spaces are protected from excessive noise.

The proposed project is located at the boundary of the City of Hughson. However, noise generated by the project uses (stationary noise) has the potential to affect sensitive receptors in the City of Hughson and Stanislaus County. Action N-2.1 shows the City of Hughson noise standards for residential outdoor activity areas and **Tables 7 and 8** shows the Stanislaus County noise standards for stationary sources. The more conservative of these standards shall be used for evaluating noise generated by the project. The project may not generate noise levels greater than 50 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours and 45 dBA L_{eq} during nighttime (10:00 p.m. to 7:00 a.m.) hours at the property line of the adjacent residential uses per the Stanislaus County Municipal Code.

CRITERIA FOR ACCEPTABLE VIBRATION

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of amplitude and frequency. A person's perception of the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 10**, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 10 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. A threshold of 0.20 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 10: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity		Human Reaction	Effect on Buildings
mm/second	in/second		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Transportation Related Earthborne Vibrations. Caltrans. TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-c]).

Would the project:

a. Generate 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?

b. Generate excessive groundborne vibration or groundborne noise levels?

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?

The proposed project is not located within two miles of a public or private airport, therefore item "c" is not discussed any further in this study.

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The California Environmental Quality Act (CEQA) guidelines define a significant impact of a project if it "increases substantially the ambient noise levels for adjoining areas." Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible,
- A 5-dB change is clearly perceptible, and
- A 10-dB change is perceived as being twice or half as loud.

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project noise conditions. **Table 11** is based upon recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}.

TABLE 11: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

Ambient Noise Level Without Project, L_{dn}	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON).

Based on the **Table 11** data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB L_{dn}, or 3 dB or more where existing noise levels are between 60 to 65 dB L_{dn}. Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB L_{dn}. The rationale for the **Table 11** criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

IMPACT 1: WOULD THE PROJECT GENERATE 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?

This noise analysis will analyze the project-specific impacts of the United Pavement Construction Equipment Maintenance Facility project, in addition to the cumulative project-specific impacts of the Jimenez Truck Maintenance and Storage Facility project and the United Pavement Construction Equipment Maintenance Facility project. Saxelby Acoustics assumes that both projects would be constructed and operating at the same time.

Project-Specific Impacts of United Pavement Construction Equipment Maintenance Facility

Traffic Noise Increases at Off-Site Receptors

Based upon the Policy 3-1 criteria, where existing traffic noise levels are greater than 65 dBA L_{dn}, at the outdoor activity areas of noise-sensitive uses, a +3.0 dBA L_{dn} increase in roadway noise levels will be considered significant. Where traffic noise levels cause an increase of +5.0 dB L_{dn} an increase in roadway noise levels will be considered significant. Where traffic noise levels cause new noise levels that exceed the City of Hughson noise standards, the noise level would be considered significant.

According to **Tables 3 and 4**, the maximum increase in traffic noise at the nearest sensitive receptor is predicted to be 0.1 dBA. Therefore, impacts resulting from increased traffic noise would be considered ***less-than-significant***, and no mitigation is required.

Operational Noise at Existing Sensitive Receptors

As shown on **Table 12**, the project is predicted to expose nearby residences to noise levels up to 60 dBA L_{dn}, up to 49 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours, and up to 41 dBA L_{eq} during nighttime (10:00 p.m. to 7:00 a.m.) hours. It should be noted that some affected residences are located outside of the boundaries of the City of Hughson and are subject to the Stanislaus County noise level standards.

It should be noted that maximum noise levels generated by the on-site vehicle circulation are predicted to be 20 dBA, or less, than the average (L_{eq}) values. The Stanislaus County maximum (L_{max}) nighttime noise level standard is 65 dBA L_{max}, which is 20 dBA higher than the L_{eq} standard. Therefore, where average noise levels are in compliance with the L_{eq} standards, maximum noise levels will also meet the County's standards.

TABLE 12: UNITED PAVEMENT PREDICTED PROJECT OPERATIONAL NOISE LEVELS AT NOISE SENSITIVE RECEPTORS

Location	Jurisdiction	Applicable Noise Standard	Predicted Noise Levels	Complies with Standard?
R1	City of Hughson	60 dBA L_{dn}[1]	60 dBA L_{dn}	Yes
R2	City of Hughson	60 dBA L_{dn}[1]	59 dBA L_{dn}	Yes
R3	City of Hughson	60 dBA L_{dn}[1]	58 dBA L_{dn}	Yes
R4	City of Hughson	60 dBA L_{dn}[1]	57 dBA L_{dn}	Yes
R5	City of Hughson	60 dBA L_{dn}[1]	59 dBA L_{dn}	Yes
R6	Stanislaus County	50 dBA (Day)	49 dBA L_{eq} (Day)	Yes
		45 dBA L_{eq}[3] (Night)	41 dBA L_{eq} (Night)	Yes

Notes:

[1] *City of Hughson, General Plan - Policy 3-1*

[2] *Stanislaus County Municipal Code, 10.46.050 Exterior Noise Level Standards - Daytime Standard*

[3] *Stanislaus County Municipal Code, 10.46.050 Exterior Noise Level Standards - Nighttime Standard*

The predicted project noise levels would meet the City of Hughson noise level standard for residential outdoor activity area of 60 dBA L_{dn}. The predicted project noise levels would meet the Stanislaus County Municipal Code noise standard for daytime (7:00 a.m. to 10:00 p.m.) stationary noise sources of 50 dBA L_{eq} and County's nighttime (10:00 p.m. to 7:00 a.m.) stationary noise sources of 45 dBA L_{eq}.

This is a ***less-than-significant*** impact, and no mitigation is required.

Cumulative Project-Specific Impacts of the United Pavement Construction Equipment Maintenance Facility Project and the Jimenez Truck Maintenance and Storage Facility Project Operational Noise at Existing Sensitive Receptors

As shown on **Table 13**, the projects are predicted to expose nearby residences to noise levels up to 59 dBA L_{dn}, up to 49 dBA L_{eq} during daytime (7:00 a.m. to 10:00 p.m.) hours, and up to 49 dBA L_{eq} during nighttime (10:00 p.m. to 7:00 a.m.) hours. It should be noted that some affected residences are located outside of the boundaries of the City of Hughson and are subject to the Stanislaus County noise level standards.

It should be noted that maximum noise levels generated by the on-site vehicle circulation are predicted to be 20 dBA, or less, than the average (L_{eq}) values. The Stanislaus County maximum (L_{max}) nighttime noise level standard is 65 dBA L_{max}, which is 20 dBA higher than the L_{eq} standard. Therefore, where average noise levels are in compliance with the L_{eq} standards, maximum noise levels will also meet the County's standards.

TABLE 13: CUMULATIVE PREDICTED PROJECT OPERATIONAL NOISE LEVELS AT NOISE SENSITIVE RECEPTORS

Location	Jurisdiction	Applicable Noise Standard	Predicted Noise Levels	Complies with Standard?
R1	City of Hughson	60 dBA L_{dn}[1]	59 dBA L_{dn}	Yes
R2	City of Hughson	60 dBA L_{dn}[1]	57 dBA L_{dn}	Yes
R3	City of Hughson	60 dBA L_{dn}[1]	57 dBA L_{dn}	Yes
R4	City of Hughson	60 dBA L_{dn}[1]	56 dBA L_{dn}	Yes
R5	City of Hughson	60 dBA L_{dn}[1]	59 dBA L_{dn}	Yes
R6	Stanislaus County	50 dBA L_{eq}[2] (Day)	49 dBA L_{eq} (Day)	Yes
		45 dBA L_{eq}[3] (Night)	41 dBA L_{eq} (Night)	Yes

Notes:
[1] *City of Hughson General Plan, Policy 3-1*
[2] *Stanislaus County Municipal Code, 10.46.050 Exterior Noise Level Standards - Daytime Standard*
[3] *Stanislaus County Municipal Code, 10.46.050 Exterior Noise Level Standards - Nighttime Standard*

The predicted project noise levels would meet the City of Hughson noise level standard for residential outdoor activity area of 60 dBA L_{dn}. The predicted project noise levels would meet the Stanislaus County Municipal Code noise standard for daytime (7:00 a.m. to 10:00 p.m.) stationary noise sources of 50 dBA L_{eq} and County's nighttime (10:00 p.m. to 7:00 a.m.) stationary noise sources of 45 dBA L_{eq}.

This is a **less-than-significant impact**, and no mitigation is required.

Construction Noise

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. As indicated in **Table 5**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dBA L_{max} at a distance of 50 feet. Construction activities would also be temporary in nature and are anticipated to occur during normal daytime working hours.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be of short duration and would occur during daytime hours.

Noise from localized point sources (such as construction sites) typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given this noise attenuation rate and assuming no noise shielding from either natural or human-made features (e.g., trees, buildings, fences), outdoor receptors within approximately 900 feet of construction sites could experience maximum instantaneous noise levels of greater than 60 dBA when on-site construction-related noise levels exceed approximately 90 dBA at the boundary of the construction site. As previously discussed, nearby noise-sensitive receptors consist predominantly of residential dwellings located near the western and northern boundaries of the project site.

During development of the proposed project, construction activities occurring during the more noise-sensitive late evening and nighttime hours (i.e., 7 PM to 7 AM) could result in increased levels of annoyance and potential sleep disruption for occupants of nearby existing noise sensitive land uses. Additionally, there are several residential uses approximately 30 feet from the project site which may be subject to construction noise. As a result, noise-generating construction activities would be considered to have a potentially significant short-term impact.

Mitigation Measure

1(a) The City shall establish the following as conditions of approval for any permit that results in the use of construction equipment:

- Construction activities (excluding activities that would result in a safety concern to the public or construction workers) shall be limited to between the daytime hours of 7 AM and 7 PM daily.
- Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- When not in use, motorized construction equipment shall not be left idling for more than 5 minutes.
- Stationary equipment (power generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses or sufficiently shielded to reduce noise-related impacts.

Implementation of mitigation measures 1(a) would help to reduce construction-generated noise levels. With mitigation, this impact would be considered ***less-than-significant***.

IMPACT 2: WOULD THE PROJECT GENERATE EXCESSIVE GROUNDBORNE VIBRATION OR GROUNDBORNE NOISE LEVELS?

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural.

The **Table 4** data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located approximately 26 feet, or further, from typical construction activities. At these distances construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

This is a **less-than-significant** impact and no mitigation is required.

IMPACT 3: 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?

There are no airports within two miles of the project vicinity. Therefore, this impact is not applicable to the proposed project.

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Appendix B: Continuous Ambient Noise Measurement Results

Appendix B1: Continuous Noise Monitoring Results

Site: LT-1

Project: United Pavement Construction Equipment Maintenance Faci

Meter: LDL 820-2

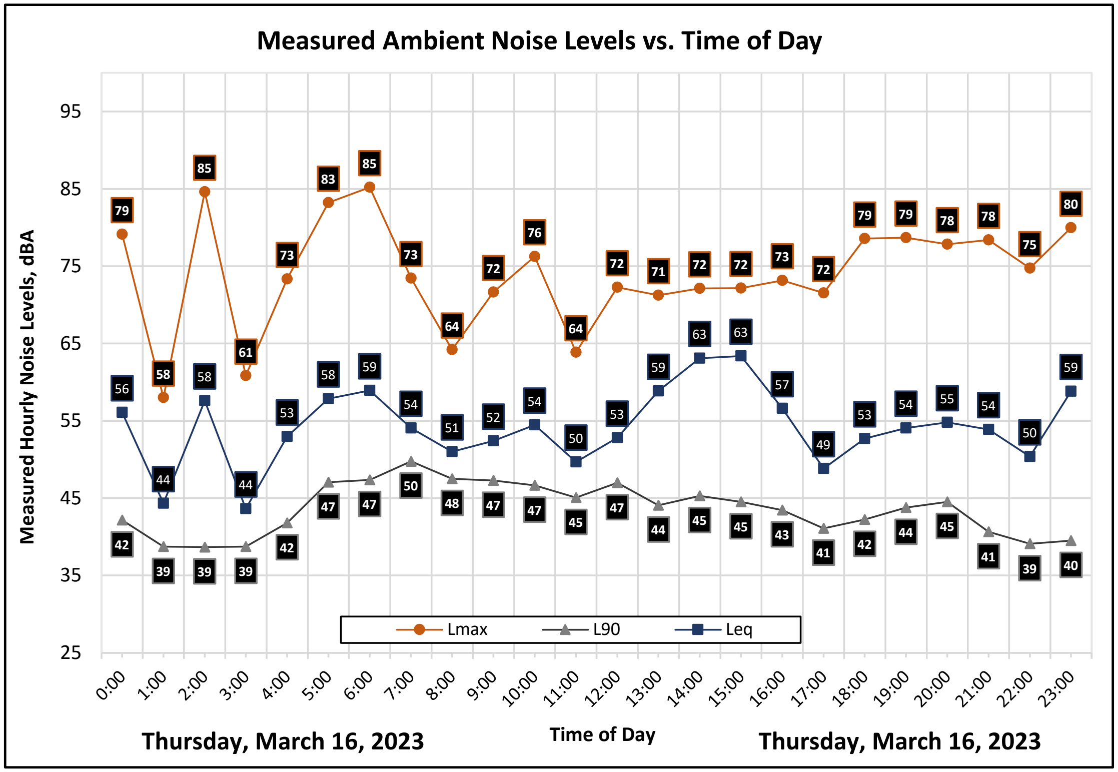
Location: Northern Project Boundary

Calibrator: CAL200

Coordinates: (37.5938428, -120.8731729)

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, March 16, 2023	0:00	56	79	50	42
Thursday, March 16, 2023	1:00	44	58	42	39
Thursday, March 16, 2023	2:00	58	85	41	39
Thursday, March 16, 2023	3:00	44	61	42	39
Thursday, March 16, 2023	4:00	53	73	48	42
Thursday, March 16, 2023	5:00	58	83	51	47
Thursday, March 16, 2023	6:00	59	85	50	47
Thursday, March 16, 2023	7:00	54	73	53	50
Thursday, March 16, 2023	8:00	51	64	50	48
Thursday, March 16, 2023	9:00	52	72	50	47
Thursday, March 16, 2023	10:00	54	76	50	47
Thursday, March 16, 2023	11:00	50	64	48	45
Thursday, March 16, 2023	12:00	53	72	50	47
Thursday, March 16, 2023	13:00	59	71	48	44
Thursday, March 16, 2023	14:00	63	72	59	45
Thursday, March 16, 2023	15:00	63	72	59	45
Thursday, March 16, 2023	16:00	57	73	48	43
Thursday, March 16, 2023	17:00	49	72	46	41
Thursday, March 16, 2023	18:00	53	79	47	42
Thursday, March 16, 2023	19:00	54	79	47	44
Thursday, March 16, 2023	20:00	55	78	49	45
Thursday, March 16, 2023	21:00	54	78	48	41
Thursday, March 16, 2023	22:00	50	75	44	39
Thursday, March 16, 2023	23:00	59	80	45	40

Statistics	Leq	Lmax	L50	L90
Day Average	57	73	50	45
Night Average	56	75	46	41
Day Low	49	64	46	41
Day High	63	79	59	50
Night Low	44	58	41	39
Night High	59	85	51	47
Ldn	62	Day %		69
CNEL	63	Night %		31

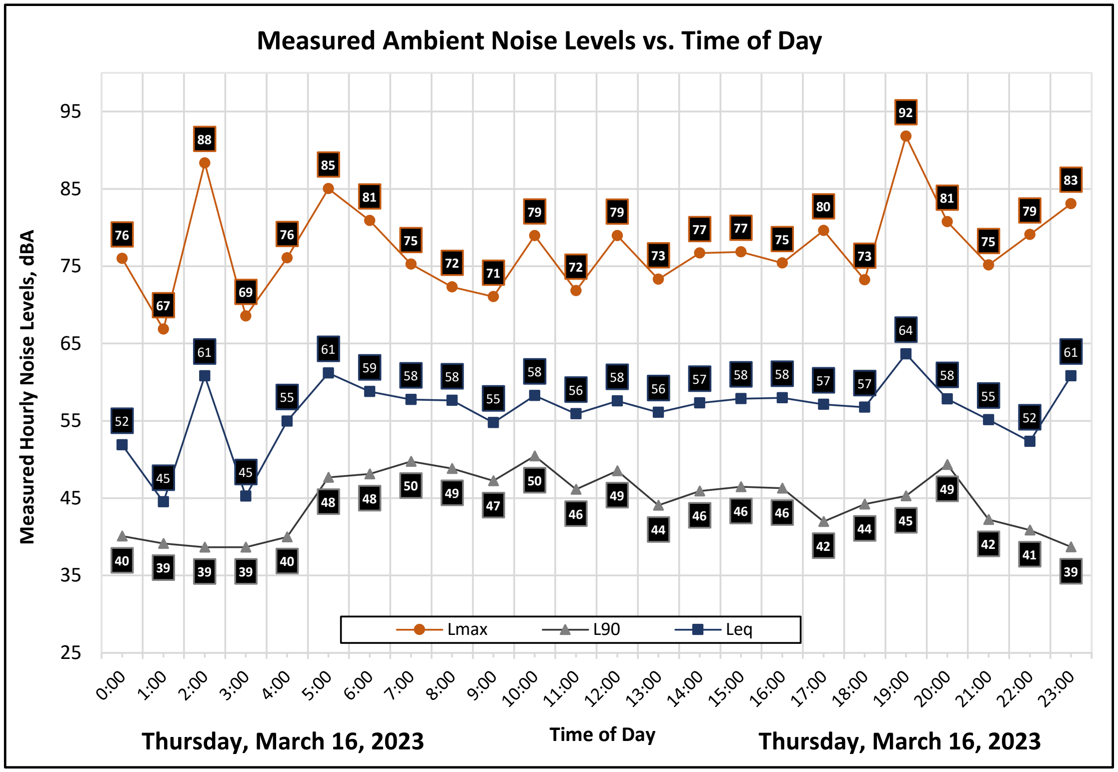


Appendix B2: Continuous Noise Monitoring Results

Site: LT-2
Project: United Pavement Construction Equipment Maintenance Faci
Meter: LDL 820-3
Location: Eastern Project Boundary
Calibrator: CAL200
Coordinates: (37.5919062, -120.8702577)

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, March 16, 2023	0:00	52	76	44	40
Thursday, March 16, 2023	1:00	45	67	42	39
Thursday, March 16, 2023	2:00	61	88	41	39
Thursday, March 16, 2023	3:00	45	69	41	39
Thursday, March 16, 2023	4:00	55	76	48	40
Thursday, March 16, 2023	5:00	61	85	56	48
Thursday, March 16, 2023	6:00	59	81	56	48
Thursday, March 16, 2023	7:00	58	75	53	50
Thursday, March 16, 2023	8:00	58	72	53	49
Thursday, March 16, 2023	9:00	55	71	50	47
Thursday, March 16, 2023	10:00	58	79	55	50
Thursday, March 16, 2023	11:00	56	72	53	46
Thursday, March 16, 2023	12:00	58	79	54	49
Thursday, March 16, 2023	13:00	56	73	51	44
Thursday, March 16, 2023	14:00	57	77	54	46
Thursday, March 16, 2023	15:00	58	77	55	46
Thursday, March 16, 2023	16:00	58	75	53	46
Thursday, March 16, 2023	17:00	57	80	49	42
Thursday, March 16, 2023	18:00	57	73	51	44
Thursday, March 16, 2023	19:00	64	92	49	45
Thursday, March 16, 2023	20:00	58	81	53	49
Thursday, March 16, 2023	21:00	55	75	50	42
Thursday, March 16, 2023	22:00	52	79	44	41
Thursday, March 16, 2023	23:00	61	83	46	39

Statistics	Leq	Lmax	L50	L90
Day Average	58	77	52	46
Night Average	58	78	46	41
Day Low	55	71	49	42
Day High	64	92	55	50
Night Low	45	67	41	39
Night High	61	88	56	48
Ldn	64	Day %		66
CNEL	64	Night %		34



Appendix B3: Continuous Noise Monitoring Results

Site: LT-3

Project: United Pavement Construction Equipment Maintenance Faci

Meter: LDL 820-5

Location: Southern Project Boundary

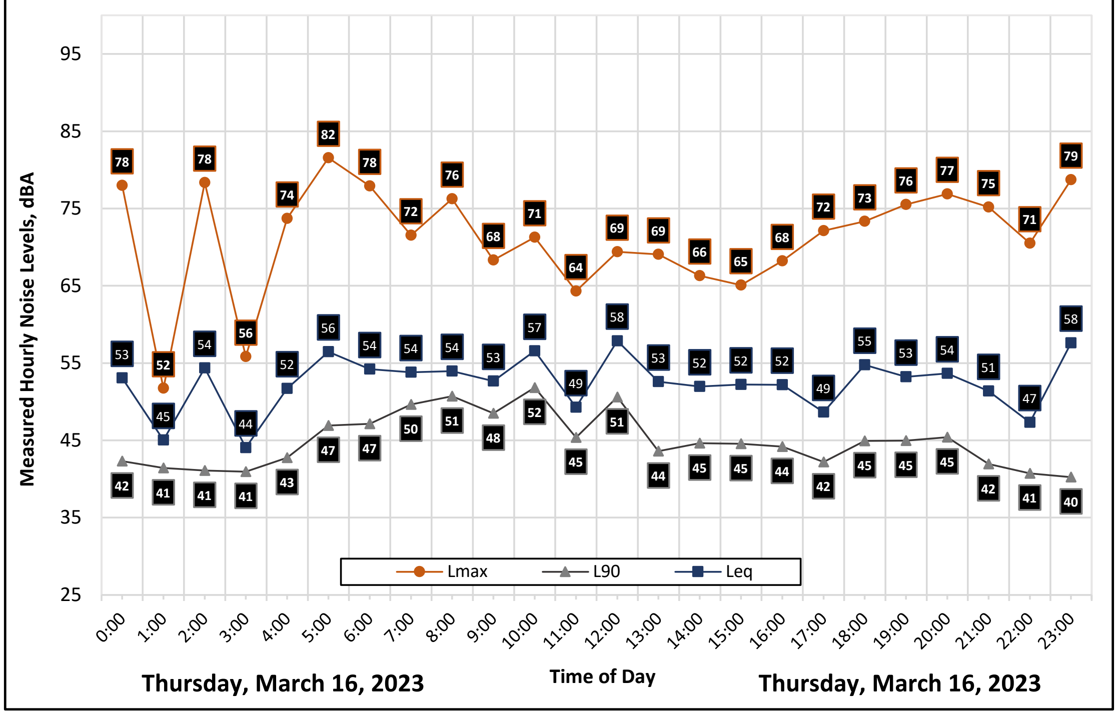
Calibrator: CAL200

Coordinates: (37.5913369, -120.8714359)

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, March 16, 2023	0:00	53	78	46	42
Thursday, March 16, 2023	1:00	45	52	44	41
Thursday, March 16, 2023	2:00	54	78	44	41
Thursday, March 16, 2023	3:00	44	56	43	41
Thursday, March 16, 2023	4:00	52	74	46	43
Thursday, March 16, 2023	5:00	56	82	50	47
Thursday, March 16, 2023	6:00	54	78	49	47
Thursday, March 16, 2023	7:00	54	72	53	50
Thursday, March 16, 2023	8:00	54	76	53	51
Thursday, March 16, 2023	9:00	53	68	51	48
Thursday, March 16, 2023	10:00	57	71	55	52
Thursday, March 16, 2023	11:00	49	64	48	45
Thursday, March 16, 2023	12:00	58	69	56	51
Thursday, March 16, 2023	13:00	53	69	49	44
Thursday, March 16, 2023	14:00	52	66	50	45
Thursday, March 16, 2023	15:00	52	65	50	45
Thursday, March 16, 2023	16:00	52	68	48	44
Thursday, March 16, 2023	17:00	49	72	45	42
Thursday, March 16, 2023	18:00	55	73	50	45
Thursday, March 16, 2023	19:00	53	76	47	45
Thursday, March 16, 2023	20:00	54	77	48	45
Thursday, March 16, 2023	21:00	51	75	46	42
Thursday, March 16, 2023	22:00	47	71	43	41
Thursday, March 16, 2023	23:00	58	79	45	40

Statistics	Leq	Lmax	L50	L90
Day Average	54	71	50	46
Night Average	54	72	46	43
Day Low	49	64	45	42
Day High	58	77	56	52
Night Low	44	52	43	40
Night High	58	82	50	47
Ldn	60	Day %		64
CNEL	60	Night %		36

Measured Ambient Noise Levels vs. Time of Day



Appendix C: Traffic Noise Calculation Inputs and Results

Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 230205
Description: United Pavement Construction Equipment Maintenance Facility - Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

												Contours (ft.) - No Offset			
Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	60 dBA	65 dBA	70 dBA	Level, dBA
1	Tully Road	Between East Whitmore Ave and Roeding Rd	2,445	66	0	34	1.0%	1.0%	45	120	-5	83	39	18	52.6
2	East Whitmore Ave	West of Tully Rd.	6,991	69	0	31	1.0%	1.0%	45	130	0	160	74	34	61.3
3	East Whitmore Ave	East of Tully Rd.	6,016	69	0	31	1.0%	1.0%	45	120	0	145	67	31	61.2

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Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 230205
Description: United Pavement Construction Equipment Maintenance Facility - Existing Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset			Level, dBA
												60 dBA	65 dBA	70 dBA	
1	Tully Road	Between East Whitmore Ave and Roeding Rd	2,623	66	0	34	1.0%	1.0%	45	120	-5	87	40	19	52.9
2	East Whitmore Ave	West of Tully Rd.	7,101	69	0	31	1.0%	1.0%	45	130	0	161	75	35	61.4
3	East Whitmore Ave	East of Tully Rd.	6,050	69	0	31	1.0%	1.0%	45	120	0	145	67	31	61.2

Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 230205

Description: United Pavement Construction Equipment Maintenance Facility - Cumulative

Ldn/CNEL: Ldn

Hard/Soft: Soft

												Contours (ft.) - No Offset			
Segment	**Roadway**	**Segment**	**ADT**	**Day %**	**Eve %**	**Night %**	**% Med. Trucks**	**% Hvy. Trucks**	**Speed**	**Distance**	**Offset (dB)**	**60 dBA**	**65 dBA**	**70 dBA**	**Level, dBA**
1	Tully Road	Between East Whitmore Ave and Roeding Rd	5,037	66	0	34	1.0%	1.0%	45	120	-5	134	62	29	55.7
2	East Whitmore Ave	West of Tully Rd.	13,121	69	0	31	1.0%	1.0%	45	130	0	243	113	52	64.1
3	East Whitmore Ave	East of Tully Rd.	11,364	69	0	31	1.0%	1.0%	45	120	0	221	102	48	64.0

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Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 230205

Description: United Pavement Construction Equipment Maintenance Facility - Cumulative Plus Project

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Tully Road	Between East Whitmore Ave and Roeding Rd	5,215	66	0	34	1.0%	1.0%	45	120	-5	138	64	30	55.9
2	East Whitmore Ave	West of Tully Rd.	13,231	69	0	31	1.0%	1.0%	45	130	0	244	113	53	64.1
3	East Whitmore Ave	East of Tully Rd.	11,398	69	0	31	1.0%	1.0%	45	120	0	221	103	48	64.0

APPENDIX E
TRANSPORTATION IMPACT ANALYSIS

Hughson, CA

United Pavement Maintenance Facility Project Transportation Impact Analysis

FINAL REPORT

Prepared For:

BaseCamp Environmental, Inc.

Prepared By

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

3301 B Street, Building 100-B
Sacramento, CA 95819
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November 2023

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EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The Project is located west of Tully Road, southwest of Joe Ruddy Court, and consists of the southern 14.47 acres of the parcel designated as Assessor's Parcel Number (APN) 018-049-032. The Project would gain access to the existing roadway network via two new driveway connections to Tully Road. The Central Project Driveway would be full-access, while the South Project Driveway would be egress-only. Phase 1 of the Project proposes to develop an 18,760 square foot equipment maintenance/repair building including contractors office, front parking lot, and rear equipment storage yard on the eastern portion of the Project site (approximately 2.49 acres). Phase 1 addresses relocation the existing United Pavement Maintenance Facility, currently operating at 7017 Hughson Avenue, Hughson, CA. Phase 2 of the Project proposes to develop a 10.16-acre enclosed concrete plant/rock crushing facility.

