**Attachment ‘I’**

# Whispering Falls Residential Project (Kerman, CA)

## INITIAL STUDY – MITIGATED NEGATIVE DECLARATION

**PUBLIC REVIEW DRAFT: ENV 2023-01**

**April 2024 (Revised July 2024)**

City of Kerman
Community Development Department
850 South Madera Avenue
Kerman, CA 93630

## Table of Contents

## Figures

## Tables

# 1 INTRODUCTION

**Note to Reader:** Minor changes have been made to this document for correction and clarity. Recirculation is not required pursuant to CEQA Guidelines Section 15073.5 as this is not considered a "substantial revision" and the change is a replacement/edit of an existing mitigation measure and the change is "equal or more effective" than the current mitigation measure (15073.5-c-1). Revisions are shown as underlined or strikethrough purple text.

Precision Civil Engineering, Inc. (PCE) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of the City of Kerman (City) to address the environmental effects of the proposed Whispering Falls Residential Project ("Project" or "proposed Project"). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code *Section 21000 et. seq*. The City of Kerman is the Lead Agency for this proposed Project. The site and the proposed Project are described in detail in SECTION 2 ENVIRONMENTAL CHECKLIST FORM.

## 1.1 Regulatory Information

An Initial Study (IS) is a document prepared by a lead agency to determine whether a Project may have a significant effect on the environment. In accordance with California Code of Regulations Title 14 (Chapter 3, Section 15000, et seq.), also known as the CEQA Guidelines, *Section 15064 (a)(1)* states that an environmental impact report (EIR) must be prepared if there is substantial evidence in light of the whole record that the proposed Project under review may have a significant effect on the environment and should be further analyzed to determine mitigation measures or Project alternatives that might avoid or reduce Project impacts to less than significant levels.

A negative declaration (ND) may be prepared instead if the lead agency finds that there is no substantial evidence in light of the whole record that the Project may have a significant effect on the environment. An ND is a written statement describing the reasons why a proposed Project, not otherwise exempt from CEQA, would not have a significant effect on the environment and, therefore, why it would not require the preparation of an EIR (CEQA Guidelines *Section 15371*). According to CEQA Guidelines *Section 15070*, a ND or mitigated ND shall be prepared for a Project subject to CEQA when either:

*a. The IS shows there is no substantial evidence, in light of the whole record before the agency, that the proposed Project may have a significant effect on the environment, or*

*b. The IS identified potentially significant effects, but:*

> *1. Revisions in the Project plans or proposals made by or agreed to by the applicant before the proposed Mitigated Negative Declaration and Initial Study is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur is prepared, and*
>
> *2. There is no substantial evidence, in light of the whole record before the agency, that the proposed Project as revised may have a significant effect on the environment.*

## 1.2 Document Format

This IS/MND contains five (5) chapters plus appendices. SECTION 1 INTRODUCTION provides bases of the IS/MND's regulatory information and an overview of the Project. SECTION 2 ENVIRONMENTAL CHECKLIST FORM provides a detailed description of Project components. SECTION 3 DETERMINATION concludes that based on the

Initial Study ~~is~~ a mitigated negative declaration will be prepared, identifies the environmental factors potentially affected based on the analyses contained in this IS, and includes with the Lead Agency's determination based upon those analyses. SECTION 4 EVALUATION OF ENVIRONMENTAL IMPACTS presents the CEQA checklist and environmental analyses for all impact areas and the mandatory findings of significance. A brief discussion of the reasons why the Project impact is anticipated to be potentially significant, less than significant with mitigation incorporated, less than significant, or why no impacts are expected is included. SECTION 5 MITIGATION MONITORING AND REPORTING PROGRAM presents the mitigation measures recommended in the IS/MND for the Project. The Air Quality/Greenhouse Gas Analysis Technical Memorandum (Appendix A), Biological Technical Memorandum (Appendix B), CHRIS Search Record (Appendix C), NAHC SLF Results Letter (Appendix D), Acoustical Analysis (Appendix E), Traffic Impact Report (Appendix F), and Phase I Environmental Site Assessment (Appendix G) are provided at the end of this document.