The proposed Project is estimated to generate a total of 520 passenger car equivalent (PCE) daily trips, with 76 PCE AM peak-hour trips and 76 PCE PM peak-hour trips.

INTERSECTION OPERATIONS

Tully Road & Santa Fe Avenue: The intersection of Tully Road & Santa Fe Avenue is currently operating at LOS E under Existing PM peak hour conditions and currently meets CA Signal Warrant #3 under Existing AM and PM Peak Hour conditions. With the addition of Project trips, the intersection is projected to continue to operate at LOS E under Existing Plus Project PM peak hour conditions and meet CA Signal Warrant #3 under Existing Plus Project AM and PM Peak Hour conditions. As the Project is not projected to cause an LOS deficiency or cause the signal warrant to be met, a Project-related deficiency is not considered to occur at this intersection. However, as this intersection is currently operating at unacceptable LOS and the addition of Project trips would worsen operations, and the City General Plan identifies the need for signalization at this intersection, it is recommended that the Project contribute fair-share toward the planned traffic signal improvement at this location. This intersection is projected to operate at acceptable LOS under Cumulative Plus Project conditions with installation of a traffic signal.

Tully Road & East Whitmore Avenue: With the addition of Project trips, this intersection is projected to meet CA Signal Warrant #3 under Existing Plus Project PM Peak Hour conditions. However, as this intersection is projected to operate at acceptable LOS under Existing and Existing Plus Project conditions, a Project-related deficiency is not considered to occur at this intersection.

Santa Fe Avenue & East Whitmore Avenue: The intersection of Santa Fe Avenue & East Whitmore Avenue is currently operating at LOS F under Existing PM peak hour conditions and currently meets CA Signal Warrant #3 under Existing AM and PM Peak Hour conditions. With the addition of Project trips, the intersection is projected to continue to operate at LOS F under Existing Plus Project PM peak hour conditions and meet CA Signal Warrant #3 under Existing Plus Project AM and PM Peak Hour conditions. As the Project is not projected to cause an LOS deficiency or cause the signal warrant to be met, a Project-related deficiency is not considered to occur at this intersection. However, as this intersection is currently operating at unacceptable LOS and the addition of Project trips would worsen operations, and the City General Plan identifies the need for signalization at this intersection, it is recommended that the Project contribute fair-share toward the planned traffic signal improvement at this location. This intersection is projected to operate at acceptable LOS under Cumulative Plus Project conditions with installation of a traffic signal.

QUEUEING ANALYSIS

The following movements are shown to exceed available storage under Existing and Existing Plus Project conditions:

- Tully Road & Santa Fe Avenue: WB approach, AM and PM peak hour
- Santa Fe Avenue & East Whitmore Avenue: SB approach, PM peak hour; EB approach, PM peak hour

The addition of Project trips is projected to lengthen existing queue deficiencies by less than one vehicle length. Construction of a signal at the above intersections would alleviate the above queueing deficiencies. It is recommended that the Project contribute fair share toward planned traffic signal improvements at the Tully Road & Santa Fe Avenue and Santa Fe Avenue & East Whitmore Avenue intersections.

All other study intersection queues are projected to fit within available storage.

ROADWAY OPERATIONS

All study roadway segments are projected to operate at acceptable LOS under all study conditions.

PROJECT FAIR SHARE PERCENTAGES

The Project would have a fair-share percentage of 0.53 percent toward the planned traffic signal improvements at the Tully Road & Santa Fe Avenue intersection and a fair-share percentage of 0.96 percent at the Santa Fe Avenue & East Whitmore Avenue intersection.

SITE ACCESS

The Project would access the surrounding roadway network via a 32-foot one-way exit driveway near the southern boundary of the site and a 61-foot full-access driveway near the northern boundary of the site on Tully Road (the South and Central Project Driveways). The site is anticipated to provide adequate emergency vehicle access.

Spacing between the North Parcel Driveway and Central Project Driveway is approximately 108 feet, and spacing between the Central Project Driveway and South Project Driveway is approximately 252 feet. As the Project frontage on Tully Road exceeds 200 feet, driveway spacing for the Project is considered adequate.

Truck turn swept path analysis was performed for egress movements at the South Project Driveway and ingress and egress movements at the Central Project Driveway using an STAA Standard design vehicle with a total length of 69 feet. The design vehicle would be able to navigate ingress or egress movements at the driveways without conflicting with the driveway curb return or vehicles making opposing movements. Therefore, this TIA finds that the proposed Project driveways are appropriately sized to accommodate the design vehicle.

VMT ANALYSIS

The proposed United Pavement Maintenance Facility, located on the front parcel of the Project site, is less than 50,000 square feet and would serve the local community. Additionally, the proposed Concrete Plant/Rock Crushing facility, located in the western portion of the Project site, would also provide a local service, reducing the need for patrons to make longer-distance or out-of-direction trips to the next-closest facility. Based on these attributes, the Project may be presumed to be local-serving and produce a less than significant VMT impact.

1 INTRODUCTION

This report has been prepared to present the results of the Transportation Impact Analysis (TIA) performed by Wood Rodgers, Inc. for the proposed United Pavement Maintenance Facility and Concrete Mixing and Recycling Center Project (Project) located in the City of Hughson (City). The Project location is shown in **Figure 1.1**. The purpose of this TIA is to address the Project's impacts under California Environmental Quality Act (CEQA) requirements and evaluate the Project's potential off-site and on-site traffic operations. The CEQA analysis considered the Project's effects on regional vehicle miles traveled (VMT), and a local traffic operations analysis was conducted to evaluate the Project's potential traffic operational deficiencies and identify improvements as needed.

1.1 PROJECT DESCRIPTION

The Project is located west of Tully Road, southwest of Joe Ruddy Court, and consists of the southern 14.47 acres of the parcel designated as Assessor's Parcel Number (APN) 018-049-032. The Project would gain access to the existing roadway network via two new driveway connections to Tully Road. The Central Project Driveway would be full-access, while the South Project Driveway would be egress-only. Phase 1 of the Project proposes to develop an 18,760 square foot equipment maintenance/repair building including contractors office, front parking lot, and rear equipment storage yard on the eastern portion of the Project site (approximately 2.49 acres). Phase 1 addresses relocation the existing United Pavement Maintenance Facility, currently operating at 7017 Hughson Avenue, Hughson, CA. Phase 2 of the Project proposes to develop a 10.16-acre enclosed concrete plant/rock crushing facility. The Project also includes 1.82 acres for storm drainage containment. The current Project site plan is illustrated in **Figure 1.2**.

The Project site is currently zoned as industrial and contains an existing orchard. APN 018-049-032 will be split into two separate parcels. The south parcel will contain the proposed Project. The north parcel will contain the proposed Jimenez Tires and Truck Repair Facility and Truck Storage Yard which is moving forward as a separate project and application with the City. The new APNs for the new north and south parcels have not been assigned yet. The Project and the proposed Jimenez Tires and Truck Repair Facility and Truck Storage Yard would share the Central Project Driveway.

1.2 STUDY AREA

Study facilities include the intersections and roadway segments described below.

1.2.1 Intersections and Roadway Segments

Study intersections and roadway segments were selected based on the Project trip generation estimate and distribution, and input from City staff. The following seven (7) study intersections were analyzed in this TIA:

1. Tully Road & Santa Fe Avenue
2. Tully Road & East Whitmore Avenue
3. Tully Road & North Parcel Driveway (proposed)
4. Tully Road & Central Project Driveway (proposed)
5. Tully Road & South Project Driveway (proposed)
6. Tully Road & Roeding Road
7. East Whitmore Avenue & Santa Fe Avenue

Note that the Tully Road & North Parcel Driveway intersection would primarily serve the proposed Jimenez Tires and Truck Repair Facility and Truck Storage Yard which is moving forward as a separate project. The North Parcel Driveway intersection has been included in this TIA in order to study future cumulative traffic conditions and driveway interactions when both the Project and the Jimenez Tires and Truck Repair Facility and Truck Storage Yard are completed.

The following three (3) roadway segments were analyzed in this TIA:

1. Tully Road between East Whitmore Avenue and Roeding Road
2. East Whitmore Avenue west of Tully Road
3. East Whitmore Avenue between Tully Road and Santa Fe Avenue

The locations of the above study intersections and roadway segments are shown in **Figure 1.1**.

1.3 ANALYSIS SCENARIOS

The study facilities were evaluated under weekday AM and PM peak hour conditions for the following scenarios:

- **Existing Conditions:** Existing traffic volumes from collected traffic counts.
- **Existing Plus Project Conditions:** Existing traffic volumes plus traffic projected to be generated by the proposed Project.
- **Cumulative Conditions:** 20-year Cumulative conditions volumes and network improvements based on the *City of Hughson 2005 General Plan EIR* (dated June 30, 2005) with traffic added from planned nearby developments.
- **Cumulative Plus Project Conditions:** Cumulative traffic volumes plus traffic projected to be generated by the proposed Project.

Project Location and Study Vicinity

Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 1.1

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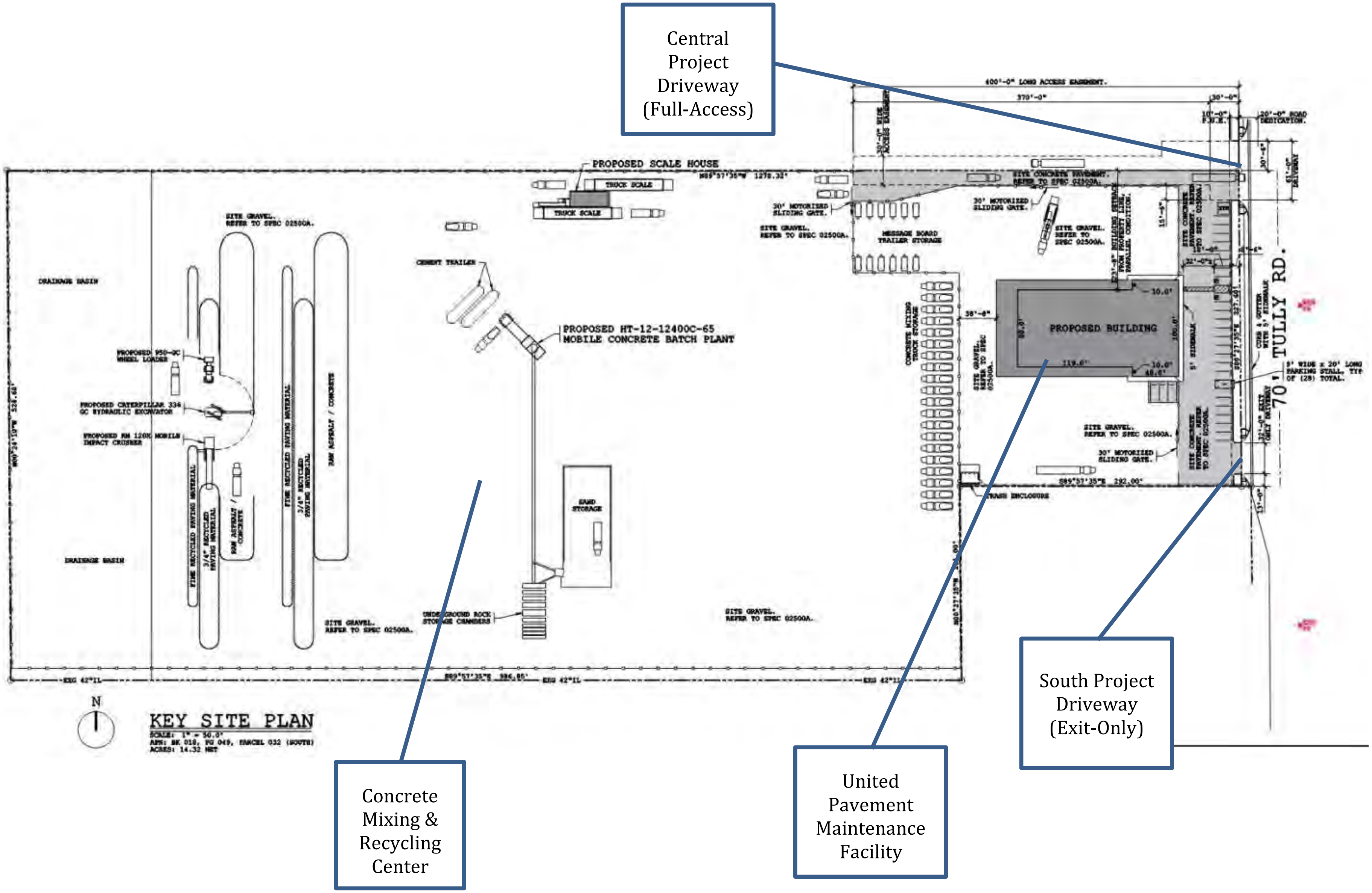
Figure 1.2: Project Site Plan



1.4 ANALYSIS METHODS

Traffic operations in this TIA have been quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. LOS "A" represents free-flow conditions with little to no delays, while LOS "F" represents jammed or grid-lock conditions.

1.4.1 Intersections

Intersection LOS has been calculated for all intersection control types using methods documented in the Transportation Research Board Publication *Highway Capacity Manual, 6th Edition* (HCM 6th Edition) (Transportation Research Board, 2016). The calculated intersection delays correspond to the LOS designations shown in **Table 1.1**, which were derived from Exhibits 19-8 and 20-2 of HCM 6th Edition.

Table 1.1. HCM 6th Edition Based Intersection LOS Thresholds

Level of Service	Description	Intersection Control Delay (seconds/vehicle)	
		Unsignalized	Signalized
A	Free-flow conditions with negligible to minimal delays.	delay ≤ 10.0	delay ≤ 10.0
B	Good progression with slight delays.	10.0 < delay ≤ 15.0	10.0 < delay ≤ 20.0
C	Relatively higher delays.	15.0 < delay ≤ 25.0	20.0 < delay ≤ 35.0
D	Somewhat congested conditions with longer but tolerable delays.	25.0 < delay ≤ 35.0	35.0 < delay ≤ 55.0
E	Congested conditions with significant delays.	35.0 < delay ≤ 50.0	55.0 < delay ≤ 80.0
F	Jammed or grid-lock type operating conditions.	delay > 50.0	delay > 80.0

Source: HCM 6th Edition Exhibit 19-8 and 20-2.

HCM 6th Edition reports were generated to determine the delay and LOS at the study intersections in *Synchro 11* software.

1.4.2 Signal Warrants

California Manual on Uniform Traffic Control Devices (CA MUTCD) Peak Hour Signal Warrant #3 was used to evaluate the potential need for installation of a traffic signal at unsignalized study intersections. Peak Hour Signal Warrant #3 (70% Factor) was used for the unsignalized study intersections, as the City has a population less than 10,000.

1.4.3 Roadway Segments

Roadway segment LOS has been calculated based on Table 4.13-1 of the *City of Hughson 2005 General Plan EIR* (June 2005). **Table 1.2** shows the capacities and LOS thresholds for the study roadway segment classifications within the City.

Table 1.2. LOS Based on Daily Traffic Thresholds

Classification	Lanes	Control	Daily Traffic Volume at Level of Service:		
			C	D	E
Collector	2	Undivided	7,700	11,600	12,900
Arterial	2	Undivided	9,200	13,700	15,450
	4	Divided	20,100	30,200	33,200

Source: Table 4.13-1 of the City of Hughson 2005 General Plan EIR

1.5 LEVEL OF SERVICE STANDARDS

The *City of Hughson 2005 General Plan* Circulation Element Policy C-1.2 states that all major intersections and roadway segments should maintain LOS D or better.

For the purposes of this study, the Project is considered to cause an operational deficiency if the addition of Project trips causes an acceptable LOS to degrade to and unacceptable LOS; or the addition of Project trips causes a peak hour signal warrant to be met at an unsignalized intersection that already operates at unacceptable LOS but does not yet meet the signal warrants.

1.6 REPORT ORGANIZATION

The remainder of this report is divided into the following chapters:

- **Chapter 2: Existing Conditions** – Describes existing conditions and operations of the study area intersections, transit system, pedestrian facilities, and bicycle facilities.
- **Chapter 3: Existing Plus Project Conditions** – Describes the methods used to estimate and distribute Project generated traffic and the resulting study area operations under Existing Plus Project conditions.
- **Chapter 4: Cumulative Conditions** – Describes projected conditions and operations of study area facilities under 20-year Cumulative future conditions.
- **Chapter 5: Cumulative Plus Project Conditions** – Describes projected conditions and operations of study area facilities under Cumulative Plus Project conditions.
- **Chapter 6: Queueing Analysis** – Describes the study intersection queueing operations under all study analysis scenarios.
- **Chapter 7**: **Roadway Operations Analysis** – Describes the operations of study roadway segments under all scenarios.
- **Chapter 8: Project-Related Deficiencies and Recommended Improvements** – Describes the projected operational deficiencies at study area facilities and presents potential improvements.
- **Chapter 9: Project Site Access and Internal Circulation** – Describes site access and on-site circulation for the Project site for all modes of travel.
- **Chapter 10**: **Vehicle Miles Traveled Analysis** – Describes the Project's impact on VMT.

2 EXISTING CONDITIONS

This chapter describes the Existing roadway network, transit services, pedestrian facilities, and bicycle facilities within the study area. It also presents Existing traffic volumes at study intersections and traffic operations under Existing weekday AM and PM peak hour conditions.

2.1 EXISTING ROADWAY NETWORK

This section provides descriptions of the study area roadways.

Santa Fe Avenue, also known as County Road J7, is a north-south roadway that provides connectivity between the Cities of Modesto and Merced. Santa Fe Avenue is currently classified as a 2-Lane Collector by the *City of Hughson 2005 General Plan EIR*. The posted speed limit is 45 mph through Downtown Hughson.

East Whitmore Avenue is classified as a 2-Lane Arterial by the *City of Hughson 2005 General Plan*. East Whitmore Avenue generals runs east-west and connects the City of Hughson with the City of Ceres and State Route (SR) 99. The posted speed limit on East Whitmore Avenue within the Project vicinity is 35 mph.

Tully Road is a north-south roadway that provides connectivity between the City of Hughson and the City of Turlock. Tully Road is currently classified as a 2-Lane Collector by the *City of Hughson 2005 General*. The posted speed limit on Tully Road is 40 mph.

Roeding Road is an east-west roadway that provides connectivity between the City of Hughson and the City of Ceres and SR 99. Roeding Road is currently classified as a 2-Lane Collector by the *City of Hughson 2005 General Plan*. The posted speed limit on Roeding Avenue Drive is 40 mph.

2.2 PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES

There are currently intermittent pedestrian sidewalks on the east side of Tully Road between Joe Ruddy Court and Santa Fe Avenue, and no pedestrian sidewalks on the west side of Tully Road or on Tully Road south of Joe Ruddy Court. The intersection of Tully Road & East Whitmore Avenue has pedestrian ramps on the northeast and southeast corners of the intersection, as well as a crosswalk on the east leg. East Whitmore Avenue has intermittent pedestrian sidewalks throughout the Project study area. Santa Fe Avenue and Roeding Road currently have no pedestrian sidewalks or crosswalks present within the Project study area.

Class II Bike Lane are present on Tully Road between East Whitmore Avenue and Santa Fe Road.

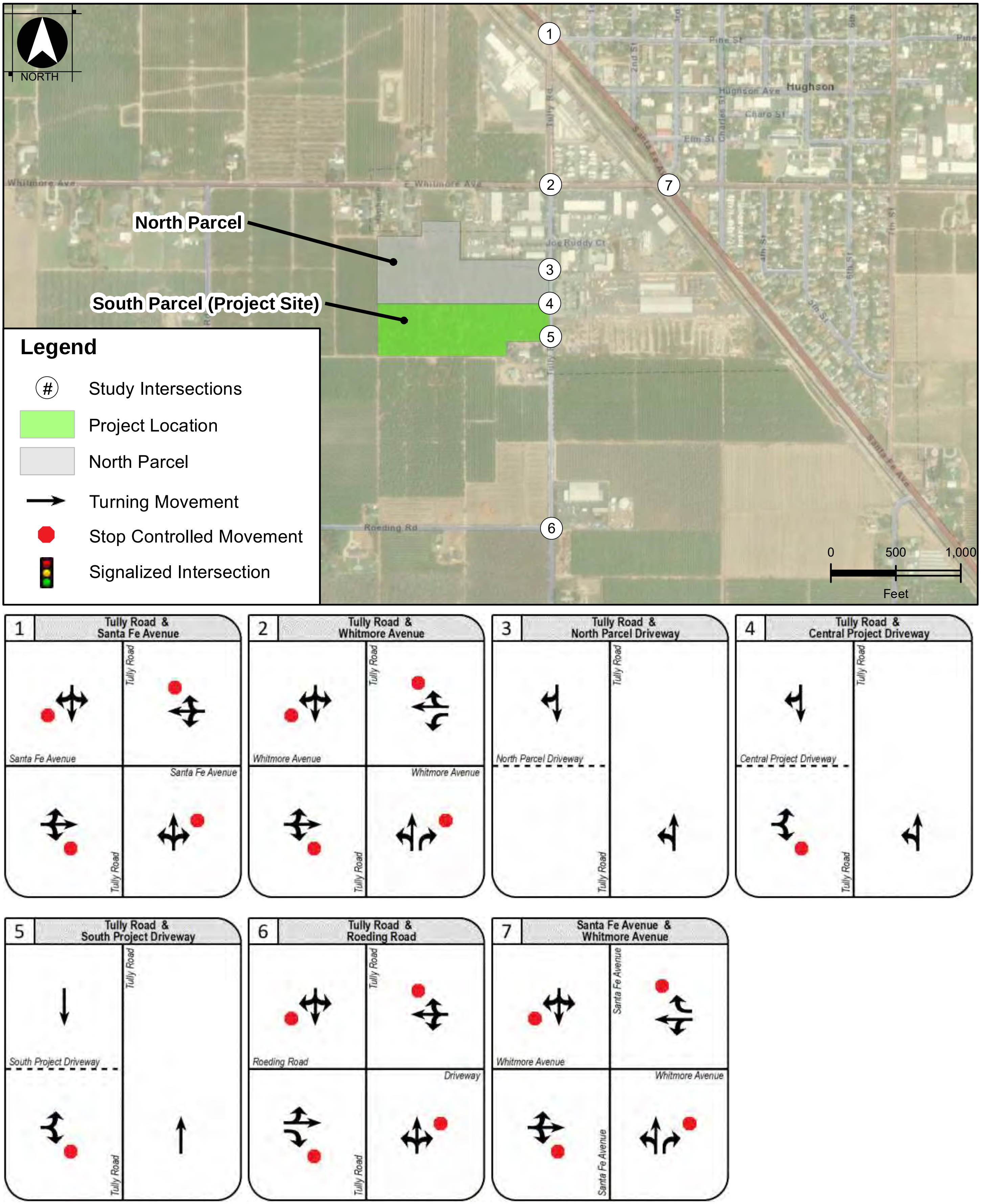
The City is served by the Route 61 bus route, which serves the cities of Modesto, Empire, Waterford, Hickman, Hughson, and Ceres, and is operated by the Stanislaus Regional Transit Authority (StanRTA). Within the study area, Route 61 provides approximately 1-hour headways between 7:20AM and 7:20PM on weekdays, between 8:23AM and 6:23PM on Saturdays, and between 9:08AM and 5:08PM on Sundays. The closest bus stop to the Project site is located near the intersection of Tully Road & East Whitmore Avenue.

2.3 EXISTING INTERSECTION OPERATIONS

2.3.1 Existing Traffic Counts

Intersection traffic operations were evaluated for the weekday AM and PM peak hours. The AM peak hour is defined as the highest one hour of traffic flow counted between 7:00 AM and 9:00 AM on a typical weekday. The PM peak hour is defined as the highest one hour of traffic flow counted between 4:00 PM and 6:00 PM on a typical weekday. AM and PM peak hour traffic counts for the four (4) existing study intersections were collected on Tuesday, April 18, 2023. Traffic count data is provided in **Appendix A**.

Figure 2.1 illustrates Existing intersection lane geometrics and control for the study area intersections. **Figure 2.2** depicts Existing conditions turning movements volumes for AM and PM weekday peak hours.



Existing Conditions Lane Geometrics and Control
Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 2.1

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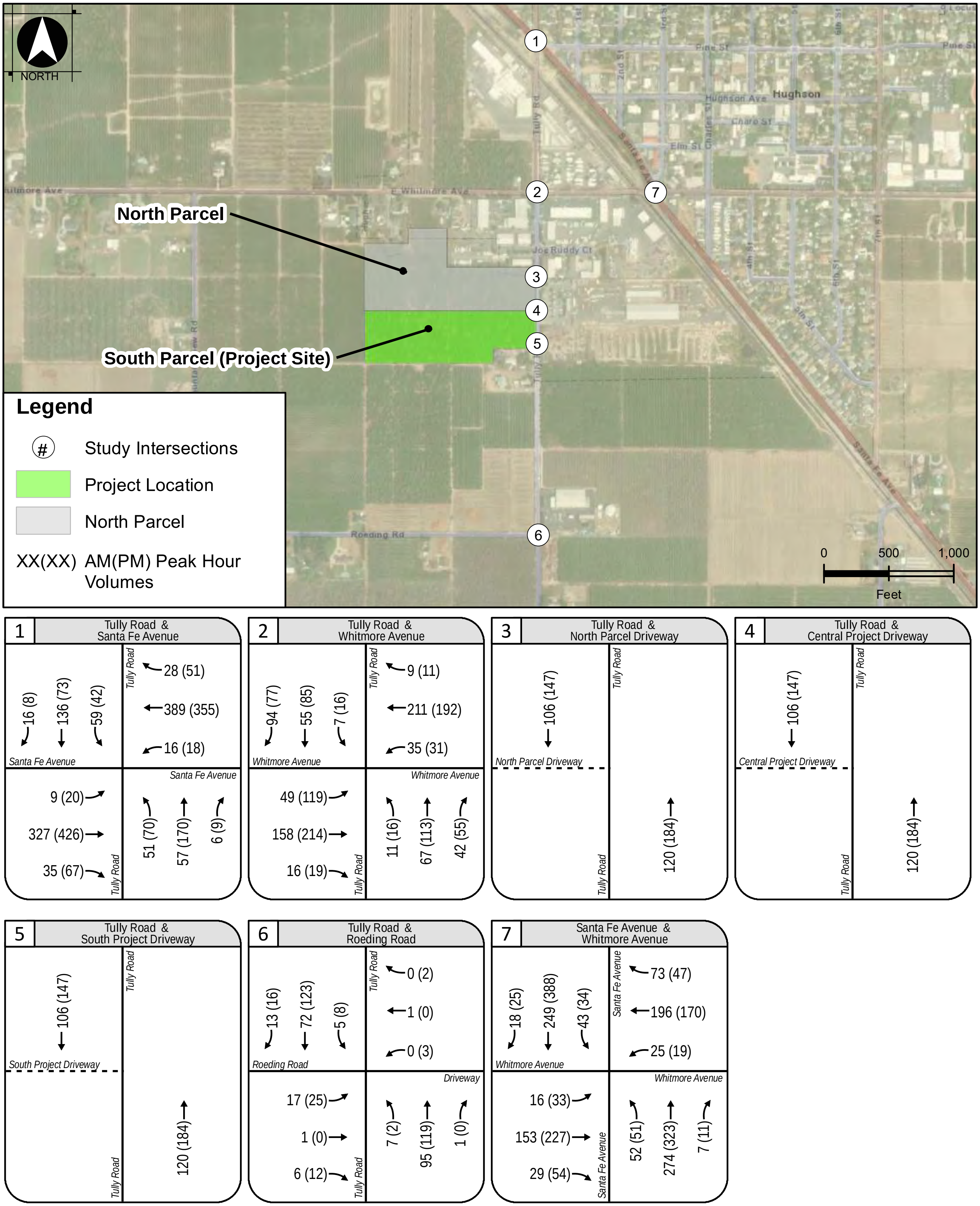

Existing Conditions Traffic Volumes

Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 2.2

WOOD RODGERS

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2.3.2 Existing Conditions Intersection Level of Service

Table 2.1 presents Existing study intersection traffic operations under Existing intersection lane geometrics and control (illustrated in **Figure 2.1**) and Existing traffic volumes (illustrated in **Figure 2.2**). All study intersection traffic operations were calculated using Synchro 11 software.