# 2 ENVIRONMENTAL CHECKLIST FORM

This section describes the components of the proposed Project in more detail, including Project location, Project objectives, and required Project approvals.

## 2.1 Project Title

Whispering Falls Residential Project (Annexation (ANX) 2023-01, Rezone/Prezone (REZ) 2023-01, General Plan Amendment (GPA) 2023-01, Conditional Use Permit (CUP) 2023-02, Development Plan (DPL) 2023-01 & 02, Tentative Subdivision Map (TSM) 2023-01), and Variance (VAR) 2023-01.

## 2.2 Lead Agency Name and Address

City of Kerman
Community Development Department
850 South Madera Avenue
Kerman, CA 93630

## 2.3 Contact Person and Phone Number

| Lead Agency | Applicant |
|---|---|
| City of Kerman | Whispering Falls, LLC. |
| Community Development Department | 275 South Madera Avenue, #100 |
| Jesus R. Orozco, Community Development Director | Kerman, CA 93630 |
| jorozco@cityofkerman.org | Ken Boyd |
| (559) 846-9386 | (559) 846-9362 |

## 2.4 Study Prepared By

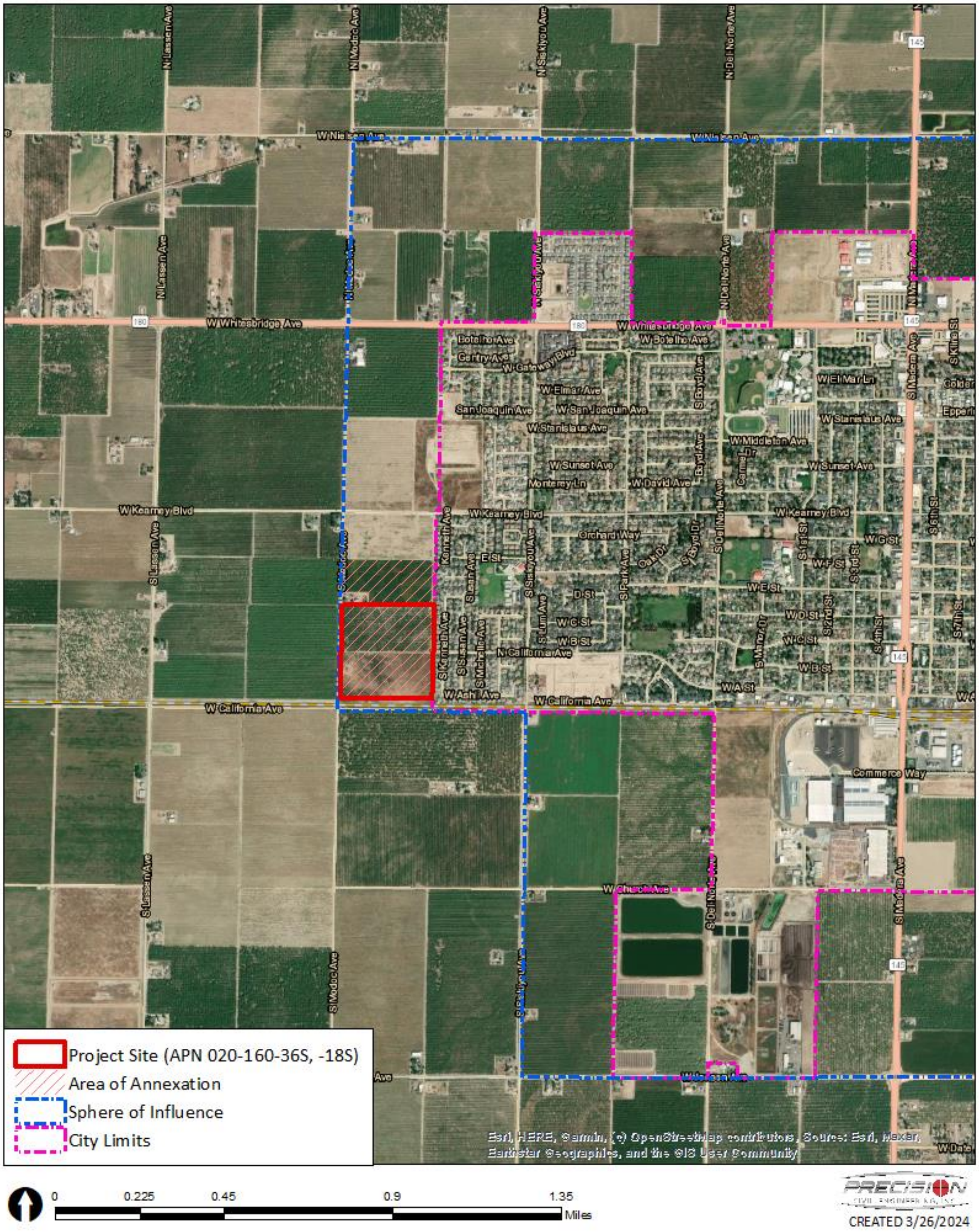
Precision Civil Engineering
1234 O Street
Fresno, CA 93721
(559) 449-4500

## 2.5 Project Location

The Project Area ~~site~~ is in the jurisdiction of the County of Fresno, California. The area ~~site~~ is located on the east side of South Modoc Avenue between West Kearney Boulevard and the West California Avenue Alignment/San Joaquin Valley Railroad (Figure 2-1), consisting of three (3) parcels that total approximately ~~60 acres~~ 61.89 acres (Figure 2-2). The area ~~site~~ is identified by the Fresno County Assessor as Assessor's Parcel Numbers (APNs) 020-160-36S (20.01 acres), 020-160-18S (20 acres), 020-160-19S (20 acres), 020-041-45S (1.12 acres), and 020-041-47S (0.76 acres). The area ~~site~~ is a portion of Section 11, Township 14 South, Range 18 East, Mount Diablo Base and Meridian.

## 2.6 Latitude and Longitude

The centroid of the Project area ~~site~~ is 36.72206266956579, -120.08536593999223.



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CREATED 3/26/2024

Figure 2-1 Whispering Falls Project Location

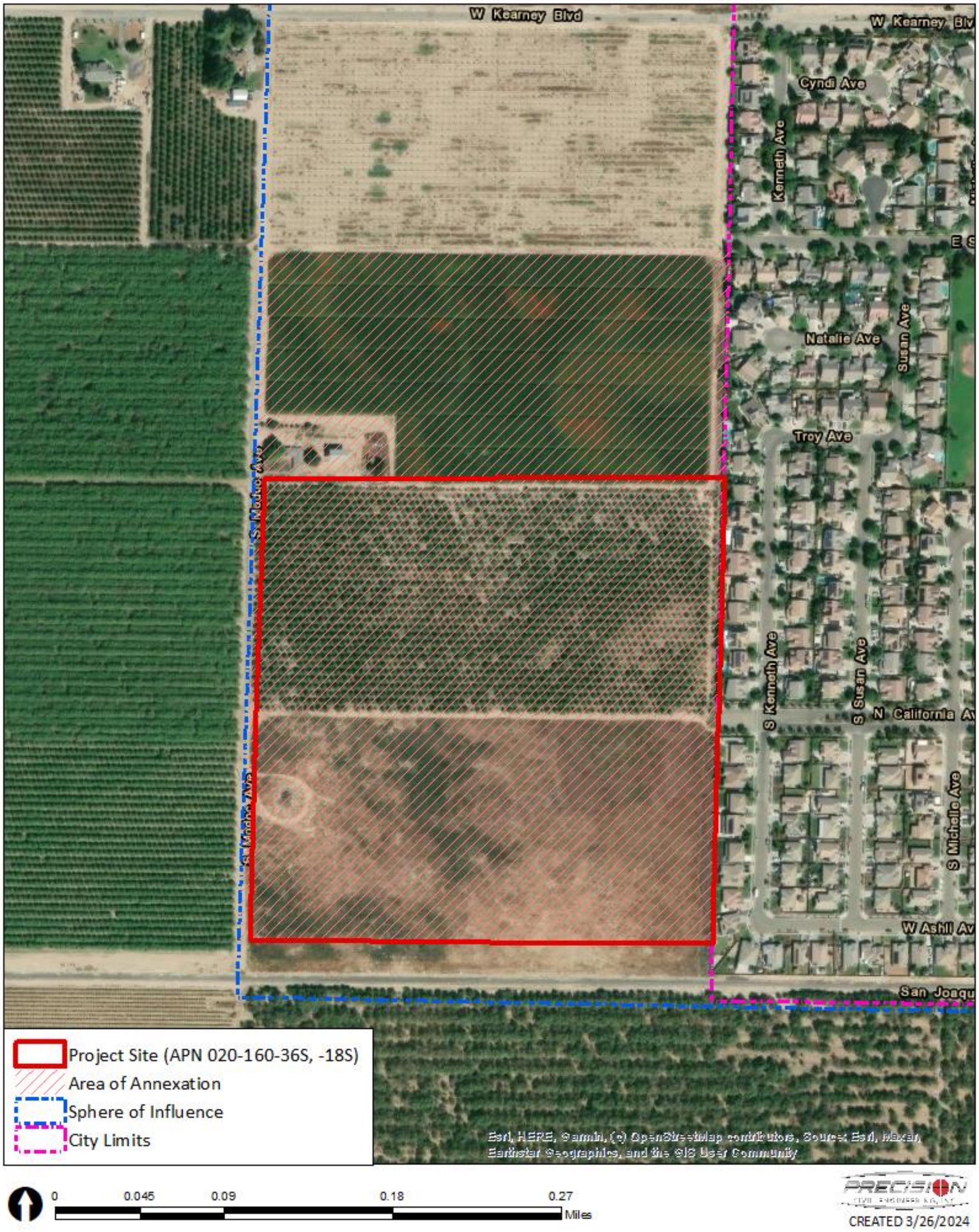


Figure 2-2 Whispering Falls Project Aerial

## 2.7 General Plan Designation

The Project site has a City of Kerman 2040 General Plan land use designation of MDR – Medium Density Residential (15 acres) and HDR – High Density Residential (5 acres) (Figure 2-3).

According to the General Plan, the MDR land use designation *"allows for residential development at a density of up to 12 units per gross acre. Development in this category could include a mix of single-family and multifamily residences, including duplexes, triplexes, fourplexes, and mobile homes."* The MDR land use designation is compatible with the R-1-7, R-1-12, R-2, SD-R-5, SD-R-4.5, SD-R-3.5, PD-R-7, and PD-R-12 zoning districts. Typical uses of this land use designation include single-family detached dwellings, small-lot multifamily dwellings including duplexes, triplexes, fourplexes, and mobile homes, accessory dwelling units, and compatible public and quasi-public uses (e.g., churches, day-care centers, community centers, parks, and schools).