Table 2.1. Existing Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Delay (sec/veh)[3]	LOS[4]	Wrnt Met?[4]
1	Tully Road & Santa Fe Avenue	AWSC[2]	D	AM	22.2	C	**Yes**
				PM	**38.6**	**E**	**Yes**
2	Tully Road & E Whitmore Avenue	AWSC	D	AM	11.5	B	No
				PM	16.8	C	No
3	Tully Road & North Parcel Driveway	OWSC[1]	D	AM	--	--	--
				PM	--	--	--
4	Tully Road & Central Project Driveway	OWSC	D	AM	--	--	--
				PM	--	--	--
5	Tully Road & South Project Driveway	OWSC	D	AM	--	--	--
				PM	--	--	--
6	Tully Road & Roeding Road	AWSC	D	AM	7.8	A	No
				PM	8.0	A	No
7	Santa Fe Avenue & E Whitmore Avenue	AWSC	D	AM	20.3	C	**Yes**
				PM	**68.5**	**F**	**Yes**

*Notes: **Bold** values indicate unacceptable LOS.*
[1] OWSC = One-Way Stop-Controlled (i.e., minor street stop-controlled)
[2] AWSC = All-Way Stop-Controlled
[3] For OWSC, the worst approach/movement delay and LOS is reported. For AWSC intersections, average intersection delay is reported.
[4] Wrnt Met? = Peak Hour Signal Warrant #3

As shown in **Table 2.1**, the Tully Road & Santa Fe Avenue and Santa Fe Avenue & East Whitmore Avenue intersections do not currently meet City LOS standards. All other study intersections are currently operating at acceptable LOS conditions. Synchro software intersection LOS output reports are included in **Appendix B**. CA MUTCD Peak Hour Signal Warrant #3 is currently met at the Tully Road & Santa Fe Avenue and Santa Fe Avenue & East Whitmore Avenue intersections during both peak hours. Signal warrant worksheets are provided in **Appendix C**.

3 EXISTING PLUS PROJECT CONDITIONS

This chapter provides a description of the proposed Project, a discussion of the trip generation and distribution/assignment methods used to assign Project trips to study intersections, and an analysis of projected traffic operations and deficiencies under Existing Plus Project conditions.

3.1 PROJECT SITE

3.1.1 Project Site Description

The Project is located west of Tully Road, southwest of Joe Ruddy Court, and consists of the southern 14.47 acres of the parcel designated as Assessor's Parcel Number (APN) 018-049-032. The Project would gain access to the existing roadway network via two new driveway connections to Tully Road. The Central Project Driveway would be full-access, while the South Project Driveway would be egress-only. Phase 1 of the Project proposes to develop an 18,760 square foot equipment maintenance/repair building including contractors' office, front parking lot, and rear equipment storage yard on the eastern portion of the Project site (approximately 2.49 acres). Phase 1 addresses relocation the existing United Pavement Maintenance Facility, currently operating at 7017 Hughson Avenue, Hughson, CA. Phase 2 of the Project proposes to develop a 10.16-acre enclosed concrete plant/rock crushing facility. The Project also includes 1.82 acres for storm drainage containment. The current Project site plan is illustrated in **Figure 1.2**.

The Project site is currently zoned as industrial and contains an existing orchard. APN 018-049-032 will be split into two separate parcels. The south parcel will contain the proposed Project. The north parcel will contain the proposed Jimenez Tires and Truck Repair Facility and Truck Storage Yard which is moving forward as a separate project and application with the City. The new APNs for the new north and south parcels have not been assigned yet. The Project and the proposed Jimenez Tires and Truck Repair Facility and Truck Storage Yard would share the Central Project Driveway.

3.2 PROJECT GENERATED TRIPS

3.2.1 Trip Generation

Due to the unique nature of the Project site, trip generation was estimate based on data provided by the Project applicant, including projected number of employees, customers, and trucks that would use the site. Project trip data for both portions of the Project site are as follows:

United Pavement and Maintenance facility: this facility would exist on the portion of the site that fronts Tully Road and is projected to have 22 employees, 2 deliveries per day and would be visited by approximately 16 trucks per day.

Concrete Plant /Rock Crushing Facility: this facility would be west of the pavement and maintenance facility and would have 4 employees and is estimated to be visited by 100 trucks per day.

A passenger car equivalent (PCE) factor of 2.0 was applied to all Project truck trips. All Project trips included in this analysis are assumed to be in PCE's.

Table 3.1 shows the Project trip generation estimate. As shown in **Table 3.1**, the proposed Project is estimated to generate a total of 520 PCE daily trips, with 76 PCE AM peak-hour trips and 76 PCE PM peak-hour trips. Of the total trips, 464 daily trips are estimated to represent PCE truck trips with 48 AM peak hour PCE truck trips and 48 PM peak hour PCE truck trips.

Table 3.1. Project Trip Generation

Land Use	Quantity¹	Units	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
United Pavement and Maintenance Facility (Front Parcel)	22	Employees²	44	22	22	0	22	0	22
	2	Deliveries³	4	2	1	1	2	1	1
	16	Trucks⁴	32	4	2	2	4	2	2
	Subtotal (PCs)⁵		48	24	23	1	24	1	23
	Subtotal Trucks PCE (PCE=2.0)⁶		64	8	4	4	8	4	4
	Total (Trips)		**80**	**28**	**25**	**3**	**28**	**3**	**25**
	Total (PCE)		**112**	**32**	**27**	**5**	**32**	**5**	**27**
Concrete Plant / Rock Crushing Facility (Back Parcel)	4	Employees²	8	4	4	0	4	0	4
	100	Trucks⁴	200	20	10	10	20	10	10
	Subtotal (PCs)⁶		8	4	4	0	4	0	4
	Subtotal Trucks PCE (PCE=2.0)⁶		400	40	20	20	40	20	20
	Total (Trips)⁷		**208**	**24**	**14**	**10**	**24**	**10**	**14**
	Total (PCE)		**408**	**44**	**24**	**20**	**44**	**20**	**24**
Net Total (PCs)			56	28	27	1	28	1	27
Net Total (PCE Trucks)			464	48	24	24	48	24	24
Net Total (Trips)			**288**	**52**	**39**	**13**	**52**	**13**	**39**
Net Total (PCEs)			**520**	**76**	**51**	**25**	**76**	**25**	**51**

Notes:
[1] Quantities provided by Project Applicant in the Project Description.
[2] Conservatively assumed all employees arrive during AM peak hour and leave during PM peak hour.
[3] Conservatively assumed all deliveries occur during peak hour.
[4] Assumed 10% of daily trips occur during the peak hour.
[5] Estimated daily trips are generally consistent with ITE daily trip rate of 3.10 trips per employee for "General Light Industrial" land use.
[6] PCE = Passenger Car Equivalent Factor = 2.0

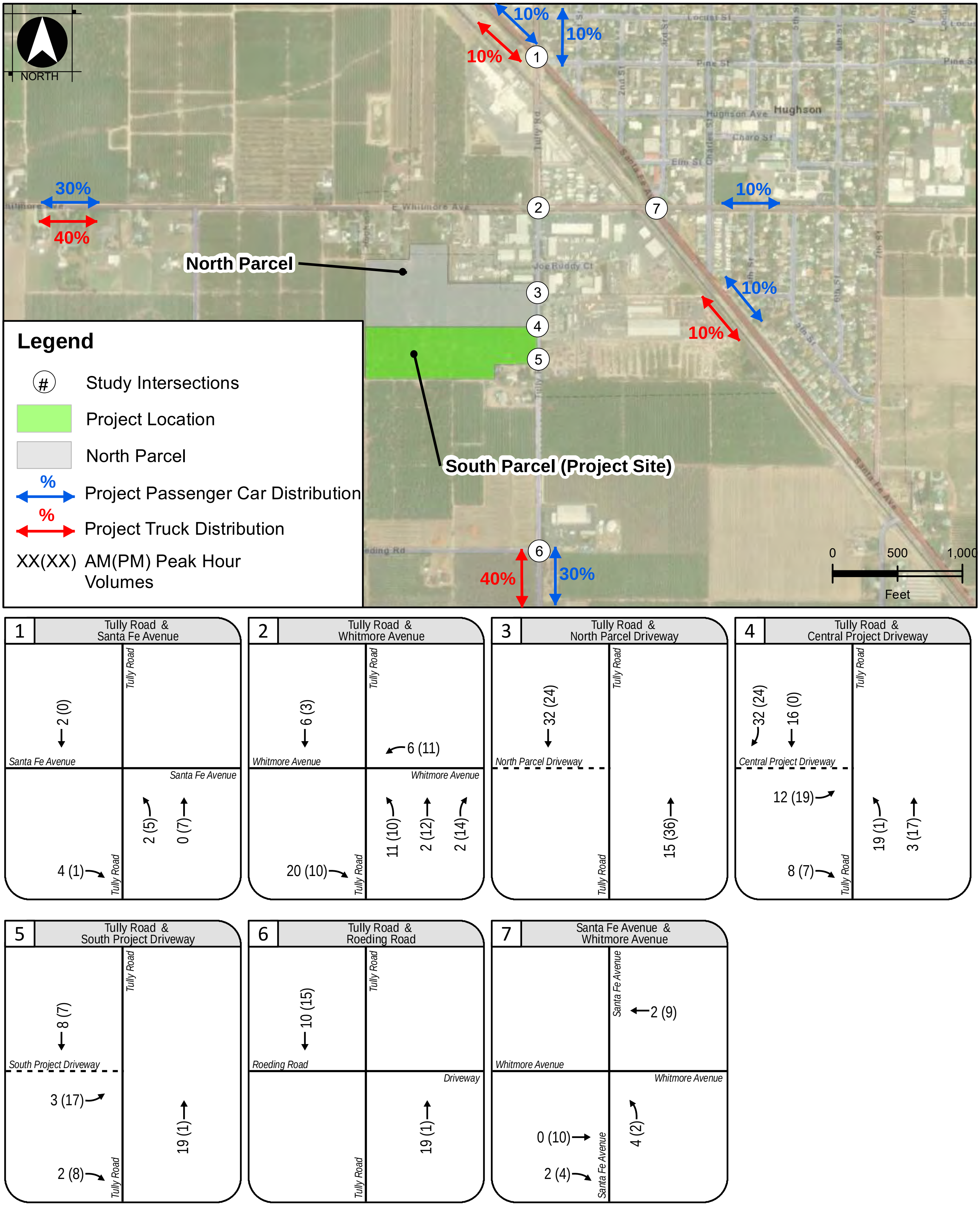
3.2.2 Trip Distribution and Assignment

The Project trip distribution was determined based on existing traffic counts and travel patterns, knowledge of the area, and engineering judgement. Project trip distribution and assignment is shown in **Figure 3.1**.

The Project passenger car and truck trips were projected to circulate through the Project driveways as follows, based on information provided by the Project applicant, and as shown in **Figure 1.2**:

Central Project Driveway: This driveway would be full access for passenger cars and trucks and is expected to mainly be utilized by inbound trucks entering the Pavement and Maintenance Facility, as well as inbound and outbound trucks and passenger cars related to the Concrete Plant/Rock Crushing Facility.

South Project Driveway: This driveway is assumed to be egress-only, and is expected to mainly be utilized by outbound Pavement and Maintenance Facility related trucks and passenger cars.



Project-Only Trips and Distribution

Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 3.1

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3.2.3 Existing Plus Project Conditions Intersection Level of Service

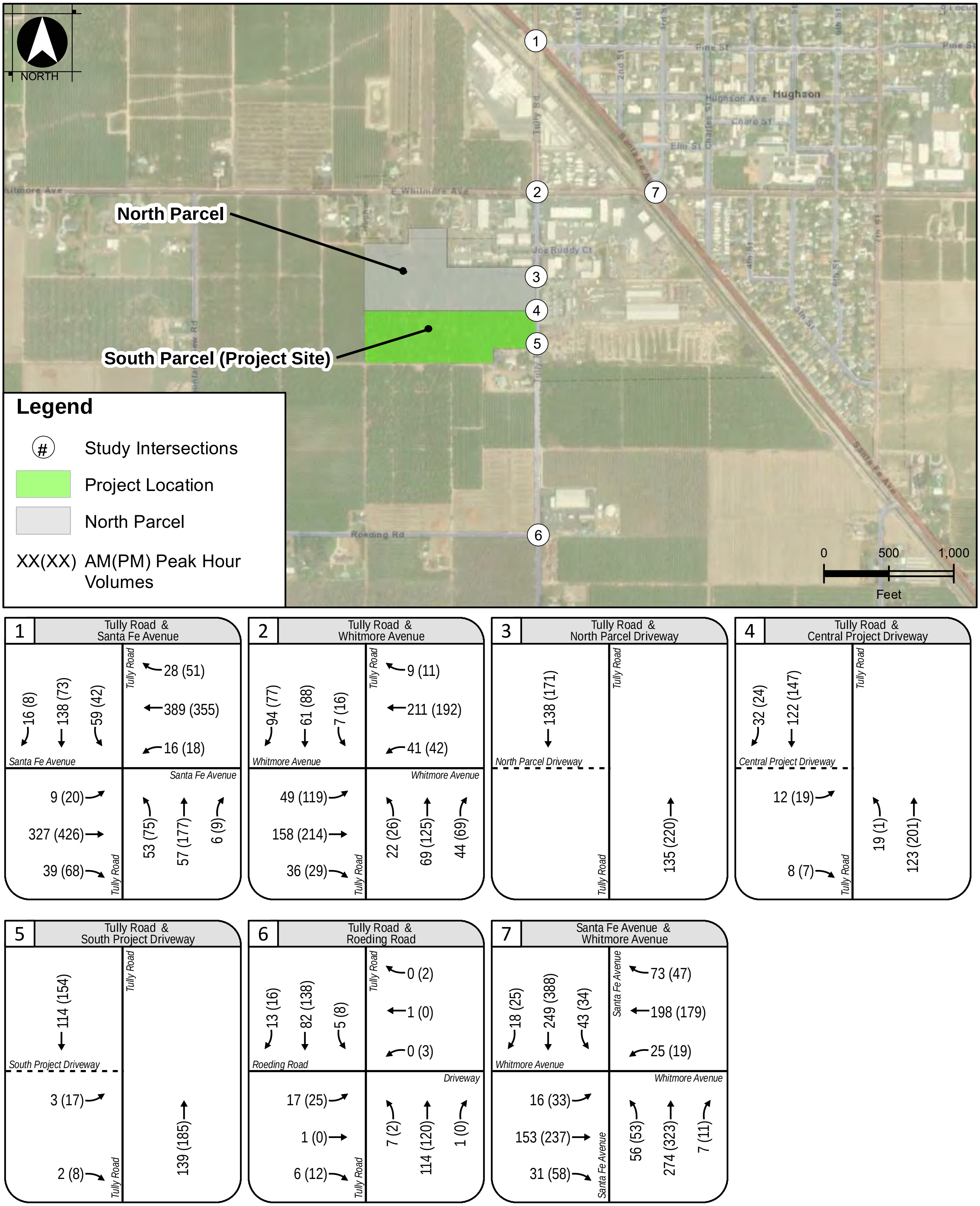
Project trips were added to Existing conditions traffic volumes to obtain Existing Plus Project conditions traffic volumes, shown in **Figure 3.2. Table 3.2** presents Existing Plus Project study intersection traffic operations under Existing intersection lane geometrics and control (illustrated in **Figure 2.1**) and Existing Plus Project traffic volumes. **Table 3.2** also shows operations under Existing conditions for comparison purposes. All study intersection traffic operations were calculated using Synchro 11 software.

Table 3.2. Existing Plus Project Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions			Existing Plus Project		
					Delay[3]	LOS	Wrnt Met?[4]	Delay	LOS	Wrnt Met?
1	Tully Road & Santa Fe Avenue	AWSC[2]	D	AM	22.2	C	**Yes**	22.7	C	**Yes**
				PM	**38.6**	**E**	**Yes**	**41.0**	**E**	**Yes**
2	Tully Road & E Whitmore Avenue	AWSC	D	AM	11.5	B	No	12.0	B	No
				PM	16.8	C	No	18.2	C	**Yes**
3	Tully Road & North Parcel Driveway	OWSC[1]	D	AM	--	--	N/A	0.0	A	No
				PM	--	--	N/A	0.0	A	No
4	Tully Road & Central Project Driveway	OWSC	D	AM	--	--	N/A	10.1	B	No
				PM	--	--	N/A	10.7	B	No
5	Tully Road & South Project Driveway	OWSC	D	AM	--	--	N/A	9.6	A	No
				PM	--	--	N/A	10.4	B	No
6	Tully Road & Roeding Road	AWSC	D	AM	7.8	A	No	8.0	A	No
				PM	8.0	A	No	8.1	A	No
7	Santa Fe Avenue & E Whitmore Avenue	AWSC	D	AM	20.3	C	**Yes**	20.7	C	**Yes**
				PM	**68.5**	**F**	**Yes**	**75.6**	**F**	**Yes**

*Notes: **Bold** values indicate unacceptable LOS.*
[1] *OWSC = One-Way Stop-Controlled (i.e., minor street stop-controlled)*
[2] *AWSC = All-Way Stop-Controlled*
[3] *For OWSC, the worst approach/movement delay and LOS is reported. For AWSC intersections, average intersection delay is reported.*
[4] *Wrnt Met? = Peak Hour Signal Warrant #3*

As shown in **Table 3.2**, the Tully Road & Santa Fe Avenue and Santa Fe Avenue & East Whitmore Avenue intersections are not projected to meet City LOS standards under Existing Plus Project conditions during the PM peak hour. All other study intersections are projected to operate at acceptable LOS conditions. Synchro software intersection LOS output reports are included in **Appendix B**. CA MUTCD Peak Hour Signal Warrant #3 is projected to be met at the Tully Road & Santa Fe Avenue and Santa Fe Avenue & East Whitmore Avenue intersections during both peak hours, as well as at the Tully Road & East Whitmore Avenue intersection during the PM peak hour. Signal warrant worksheets are provided in **Appendix C**.



Existing Plus Project Traffic Volumes
Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 3.2

WOOD RODGERS

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4 CUMULATIVE CONDITIONS

This chapter describes the Cumulative conditions traffic volumes and traffic operations at study intersections.

4.1 CUMULATIVE VOLUMES AND ROADWAY NETWORK

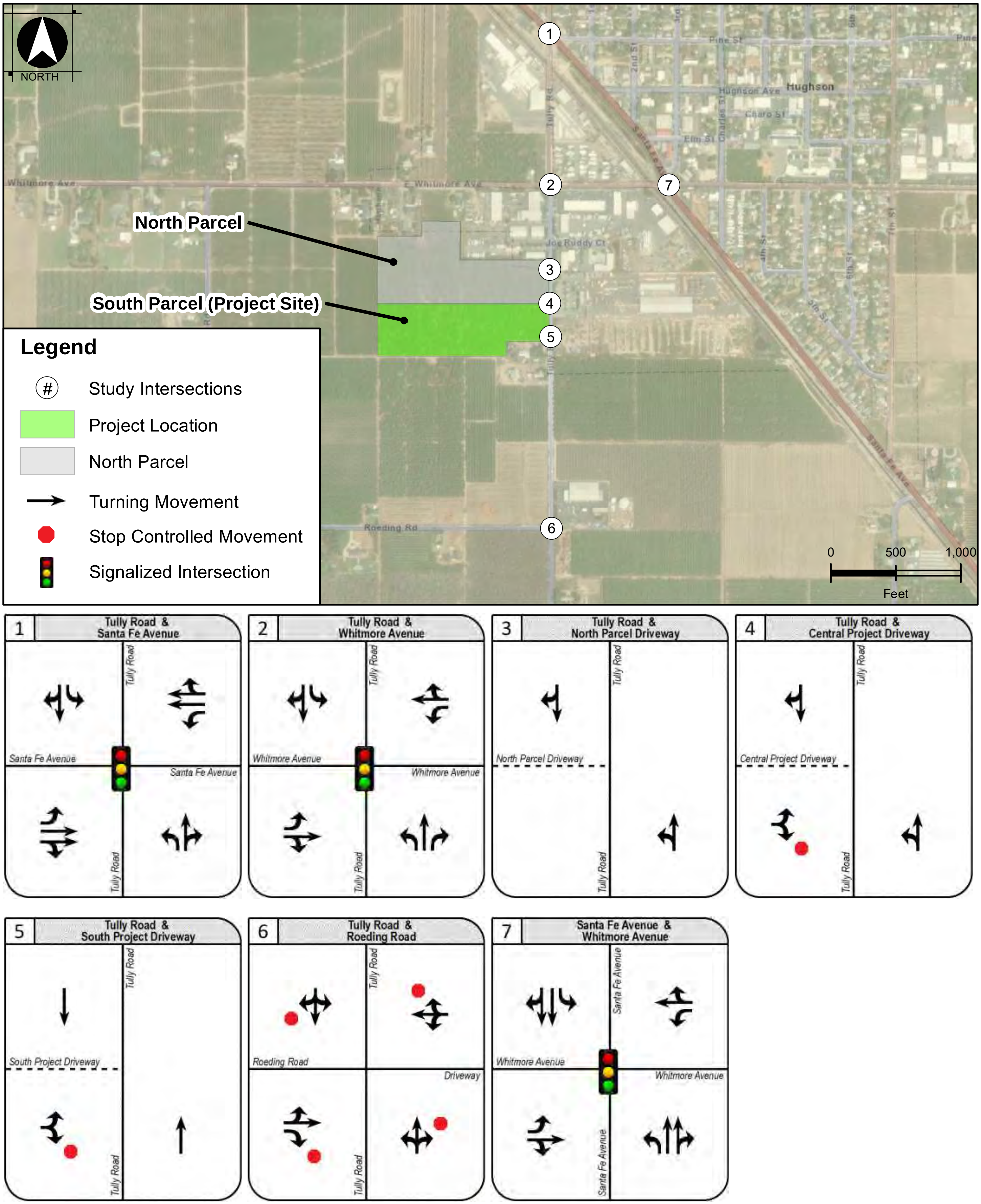
The *City of Hughson 2005 General Plan EIR* proposes multiple improvements to the study intersections under Cumulative conditions to allow for future development within the City. These improvements include:

- Widening Santa Fe Avenue from 2- to 4-lanes within the study area
- Widening East Whitmore Avenue from 2- to 4-lanes west of Tully Road
- Constructing a traffic signal and auxiliary lanes at the following intersections:
  - Tully Road & Santa Fe Avenue
  - Tully Road & East Whitmore Avenue
  - Santa Fe Avenue & East Whitmore Avenue

Cumulative conditions traffic volumes were developed by applying a yearly growth rate to Existing counts over 20 years. An average yearly growth rate of approximately 3.1% per year was determined to occur within the study area based on growth between base year 2005 and future year 2030 ADTs from the *City of Hughson 2005 General Plan EIR.* Additionally, traffic from the proposed Tully Road Subdivision project was added to the study intersections. The proposed Tully Road Subdivision project is located within the northeast corner of the Tully Road & Roeding Road intersection and would develop 34 single-family home lots.

Note that Cumulative conditions volumes are also assumed to include traffic generated by the proposed Jimenez Tires and Truck Repair Facility and Truck Storage Yard, to be located directly north of the project. Traffic from the Jimenez Tires and Truck Repair Facility and Truck Storage Yard would utilize the Central Project Driveway and North Parcel Driveway.

Cumulative conditions lane geometrics and control are shown in **Figure 4.1** and Cumulative conditions volumes are shown in **Figure 4.2**.



Cumulative Conditions Lane Geometrics and Control

Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 4.1

WOOD RODGERS

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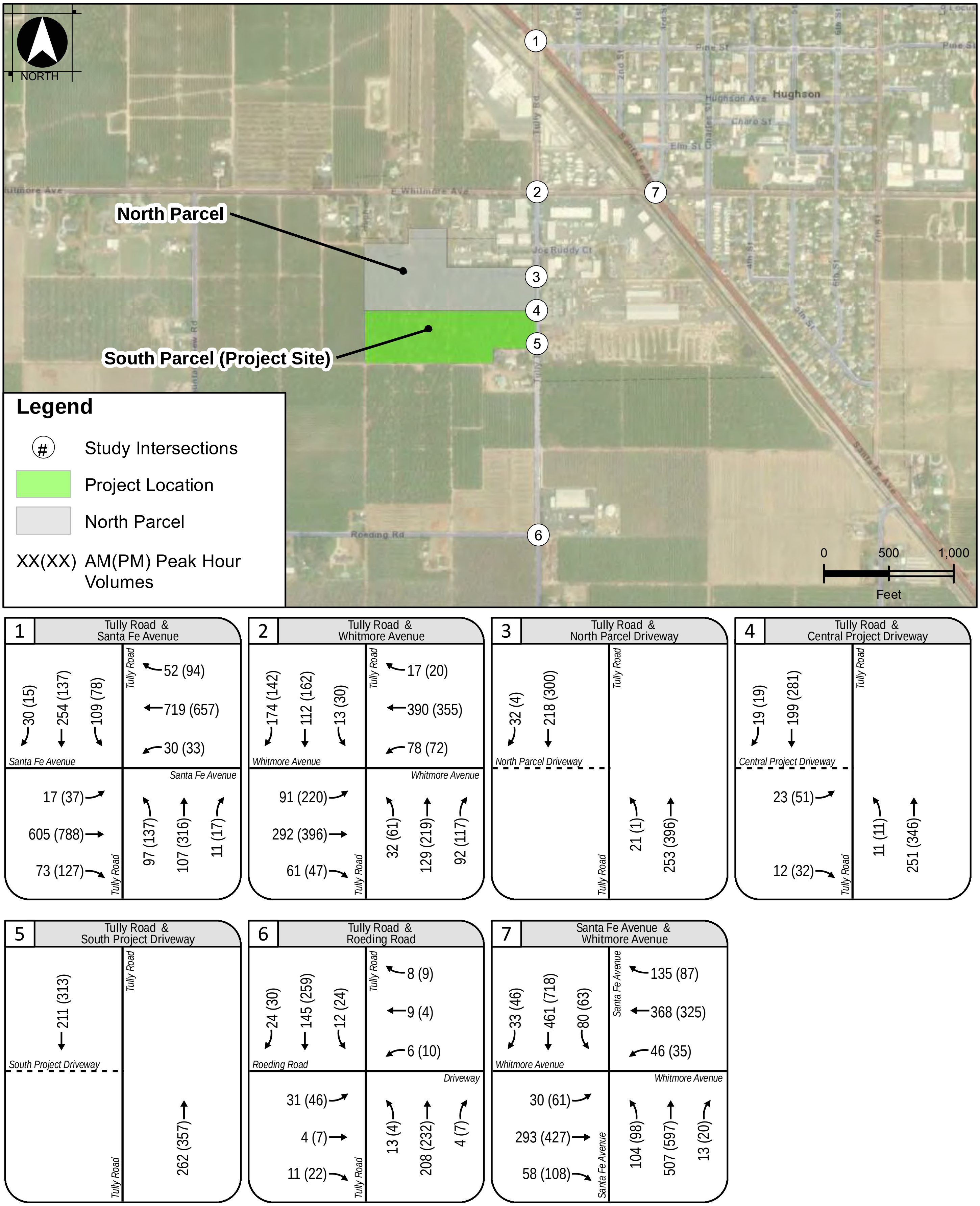

Cumulative Traffic Volumes
Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 4.2

WOOD RODGERS

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4.2 CUMULATIVE INTERSECTION OPERATIONS

Cumulative intersection operations were quantified under Cumulative traffic volumes (shown in **Figure 4.2**) and Cumulative intersection lane geometrics and control (shown in **Figure 4.1**). **Table 4.1** illustrates the resulting Cumulative intersection LOS operations. All study intersection traffic operations were calculated using Synchro 11 software.

Table 4.1. Cumulative Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Delay (sec/veh)[3]	LOS[4]	Wrnt Met?[4]
1	Tully Road & Santa Fe Avenue	Signal	D	AM	17.9	B	--
				PM	23.6	C	--
2	Tully Road & E Whitmore Avenue	Signal	D	AM	21.7	C	--
				PM	27.8	C	--
3	Tully Road & North Parcel Driveway	OWSC[1]	D	AM	7.8	A	No
				PM	7.9	A	No
4	Tully Road & Central Project Driveway	OWSC[1]	D	AM	11.6	B	No
				PM	14.3	B	No
5	Tully Road & South Project Driveway	OWSC[1]	D	AM	--	--	N/A
				PM	--	--	N/A
6	Tully Road & Roeding Road	AWSC[2]	D	AM	8.9	A	No
				PM	10.3	B	No
7	Santa Fe Avenue & E Whitmore Avenue	Signal	D	AM	25.5	C	--
				PM	31.2	C	--

*Notes: **Bold** values indicate unacceptable LOS.*
[1] OWSC = One-Way Stop-Controlled (i.e., minor street stop-controlled)
[2] AWSC = All-Way Stop-Controlled
[3] For OWSC, the worst approach/movement delay and LOS is reported. For AWSC intersections, average intersection delay is reported.
[4] Wrnt Met? = Peak Hour Signal Warrant #3

As shown in **Table 4.1**, all study intersections are projected to operate at acceptable LOS conditions under Cumulative conditions. Synchro software intersection LOS output reports are included in **Appendix B**. CA MUTCD Peak Hour Signal Warrant #3 is not projected to be met at the unsignalized study intersections. Signal warrant worksheets are provided in **Appendix C**.

5 CUMULATIVE PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE

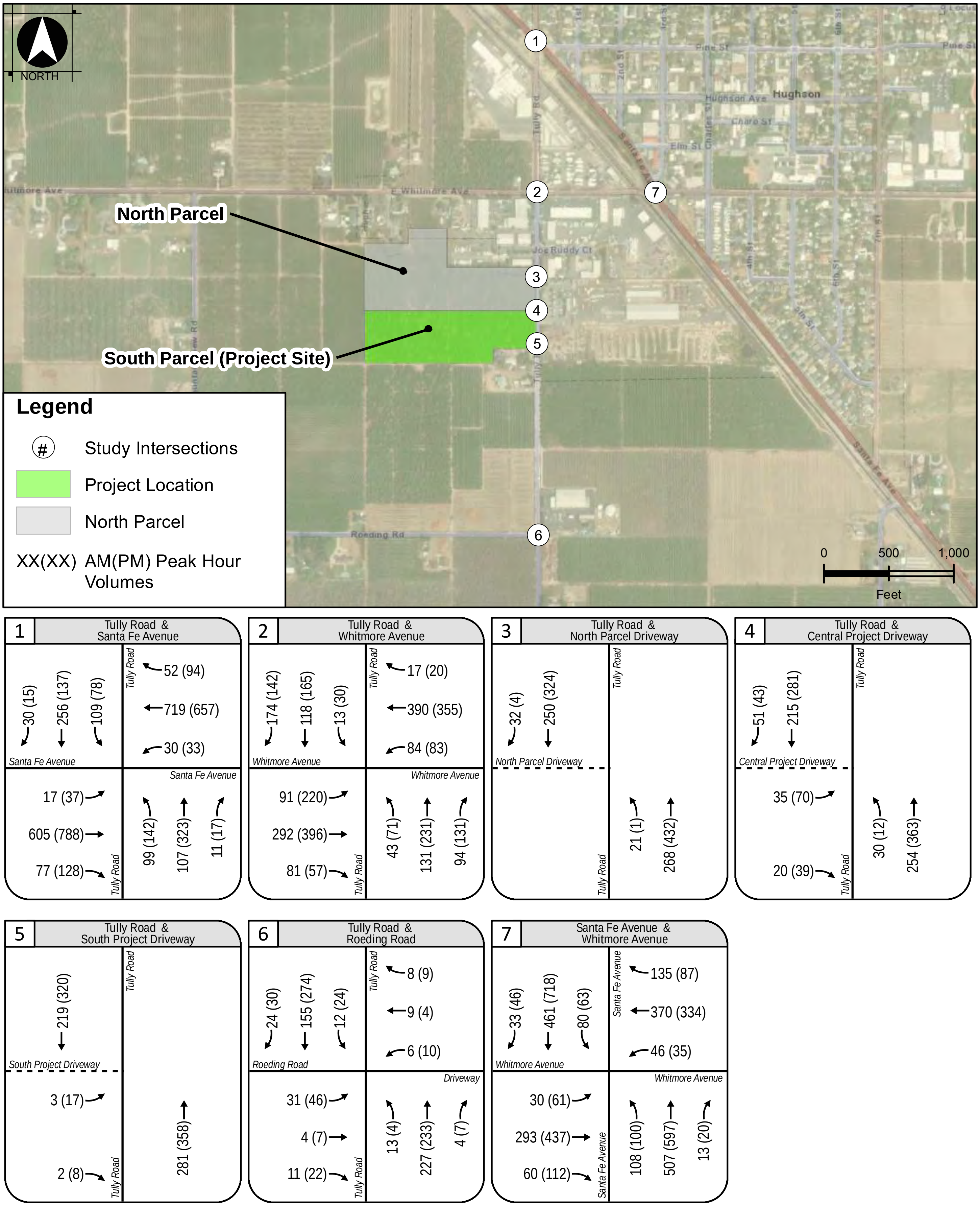
Project trips were added to Cumulative conditions traffic volumes to obtain Cumulative Plus Project conditions traffic volumes, shown in **Figure 5.1**. **Table 5.1** presents Cumulative Plus Project study intersection traffic operations under Cumulative intersection lane geometrics and control (illustrated in **Figure 4.1**) and Cumulative Plus Project traffic volumes. **Table 5.1** also shows operations under Cumulative conditions for comparison purposes. All study intersection traffic operations were calculated using Synchro 11 software.

Table 5.1. Cumulative Plus Project Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Cumulative Conditions			Cumulative Plus Project		
					Delay³	LOS	Wrnt Met?⁴	Delay	LOS	Wrnt Met?
1	Tully Road & Santa Fe Avenue	Signal	D	AM	17.9	B	--	18.2	B	--
				PM	23.6	C	--	24.1	C	--
2	Tully Road & E Whitmore Avenue	Signal	D	AM	21.7	C	--	23.0	C	--
				PM	27.8	C	--	28.9	C	--
3	Tully Road & North Parcel Driveway	OWSC¹	D	AM	7.8	A	No	7.9	A	No
				PM	7.9	A	No	8.0	A	No
4	Tully Road & Central Project Driveway	OWSC¹	D	AM	11.6	B	No	12.7	B	No
				PM	14.3	B	No	15.8	C	No
5	Tully Road & South Project Driveway	OWSC¹	D	AM	--	--	N/A	11.2	B	No
				PM	--	--	N/A	13.5	B	No
6	Tully Road & Roeding Road	AWSC²	D	AM	8.9	A	No	9.1	A	No
				PM	10.3	B	No	10.4	B	No
7	Santa Fe Avenue & E Whitmore Avenue	Signal	D	AM	25.5	C	--	25.9	C	--
				PM	31.2	C	--	32.5	C	--

Notes:
[1] OWSC = One-Way Stop-Controlled (i.e., minor street stop-controlled)
[2] AWSC = All-Way Stop-Controlled
[3] For OWSC, the worst approach/movement delay and LOS is reported. For Signalized and AWSC intersections, average intersection delay is reported.
[4] Wrnt Met? = Peak Hour Signal Warrant #3

As shown in **Table 5.1**, all study intersections are projected to operate at acceptable LOS conditions under Cumulative and Cumulative Plus Project conditions. Synchro software intersection LOS output reports are included in **Appendix B**. CA MUTCD Peak Hour Signal Warrant #3 is not projected to be met at the unsignalized study intersections. Signal warrant worksheets are provided in **Appendix C**.



Cumulative Plus Project Traffic Volumes

Hughson Parcel 32 South Project
Hughson, CA
November 2023

Figure 5.1

WOOD RODGERS

\\woodrodgers.loc\ProductionData\Jobs\4000-s\4075004_Hughson_Parcel_32_Project_TIA\GIS\Tasks\TurningMovements\South Project\2023_C+P.mxd 8/2/2023 11:04:01 AM randerson

6 QUEUEING ANALYSIS

Vehicle queuing was analyzed at the study intersections for all stop-controlled movements and movements with turn pockets that the Project would add trips to. **Table 6.1** shows the available storage lengths and 95th percentile queues under Existing and Existing Plus Project scenarios and **Table 6.2** shows the available storage lengths and 95th percentile queues under Cumulative and Cumulative Plus Project scenarios.

Table 6.1. Existing and Existing Plus Project Queueing Analysis Results

Intersection	Movement	Available Storage (ft)[1]	Peak Hour	95th Percentile Queue (ft)	
				Existing	Existing Plus Project
#1 Tully Road & Santa Fe Avenue	NB	195	AM	20	20
			PM	66	72
	SB	250	AM	46	46
			PM	24	24
	EB	--	AM	108	112
			PM	264	276
	WB	25	AM	**154**	**156**
			PM	**168**	**174**
#2 Tully Road & East Whitmore Avenue	NB	370	AM	<20	<20
			PM	22	30
	SB	300	AM	22	24
			PM	34	38
	EB	1,070	AM	38	44
			PM	110	124
	WBL	105	AM	<20	<20
			PM	<20	<20
	WB	700	AM	36	36
			PM	40	42
#3 Tully Road & North Parcel Driveway	EB	--	AM	-	<20
			PM	-	<20
#4 Tully Road & Central Project Driveway	EB	--	AM	-	<20
			PM	-	<20
#5 Tully Road & South Project Driveway	EB	--	AM	-	<20
			PM	-	<20
#6 Tully Road & Roeding Road	NB	--	AM	<20	<20
			PM	<20	<20
	SB	--	AM	<20	<20
			PM	<20	<20
	EB	--	AM	<20	<20
			PM	<20	<20
	WB	--	AM	<20	<20
			PM	<20	<20
#7 Santa Fe Avenue & East Whitmore Avenue	NB	600	AM	102	106
			PM	206	216
	SB	345	AM	92	94
			PM	**356**	**374**
	EB	70	AM	44	46
			PM	**146**	**166**
	WB	325	AM	52	52
			PM	56	62

Notes: ***Bold*** *values indicate queue exceeds available storage. One vehicle length is assumed to equal 20 feet.*

[1] *For stop-controlled movements, available storage represents the distance to the nearest major cross-street or rail crossing. No defined storage length is shown if there is no nearby cross-street or crossing.*

Table 6.2. Cumulative and Cumulative Plus Project Queueing Analysis Results

Intersection	Movement	Available Storage (ft)[1]	Peak Hour	95th Percentile Queue (ft)	
				Cumulative	Cumulative Plus Project
#1 Tully Road & Santa Fe Avenue	NBL	--	AM	106	111
			PM	134	138
	SBL	--	AM	122	122
			PM	96	96
	EBL	--	AM	25	25
			PM	40	40
	WBL	--	AM	37	37
			PM	37	37
#2 Tully Road & East Whitmore Avenue	NBL	--	AM	39	49
			PM	73	93
	SBL	--	AM	22	22
			PM	43	43
	EBL	--	AM	110	114
			PM	251	251
	WBL	--	AM	92	104
			PM	105	124
#3 Tully Road & North Parcel Driveway	EB	--	AM	--	<20
			PM	--	<20
#4 Tully Road & Central Project Driveway	EB	--	AM	--	<20
			PM	--	<20
#5 Tully Road & South Project Driveway	EB	--	AM	--	<20
			PM	--	<20
#6 Tully Road & Roeding Road	NB	--	AM	24	28
			PM	30	30
	SB	--	AM	18	20
			PM	42	46
	EB	--	AM	4	4
			PM	6	6
	WB	--	AM	2	2
			PM	2	2
#7 Santa Fe Avenue & East Whitmore Avenue	NBL	--	AM	128	133
			PM	130	132
	SBL	--	AM	98	98
			PM	74	74
	EBL	--	AM	35	35
			PM	69	69
	WBL	--	AM	52	52
			PM	45	45

Notes: ***Bold*** *values indicate queue exceeds available storage. One vehicle length is assumed to equal 20 feet.*

[1] *For stop-controlled movements, available storage represents the distance to the nearest major cross-street or rail crossing. No defined storage length is shown if there is no nearby cross-street or crossing. Available storage for turn pockets at planned signals are not reported as they represent a future condition.*

As shown in **Table 6.1**, the following movements are projected to exceed available storage under Existing and Existing Plus Project conditions:

- Tully Road & Santa Fe Avenue:
  - WB approach, AM and PM peak hour
- Santa Fe Avenue & East Whitmore Avenue:
  - SB approach, PM peak hour
  - EB approach, PM peak hour

The addition of Project trips is projected to lengthen existing queue deficiencies by less than one vehicle length.

Note that the eastbound approach to the Santa Fe Avenue & East Whitmore Avenue intersection includes approximately 70 feet of space on East Whitmore Avenue between Santa Fe Avenue and the at grade railroad crossing, which provides storage for approximately one large interstate semi-trailer truck. As existing queues already spill back beyond the tracks, the addition of Project trips is unlikely to cause additional conflict at this crossing.

As shown in **Table 6.2**, all Cumulative and Cumulative Plus Project queues are projected to fit within available storage.

Synchro software intersection queueing output reports are included in **Appendix B**.

7 ROADWAY SEGMENTS OPERATIONS

Operations for the study roadway segments were evaluated under all study scenarios. 24-hour average daily traffic (ADT) counts were collected for the study segment on Tuesday, April 18, 2023. ADT counts are included in **Appendix A**. Cumulative conditions ADT volumes were developed by applying a 3.1% per year growth rate to Existing conditions ADT as well as adding daily traffic generated by the proposed Tully Road Subdivision Project and Jimenez Tires and Truck Repair Facility and Truck Storage Yard. Existing and Existing Plus Project conditions roadway LOS are shown in **Table 7.1** and Cumulative and Cumulative Plus Project conditions roadway LOS are shown in **Table 7.2**.

Table 7.1. Existing and Existing Plus Project Roadway Operations

Segment	Classification	Max. ADT for Acceptable LOS[1]	Existing Conditions		Project ADT[2]	Existing Plus Project	
			ADT	LOS		ADT[2]	LOS
Tully Rd between East Whitmore Ave and Roeding Rd	Collector, 2-Lane, Undivided	11,600	2,445	C	317	2,762	C
East Whitmore Ave west of Tully Rd	Collector, 2-Lane, Undivided	11,600	6,991	C	203	7,194	C
East Whitmore Ave east of Tully Rd	Collector, 2-Lane, Undivided	11,600	6,016	C	57	6,073	C

Notes:
[1] *Source: Table 4.13-1 of the City of Hughson 2005 General Plan EIR*
[2] *Project ADT and Existing Plus Project ADT are shown in PCEs.*

Table 7.2 Cumulative and Cumulative Plus Project Roadway Operations

Segment	Classification	Max. ADT for Acceptable LOS[1]	Cumulative Conditions		Project ADT[2]	Cumulative Plus Project	
			ADT	LOS		ADT[2]	LOS
Tully Rd between East Whitmore Ave and Roeding Rd	Collector, 2-Lane, Undivided	11,600	5,181	C	317	5,498	C
East Whitmore Ave west of Tully Rd	Arterial, 4-Lane, Divided	30,200	13,217	C	203	13,420	C
East Whitmore Ave east of Tully Rd	Arterial, 2-Lane, Undivided	13,700	11,388	C	57	11,445	C

Notes:
[1] Source: Table 4.13-1 of the City of Hughson 2005 General Plan EIR
[2] Project ADT and Existing Plus Project ADT are shown in PCEs.

As shown in **Table 7.1** and **Table 7.2**, the study roadway segments are projected to operate acceptably under all study conditions.

8 OPERATIONAL DEFICIENCIES AND IMPROVEMENTS

8.1 INTERSECTION LOS DEFICIENCIES

Tully Road & Santa Fe Avenue: This intersection is currently operating at LOS E under Existing PM peak hour conditions and currently meets CA Signal Warrant #3 under Existing AM and PM Peak Hour conditions. With the addition of Project trips, the intersection is projected to continue to operate at LOS E under Existing Plus Project PM peak hour conditions and meet CA Signal Warrant #3 under Existing Plus Project AM and PM Peak Hour conditions. As the Project is not projected to cause an LOS deficiency or cause the signal warrant to be met, a Project-related deficiency is not considered to occur at this intersection.

However, as this intersection is currently operating at unacceptable LOS and the addition of Project trips would worsen operations, and the City General Plan identifies the need for signalization at this intersection, it is recommended that the Project contribute fair-share toward the planned traffic signal improvement at this location. This intersection is projected to operate at acceptable LOS under Cumulative Plus Project conditions with installation of a traffic signal.

Tully Road & East Whitmore Avenue: With the addition of Project trips, this intersection is projected to meet CA Signal Warrant #3 under Existing Plus Project PM Peak Hour conditions. However, as this intersection is projected to operate at acceptable LOS under Existing and Existing Plus Project conditions, a Project-related deficiency is not considered to occur at this intersection.

Santa Fe Avenue & East Whitmore Avenue: This intersection is currently operating at LOS F under Existing PM peak hour conditions and currently meets CA Signal Warrant #3 under Existing AM and PM Peak Hour conditions. With the addition of Project trips, the intersection is projected to continue to operate at LOS F under Existing Plus Project PM peak hour conditions and meet CA Signal Warrant #3 under Existing Plus Project AM and PM Peak Hour conditions. As the Project is not projected to cause an LOS deficiency or cause the signal warrant to be met, a Project-related deficiency is not considered to occur at this intersection.

However, as this intersection is currently operating at unacceptable LOS and the addition of Project trips would worsen operations, and the City General Plan identifies the need for signalization at this intersection, it is recommended that the Project contribute fair-share toward the planned traffic signal improvement at this location. This intersection is projected to operate at acceptable LOS under Cumulative Plus Project conditions with installation of a traffic signal.

8.2 QUEUEING DEFICIENCIES

The following movements are shown to exceed available storage under Existing and Existing Plus Project conditions:

- Tully Road & Santa Fe Avenue: WB approach (AM and PM)
- Santa Fe Avenue & East Whitmore Avenue: SB approach (PM); EB approach (PM)

The addition of Project trips is projected to lengthen existing queue deficiencies by less than one vehicle length. Construction of a signal at the above intersections would alleviate the above queueing deficiencies. It is recommended that the Project contribute fair share toward planned traffic signal improvements at the Tully Road & Santa Fe Avenue and Santa Fe Avenue & East Whitmore Avenue intersections.

All queues are projected to fit within available storage under Cumulative and Cumulative Plus Project conditions.

8.3 ROADWAY SEGMENT LOS DEFICIENCIES

All study roadway segments are projected to operate at acceptable LOS under all study conditions.

8.4 PROJECT FAIR-SHARE PERCENTAGES

The Project fair-share percentages toward the identified traffic signal improvements are outlined in this section. Project fair-share percentages were calculated using industry standard methodologies in **Table 8-1** below. The PM peak hour volumes were used for the calculations as they experienced the worst-case operations.

Table 8-1. Project Fair-Share Percentages

#	Intersection	Total PM Peak Hour Volumes				Project Fair Share % [P/(C+P)]
		Existing (E)	Project Only PCEs (P)	Cumulative No Project (C)	Cumulative Plus Project (C+P)	
1	Tully Road & Santa Fe Avenue	1,309	13	2,436	2,449	0.53%
7	Santa Fe Avenue & East Whitmore Avenue	1,382	25	2,585	2,610	0.96%

As shown in **Table 8-1**, the Project would have a fair-share percentage of 0.53 percent toward the planned traffic signal improvements at the Tully Road & Santa Fe Avenue intersection and a fair-share percentage of 0.96 percent at the Santa Fe Avenue & East Whitmore Avenue intersection.

9 PROJECT SITE ACCESS AND INTERNAL CIRCULATION

9.1 PROJECT DRIVEWAY ACCESS AND INTERNAL CIRCULATION

The Project would access the surrounding roadway network via a 32-foot one-way exit driveway near the southern boundary of the site and a 61-foot full-access driveway near the northern boundary of the site on Tully Road (the South and Central Project Driveways). Access at the South and Central Project Driveways are anticipated operate as follows and as shown in **Figure 1.2**:

South Project Driveway: This driveway would be egress-only and is expected to mainly be utilized by outbound United Pavement Maintenance Facility employees' and customers' passenger cars, which would also use the parking stalls in front of the building. Inbound vehicles would enter the United Pavement

Maintenance Facility from the Central Project Driveway and travel through a motorized sliding gate to access the building.

Central Project Driveway: This driveway would be full-access and is expected to mainly be utilized by inbound trucks visiting the United Pavement Maintenance Facility. Additionally, this driveway would be utilized by inbound and outbound trucks and passenger cars visiting the Concrete Plant/Rock Crushing Facility.

The United Pavement Maintenance Facility and Concrete Plant/Rock Crushing Facility portions of the site would be separated via a fence with motorized sliding gate access between them.

Emergency vehicle access to the United Pavement Maintenance Facility would be provided via the two Project Driveways. Emergency vehicle access to the Concrete Plant/Rock Crushing Facility would be provided via the motorized sliding gate. The site is anticipated to provide adequate emergency vehicle access.

The planned Jimenez Tires and Truck Repair Facility and Truck Storage Yard north of the Project would also utilize the Central Project Driveway as well as its own North Parcel Driveway. Based on Standard Detail 3-C.8 of the City Improvement Standards and Specifications, a minimum spacing of 40 feet is allowable between driveways along property frontage that exceeds 200 feet. Spacing between the North Parcel Driveway and Central Project Driveway is approximately 108 feet and spacing between the Central Project Driveway and South Project Driveway is approximately 252 feet. As the Project frontage on Tully Road exceeds 200 feet, driveway spacing for the Project is considered adequate.

9.2 PROJECT TRUCK TRAFFIC AND PROJECT DRIVEWAY TRUCK TURNS

Based on the *City of Hughson 2005 General Plan EIR*, the City does not have any designated truck route system or any controls on truck deliveries in the commercial areas of the City. Truck traffic currently travels along SR 99 and the major roadways surrounding Hughson, including Santa Fe Avenue, East Whitmore Avenue, Tully Road, Hatch Road, Geer Road, and Service Road. Truck traffic to the Project site would likely utilize East Whitmore Avenue and Tully Road to access the site from SR 99 and would likely utilize Tully Road and Santa Fe Avenue to access SR 132. Current truck routes to the Project site appear to be sufficient to accommodate design vehicles.

Truck turn swept path analysis was performed for egress movements at the South Project Driveway and ingress and egress movements at the Central Project Driveway using an STAA Standard design vehicle with a total length of 69 feet. Truck turn exhibits are included in **Appendix D**. As shown in the exhibits, the design vehicle would be able to navigate ingress or egress movements at the driveways without conflicting with the driveway curb return or vehicles making opposing movements. Therefore, this TIA finds that the proposed Project driveways are appropriately sized to accommodate the design vehicle.

9.3 PROJECT EFFECTS ON PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES

The Project is not anticipated to cause a significant increase in pedestrian, bicycle, or transit demand in the study area that would put existing facilities over capacity. The Project would not adversely affect existing or proposed pedestrian, bicycle, or transit facilities in a way that would discourage their use.

10 VMT ANALYSIS

Senate Bill 743 (SB 743), signed in 2013, required changes to CEQA guidelines on the measurement and identification of transportation impacts due to new projects in California. Revised CEQA Guidelines were adopted in 2018 which identified Vehicles Miles Traveled (VMT) as the most appropriate metric to evaluate transportation impacts. Statewide implementation of assessment of VMT as a metric of transportation impact occurred for all jurisdictions on July 1, 2020. The Governor's Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR Technical Advisory) (December 2018), contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures.

The City has not currently adopted VMT guidelines or thresholds. Therefore, this TIA evaluates Project VMT using recommendations and methodologies consistent with the OPR Technical Advisory. The OPR Technical Advisory contains the following guidance for project attributes that may be presumed to produce a less than significant VMT impact:

> *By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact.*

OPR guidance states that retail uses less than 50,000 square feet can typically be defined as local-serving. The proposed United Pavement Maintenance Facility , located on the eastern portion of the Project site, would be less than 50,000 square feet and would serve the local community. Additionally, the proposed Concrete Plant/Rock Crushing Facility, located in the western portion of the Project site, would also provide a local service, reducing the need for patrons to make longer-distance or out-of-direction trips to the next-closest facility. Based on these attributes, the Project may be presumed to be local-serving and produce a less than significant VMT impact.

Appendix A

Traffic Counts

Prepared by National Data & Surveying Services

Tully Rd & Santa Fe Ave/CR J7

Peak Hour Turning Movement Count

ID: 23-090039-001
City: Hughson

Day: Tuesday
Date: 4/18/2023

PEAK HOURS	
AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

Tully Rd SOUTHBOUND

	↲	↓	↳	⮌	⇧
AM	16	136	59	0	94
NOON	0	0	0	0	0
PM	8	73	42	0	241
	0	1	0	0	

Santa Fe Ave/CR J7 EASTBOUND

	AM	NOON	PM	
⇦	456	0	433	
⮌	0	0	0	0
↰	9	0	20	0
→	327	0	426	1
↴	35	0	67	0

Santa Fe Ave/CR J7 WESTBOUND

		PM	NOON	AM
0	↰	51	0	28
1	←	355	0	389
0	↲	18	0	16
0	⮌	0	0	0
	⇨	477	0	392

Tully Rd NORTHBOUND

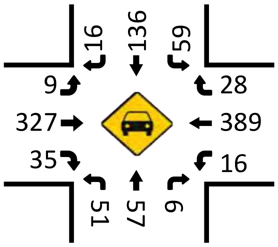
	⇩	⮌	↰	↑	↱
		0	0	1	1
PM	158	0	70	170	9
NOON	0	0	0	0	0
AM	187	0	51	57	6

CONTROL

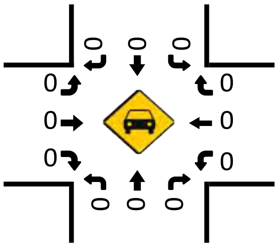
4-Way Stop

	AM	NOON	PM
TEV	1129	0	1309
PHF	0.91		0.95

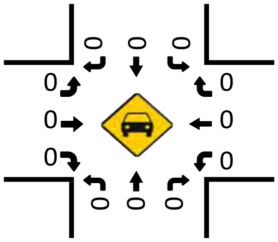
Totals (AM)



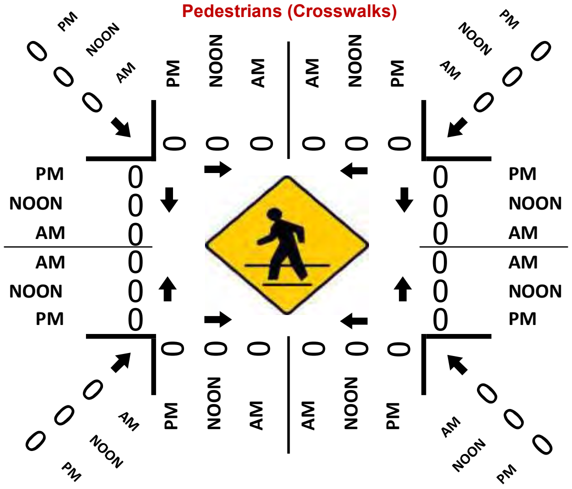
Total Bikes (AM)



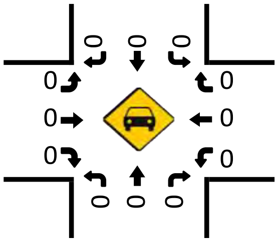
Totals (NOON)



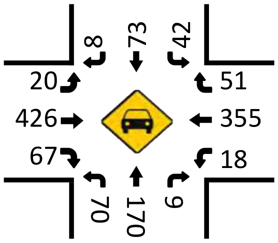
Pedestrians (Crosswalks)



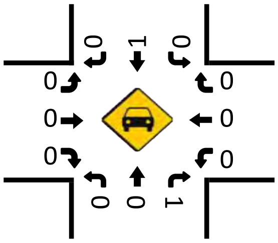
Total Bikes (NOON)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Tully Rd & E Whitmore Ave

Peak Hour Turning Movement Count

ID: 23-090039-002
City: Hughson

Day: Tuesday
Date: 4/18/2023

PEAK HOURS		COUNT PERIODS
07:45 AM - 08:45 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:30 PM - 05:30 PM	PM	4:00 PM - 06:00 PM