According to the General Plan, the HDR land use designation *"allows for residential development at a density of up to 24~~0~~ units per gross acre. Development in this category could encompass apartment complexes, senior housing, and condominiums."* The HDR land use designation is compatible with the R-3, SD-R-2.5, and PD-R-2.5 zoning districts. Typical uses of this land use designation include large-lot multifamily dwellings, including apartment complexes, senior housing, and condominiums, accessory dwelling units, and compatible public and quasi-public uses (e.g., churches, day-care centers, community centers), parks, and schools). The minimum density permitted in the HDR land use designation is 20 dwelling units per acre. The maximum density permitted is 24 dwelling units per acre.

## 2.8 Zoning

The Project site is outside City limits and located within the County of Fresno Agricultural Exclusive – 20 Acres (AE-20) zoning district (Figure 2-4). Because the site is outside City limits, proposed development would require annexation and a pre-zone/rezone of the site to a zoning district consistent with the City of Kerman 2040 General Plan planned land use designation for the site. Parcels included in the annexation would also be pre-zoned to a zoning district consistent with the General Plan land use designation. Consistent zoning districts for the MDR land use designation are R-1-7, R-1-12, R-2, SD-R-5, SD-R-4.5, SD-R-3.5, PD-R-7, and PD-R-12. Consistent zoning districts for the HDR land use designation are R-3, SD-R-2.5, and PD-R-2.5.