Tully Rd — SOUTHBOUND

	↲	↓	↳	⮌	⇧	
AM	94	55	7	0	125	AM
NOON	0	0	0	0	0	NOON
PM	77	85	16	0	243	PM
	0	1	0	0		

E Whitmore Ave — EASTBOUND

	AM	NOON	PM	
⇦	316	0	285	
⮌	0	0	0	0
↱	49	0	119	0
→	158	0	214	1
↴	16	0	19	0

E Whitmore Ave — WESTBOUND

		PM	NOON	AM
0	↰	11	0	9
1	←	192	0	211
1	↙	31	0	35
0	⮌	0	0	0
	⇨	285	0	207

CONTROL

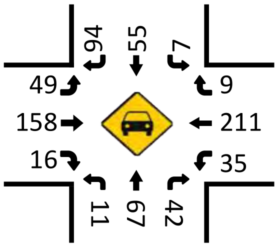
4-Way Stop

	AM	NOON	PM
TEV	754	0	948
PHF	0.93		0.91

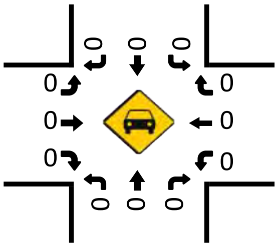
Tully Rd — NORTHBOUND

		0	0	0.5	0.5	
	⇩	⮌	↰	↑	↱	
PM	135	0	16	113	55	PM
NOON	0	0	0	0	0	NOON
AM	106	0	11	67	42	AM

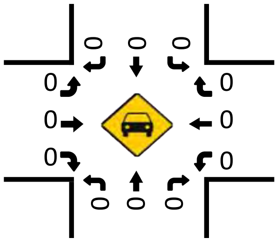
Totals (AM)



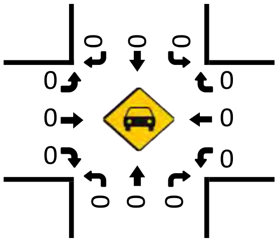
Total Bikes (AM)



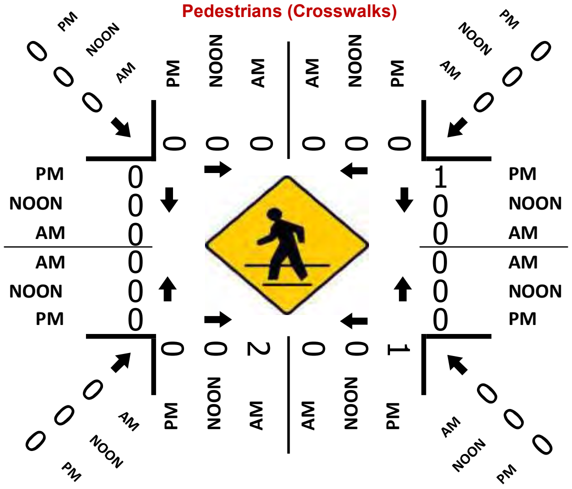
Totals (NOON)



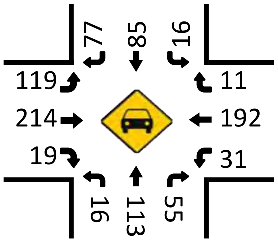
Total Bikes (NOON)



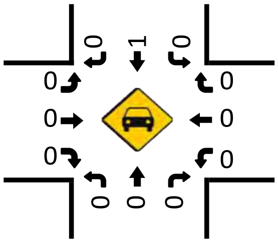
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Tully Rd & Roeding Rd

Peak Hour Turning Movement Count

ID: 23-090039-003
City: Hughson

Day: Tuesday
Date: 4/18/2023

PEAK HOURS	COUNT PERIODS
07:30 am - 08:30 am	7:00 AM - 09:00 AM
NONE	NONE
04:30 pm - 05:30 pm	4:00 PM - 06:00 PM

Tully Rd

SOUTHBOUND

	↲	↓	↳	U	⇧
AM	13	72	4	1	113
NOON	0	0	0	0	0
PM	16	123	6	2	148
	0	1	0	0	

Roeding Rd

EASTBOUND

	AM	NOON	PM	
⇦	21	0	18	
U	0	0	0	0
↱	17	0	25	0
→	1	0	0	1
↴	6	0	12	0

CONTROL

3-Way Stop(NB/SB/EB)

	AM	NOON	PM
TEV	218	0	310
PHF	0.75		0.92

Roeding Rd

WESTBOUND

		PM	NOON	AM
0	↰	2	0	0
1	←	0	0	1
0	↙	2	0	0
0	U	1	0	0
	⇨	7	0	6

NORTHBOUND

Tully Rd

	⇩	U	↰	↑	↱
		0	0	1	0
PM	137	0	2	119	0
NOON	0	0	0	0	0
AM	78	0	7	95	1

Totals (AM)

SB: 13 ↲ 72 ↓ 4 ↳
EB: 17 ↱ 1 → 6 ↴
WB: 0 ↰ 1 ← 0 ↙
NB: 7 ↰ 95 ↑ 1 ↱

Totals (NOON)

SB: 0 0 0
EB: 0 0 0
WB: 0 0 0
NB: 0 0 0

Totals (PM)

SB: 16 ↲ 123 ↓ 6 ↳
EB: 25 ↱ 0 → 12 ↴
WB: 2 ↰ 0 ← 2 ↙
NB: 2 ↰ 119 ↑ 0 ↱

Total Bikes (AM)

SB: 0 0 0
EB: 0 0 0
WB: 0 0 0
NB: 0 0 0

Total Bikes (NOON)

SB: 0 0 0
EB: 0 0 0
WB: 0 0 0
NB: 0 0 0

Total Bikes (PM)

SB: 0 0 0
EB: 0 0 0
WB: 0 0 0
NB: 0 0 0

Pedestrians (Crosswalks)

	PM	NOON	AM	AM	NOON	PM
North crosswalk	0	0	0	0	0	0
South crosswalk	0	0	0	0	0	0

	PM	NOON	AM	AM	NOON	PM
West crosswalk	0	0	0	0	0	0
East crosswalk	1	0	0	0	0	0

	PM	NOON	AM
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

Prepared by National Data & Surveying Services

Santa Fe Ave/CR J7 & E Whitmore Ave

Peak Hour Turning Movement Count

ID: 23-090039-004
City: Hughson

Day: Tuesday
Date: 4/18/2023

PEAK HOURS		COUNT PERIODS
AM	07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	4:00 PM - 06:00 PM

Santa Fe Ave/CR J7
SOUTHBOUND

	Right	Through	Left	U-Turn	Departure
AM	18	249	43	0	363
NOON	0	0	0	0	0
PM	25	388	34	0	403
Lanes	0	1	0	0	

E Whitmore Ave
EASTBOUND

	AM	NOON	PM	Lanes
Departure	266	0	246	
U-Turn	0	0	0	0
Left	16	0	33	0
Through	153	0	227	1
Right	29	0	54	0

E Whitmore Ave
WESTBOUND

	Lanes	PM	NOON	AM
Right	0.5	47	0	73
Through	0.5	170	0	196
Left	0	19	0	25
U-Turn	0	0	0	0
Departure		272	0	203

CONTROL

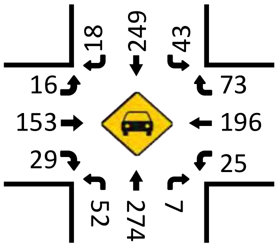
4-Way Stop

	AM	NOON	PM
TEV	1135	0	1382
PHF	0.96		0.94

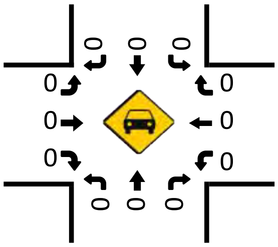
NORTHBOUND
Santa Fe Ave/CR J7

	Departure	U-Turn	Left	Through	Right
Lanes		0	0	1	1
PM	461	0	51	323	11
NOON	0	0	0	0	0
AM	303	0	52	274	7

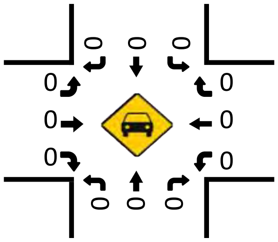
Totals (AM)



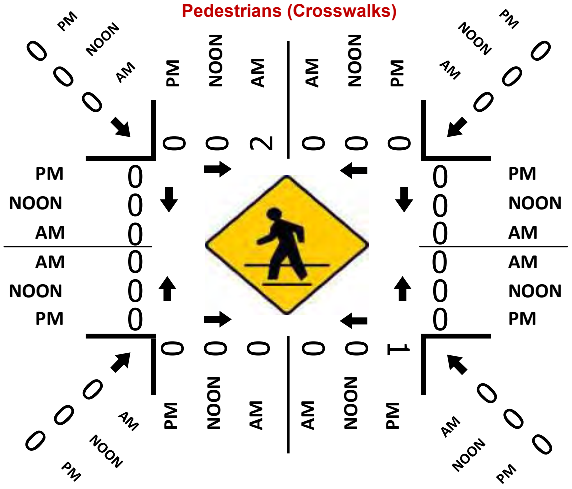
Total Bikes (AM)



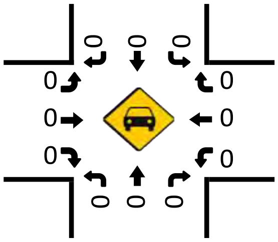
Totals (NOON)



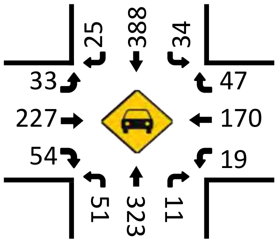
Pedestrians (Crosswalks)



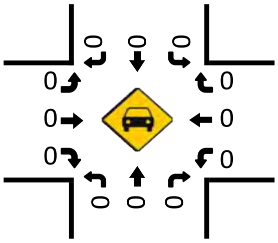
Total Bikes (NOON)



Totals (PM)



Total Bikes (PM)



Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Tully Rd Bet. E Whitmore Ave & Roeding Rd

Day: Tuesday
Date: 4/18/2023

City: Hughson
Project #: CA23_090040_001

DAILY TOTALS	NB	SB	EB	WB	Total
	1,275	1,170	0	0	2,445

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	2		1		0	0	3		12:00	9		7		0	0	16	
00:15	3		2		0	0	5		12:15	28		7		0	0	35	
00:30	0		0		0	0			12:30	10		22		0	0	32	
00:45	0	5	0	3	0	0		8	12:45	12	59	13	49	0	0	25	108
01:00	2		1		0	0	3		13:00	20		9		0	0	29	
01:15	0		0		0	0			13:15	16		12		0	0	28	
01:30	0		1		0	0	1		13:30	22		14		0	0	36	
01:45	1	3	1	3	0	0	2	6	13:45	11	69	12	47	0	0	23	116
02:00	0		1		0	0	1		14:00	15		11		0	0	26	
02:15	1		1		0	0	2		14:15	11		10		0	0	21	
02:30	1		0		0	0	1		14:30	24		22		0	0	46	
02:45	2	4	2	4	0	0	4	8	14:45	22	72	27	70	0	0	49	142
03:00	0		1		0	0	1		15:00	23		15		0	0	38	
03:15	0		0		0	0			15:15	28		35		0	0	63	
03:30	1		1		0	0	2		15:30	52		40		0	0	92	
03:45	0	1	2	4	0	0	2	5	15:45	32	135	38	128	0	0	70	263
04:00	1		4		0	0	5		16:00	38		25		0	0	63	
04:15	3		0		0	0	3		16:15	39		28		0	0	67	
04:30	1		8		0	0	9		16:30	39		37		0	0	76	
04:45	5	10	12	24	0	0	17	34	16:45	32	148	31	121	0	0	63	269
05:00	4		3		0	0	7		17:00	35		32		0	0	67	
05:15	4		3		0	0	7		17:15	37		35		0	0	72	
05:30	6		12		0	0	18		17:30	44		19		0	0	63	
05:45	3	17	13	31	0	0	16	48	17:45	35	151	18	104	0	0	53	255
06:00	4		6		0	0	10		18:00	27		19		0	0	46	
06:15	10		16		0	0	26		18:15	32		16		0	0	48	
06:30	11		10		0	0	21		18:30	13		12		0	0	25	
06:45	11	36	14	46	0	0	25	82	18:45	19	91	11	58	0	0	30	149
07:00	13		15		0	0	28		19:00	16		16		0	0	32	
07:15	16		27		0	0	43		19:15	10		10		0	0	20	
07:30	16		26		0	0	42		19:30	12		24		0	0	36	
07:45	38	83	31	99	0	0	69	182	19:45	15	53	12	62	0	0	27	115
08:00	28		21		0	0	49		20:00	7		11		0	0	18	
08:15	28		13		0	0	41		20:15	11		6		0	0	17	
08:30	18		22		0	0	40		20:30	12		8		0	0	20	
08:45	14	88	22	78	0	0	36	166	20:45	12	42	9	34	0	0	21	76
09:00	10		14		0	0	24		21:00	4		7		0	0	11	
09:15	15		25		0	0	40		21:15	10		4		0	0	14	
09:30	13		15		0	0	28		21:30	1		2		0	0	3	
09:45	15	53	18	72	0	0	33	125	21:45	4	19	4	17	0	0	8	36
10:00	18		10		0	0	28		22:00	4		5		0	0	9	
10:15	16		12		0	0	28		22:15	4		5		0	0	9	
10:30	15		7		0	0	22		22:30	2		2		0	0	4	
10:45	15	64	11	40	0	0	26	104	22:45	5	15	5	17	0	0	10	32
11:00	9		10		0	0	19		23:00	4		3		0	0	7	
11:15	13		13		0	0	26		23:15	2		2		0	0	4	
11:30	13		13		0	0	26		23:30	1		1		0	0	2	
11:45	14	49	17	53	0	0	31	102	23:45	1	8	0	6	0	0	1	14
TOTALS		413		457				**870**	**TOTALS**		862		713				**1575**
SPLIT %		47.5%		52.5%				**35.6%**	**SPLIT %**		54.7%		45.3%				**64.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	1,275	1,170	0	0	2,445

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour	07:45	07:15			**07:15**	**PM Peak Hour**	15:30	15:15			**15:30**
AM Pk Volume	112	105			**203**	**PM Pk Volume**	161	138			**292**
Pk Hr Factor	0.737	0.847			**0.736**	**Pk Hr Factor**	0.774	0.863			**0.793**
7 - 9 Volume	171	177	0	0	**348**	**4 - 6 Volume**	299	225	0	0	**524**
7 - 9 Peak Hour	07:45	07:15			**07:15**	**4 - 6 Peak Hour**	17:00	16:30			**16:30**
7 - 9 Pk Volume	112	105	0	0	**203**	**4 - 6 Pk Volume**	151	135	0	0	**278**
Pk Hr Factor	0.737	0.847	0.000	0.000	**0.736**	**Pk Hr Factor**	0.858	0.912	0.000	0.000	**0.914**

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

E Whitmore Ave W/O Tully Rd

Day: Tuesday
Date: 4/18/2023

City: Hughson
Project #: CA23_090040_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,397	3,594	6,991

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	4		1		5		12:00	0	0	47		59		106	
00:15	0	0	3		6		9		12:15	0	0	46		46		92	
00:30	0	0	5		3		8		12:30	0	0	45		58		103	
00:45	0	0	4	16	2	12	6	28	12:45	0	0	52	190	59	222	111	412
01:00	0	0	4		1		5		13:00	0	0	43		50		93	
01:15	0	0	0		1		1		13:15	0	0	55		41		96	
01:30	0	0	3		4		7		13:30	0	0	52		74		126	
01:45	0	0	3	10	5	11	8	21	13:45	0	0	57	207	67	232	124	439
02:00	0	0	5		5		10		14:00	0	0	49		55		104	
02:15	0	0	2		6		8		14:15	0	0	61		54		115	
02:30	0	0	1		5		6		14:30	0	0	60		70		130	
02:45	0	0	2	10	5	21	7	31	14:45	0	0	94	264	61	240	155	504
03:00	0	0	2		1		3		15:00	0	0	93		63		156	
03:15	0	0	3		10		13		15:15	0	0	79		85		164	
03:30	0	0	4		8		12		15:30	0	0	85		88		173	
03:45	0	0	4	13	7	26	11	39	15:45	0	0	95	352	74	310	169	662
04:00	0	0	8		5		13		16:00	0	0	74		76		150	
04:15	0	0	13		16		29		16:15	0	0	77		70		147	
04:30	0	0	35		18		53		16:30	0	0	70		64		134	
04:45	0	0	23	79	21	60	44	139	16:45	0	0	93	314	72	282	165	596
05:00	0	0	10		21		31		17:00	0	0	78		69		147	
05:15	0	0	10		23		33		17:15	0	0	96		76		172	
05:30	0	0	31		33		64		17:30	0	0	97		54		151	
05:45	0	0	29	80	35	112	64	192	17:45	0	0	68	339	51	250	119	589
06:00	0	0	25		38		63		18:00	0	0	88		61		149	
06:15	0	0	32		46		78		18:15	0	0	65		57		122	
06:30	0	0	32		71		103		18:30	0	0	51		44		95	
06:45	0	0	35	124	61	216	96	340	18:45	0	0	31	235	32	194	63	429
07:00	0	0	30		60		90		19:00	0	0	30		27		57	
07:15	0	0	25		62		87		19:15	0	0	35		42		77	
07:30	0	0	37		91		128		19:30	0	0	37		53		90	
07:45	0	0	49	141	87	300	136	441	19:45	0	0	31	133	34	156	65	289
08:00	0	0	54		68		122		20:00	0	0	32		22		54	
08:15	0	0	63		74		137		20:15	0	0	28		17		45	
08:30	0	0	46		81		127		20:30	0	0	20		18		38	
08:45	0	0	37	200	40	263	77	463	20:45	0	0	23	103	19	76	42	179
09:00	0	0	36		46		82		21:00	0	0	22		23		45	
09:15	0	0	38		44		82		21:15	0	0	30		14		44	
09:30	0	0	32		41		73		21:30	0	0	27		13		40	
09:45	0	0	35	141	46	177	81	318	21:45	0	0	20	99	16	66	36	165
10:00	0	0	27		33		60		22:00	0	0	14		17		31	
10:15	0	0	33		44		77		22:15	0	0	11		11		22	
10:30	0	0	47		40		87		22:30	0	0	7		12		19	
10:45	0	0	37	144	27	144	64	288	22:45	0	0	9	41	8	48	17	89
11:00	0	0	40		35		75		23:00	0	0	9		11		20	
11:15	0	0	32		40		72		23:15	0	0	5		8		13	
11:30	0	0	26		39		65		23:30	0	0	4		4		8	
11:45	0	0	35	133	37	151	72	284	23:45	0	0	11	29	2	25	13	54
TOTALS				1091		1493		**2584**	**TOTALS**				2306		2101		**4407**
SPLIT %				42.2%		57.8%		**37.0%**	**SPLIT %**				52.3%		47.7%		**63.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,397	3,594	6,991

AM Peak Hour			07:45	07:30	**07:30**	**PM Peak Hour**			16:45	15:15	**15:00**
AM Pk Volume			212	320	**523**	**PM Pk Volume**			364	323	**662**
Pk Hr Factor			0.841	0.879	**0.954**	**Pk Hr Factor**			0.938	0.918	**0.957**
7 - 9 Volume	0	0	341	563	**904**	**4 - 6 Volume**	0	0	653	532	**1185**
7 - 9 Peak Hour			07:45	07:30	**07:30**	**4 - 6 Peak Hour**			16:45	16:00	**16:45**
7 - 9 Pk Volume	0	0	212	320	**523**	**4 - 6 Pk Volume**	0	0	364	282	**635**
Pk Hr Factor	0.000	0.000	0.841	0.879	**0.954**	**Pk Hr Factor**	0.000	0.000	0.938	0.928	**0.923**

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

E Whitmore Ave E/O Tully Rd

Day: Tuesday
Date: 4/18/2023

City: Hughson
Project #: CA23_090040_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,052	2,964	6,016

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	4		1		5		12:00	0	0	46		52		98	
00:15	0	0	3		1		4		12:15	0	0	59		37		96	
00:30	0	0	3		2		5		12:30	0	0	41		44		85	
00:45	0	0	3	13	2	6	5	19	12:45	0	0	44	190	53	186	97	376
01:00	0	0	4		1		5		13:00	0	0	49		41		90	
01:15	0	0	0		0				13:15	0	0	52		37		89	
01:30	0	0	3		3		6		13:30	0	0	50		42		92	
01:45	0	0	0	7	5	9	5	16	13:45	0	0	49	200	45	165	94	365
02:00	0	0	1		3		4		14:00	0	0	48		39		87	
02:15	0	0	1		5		6		14:15	0	0	49		47		96	
02:30	0	0	2		3		5		14:30	0	0	59		54		113	
02:45	0	0	4	8	3	14	7	22	14:45	0	0	89	245	55	195	144	440
03:00	0	0	1		1		2		15:00	0	0	77		56		133	
03:15	0	0	2		6		8		15:15	0	0	74		76		150	
03:30	0	0	2		6		8		15:30	0	0	86		79		165	
03:45	0	0	3	8	8	21	11	29	15:45	0	0	75	312	65	276	140	588
04:00	0	0	4		8		12		16:00	0	0	68		66		134	
04:15	0	0	7		13		20		16:15	0	0	70		66		136	
04:30	0	0	14		12		26		16:30	0	0	63		66		129	
04:45	0	0	11	36	20	53	31	89	16:45	0	0	72	273	52	250	124	523
05:00	0	0	7		17		24		17:00	0	0	59		57		116	
05:15	0	0	7		18		25		17:15	0	0	82		67		149	
05:30	0	0	22		30		52		17:30	0	0	78		42		120	
05:45	0	0	21	57	31	96	52	153	17:45	0	0	71	290	41	207	112	497
06:00	0	0	21		29		50		18:00	0	0	53		34		87	
06:15	0	0	26		36		62		18:15	0	0	57		41		98	
06:30	0	0	28		49		77		18:30	0	0	54		40		94	
06:45	0	0	26	101	49	163	75	264	18:45	0	0	24	188	28	143	52	331
07:00	0	0	35		38		73		19:00	0	0	29		26		55	
07:15	0	0	33		59		92		19:15	0	0	30		33		63	
07:30	0	0	33		61		94		19:30	0	0	29		35		64	
07:45	0	0	49	150	62	220	111	370	19:45	0	0	27	115	23	117	50	232
08:00	0	0	43		53		96		20:00	0	0	21		20		41	
08:15	0	0	71		66		137		20:15	0	0	28		15		43	
08:30	0	0	37		76		113		20:30	0	0	21		17		38	
08:45	0	0	36	187	33	228	69	415	20:45	0	0	19	89	15	67	34	156
09:00	0	0	33		41		74		21:00	0	0	17		20		37	
09:15	0	0	34		40		74		21:15	0	0	31		12		43	
09:30	0	0	31		42		73		21:30	0	0	23		8		31	
09:45	0	0	42	140	38	161	80	301	21:45	0	0	17	88	11	51	28	139
10:00	0	0	32		29		61		22:00	0	0	11		11		22	
10:15	0	0	31		39		70		22:15	0	0	6		7		13	
10:30	0	0	56		30		86		22:30	0	0	7		9		16	
10:45	0	0	39	158	30	128	69	286	22:45	0	0	6	30	5	32	11	62
11:00	0	0	45		42		87		23:00	0	0	9		4		13	
11:15	0	0	33		39		72		23:15	0	0	3		4		7	
11:30	0	0	30		50		80		23:30	0	0	2		3		5	
11:45	0	0	40	148	33	164	73	312	23:45	0	0	5	19	1	12	6	31
TOTALS				1013		1263	**2276**		**TOTALS**				2039		1701	**3740**	
SPLIT %				44.5%		55.5%	**37.8%**		**SPLIT %**				54.5%		45.5%	**62.2%**	

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,052	2,964	6,016

AM Peak Hour			07:45	07:45	**07:45**	**PM Peak Hour**			14:45	15:15	**14:45**
AM Pk Volume			200	257	**457**	**PM Pk Volume**			326	286	**592**
Pk Hr Factor			0.704	0.845	**0.834**	**Pk Hr Factor**			0.916	0.905	**0.897**
7 - 9 Volume	0	0	337	448	**785**	**4 - 6 Volume**	0	0	563	457	**1020**
7 - 9 Peak Hour			07:45	07:45	**07:45**	**4 - 6 Peak Hour**			16:45	16:00	**16:00**
7 - 9 Pk Volume	0	0	200	257	**457**	**4 - 6 Pk Volume**	0	0	291	250	**523**
Pk Hr Factor	0.000	0.000	0.704	0.845	**0.834**	**Pk Hr Factor**	0.000	0.000	0.887	0.947	**0.961**

Appendix B

Synchro HCM 6th Edition LOS and Queueing Reports

Intersection	
Intersection Delay, s/veh	22.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	9	327	35	16	389	28	51	57	6	59	136	16
Future Vol, veh/h	9	327	35	16	389	28	51	57	6	59	136	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	359	38	18	427	31	56	63	7	65	149	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	21.8	28.3	12.9	15.5
HCM LOS	C	D	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	2%	4%	28%
Vol Thru, %	50%	88%	90%	64%
Vol Right, %	5%	9%	6%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	371	433	211
LT Vol	51	9	16	59
Through Vol	57	327	389	136
RT Vol	6	35	28	16
Lane Flow Rate	125	408	476	232
Geometry Grp	1	1	1	1
Degree of Util (X)	0.255	0.691	0.793	0.446
Departure Headway (Hd)	7.335	6.106	6.003	6.92
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	487	591	600	519
Service Time	5.419	4.167	4.06	4.987
HCM Lane V/C Ratio	0.257	0.69	0.793	0.447
HCM Control Delay	12.9	21.8	28.3	15.5
HCM Lane LOS	B	C	D	C
HCM 95th-tile Q	1	5.4	7.7	2.3

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣		↰	↱			↰	↱		✣	
Traffic Vol, veh/h	49	158	16	35	211	9	11	67	42	7	55	94
Future Vol, veh/h	49	158	16	35	211	9	11	67	42	7	55	94
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	170	17	38	227	10	12	72	45	8	59	101
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	12.6	11.6	9.7	11.2
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	14%	0%	22%	100%	0%	4%
Vol Thru, %	86%	0%	71%	0%	96%	35%
Vol Right, %	0%	100%	7%	0%	4%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	78	42	223	35	220	156
LT Vol	11	0	49	35	0	7
Through Vol	67	0	158	0	211	55
RT Vol	0	42	16	0	9	94
Lane Flow Rate	84	45	240	38	237	168
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.148	0.07	0.391	0.066	0.377	0.275
Departure Headway (Hd)	6.363	5.581	5.869	6.27	5.736	5.893
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	563	641	614	572	627	609
Service Time	4.107	3.325	3.904	4.003	3.468	3.934
HCM Lane V/C Ratio	0.149	0.07	0.391	0.066	0.378	0.276
HCM Control Delay	10.2	8.7	12.6	9.4	11.9	11.2
HCM Lane LOS	B	A	B	A	B	B
HCM 95th-tile Q	0.5	0.2	1.9	0.2	1.8	1.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	0	0	0	120	106	0
Future Vol, veh/h	0	0	0	120	106	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	130	115	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	245	115	115	0	-	0
Stage 1	115	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	743	937	1474	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	743	937	1474	-	-	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	0		0		0
HCM LOS	A				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1474	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✣			✣			✣	
Traffic Vol, veh/h	17	1	6	0	1	0	7	95	1	5	72	13
Future Vol, veh/h	17	1	6	0	1	0	7	95	1	5	72	13
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	1	8	0	1	0	9	127	1	7	96	17
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.2	7.6	7.9	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	7%	94%	0%	0%	6%
Vol Thru, %	92%	6%	0%	100%	80%
Vol Right, %	1%	0%	100%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	18	6	1	90
LT Vol	7	17	0	0	5
Through Vol	95	1	0	1	72
RT Vol	1	0	6	0	13
Lane Flow Rate	137	24	8	1	120
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.156	0.037	0.01	0.002	0.134
Departure Headway (Hd)	4.088	5.567	4.389	4.636	4.017
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	869	647	820	776	883
Service Time	2.15	3.267	2.089	2.638	2.086
HCM Lane V/C Ratio	0.158	0.037	0.01	0.001	0.136
HCM Control Delay	7.9	8.5	7.1	7.6	7.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.6	0.1	0	0	0.5

7: Santa Fe Ave & Whitmore Ave

Intersection	
Intersection Delay, s/veh	20.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑	↱		↰↑	↱		↰↑↱	
Traffic Vol, veh/h	16	153	29	25	196	73	52	274	7	43	249	18
Future Vol, veh/h	16	153	29	25	196	73	52	274	7	43	249	18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	159	30	26	204	76	54	285	7	45	259	19
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	16.9	15.6	23.8	23.2
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	0%	8%	11%	0%	14%
Vol Thru, %	84%	0%	77%	89%	0%	80%
Vol Right, %	0%	100%	15%	0%	100%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	326	7	198	221	73	310
LT Vol	52	0	16	25	0	43
Through Vol	274	0	153	196	0	249
RT Vol	0	7	29	0	73	18
Lane Flow Rate	340	7	206	230	76	323
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.68	0.013	0.443	0.482	0.143	0.654
Departure Headway (Hd)	7.213	6.414	7.736	7.543	6.766	7.286
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	499	555	462	477	527	494
Service Time	4.989	4.189	5.828	5.324	4.546	5.365
HCM Lane V/C Ratio	0.681	0.013	0.446	0.482	0.144	0.654
HCM Control Delay	24.1	9.3	16.9	17.2	10.7	23.2
HCM Lane LOS	C	A	C	C	B	C
HCM 95th-tile Q	5.1	0	2.2	2.6	0.5	4.6

1: Tully Rd & Santa Fe Ave

Intersection	
Intersection Delay, s/veh	38.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	20	426	67	18	355	51	70	170	9	42	73	8
Future Vol, veh/h	20	426	67	18	355	51	70	170	9	42	73	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	448	71	19	374	54	74	179	9	44	77	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	57.1	34.3	19.7	14.7
HCM LOS	F	D	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	4%	4%	34%
Vol Thru, %	68%	83%	84%	59%
Vol Right, %	4%	13%	12%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	513	424	123
LT Vol	70	20	18	42
Through Vol	170	426	355	73
RT Vol	9	67	51	8
Lane Flow Rate	262	540	446	129
Geometry Grp	1	1	1	1
Degree of Util (X)	0.552	0.972	0.828	0.294
Departure Headway (Hd)	7.58	6.478	6.676	8.174
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	474	562	540	438
Service Time	5.646	4.533	4.735	6.256
HCM Lane V/C Ratio	0.553	0.961	0.826	0.295
HCM Control Delay	19.7	57.1	34.3	14.7
HCM Lane LOS	C	F	D	B
HCM 95th-tile Q	3.3	13.2	8.4	1.2

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↱			↰	↱		✥	
Traffic Vol, veh/h	119	214	19	31	192	11	16	113	55	16	85	77
Future Vol, veh/h	119	214	19	31	192	11	16	113	55	16	85	77
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	131	235	21	34	211	12	18	124	60	18	93	85
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	23.1	13.3	11.9	14
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	12%	0%	34%	100%	0%	9%
Vol Thru, %	88%	0%	61%	0%	95%	48%
Vol Right, %	0%	100%	5%	0%	5%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	55	352	31	203	178
LT Vol	16	0	119	31	0	16
Through Vol	113	0	214	0	192	85
RT Vol	0	55	19	0	11	77
Lane Flow Rate	142	60	387	34	223	196
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.281	0.107	0.697	0.068	0.409	0.373
Departure Headway (Hd)	7.125	6.346	6.483	7.15	6.601	6.868
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	505	564	561	503	547	524
Service Time	4.873	4.093	4.494	4.863	4.314	4.918
HCM Lane V/C Ratio	0.281	0.106	0.69	0.068	0.408	0.374
HCM Control Delay	12.7	9.9	23.1	10.4	13.8	14
HCM Lane LOS	B	A	C	B	B	B
HCM 95th-tile Q	1.1	0.4	5.5	0.2	2	1.7

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	0	0	0	184	147	0
Future Vol, veh/h	0	0	0	184	147	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	200	160	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	360	160	160	0	-	0
Stage 1	160	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	639	885	1419	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	639	885	1419	-	-	-
Mov Cap-2 Maneuver	639	-	-	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	834	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	0		0		0
HCM LOS	A				

Minor Lane/Major Mvmt		NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)		1419	-	-	-	-
HCM Lane V/C Ratio		-	-	-	-	-
HCM Control Delay (s)		0	-	0	-	-
HCM Lane LOS		A	-	A	-	-
HCM 95th %tile Q(veh)		0	-	-	-	-

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✥			✥			✥	
Traffic Vol, veh/h	25	0	12	3	0	2	2	119	0	8	123	16
Future Vol, veh/h	25	0	12	3	0	2	2	119	0	8	123	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	0	13	3	0	2	2	129	0	9	134	17
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.1	7.6	8	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	2%	100%	0%	60%	5%
Vol Thru, %	98%	0%	0%	0%	84%
Vol Right, %	0%	0%	100%	40%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	25	12	5	147
LT Vol	2	25	0	3	8
Through Vol	119	0	0	0	123
RT Vol	0	0	12	2	16
Lane Flow Rate	132	27	13	5	160
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.151	0.043	0.016	0.007	0.18
Departure Headway (Hd)	4.137	5.676	4.469	4.605	4.058
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	855	635	806	782	872
Service Time	2.219	3.376	2.169	2.606	2.136
HCM Lane V/C Ratio	0.154	0.043	0.016	0.006	0.183
HCM Control Delay	8	8.6	7.2	7.6	8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0	0	0.7

Intersection	
Intersection Delay, s/veh	68.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			↰	↱		↰	↱		✥	
Traffic Vol, veh/h	33	227	54	19	170	47	51	323	11	34	388	25
Future Vol, veh/h	33	227	54	19	170	47	51	323	11	34	388	25
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	241	57	20	181	50	54	344	12	36	413	27
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	43.1	20.5	57.7	121
HCM LOS	E	C	F	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	14%	0%	11%	10%	0%	8%
Vol Thru, %	86%	0%	72%	90%	0%	87%
Vol Right, %	0%	100%	17%	0%	100%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	374	11	314	189	47	447
LT Vol	51	0	33	19	0	34
Through Vol	323	0	227	170	0	388
RT Vol	0	11	54	0	47	25
Lane Flow Rate	398	12	334	201	50	476
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.931	0.025	0.817	0.513	0.117	1.151
Departure Headway (Hd)	8.908	8.108	9.426	9.797	9.011	8.712
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	410	444	387	370	401	418
Service Time	6.608	5.808	7.426	7.497	6.711	6.712
HCM Lane V/C Ratio	0.971	0.027	0.863	0.543	0.125	1.139
HCM Control Delay	59.1	11	43.1	22.4	12.9	121
HCM Lane LOS	F	B	E	C	B	F
HCM 95th-tile Q	10.3	0.1	7.3	2.8	0.4	17.8

Intersection	
Intersection Delay, s/veh	22.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	9	327	39	16	389	28	53	57	6	59	138	16
Future Vol, veh/h	9	327	39	16	389	28	53	57	6	59	138	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	359	43	18	427	31	58	63	7	65	152	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	22.5	28.9	13.1	15.7
HCM LOS	C	D	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	46%	2%	4%	28%
Vol Thru, %	49%	87%	90%	65%
Vol Right, %	5%	10%	6%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	375	433	213
LT Vol	53	9	16	59
Through Vol	57	327	389	138
RT Vol	6	39	28	16
Lane Flow Rate	127	412	476	234
Geometry Grp	1	1	1	1
Degree of Util (X)	0.261	0.702	0.798	0.452
Departure Headway (Hd)	7.378	6.132	6.041	6.956
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	484	589	600	515
Service Time	5.465	4.195	4.101	5.027
HCM Lane V/C Ratio	0.262	0.699	0.793	0.454
HCM Control Delay	13.1	22.5	28.9	15.7
HCM Lane LOS	B	C	D	C
HCM 95th-tile Q	1	5.6	7.8	2.3

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↱			↰	↱		✥	
Traffic Vol, veh/h	49	158	36	41	211	9	22	69	44	7	61	94
Future Vol, veh/h	49	158	36	41	211	9	22	69	44	7	61	94
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	170	39	44	227	10	24	74	47	8	66	101
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	13.4	11.9	10.1	11.6
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	24%	0%	20%	100%	0%	4%
Vol Thru, %	76%	0%	65%	0%	96%	38%
Vol Right, %	0%	100%	15%	0%	4%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	44	243	41	220	162
LT Vol	22	0	49	41	0	7
Through Vol	69	0	158	0	211	61
RT Vol	0	44	36	0	9	94
Lane Flow Rate	98	47	261	44	237	174
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.178	0.075	0.43	0.078	0.386	0.292
Departure Headway (Hd)	6.532	5.698	5.931	6.403	5.868	6.043
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	548	627	606	559	613	594
Service Time	4.285	3.45	3.974	4.144	3.609	4.094
HCM Lane V/C Ratio	0.179	0.075	0.431	0.079	0.387	0.293
HCM Control Delay	10.7	8.9	13.4	9.7	12.3	11.6
HCM Lane LOS	B	A	B	A	B	B
HCM 95th-tile Q	0.6	0.2	2.2	0.3	1.8	1.2

3: Tully Rd & N Proj Dwy

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	0	0	0	135	138	0
Future Vol, veh/h	0	0	0	135	138	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	147	150	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	297	150	150	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	694	896	1431	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	694	896	1431	-	-	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	12	8	19	123	122	32
Future Vol, veh/h	12	8	19	123	122	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	9	21	134	133	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	327	151	168	0	-	0
Stage 1	151	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	667	895	1410	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	656	895	1410	-	-	-
Mov Cap-2 Maneuver	656	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	10.1		1		0	
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1410	-	734	-	-
HCM Lane V/C Ratio	0.015	-	0.03	-	-
HCM Control Delay (s)	7.6	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	3	2	0	139	114	0
Future Vol, veh/h	3	2	0	139	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	2	0	151	124	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	275	124	124	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	715	927	1463	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	715	927	1463	-	-	-
Mov Cap-2 Maneuver	715	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	877	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	9.6		0		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	787	-	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	0	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✣			✣			✣	
Traffic Vol, veh/h	17	1	6	0	1	0	7	114	1	5	82	13
Future Vol, veh/h	17	1	6	0	1	0	7	114	1	5	82	13
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	1	8	0	1	0	9	152	1	7	109	17
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.3	7.7	8.1	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	94%	0%	0%	5%
Vol Thru, %	93%	6%	0%	100%	82%
Vol Right, %	1%	0%	100%	0%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	18	6	1	100
LT Vol	7	17	0	0	5
Through Vol	114	1	0	1	82
RT Vol	1	0	6	0	13
Lane Flow Rate	163	24	8	1	133
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.185	0.038	0.01	0.002	0.15
Departure Headway (Hd)	4.097	5.651	4.472	4.723	4.044
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	867	637	805	762	876
Service Time	2.165	3.351	2.172	2.724	2.12
HCM Lane V/C Ratio	0.188	0.038	0.01	0.001	0.152
HCM Control Delay	8.1	8.6	7.2	7.7	7.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.7	0.1	0	0	0.5

Intersection	
Intersection Delay, s/veh	20.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑	↱		↰↑	↱		↰↑↱	
Traffic Vol, veh/h	16	153	31	25	198	73	56	274	7	43	249	18
Future Vol, veh/h	16	153	31	25	198	73	56	274	7	43	249	18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	159	32	26	206	76	58	285	7	45	259	19
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	17.1	15.8	24.6	23.6
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	17%	0%	8%	11%	0%	14%
Vol Thru, %	83%	0%	77%	89%	0%	80%
Vol Right, %	0%	100%	15%	0%	100%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	7	200	223	73	310
LT Vol	56	0	16	25	0	43
Through Vol	274	0	153	198	0	249
RT Vol	0	7	31	0	73	18
Lane Flow Rate	344	7	208	232	76	323
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.692	0.013	0.45	0.489	0.144	0.658
Departure Headway (Hd)	7.25	6.445	7.772	7.578	6.801	7.331
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	495	552	460	474	524	491
Service Time	5.029	4.224	5.869	5.365	4.588	5.414
HCM Lane V/C Ratio	0.695	0.013	0.452	0.489	0.145	0.658
HCM Control Delay	24.9	9.3	17.1	17.5	10.7	23.6
HCM Lane LOS	C	A	C	C	B	C
HCM 95th-tile Q	5.3	0	2.3	2.6	0.5	4.7

Intersection	
Intersection Delay, s/veh	41
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	20	426	68	18	355	51	75	177	9	42	73	8
Future Vol, veh/h	20	426	68	18	355	51	75	177	9	42	73	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	448	72	19	374	54	79	186	9	44	77	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	61.3	36.3	20.9	14.9
HCM LOS	F	E	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	4%	4%	34%
Vol Thru, %	68%	83%	84%	59%
Vol Right, %	3%	13%	12%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	261	514	424	123
LT Vol	75	20	18	42
Through Vol	177	426	355	73
RT Vol	9	68	51	8
Lane Flow Rate	275	541	446	129
Geometry Grp	1	1	1	1
Degree of Util (X)	0.583	0.988	0.841	0.298
Departure Headway (Hd)	7.636	6.572	6.78	8.298
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	470	552	531	431
Service Time	5.708	4.632	4.843	6.391
HCM Lane V/C Ratio	0.585	0.98	0.84	0.299
HCM Control Delay	20.9	61.3	36.3	14.9
HCM Lane LOS	C	F	E	B
HCM 95th-tile Q	3.6	13.8	8.7	1.2

Intersection	
Intersection Delay, s/veh	18.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥		↰	↑↱			↰↑	↱		✥	
Traffic Vol, veh/h	119	214	29	42	192	11	26	125	69	16	88	77
Future Vol, veh/h	119	214	29	42	192	11	26	125	69	16	88	77
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	131	235	32	46	211	12	29	137	76	18	97	85
Number of Lanes	0	1	0	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	26.1	13.9	12.7	14.7
HCM LOS	D	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	17%	0%	33%	100%	0%	9%
Vol Thru, %	83%	0%	59%	0%	95%	49%
Vol Right, %	0%	100%	8%	0%	5%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	69	362	42	203	181
LT Vol	26	0	119	42	0	16
Through Vol	125	0	214	0	192	88
RT Vol	0	69	29	0	11	77
Lane Flow Rate	166	76	398	46	223	199
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.337	0.137	0.736	0.095	0.423	0.393
Departure Headway (Hd)	7.309	6.504	6.661	7.371	6.82	7.12
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	491	550	545	486	529	505
Service Time	5.058	4.253	4.702	5.117	4.567	5.173
HCM Lane V/C Ratio	0.338	0.138	0.73	0.095	0.422	0.394
HCM Control Delay	13.8	10.3	26.1	10.9	14.5	14.7
HCM Lane LOS	B	B	D	B	B	B
HCM 95th-tile Q	1.5	0.5	6.2	0.3	2.1	1.9

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	0	0	0	220	171	0
Future Vol, veh/h	0	0	0	220	171	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	239	186	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	425	186	186	0	-	0
Stage 1	186	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	586	856	1388	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	801	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	586	856	1388	-	-	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	801	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1388	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	19	7	1	201	147	24
Future Vol, veh/h	19	7	1	201	147	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	8	1	218	160	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	393	173	186	0	-	0
Stage 1	173	-	-	-	-	-
Stage 2	220	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	611	871	1388	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	610	871	1388	-	-	-
Mov Cap-2 Maneuver	610	-	-	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	817	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	10.7		0		0	
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1388	-	664	-	-
HCM Lane V/C Ratio	0.001	-	0.043	-	-
HCM Control Delay (s)	7.6	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
5: Tully Rd & S Proj Dwy

Existing Plus Project PM Peak Hour

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	17	8	0	185	154	0
Future Vol, veh/h	17	8	0	185	154	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	9	0	201	167	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	368	167	167	0	-	0
Stage 1	167	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	632	877	1411	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	632	877	1411	-	-	-
Mov Cap-2 Maneuver	632	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	833	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1411	-	694	-	-
HCM Lane V/C Ratio	-	-	0.039	-	-
HCM Control Delay (s)	0	-	10.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✥			✥			✥	
Traffic Vol, veh/h	25	0	12	3	0	2	2	120	0	8	138	16
Future Vol, veh/h	25	0	12	3	0	2	2	120	0	8	138	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	0	13	3	0	2	2	130	0	9	150	17
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.2	7.7	8	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	2%	100%	0%	60%	5%
Vol Thru, %	98%	0%	0%	0%	85%
Vol Right, %	0%	0%	100%	40%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	25	12	5	162
LT Vol	2	25	0	3	8
Through Vol	120	0	0	0	138
RT Vol	0	0	12	2	16
Lane Flow Rate	133	27	13	5	176
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.153	0.043	0.016	0.007	0.199
Departure Headway (Hd)	4.15	5.715	4.508	4.645	4.064
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	853	630	799	775	872
Service Time	2.235	3.415	2.208	2.646	2.143
HCM Lane V/C Ratio	0.156	0.043	0.016	0.006	0.202
HCM Control Delay	8	8.7	7.3	7.7	8.2
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0	0	0.7

Intersection	
Intersection Delay, s/veh	75.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			↰	↱		↰	↱		✥	
Traffic Vol, veh/h	33	237	58	19	179	47	53	323	11	34	388	25
Future Vol, veh/h	33	237	58	19	179	47	53	323	11	34	388	25
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	252	62	20	190	50	56	344	12	36	413	27
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	50.6	22	63.8	133.5
HCM LOS	F	C	F	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	14%	0%	10%	10%	0%	8%
Vol Thru, %	86%	0%	72%	90%	0%	87%
Vol Right, %	0%	100%	18%	0%	100%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	376	11	328	198	47	447
LT Vol	53	0	33	19	0	34
Through Vol	323	0	237	179	0	388
RT Vol	0	11	58	0	47	25
Lane Flow Rate	400	12	349	211	50	476
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.955	0.025	0.865	0.546	0.119	1.183
Departure Headway (Hd)	9.159	8.355	9.625	10.017	9.231	8.958
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	400	431	380	362	391	409
Service Time	6.859	6.055	7.625	7.717	6.931	6.958
HCM Lane V/C Ratio	1	0.028	0.918	0.583	0.128	1.164
HCM Control Delay	65.3	11.3	50.6	24.1	13.2	133.5
HCM Lane LOS	F	B	F	C	B	F
HCM 95th-tile Q	10.8	0.1	8.3	3.1	0.4	18.7

HCM 6th Signalized Intersection Summary

1: Tully Rd & Santa Fe Ave

Cumulative AM Peak Volume

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	17	605	73	30	719	52	97	107	11	109	254	30
Future Volume (veh/h)	17	605	73	30	719	52	97	107	11	109	254	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	658	79	33	782	57	105	116	12	118	276	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	910	109	53	997	73	134	348	36	151	357	43
Arrive On Green	0.02	0.28	0.28	0.03	0.30	0.30	0.08	0.21	0.21	0.08	0.22	0.22
Sat Flow, veh/h	1781	3195	383	1781	3358	245	1781	1667	172	1781	1639	196
Grp Volume(v), veh/h	18	366	371	33	414	425	105	0	128	118	0	309
Grp Sat Flow(s),veh/h/ln	1781	1777	1801	1781	1777	1826	1781	0	1839	1781	0	1835
Q Serve(g_s), s	0.5	8.6	8.6	0.9	9.9	9.9	2.7	0.0	2.7	3.0	0.0	7.4
Cycle Q Clear(g_c), s	0.5	8.6	8.6	0.9	9.9	9.9	2.7	0.0	2.7	3.0	0.0	7.4
Prop In Lane	1.00		0.21	1.00		0.13	1.00		0.09	1.00		0.11
Lane Grp Cap(c), veh/h	32	506	513	53	527	542	134	0	384	151	0	400
V/C Ratio(X)	0.57	0.72	0.72	0.62	0.78	0.78	0.78	0.00	0.33	0.78	0.00	0.77
Avail Cap(c_a), veh/h	153	720	729	153	720	740	230	0	713	230	0	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	14.9	15.0	22.3	15.0	15.0	21.1	0.0	15.6	20.8	0.0	17.1
Incr Delay (d2), s/veh	5.8	0.9	0.9	4.3	2.6	2.6	3.8	0.0	0.2	4.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.7	2.8	0.4	3.4	3.4	1.1	0.0	1.0	1.3	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	15.8	15.8	26.6	17.6	17.5	24.9	0.0	15.8	25.1	0.0	18.3
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		755			872			233			427	
Approach Delay, s/veh		16.1			17.9			19.9			20.2	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	19.8	7.9	13.9	5.4	19.2	7.5	14.3
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	4.0	18.8	6.0	* 18	4.0	18.8	6.0	* 18
Max Q Clear Time (g_c+I1), s	2.5	11.9	5.0	4.7	2.9	10.6	4.7	9.4
Green Ext Time (p_c), s	0.0	1.9	0.0	0.3	0.0	1.8	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Tully Rd & Whitmore Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑	↱	↰	↱	
Traffic Volume (veh/h)	91	292	61	78	390	17	32	129	92	13	112	174
Future Volume (veh/h)	91	292	61	78	390	17	32	129	92	13	112	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	99	317	66	85	424	18	35	140	100	14	122	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	439	91	123	512	22	68	497	421	31	162	251
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.04	0.27	0.27	0.02	0.24	0.24
Sat Flow, veh/h	1781	1500	312	1781	1781	76	1781	1870	1585	1781	661	1025
Grp Volume(v), veh/h	99	0	383	85	0	442	35	140	100	14	0	311
Grp Sat Flow(s),veh/h/ln	1781	0	1813	1781	0	1856	1781	1870	1585	1781	0	1686
Q Serve(g_s), s	2.8	0.0	9.6	2.4	0.0	11.3	1.0	3.0	2.5	0.4	0.0	8.7
Cycle Q Clear(g_c), s	2.8	0.0	9.6	2.4	0.0	11.3	1.0	3.0	2.5	0.4	0.0	8.7
Prop In Lane	1.00		0.17	1.00		0.04	1.00		1.00	1.00		0.61
Lane Grp Cap(c), veh/h	132	0	531	123	0	534	68	497	421	31	0	413
V/C Ratio(X)	0.75	0.00	0.72	0.69	0.00	0.83	0.51	0.28	0.24	0.45	0.00	0.75
Avail Cap(c_a), veh/h	193	0	669	193	0	685	200	1026	869	176	0	901
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	16.1	23.1	0.0	16.9	23.9	14.8	14.6	24.6	0.0	17.7
Incr Delay (d2), s/veh	8.9	0.0	2.8	6.8	0.0	6.6	5.8	0.3	0.3	9.6	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	3.7	1.1	0.0	5.1	0.5	1.2	0.8	0.2	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	0.0	18.9	29.9	0.0	23.5	29.7	15.1	14.9	34.2	0.0	20.5
LnGrp LOS	C	A	B	C	A	C	C	B	B	C	A	C
Approach Vol, veh/h		482			527			275			325	
Approach Delay, s/veh		21.6			24.6			16.9			21.1	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	18.0	8.0	19.3	6.4	16.9	8.3	19.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	27.8	5.5	18.7	5.7	27.1	5.5	18.7
Max Q Clear Time (g_c+I1), s	2.4	5.0	4.4	11.6	3.0	10.7	4.8	13.3
Green Ext Time (p_c), s	0.0	1.1	0.0	1.3	0.0	1.8	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	0	0	21	253	218	32
Future Vol, veh/h	0	0	21	253	218	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	23	275	237	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	576	255	272	0	-	0
Stage 1	255	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	479	784	1291	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	469	784	1291	-	-	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	0		0.6		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1291	-	-	-	-
HCM Lane V/C Ratio	0.018	-	-	-	-
HCM Control Delay (s)	7.8	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

4: Tully Rd & C Proj Dwy

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	23	12	11	251	199	19
Future Vol, veh/h	23	12	11	251	199	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	13	12	273	216	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	524	227	237	0	-	0
Stage 1	227	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	514	812	1330	-	-	-
Stage 1	811	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	508	812	1330	-	-	-
Mov Cap-2 Maneuver	508	-	-	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	11.6		0.3		0	
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1330	-	583	-	-
HCM Lane V/C Ratio	0.009	-	0.065	-	-
HCM Control Delay (s)	7.7	0	11.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	0	0	0	262	211	0
Future Vol, veh/h	0	0	0	262	211	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	285	229	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	514	229	229	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	521	810	1339	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	521	810	1339	-	-	-
Mov Cap-2 Maneuver	521	-	-	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1339	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✥			✥			✥	
Traffic Vol, veh/h	31	4	11	6	9	8	13	208	4	12	145	24
Future Vol, veh/h	31	4	11	6	9	8	13	208	4	12	145	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	4	12	7	10	9	14	226	4	13	158	26
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.7	8.1	9.2	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	6%	89%	0%	26%	7%
Vol Thru, %	92%	11%	0%	39%	80%
Vol Right, %	2%	0%	100%	35%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	225	35	11	23	181
LT Vol	13	31	0	6	12
Through Vol	208	4	0	9	145
RT Vol	4	0	11	8	24
Lane Flow Rate	245	38	12	25	197
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.295	0.063	0.016	0.034	0.236
Departure Headway (Hd)	4.343	5.98	4.827	4.931	4.326
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	829	600	741	726	832
Service Time	2.359	3.711	2.558	2.964	2.344
HCM Lane V/C Ratio	0.296	0.063	0.016	0.034	0.237
HCM Control Delay	9.2	9.1	7.6	8.1	8.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	1.2	0.2	0	0.1	0.9

7: Santa Fe Ave & Whitmore Ave

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	30	293	58	46	368	135	104	507	13	80	461	33
Future Volume (veh/h)	30	293	58	46	368	135	104	507	13	80	461	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	318	63	50	400	147	113	551	14	87	501	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	514	102	71	456	168	138	731	19	110	642	46
Arrive On Green	0.03	0.34	0.34	0.04	0.35	0.35	0.08	0.21	0.21	0.06	0.19	0.19
Sat Flow, veh/h	1781	1515	300	1781	1304	479	1781	3541	90	1781	3363	241
Grp Volume(v), veh/h	33	0	381	50	0	547	113	276	289	87	264	273
Grp Sat Flow(s),veh/h/ln	1781	0	1816	1781	0	1783	1781	1777	1854	1781	1777	1827
Q Serve(g_s), s	0.9	0.0	9.1	1.4	0.0	14.8	3.2	7.5	7.6	2.5	7.3	7.3
Cycle Q Clear(g_c), s	0.9	0.0	9.1	1.4	0.0	14.8	3.2	7.5	7.6	2.5	7.3	7.3
Prop In Lane	1.00		0.17	1.00		0.27	1.00		0.05	1.00		0.13
Lane Grp Cap(c), veh/h	52	0	616	71	0	623	138	367	383	110	339	349
V/C Ratio(X)	0.63	0.00	0.62	0.71	0.00	0.88	0.82	0.75	0.75	0.79	0.78	0.78
Avail Cap(c_a), veh/h	138	0	774	138	0	760	138	406	424	138	406	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	0.0	14.3	24.5	0.0	15.7	23.4	19.2	19.2	23.9	19.8	19.9
Incr Delay (d2), s/veh	4.7	0.0	0.4	4.8	0.0	8.6	28.9	5.8	5.7	16.5	6.3	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	3.2	0.7	0.0	6.6	2.3	3.2	3.3	1.4	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	0.0	14.6	29.3	0.0	24.4	52.3	25.1	24.9	40.4	26.1	26.2
LnGrp LOS	C	A	B	C	A	C	D	C	C	D	C	C
Approach Vol, veh/h		414			597			678			624	
Approach Delay, s/veh		15.8			24.8			29.6			28.1	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	24.0	7.2	14.9	6.0	23.5	8.0	14.0
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	4.0	22.0	4.0	* 12	4.0	22.0	4.0	* 12
Max Q Clear Time (g_c+I1), s	2.9	16.8	4.5	9.6	3.4	11.1	5.2	9.3
Green Ext Time (p_c), s	0.0	1.2	0.0	0.5	0.0	1.2	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

1: Tully Rd & Santa Fe Ave

Cumulative AM Peak Volume

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	737	33	839	105	128	118	309
v/c Ratio	0.12	0.64	0.21	0.68	0.48	0.27	0.52	0.66
Control Delay	29.5	19.1	31.0	19.1	35.8	18.2	37.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	19.1	31.0	19.1	35.8	18.2	37.7	25.7
Queue Length 50th (ft)	5	88	9	106	30	28	34	79
Queue Length 95th (ft)	25	191	37	#250	#106	76	#122	177
Internal Link Dist (ft)		1153		357		363		930
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	156	1457	156	1548	234	734	234	733
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.51	0.21	0.54	0.45	0.17	0.50	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

	↗	→	↙	←	↖	↑	↗	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	99	383	85	442	35	140	100	14	311
v/c Ratio	0.47	0.58	0.41	0.66	0.16	0.28	0.19	0.07	0.64
Control Delay	37.2	21.4	34.5	24.2	28.2	17.4	2.1	28.3	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	21.4	34.5	24.2	28.2	17.4	2.1	28.3	18.8
Queue Length 50th (ft)	27	78	23	96	9	33	0	4	49
Queue Length 95th (ft)	#110	#265	#92	#329	39	84	13	22	136
Internal Link Dist (ft)		2673		838		560			638
Turn Bay Length (ft)			105		100		25	100	
Base Capacity (vph)	209	736	209	748	217	1116	1009	190	1037
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.52	0.41	0.59	0.16	0.13	0.10	0.07	0.30

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

7: Santa Fe Ave & Whitmore Ave

Cumulative AM Peak Volume

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	33	381	50	547	113	565	87	537
v/c Ratio	0.23	0.62	0.35	0.82	0.79	0.62	0.61	0.71
Control Delay	30.0	19.3	33.1	26.8	68.8	24.1	49.0	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	19.3	33.1	26.8	68.8	24.1	49.0	26.2
Queue Length 50th (ft)	10	101	15	121	36	85	27	78
Queue Length 95th (ft)	35	176	#52	#323	#128	#177	#98	#162
Internal Link Dist (ft)		838		1430		1563		348
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	143	820	143	818	143	923	143	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.46	0.35	0.67	0.79	0.61	0.61	0.63

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
1: Tully Rd & Santa Fe Ave

Cumulative PM Peak Volume

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	37	788	127	33	657	94	137	316	17	78	137	15
Future Volume (veh/h)	37	788	127	33	657	94	137	316	17	78	137	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	857	138	36	714	102	149	343	18	85	149	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1012	163	55	1023	146	189	406	21	108	306	33
Arrive On Green	0.03	0.33	0.33	0.03	0.33	0.33	0.11	0.23	0.23	0.06	0.18	0.18
Sat Flow, veh/h	1781	3065	494	1781	3121	446	1781	1761	92	1781	1660	178
Grp Volume(v), veh/h	40	497	498	36	406	410	149	0	361	85	0	165
Grp Sat Flow(s),veh/h/ln	1781	1777	1782	1781	1777	1790	1781	0	1854	1781	0	1838
Q Serve(g_s), s	1.2	13.6	13.6	1.0	10.4	10.4	4.3	0.0	9.7	2.5	0.0	4.2
Cycle Q Clear(g_c), s	1.2	13.6	13.6	1.0	10.4	10.4	4.3	0.0	9.7	2.5	0.0	4.2
Prop In Lane	1.00		0.28	1.00		0.25	1.00		0.05	1.00		0.10
Lane Grp Cap(c), veh/h	60	587	588	55	582	587	189	0	427	108	0	339
V/C Ratio(X)	0.67	0.85	0.85	0.65	0.70	0.70	0.79	0.00	0.85	0.79	0.00	0.49
Avail Cap(c_a), veh/h	136	679	681	136	679	684	238	0	489	136	0	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	16.3	16.3	25.1	15.3	15.3	22.8	0.0	19.3	24.3	0.0	19.1
Incr Delay (d2), s/veh	4.7	7.7	7.7	4.7	1.8	1.8	9.9	0.0	10.4	16.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.5	5.5	0.5	3.6	3.6	2.2	0.0	5.0	1.5	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	24.0	24.0	29.8	17.2	17.2	32.7	0.0	29.7	40.7	0.0	19.5
LnGrp LOS	C	C	C	C	B	B	C	A	C	D	A	B
Approach Vol, veh/h		1035			852			510			250	
Approach Delay, s/veh		24.2			17.7			30.6			26.7	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	23.2	7.2	16.3	5.6	23.3	9.6	13.9
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	4.0	20.0	4.0	* 14	4.0	20.0	7.0	* 11
Max Q Clear Time (g_c+I1), s	3.2	12.4	4.5	11.7	3.0	15.6	6.3	6.2
Green Ext Time (p_c), s	0.0	1.9	0.0	0.3	0.0	1.7	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑	↱	↰	↑↱	
Traffic Volume (veh/h)	220	396	47	72	355	20	61	219	117	30	162	142
Future Volume (veh/h)	220	396	47	72	355	20	61	219	117	30	162	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	430	51	78	386	22	66	238	127	33	176	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	587	70	106	448	26	97	483	409	62	219	192
Arrive On Green	0.16	0.36	0.36	0.06	0.26	0.26	0.05	0.26	0.26	0.03	0.24	0.24
Sat Flow, veh/h	1781	1640	195	1781	1752	100	1781	1870	1585	1781	920	805
Grp Volume(v), veh/h	239	0	481	78	0	408	66	238	127	33	0	330
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1781	0	1852	1781	1870	1585	1781	0	1725
Q Serve(g_s), s	8.1	0.0	14.2	2.7	0.0	13.1	2.3	6.7	4.0	1.1	0.0	11.2
Cycle Q Clear(g_c), s	8.1	0.0	14.2	2.7	0.0	13.1	2.3	6.7	4.0	1.1	0.0	11.2
Prop In Lane	1.00		0.11	1.00		0.05	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	288	0	656	106	0	473	97	483	409	62	0	411
V/C Ratio(X)	0.83	0.00	0.73	0.74	0.00	0.86	0.68	0.49	0.31	0.53	0.00	0.80
Avail Cap(c_a), veh/h	341	0	742	152	0	552	178	801	679	143	0	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	17.4	28.7	0.0	22.1	28.8	19.6	18.6	29.5	0.0	22.3
Incr Delay (d2), s/veh	13.8	0.0	3.3	10.3	0.0	11.8	7.9	0.8	0.4	6.8	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	5.8	1.4	0.0	6.8	1.1	2.8	1.4	0.6	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	0.0	20.7	39.0	0.0	33.9	36.7	20.4	19.0	36.3	0.0	26.0
LnGrp LOS	D	A	C	D	A	C	D	C	B	D	A	C
Approach Vol, veh/h		720			486			431			363	
Approach Delay, s/veh		26.7			34.7			22.5			26.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	20.5	8.2	26.7	7.9	19.3	14.5	20.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	26.6	5.3	25.1	6.2	25.4	11.9	18.5
Max Q Clear Time (g_c+I1), s	3.1	8.7	4.7	16.2	4.3	13.2	10.1	15.1
Green Ext Time (p_c), s	0.0	1.7	0.0	2.0	0.0	1.6	0.1	0.8

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰	↱	
Traffic Vol, veh/h	0	0	1	396	300	4
Future Vol, veh/h	0	0	1	396	300	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1	430	326	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	760	328	330	0	-	0
Stage 1	328	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	374	713	1229	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	374	713	1229	-	-	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1229	-	-	-	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	7.9	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

4: Tully Rd & C Proj Dwy

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰	↱	
Traffic Vol, veh/h	51	32	11	346	281	19
Future Vol, veh/h	51	32	11	346	281	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	35	12	376	305	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	716	316	326	0	-	0
Stage 1	316	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	397	724	1234	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	392	724	1234	-	-	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	677	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	14.3		0.2		0	
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1234	-	476	-	-
HCM Lane V/C Ratio	0.01	-	0.19	-	-
HCM Control Delay (s)	7.9	0	14.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

5: Tully Rd & S Proj Dwy

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	0	0	0	357	313	0
Future Vol, veh/h	0	0	0	357	313	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	388	340	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	728	340	340	0	-	0
Stage 1	340	-	-	-	-	-
Stage 2	388	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	390	702	1219	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	390	702	1219	-	-	-
Mov Cap-2 Maneuver	390	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	0		0		0
HCM LOS	A				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1219	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✥			✥			✥	
Traffic Vol, veh/h	46	7	22	10	4	9	4	232	7	24	259	30
Future Vol, veh/h	46	7	22	10	4	9	4	232	7	24	259	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	8	24	11	4	10	4	252	8	26	282	33
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	9.3	8.7	10	10.8
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	2%	87%	0%	43%	8%
Vol Thru, %	95%	13%	0%	17%	83%
Vol Right, %	3%	0%	100%	39%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	243	53	22	23	313
LT Vol	4	46	0	10	24
Through Vol	232	7	0	4	259
RT Vol	7	0	22	9	30
Lane Flow Rate	264	58	24	25	340
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.337	0.102	0.035	0.037	0.424
Departure Headway (Hd)	4.594	6.349	5.201	5.383	4.49
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	782	562	684	660	800
Service Time	2.635	4.116	2.967	3.461	2.527
HCM Lane V/C Ratio	0.338	0.103	0.035	0.038	0.425
HCM Control Delay	10	9.8	8.2	8.7	10.8
HCM Lane LOS	A	A	A	A	B
HCM 95th-tile Q	1.5	0.3	0.1	0.1	2.1

HCM 6th Signalized Intersection Summary
7: Santa Fe Ave & Whitmore Ave

Cumulative PM Peak Volume

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	61	427	108	35	325	87	98	597	20	63	718	46
Future Volume (veh/h)	61	427	108	35	325	87	98	597	20	63	718	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	464	117	38	353	95	107	649	22	68	780	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	512	129	54	481	129	137	1009	34	86	879	56
Arrive On Green	0.05	0.36	0.36	0.03	0.34	0.34	0.08	0.29	0.29	0.05	0.26	0.26
Sat Flow, veh/h	1781	1441	363	1781	1419	382	1781	3507	119	1781	3391	217
Grp Volume(v), veh/h	66	0	581	38	0	448	107	329	342	68	409	421
Grp Sat Flow(s),veh/h/ln	1781	0	1804	1781	0	1801	1781	1777	1849	1781	1777	1831
Q Serve(g_s), s	2.4	0.0	20.1	1.4	0.0	14.3	3.9	10.6	10.6	2.5	14.5	14.5
Cycle Q Clear(g_c), s	2.4	0.0	20.1	1.4	0.0	14.3	3.9	10.6	10.6	2.5	14.5	14.5
Prop In Lane	1.00		0.20	1.00		0.21	1.00		0.06	1.00		0.12
Lane Grp Cap(c), veh/h	84	0	642	54	0	610	137	511	532	86	461	475
V/C Ratio(X)	0.79	0.00	0.91	0.70	0.00	0.73	0.78	0.64	0.64	0.79	0.89	0.89
Avail Cap(c_a), veh/h	163	0	744	163	0	742	163	511	532	163	483	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	20.1	31.5	0.0	19.1	29.7	20.4	20.4	30.8	23.3	23.3
Incr Delay (d2), s/veh	6.0	0.0	12.5	5.9	0.0	2.2	15.0	2.2	2.1	5.8	16.6	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	9.8	0.7	0.0	5.8	2.1	4.1	4.3	1.1	7.4	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	0.0	32.5	37.4	0.0	21.2	44.7	22.5	22.5	36.6	39.9	39.6
LnGrp LOS	D	A	C	D	A	C	D	C	C	D	D	D
Approach Vol, veh/h		647			486			778			898	
Approach Delay, s/veh		33.0			22.5			25.6			39.5	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	28.2	7.2	23.0	6.0	29.3	9.0	21.2
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	6.0	27.0	6.0	* 18	6.0	27.0	6.0	* 18
Max Q Clear Time (g_c+I1), s	4.4	16.3	4.5	12.6	3.4	22.1	5.9	16.5
Green Ext Time (p_c), s	0.0	1.4	0.0	1.2	0.0	1.2	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
1: Tully Rd & Santa Fe Ave

Cumulative PM Peak Volume

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	995	36	816	149	361	85	165
v/c Ratio	0.26	0.80	0.24	0.66	0.61	0.75	0.56	0.41
Control Delay	30.5	21.9	29.9	17.3	37.9	32.4	45.4	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	21.9	29.9	17.3	37.9	32.4	45.4	23.3
Queue Length 50th (ft)	12	127	11	96	44	99	26	42
Queue Length 95th (ft)	40	#270	37	184	#134	#258	#96	103
Internal Link Dist (ft)		1153		357		363		930
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	151	1497	151	1497	264	547	151	428
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.66	0.24	0.55	0.56	0.66	0.56	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: Tully Rd & Whitmore Ave

Cumulative PM Peak Volume

	↰	→	↲	←	↰	↑	↱	↳	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	239	481	78	408	66	238	127	33	330
v/c Ratio	0.74	0.63	0.53	0.80	0.40	0.45	0.21	0.24	0.70
Control Delay	46.1	24.8	49.4	39.6	40.2	22.9	1.4	38.2	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	24.8	49.4	39.6	40.2	22.9	1.4	38.2	27.8
Queue Length 50th (ft)	102	178	34	168	28	72	0	14	110
Queue Length 95th (ft)	#251	#381	#105	#376	#73	151	7	43	192
Internal Link Dist (ft)		2673		838		560			638
Turn Bay Length (ft)			105		100		25	100	
Base Capacity (vph)	328	762	146	534	171	775	778	137	720
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.63	0.53	0.76	0.39	0.31	0.16	0.24	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
7: Santa Fe Ave & Whitmore Ave

Cumulative PM Peak Volume

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	581	38	448	107	671	68	830
v/c Ratio	0.43	0.87	0.25	0.67	0.64	0.60	0.44	0.84
Control Delay	41.4	36.5	36.6	24.2	53.9	25.5	41.8	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	36.5	36.6	24.2	53.9	25.5	41.8	35.1
Queue Length 50th (ft)	30	241	17	165	50	154	31	201
Queue Length 95th (ft)	#69	#429	45	266	#130	#233	#74	#324
Internal Link Dist (ft)		838		1430		1563		348
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	168	783	168	780	168	1113	168	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.74	0.23	0.57	0.64	0.60	0.40	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
1: Tully Rd & Santa Fe Ave

Cumulative Plus Project AM Peak Volume

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	17	605	77	30	719	52	99	107	11	109	256	30
Future Volume (veh/h)	17	605	77	30	719	52	99	107	11	109	256	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	658	84	33	782	57	108	116	12	118	278	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	901	115	53	995	73	138	353	36	151	359	43
Arrive On Green	0.02	0.28	0.28	0.03	0.30	0.30	0.08	0.21	0.21	0.08	0.22	0.22
Sat Flow, veh/h	1781	3170	404	1781	3358	245	1781	1667	172	1781	1641	195
Grp Volume(v), veh/h	18	368	374	33	414	425	108	0	128	118	0	311
Grp Sat Flow(s),veh/h/ln	1781	1777	1798	1781	1777	1826	1781	0	1839	1781	0	1835
Q Serve(g_s), s	0.5	8.7	8.8	0.9	10.0	10.0	2.8	0.0	2.8	3.0	0.0	7.4
Cycle Q Clear(g_c), s	0.5	8.7	8.8	0.9	10.0	10.0	2.8	0.0	2.8	3.0	0.0	7.4
Prop In Lane	1.00		0.22	1.00		0.13	1.00		0.09	1.00		0.11
Lane Grp Cap(c), veh/h	32	505	511	53	526	541	138	0	389	151	0	402
V/C Ratio(X)	0.57	0.73	0.73	0.62	0.79	0.79	0.78	0.00	0.33	0.78	0.00	0.77
Avail Cap(c_a), veh/h	153	715	724	153	715	735	229	0	709	229	0	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	15.1	15.1	22.4	15.1	15.1	21.2	0.0	15.6	21.0	0.0	17.2
Incr Delay (d2), s/veh	5.8	1.0	1.0	4.3	2.7	2.7	3.7	0.0	0.2	4.5	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.8	2.8	0.4	3.4	3.5	1.2	0.0	1.0	1.3	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.5	16.1	16.1	26.7	17.8	17.8	24.8	0.0	15.8	25.4	0.0	18.4
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		760			872			236			429	
Approach Delay, s/veh		16.4			18.1			19.9			20.3	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	19.8	8.0	14.1	5.4	19.3	7.6	14.4
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	4.0	18.8	6.0	* 18	4.0	18.8	6.0	* 18
Max Q Clear Time (g_c+I1), s	2.5	12.0	5.0	4.8	2.9	10.8	4.8	9.4
Green Ext Time (p_c), s	0.0	1.9	0.0	0.3	0.0	1.8	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑	↱	↰	↱	
Traffic Volume (veh/h)	91	292	81	84	390	17	43	131	94	13	118	174
Future Volume (veh/h)	91	292	81	84	390	17	43	131	94	13	118	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	99	317	88	91	424	18	47	142	102	14	128	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	406	113	125	509	22	84	517	438	31	168	248
Arrive On Green	0.07	0.29	0.29	0.07	0.29	0.29	0.05	0.28	0.28	0.02	0.25	0.25
Sat Flow, veh/h	1781	1408	391	1781	1781	76	1781	1870	1585	1781	682	1007
Grp Volume(v), veh/h	99	0	405	91	0	442	47	142	102	14	0	317
Grp Sat Flow(s),veh/h/ln	1781	0	1798	1781	0	1856	1781	1870	1585	1781	0	1689
Q Serve(g_s), s	2.8	0.0	10.7	2.6	0.0	11.6	1.3	3.1	2.6	0.4	0.0	9.0
Cycle Q Clear(g_c), s	2.8	0.0	10.7	2.6	0.0	11.6	1.3	3.1	2.6	0.4	0.0	9.0
Prop In Lane	1.00		0.22	1.00		0.04	1.00		1.00	1.00		0.60
Lane Grp Cap(c), veh/h	130	0	519	125	0	530	84	517	438	31	0	417
V/C Ratio(X)	0.76	0.00	0.78	0.73	0.00	0.83	0.56	0.27	0.23	0.45	0.00	0.76
Avail Cap(c_a), veh/h	189	0	648	189	0	669	196	1002	849	172	0	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	17.0	23.6	0.0	17.4	24.2	14.7	14.5	25.2	0.0	18.1
Incr Delay (d2), s/veh	10.1	0.0	4.8	7.7	0.0	7.3	5.6	0.3	0.3	9.6	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	4.4	1.3	0.0	5.4	0.7	1.2	0.9	0.2	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	21.8	31.3	0.0	24.6	29.8	15.0	14.8	34.9	0.0	21.0
LnGrp LOS	C	A	C	C	A	C	C	B	B	C	A	C
Approach Vol, veh/h		504			533			291			331	
Approach Delay, s/veh		24.1			25.8			17.3			21.6	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	18.8	8.2	19.5	7.0	17.3	8.3	19.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	27.8	5.5	18.7	5.7	27.1	5.5	18.7
Max Q Clear Time (g_c+I1), s	2.4	5.1	4.6	12.7	3.3	11.0	4.8	13.6
Green Ext Time (p_c), s	0.0	1.1	0.0	1.2	0.0	1.8	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

HCM 6th TWSC
3: Tully Rd & N Proj Dwy

Cumulative Plus Project AM Peak Volume

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	0	0	21	268	250	32
Future Vol, veh/h	0	0	21	268	250	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	23	291	272	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	627	290	307	0	-	0
Stage 1	290	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	447	749	1254	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	437	749	1254	-	-	-
Mov Cap-2 Maneuver	437	-	-	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1254	-	-	-	-
HCM Lane V/C Ratio	0.018	-	-	-	-
HCM Control Delay (s)	7.9	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	35	20	30	254	215	51
Future Vol, veh/h	35	20	30	254	215	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	22	33	276	234	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	604	262	289	0	-	0
Stage 1	262	-	-	-	-	-
Stage 2	342	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	461	777	1273	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	447	777	1273	-	-	-
Mov Cap-2 Maneuver	447	-	-	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	12.7		0.8		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1273	-	529	-	-
HCM Lane V/C Ratio	0.026	-	0.113	-	-
HCM Control Delay (s)	7.9	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

HCM 6th TWSC
5: Tully Rd & S Proj Dwy

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	3	2	0	281	219	0
Future Vol, veh/h	3	2	0	281	219	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	2	0	305	238	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	543	238	238	0	-	0
Stage 1	238	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	501	801	1329	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	501	801	1329	-	-	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	748	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	11.2		0		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1329	-	589	-	-
HCM Lane V/C Ratio	-	-	0.009	-	-
HCM Control Delay (s)	0	-	11.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✥			✥			✥	
Traffic Vol, veh/h	31	4	11	6	9	8	13	227	4	12	155	24
Future Vol, veh/h	31	4	11	6	9	8	13	227	4	12	155	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	4	12	7	10	9	14	247	4	13	168	26
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	8.8	8.2	9.4	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	5%	89%	0%	26%	6%
Vol Thru, %	93%	11%	0%	39%	81%
Vol Right, %	2%	0%	100%	35%	13%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	244	35	11	23	191
LT Vol	13	31	0	6	12
Through Vol	227	4	0	9	155
RT Vol	4	0	11	8	24
Lane Flow Rate	265	38	12	25	208
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.321	0.064	0.016	0.035	0.251
Departure Headway (Hd)	4.356	6.05	4.896	5.001	4.354
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	827	592	730	715	826
Service Time	2.376	3.787	2.632	3.041	2.375
HCM Lane V/C Ratio	0.32	0.064	0.016	0.035	0.252
HCM Control Delay	9.4	9.2	7.7	8.2	8.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	1.4	0.2	0	0.1	1

7: Santa Fe Ave & Whitmore Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	30	293	60	46	370	135	108	507	13	80	461	33
Future Volume (veh/h)	30	293	60	46	370	135	108	507	13	80	461	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	318	65	50	402	147	117	551	14	87	501	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	512	105	71	458	167	138	730	19	110	641	46
Arrive On Green	0.03	0.34	0.34	0.04	0.35	0.35	0.08	0.21	0.21	0.06	0.19	0.19
Sat Flow, veh/h	1781	1506	308	1781	1306	478	1781	3541	90	1781	3363	241
Grp Volume(v), veh/h	33	0	383	50	0	549	117	276	289	87	264	273
Grp Sat Flow(s),veh/h/ln	1781	0	1814	1781	0	1783	1781	1777	1854	1781	1777	1827
Q Serve(g_s), s	0.9	0.0	9.1	1.4	0.0	14.9	3.4	7.6	7.6	2.5	7.3	7.3
Cycle Q Clear(g_c), s	0.9	0.0	9.1	1.4	0.0	14.9	3.4	7.6	7.6	2.5	7.3	7.3
Prop In Lane	1.00		0.17	1.00		0.27	1.00		0.05	1.00		0.13
Lane Grp Cap(c), veh/h	52	0	617	71	0	625	138	366	382	110	339	349
V/C Ratio(X)	0.63	0.00	0.62	0.71	0.00	0.88	0.85	0.75	0.76	0.79	0.78	0.78
Avail Cap(c_a), veh/h	138	0	772	138	0	759	138	406	423	138	406	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	0.0	14.3	24.5	0.0	15.7	23.5	19.3	19.3	23.9	19.9	19.9
Incr Delay (d2), s/veh	4.7	0.0	0.4	4.8	0.0	8.8	34.9	5.9	5.7	16.6	6.3	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	3.3	0.7	0.0	6.6	2.5	3.2	3.3	1.4	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	14.6	29.3	0.0	24.5	58.5	25.2	25.0	40.5	26.2	26.3
LnGrp LOS	C	A	B	C	A	C	E	C	C	D	C	C
Approach Vol, veh/h		416			599			682			624	
Approach Delay, s/veh		15.8			24.9			30.8			28.2	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	24.1	7.2	14.9	6.0	23.6	8.0	14.1
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	4.0	22.0	4.0	* 12	4.0	22.0	4.0	* 12
Max Q Clear Time (g_c+I1), s	2.9	16.9	4.5	9.6	3.4	11.1	5.4	9.3
Green Ext Time (p_c), s	0.0	1.2	0.0	0.5	0.0	1.2	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
1: Tully Rd & Santa Fe Ave

Cumulative Plus Project AM Peak Volume

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	742	33	839	108	128	118	311
v/c Ratio	0.12	0.65	0.21	0.68	0.49	0.27	0.52	0.66
Control Delay	29.5	19.2	31.0	19.2	36.3	18.2	37.8	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	19.2	31.0	19.2	36.3	18.2	37.8	25.7
Queue Length 50th (ft)	5	89	9	106	31	28	34	80
Queue Length 95th (ft)	25	192	37	#250	#111	76	#122	178
Internal Link Dist (ft)		1153		357		363		930
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	155	1452	155	1544	233	733	233	732
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.51	0.21	0.54	0.46	0.17	0.51	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

	↗	→	↙	←	↖	↑	↗	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	99	405	91	442	47	142	102	14	317
v/c Ratio	0.49	0.65	0.46	0.69	0.23	0.25	0.17	0.08	0.65
Control Delay	39.9	24.9	38.2	27.3	30.8	16.2	2.0	29.8	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	24.9	38.2	27.3	30.8	16.2	2.0	29.8	19.9
Queue Length 50th (ft)	36	125	33	145	17	34	0	5	68
Queue Length 95th (ft)	#114	#297	#104	#340	49	85	14	22	141
Internal Link Dist (ft)		2673		838		560			638
Turn Bay Length (ft)			105		100		25	100	
Base Capacity (vph)	200	702	200	716	208	1069	973	182	998
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.58	0.46	0.62	0.23	0.13	0.10	0.08	0.32

Intersection Summary

\#   95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
7: Santa Fe Ave & Whitmore Ave

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	33	383	50	549	117	565	87	537
v/c Ratio	0.23	0.62	0.35	0.82	0.82	0.62	0.61	0.71
Control Delay	30.0	19.3	33.1	26.9	72.9	24.1	49.0	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	19.3	33.1	26.9	72.9	24.1	49.0	26.3
Queue Length 50th (ft)	10	102	15	122	37	85	27	78
Queue Length 95th (ft)	35	177	#52	#324	#133	#177	#98	#162
Internal Link Dist (ft)		838		1430		1563		348
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	143	819	143	818	143	922	143	845
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.47	0.35	0.67	0.82	0.61	0.61	0.64

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
1: Tully Rd & Santa Fe Ave

Cumulative Plus Project PM Peak Volume

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	37	788	128	33	657	94	142	323	17	78	137	15
Future Volume (veh/h)	37	788	128	33	657	94	142	323	17	78	137	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	857	139	36	714	102	154	351	18	85	149	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1009	164	55	1021	146	195	412	21	108	306	33
Arrive On Green	0.03	0.33	0.33	0.03	0.33	0.33	0.11	0.23	0.23	0.06	0.18	0.18
Sat Flow, veh/h	1781	3061	497	1781	3121	446	1781	1764	90	1781	1660	178
Grp Volume(v), veh/h	40	497	499	36	406	410	154	0	369	85	0	165
Grp Sat Flow(s),veh/h/ln	1781	1777	1781	1781	1777	1790	1781	0	1854	1781	0	1838
Q Serve(g_s), s	1.2	13.7	13.7	1.1	10.5	10.5	4.4	0.0	10.0	2.5	0.0	4.2
Cycle Q Clear(g_c), s	1.2	13.7	13.7	1.1	10.5	10.5	4.4	0.0	10.0	2.5	0.0	4.2
Prop In Lane	1.00		0.28	1.00		0.25	1.00		0.05	1.00		0.10
Lane Grp Cap(c), veh/h	60	586	587	55	581	586	195	0	433	108	0	339
V/C Ratio(X)	0.67	0.85	0.85	0.65	0.70	0.70	0.79	0.00	0.85	0.79	0.00	0.49
Avail Cap(c_a), veh/h	135	674	675	135	674	679	236	0	485	135	0	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	16.5	16.5	25.3	15.5	15.5	22.9	0.0	19.3	24.4	0.0	19.3
Incr Delay (d2), s/veh	4.7	8.0	8.0	4.7	1.9	1.9	11.1	0.0	11.4	16.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.6	5.6	0.5	3.6	3.6	2.3	0.0	5.2	1.5	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	24.5	24.5	30.0	17.4	17.4	34.0	0.0	30.7	41.3	0.0	19.7
LnGrp LOS	C	C	C	C	B	B	C	A	C	D	A	B
Approach Vol, veh/h		1036			852			523			250	
Approach Delay, s/veh		24.7			17.9			31.7			27.0	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	23.3	7.2	16.5	5.6	23.4	9.8	13.9
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	4.0	20.0	4.0	* 14	4.0	20.0	7.0	* 11
Max Q Clear Time (g_c+I1), s	3.2	12.5	4.5	12.0	3.1	15.7	6.4	6.2
Green Ext Time (p_c), s	0.0	1.9	0.0	0.3	0.0	1.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Tully Rd & Whitmore Ave

Cumulative Plus Project PM Peak Volume

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑	↱	↰	↑↱	
Traffic Volume (veh/h)	220	396	57	83	355	20	71	231	131	30	165	142
Future Volume (veh/h)	220	396	57	83	355	20	71	231	131	30	165	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	430	62	90	386	22	77	251	142	33	179	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	561	81	115	446	25	105	492	417	62	222	191
Arrive On Green	0.16	0.35	0.35	0.06	0.25	0.25	0.06	0.26	0.26	0.03	0.24	0.24
Sat Flow, veh/h	1781	1598	230	1781	1752	100	1781	1870	1585	1781	928	799
Grp Volume(v), veh/h	239	0	492	90	0	408	77	251	142	33	0	333
Grp Sat Flow(s),veh/h/ln	1781	0	1828	1781	0	1852	1781	1870	1585	1781	0	1727
Q Serve(g_s), s	8.2	0.0	15.0	3.1	0.0	13.2	2.7	7.2	4.6	1.1	0.0	11.4
Cycle Q Clear(g_c), s	8.2	0.0	15.0	3.1	0.0	13.2	2.7	7.2	4.6	1.1	0.0	11.4
Prop In Lane	1.00		0.13	1.00		0.05	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	287	0	642	115	0	472	105	492	417	62	0	413
V/C Ratio(X)	0.83	0.00	0.77	0.78	0.00	0.87	0.74	0.51	0.34	0.53	0.00	0.81
Avail Cap(c_a), veh/h	337	0	730	150	0	545	176	791	670	142	0	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.6	0.0	18.1	29.0	0.0	22.4	29.1	19.7	18.8	29.8	0.0	22.6
Incr Delay (d2), s/veh	14.2	0.0	4.3	17.6	0.0	12.3	9.5	0.8	0.5	6.9	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	6.3	1.8	0.0	6.9	1.4	3.0	1.6	0.6	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	22.4	46.6	0.0	34.7	38.7	20.5	19.2	36.7	0.0	26.3
LnGrp LOS	D	A	C	D	A	C	D	C	B	D	A	C
Approach Vol, veh/h		731			498			470			366	
Approach Delay, s/veh		28.1			36.9			23.1			27.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	21.0	8.6	26.6	8.2	19.5	14.6	20.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	26.6	5.3	25.1	6.2	25.4	11.9	18.5
Max Q Clear Time (g_c+I1), s	3.1	9.2	5.1	17.0	4.7	13.4	10.2	15.2
Green Ext Time (p_c), s	0.0	1.8	0.0	1.9	0.0	1.6	0.1	0.8

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	0	0	1	432	324	4
Future Vol, veh/h	0	0	1	432	324	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1	470	352	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	826	354	356	0	-	0
Stage 1	354	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	342	690	1203	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	342	690	1203	-	-	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1203	-	-	-	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	8	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	70	39	12	363	281	43
Future Vol, veh/h	70	39	12	363	281	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	42	13	395	305	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	750	329	352	0	-	0
Stage 1	329	-	-	-	-	-
Stage 2	421	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	379	712	1207	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	374	712	1207	-	-	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	15.8		0.3		0	
HCM LOS	C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1207	-	451	-	-
HCM Lane V/C Ratio	0.011	-	0.263	-	-
HCM Control Delay (s)	8	0	15.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	17	8	0	358	320	0
Future Vol, veh/h	17	8	0	358	320	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	9	0	389	348	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	737	348	348	0	-	0
Stage 1	348	-	-	-	-	-
Stage 2	389	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	386	695	1211	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	685	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	386	695	1211	-	-	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	685	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1211	-	450	-	-
HCM Lane V/C Ratio	-	-	0.06	-	-
HCM Control Delay (s)	0	-	13.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✥			✥			✥	
Traffic Vol, veh/h	46	7	22	10	4	9	4	233	7	24	274	30
Future Vol, veh/h	46	7	22	10	4	9	4	233	7	24	274	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	8	24	11	4	10	4	253	8	26	298	33
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	9.4	8.7	10	11.1
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	2%	87%	0%	43%	7%
Vol Thru, %	95%	13%	0%	17%	84%
Vol Right, %	3%	0%	100%	39%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	244	53	22	23	328
LT Vol	4	46	0	10	24
Through Vol	233	7	0	4	274
RT Vol	7	0	22	9	30
Lane Flow Rate	265	58	24	25	357
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.34	0.102	0.035	0.038	0.445
Departure Headway (Hd)	4.615	6.388	5.239	5.424	4.495
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	777	558	678	654	799
Service Time	2.656	4.16	3.01	3.505	2.534
HCM Lane V/C Ratio	0.341	0.104	0.035	0.038	0.447
HCM Control Delay	10	9.9	8.2	8.7	11.1
HCM Lane LOS	A	A	A	A	B
HCM 95th-tile Q	1.5	0.3	0.1	0.1	2.3

HCM 6th Signalized Intersection Summary
7: Santa Fe Ave & Whitmore Ave

Cumulative Plus Project PM Peak Volume

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	61	437	112	35	334	87	100	597	20	63	718	46
Future Volume (veh/h)	61	437	112	35	334	87	100	597	20	63	718	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	475	122	38	363	95	109	649	22	68	780	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	519	133	54	493	129	139	1006	34	87	873	56
Arrive On Green	0.05	0.36	0.36	0.03	0.34	0.34	0.08	0.29	0.29	0.05	0.26	0.26
Sat Flow, veh/h	1781	1435	369	1781	1428	374	1781	3507	119	1781	3391	217
Grp Volume(v), veh/h	66	0	597	38	0	458	109	329	342	68	409	421
Grp Sat Flow(s),veh/h/ln	1781	0	1803	1781	0	1802	1781	1777	1849	1781	1777	1831
Q Serve(g_s), s	2.4	0.0	21.1	1.4	0.0	14.9	4.0	10.8	10.8	2.5	14.8	14.8
Cycle Q Clear(g_c), s	2.4	0.0	21.1	1.4	0.0	14.9	4.0	10.8	10.8	2.5	14.8	14.8
Prop In Lane	1.00		0.20	1.00		0.21	1.00		0.06	1.00		0.12
Lane Grp Cap(c), veh/h	84	0	652	54	0	622	139	510	531	87	457	471
V/C Ratio(X)	0.79	0.00	0.92	0.70	0.00	0.74	0.78	0.64	0.65	0.79	0.89	0.89
Avail Cap(c_a), veh/h	160	0	729	160	0	728	160	510	531	160	473	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	20.3	32.1	0.0	19.2	30.2	20.8	20.8	31.4	23.9	23.9
Incr Delay (d2), s/veh	6.0	0.0	14.4	6.1	0.0	2.5	16.6	2.2	2.1	5.8	18.0	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	10.6	0.7	0.0	6.1	2.2	4.2	4.4	1.1	7.7	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	34.8	38.2	0.0	21.7	46.8	23.0	23.0	37.2	41.9	41.5
LnGrp LOS	D	A	C	D	A	C	D	C	C	D	D	D
Approach Vol, veh/h		663			496			780			898	
Approach Delay, s/veh		35.0			23.0			26.3			41.4	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	29.1	7.2	23.4	6.0	30.2	9.2	21.4
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	6.0	27.0	6.0	* 18	6.0	27.0	6.0	* 18
Max Q Clear Time (g_c+I1), s	4.4	16.9	4.5	12.8	3.4	23.1	6.0	16.8
Green Ext Time (p_c), s	0.0	1.4	0.0	1.2	0.0	1.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
1: Tully Rd & Santa Fe Ave

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	996	36	816	154	369	85	165
v/c Ratio	0.27	0.80	0.24	0.66	0.62	0.76	0.57	0.41
Control Delay	30.6	22.1	30.0	17.4	38.9	33.0	45.7	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	22.1	30.0	17.4	38.9	33.0	45.7	23.2
Queue Length 50th (ft)	12	127	11	96	46	102	26	42
Queue Length 95th (ft)	40	#271	37	184	#138	#266	#96	103
Internal Link Dist (ft)		1153		357		363		930
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	150	1488	150	1489	262	544	150	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.67	0.24	0.55	0.59	0.68	0.57	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

2: Tully Rd & Whitmore Ave

	↗	→	↙	←	↖	↑	↗	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	239	492	90	408	77	251	142	33	333
v/c Ratio	0.77	0.67	0.64	0.83	0.48	0.44	0.23	0.25	0.72
Control Delay	49.6	26.9	57.8	43.2	44.6	22.2	1.9	38.8	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	26.9	57.8	43.2	44.6	22.2	1.9	38.8	29.8
Queue Length 50th (ft)	103	184	40	169	33	76	0	14	112
Queue Length 95th (ft)	#251	#394	#124	#376	#93	159	14	43	195
Internal Link Dist (ft)		2673		838		560			638
Turn Bay Length (ft)			105		100		25	100	
Base Capacity (vph)	316	734	140	515	164	747	758	132	696
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.67	0.64	0.79	0.47	0.34	0.19	0.25	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

7: Santa Fe Ave & Whitmore Ave

Cumulative Plus Project PM Peak Volume

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	597	38	458	109	671	68	830
v/c Ratio	0.45	0.91	0.27	0.70	0.69	0.57	0.47	0.89
Control Delay	42.8	42.3	37.2	25.4	59.0	25.0	43.2	40.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	42.3	37.2	25.4	59.0	25.0	43.2	40.0
Queue Length 50th (ft)	30	251	17	170	51	154	31	201
Queue Length 95th (ft)	#69	#448	45	274	#132	#233	#74	#324
Internal Link Dist (ft)		838		1430		1563		348
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	157	735	157	733	157	1174	157	933
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.81	0.24	0.62	0.69	0.57	0.43	0.89

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix C

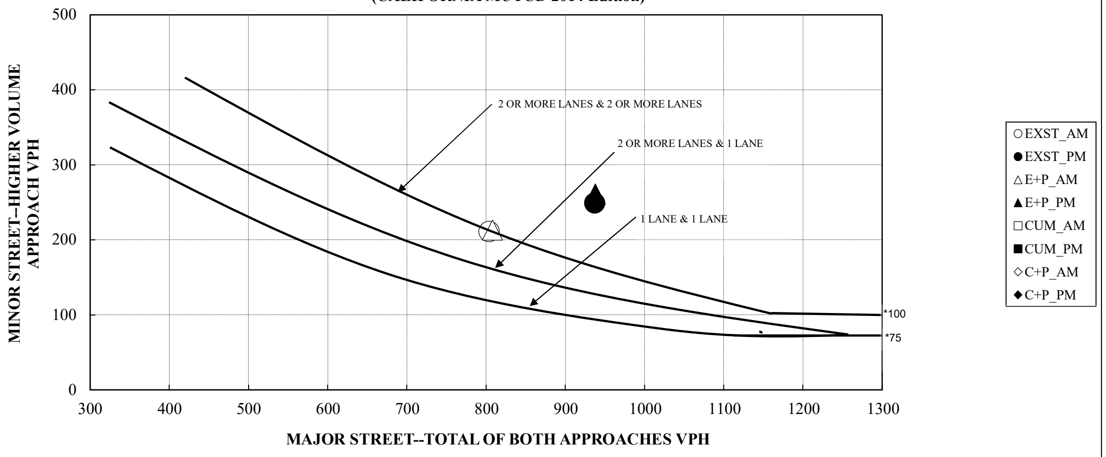
Signal Warrant Worksheets

CA SIGNAL WARRANT 3 ANALYSIS   SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)

(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)

(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	804	211	YES
EXST_PM	937	249	YES
E+P_AM	808	213	YES
E+P_PM	938	261	YES
CUM_AM	-	-	-
CUM_PM	-	-	-
C+P_AM	-	-	-
C+P_PM	-	-	-

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **July 17, 2023**

Intersection No.: **1**

Intersection: **Tully Road & Santa Fe Avenue**

Number of lanes on MAJOR street: **1**

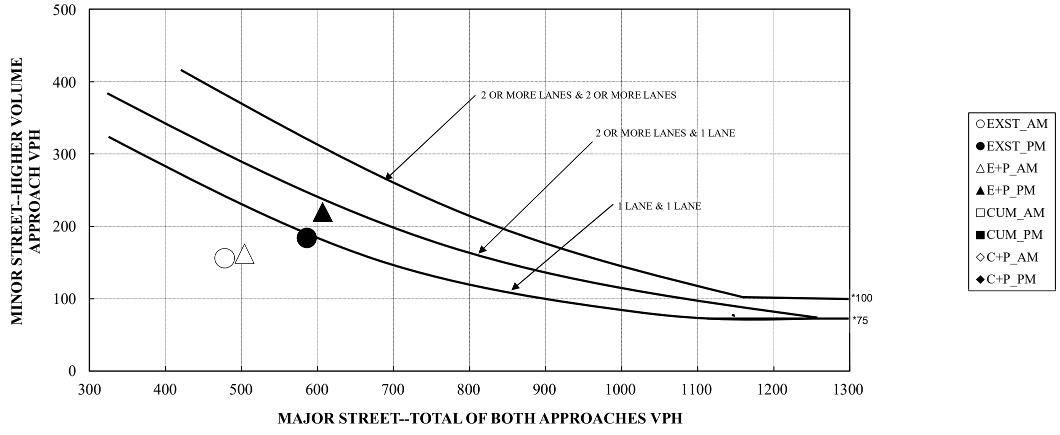
Number of lanes on MINOR street: **1**

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)

(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)
(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	478	156	NO
EXST_PM	586	184	NO
E+P_AM	504	162	NO
E+P_PM	607	220	YES
CUM_AM	-	-	-
CUM_PM	-	-	-
C+P_AM	-	-	-
C+P_PM	-	-	-

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **July 17, 2023**

Intersection No.: **2**

Intersection: **Tully Road & Whitmore Avenue**

Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

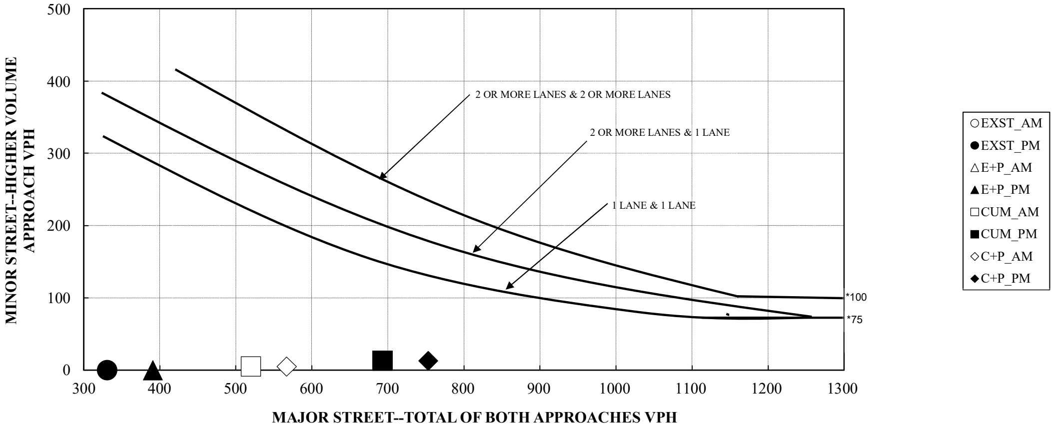
CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: **"AM/PM PEAK HOUR" CONDITIONS**

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)

(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)

(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES) MAJOR	APPROACH(ES) MINOR	WARRANT MET?
EXST_AM	226	0	NO
EXST_PM	331	0	NO
E+P_AM	273	0	NO
E+P_PM	391	0	NO
CUM_AM	520	5	NO
CUM_PM	693	13	NO
C+P_AM	567	5	NO
C+P_PM	753	13	NO

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **July 17, 2023**

Intersection No.: **3**

Intersection: **Tully Road & North Project Driveway (proposed)**

Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

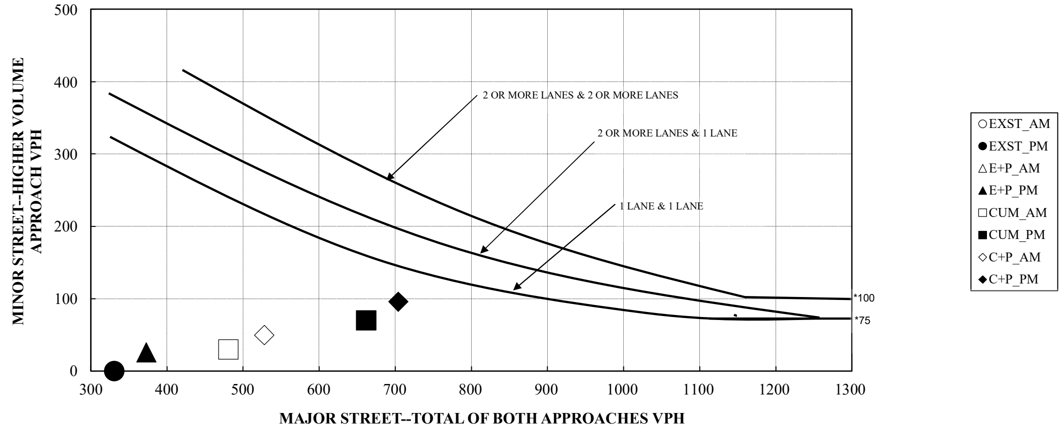
CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)

(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)

(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	226	0	NO
EXST_PM	331	0	NO
E+P_AM	273	20	NO
E+P_PM	373	26	NO
CUM_AM	481	30	NO
CUM_PM	662	70	NO
C+P_AM	528	50	NO
C+P_PM	704	96	NO

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **July 17, 2023**

Intersection No.: **4**

Intersection: **Tully Road & Center Project Driveway (proposed)**

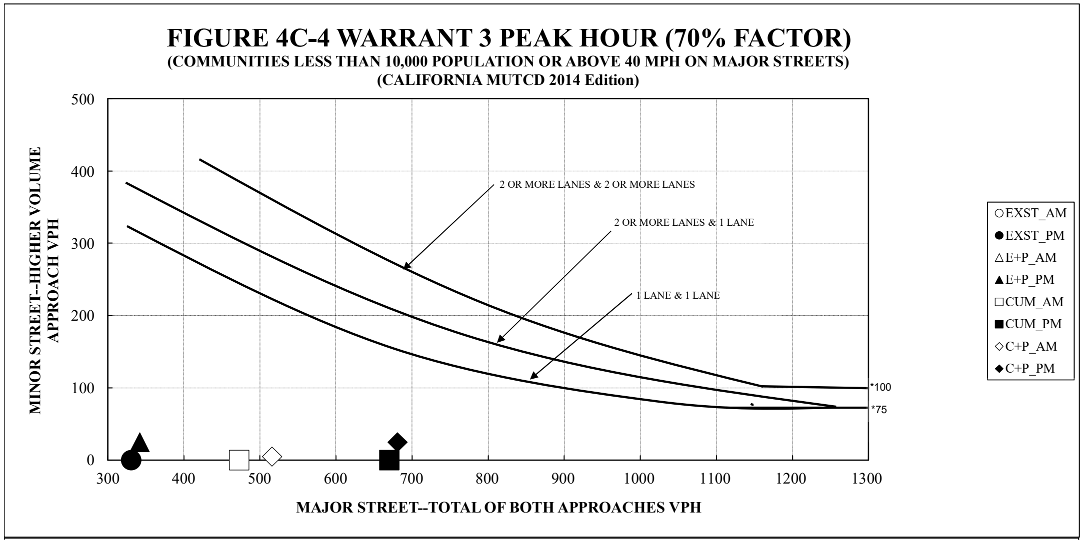
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: **"AM/PM PEAK HOUR" CONDITIONS**



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES) MAJOR	APPROACH(ES) MINOR	WARRANT MET?
EXST_AM	226	0	NO
EXST_PM	331	0	NO
E+P_AM	269	5	NO
E+P_PM	342	25	NO
CUM_AM	473	0	NO
CUM_PM	670	0	NO
C+P_AM	516	5	NO
C+P_PM	681	25	NO

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: July 17, 2023

Intersection No.: **5**

Intersection: **Tully Road & South Project Driveway (proposed)**

Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

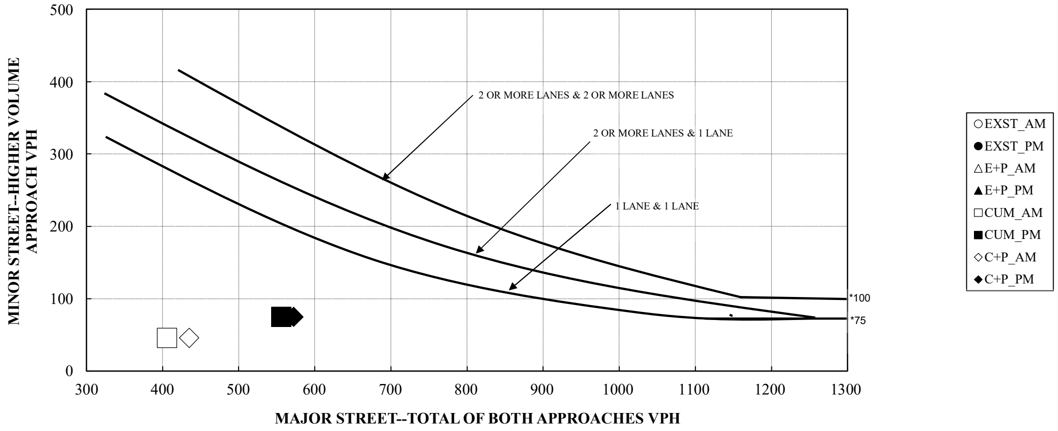
CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: **"AM/PM PEAK HOUR" CONDITIONS**

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)

(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)

(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	193	24	NO
EXST_PM	268	37	NO
E+P_AM	222	24	NO
E+P_PM	284	37	NO
CUM_AM	406	46	NO
CUM_PM	556	75	NO
C+P_AM	435	46	NO
C+P_PM	572	75	NO

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **July 17, 2023**

Intersection No.: **6**

Intersection: **Tully Road & Roeding Road**

Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

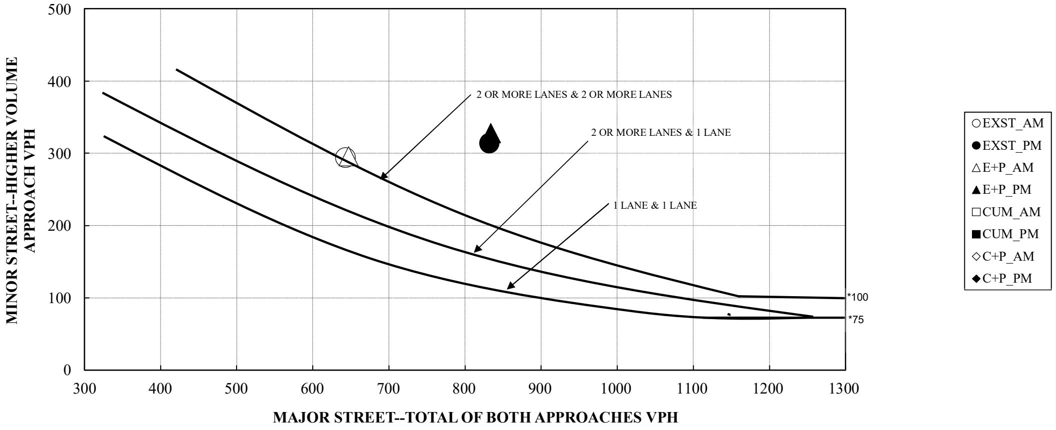
CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: **"AM/PM PEAK HOUR" CONDITIONS**

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)

(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)

(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	643	294	YES
EXST_PM	832	314	YES
E+P_AM	647	296	YES
E+P_PM	834	328	YES
CUM_AM	-	-	-
CUM_PM	-	-	-
C+P_AM	-	-	-
C+P_PM	-	-	-

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **July 17, 2023**

Intersection No.: 7

Intersection: **Whitmore Avenue & Santa Fe Avenue**

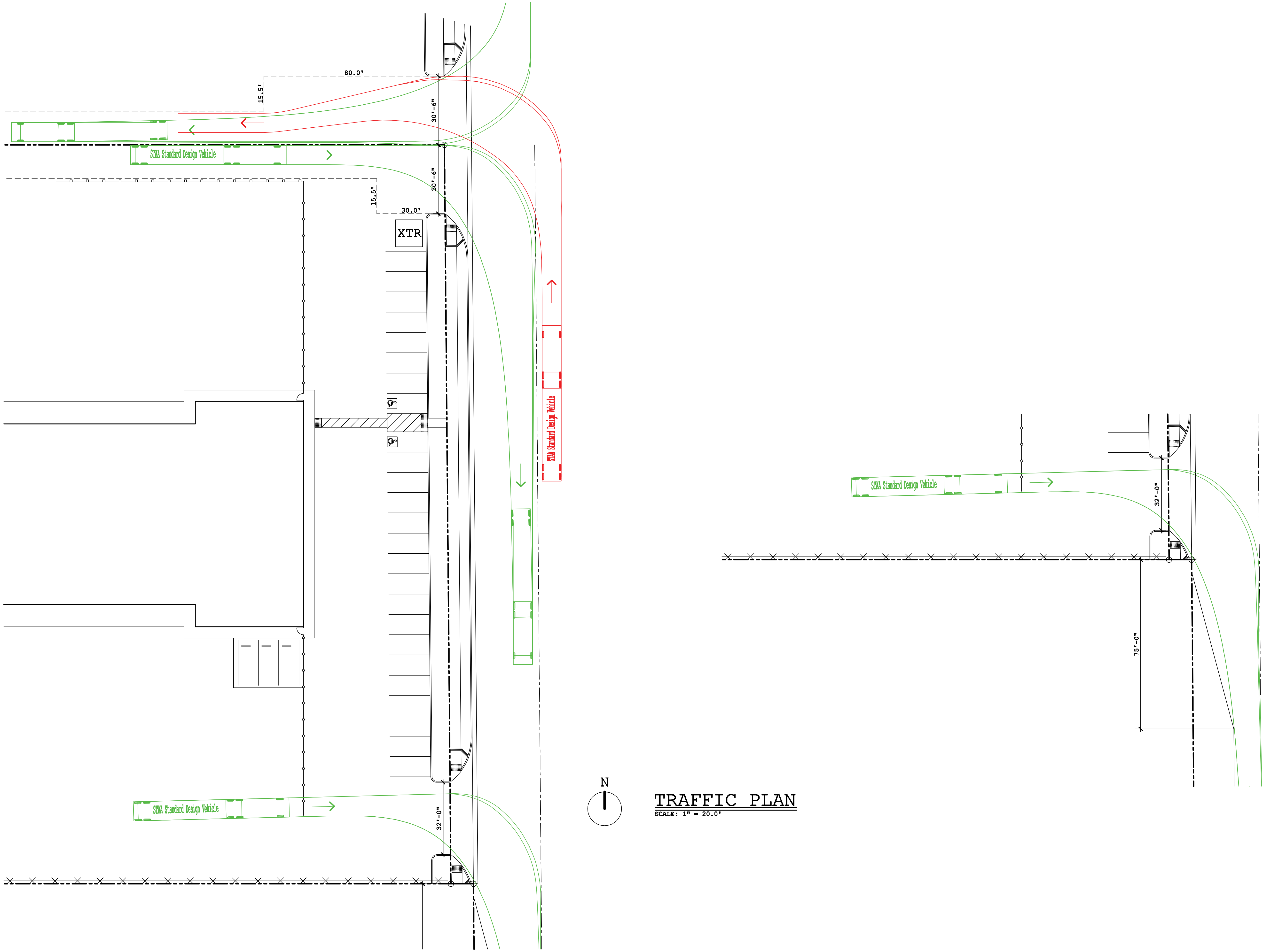
Number of lanes on MAJOR street: 1

Number of lanes on MINOR street: 1

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix D

Project Driveway Truck Turn Exhibits



TRAFFIC PLAN

SCALE: 1" = 20.0'

NOTE; THIS DRAWING IS PRELIMINARY, NOT FOR CONSTRUCTION.

PROJECT: UNITED PAVEMENT MAINTENANCE FACILITY /
CONCRETE MIXING & RECYCLING CENTER
OWNER: RODOLFO RUVALCABA AND MABEL M. RUVALCABA
LOCATION: TULLY RD. HUGHSON, CA

DRAWN BY: BAO
CHECKED BY:
DATE: 08/01/23

REV	DATE	BY

PROJECT
22028

SHEET NUMBER
XUP1

advanced
DESIGN GROUP, INC.
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