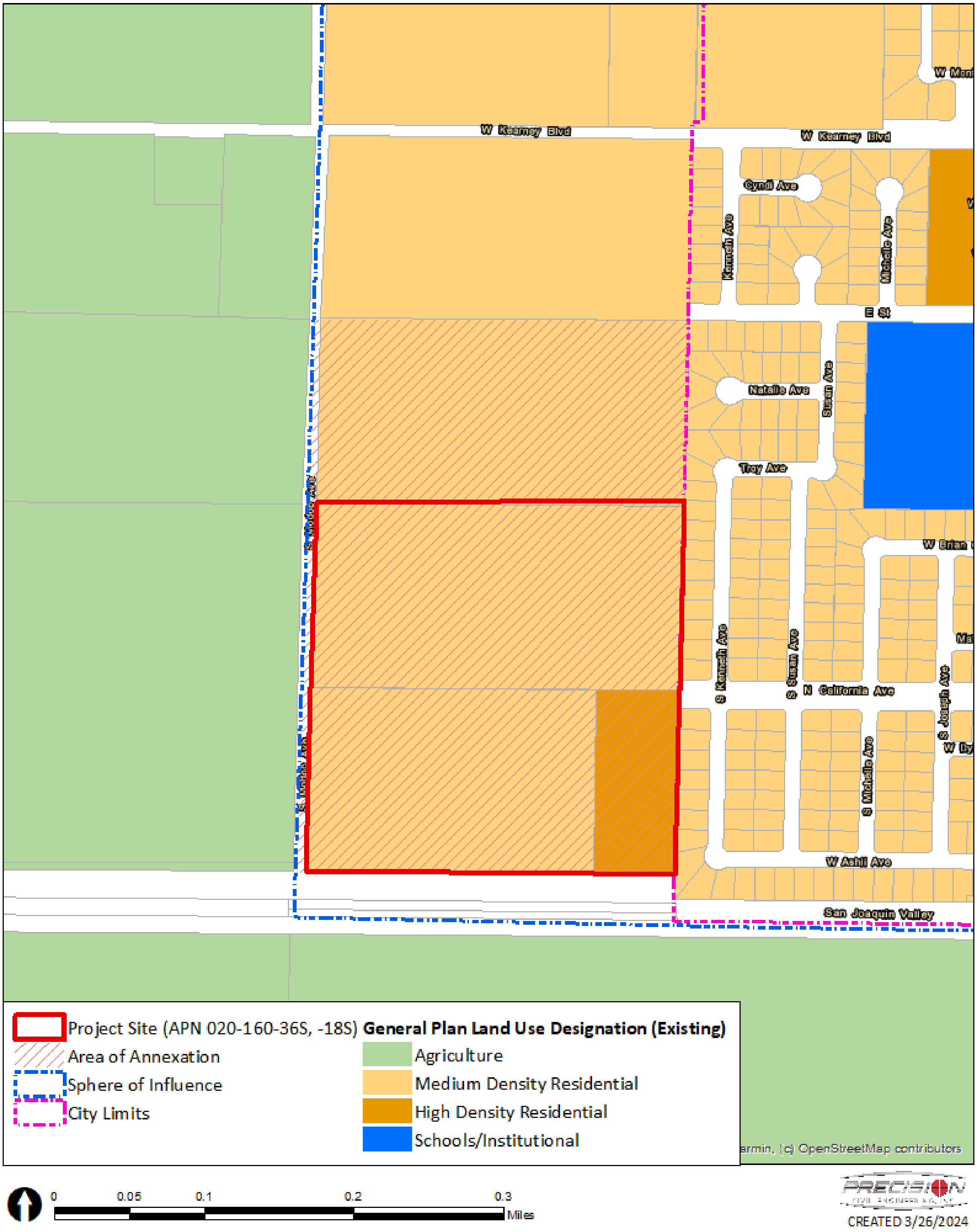


Figure 2-3 City of Kerman General Plan Land Use Designation Map (Existing)

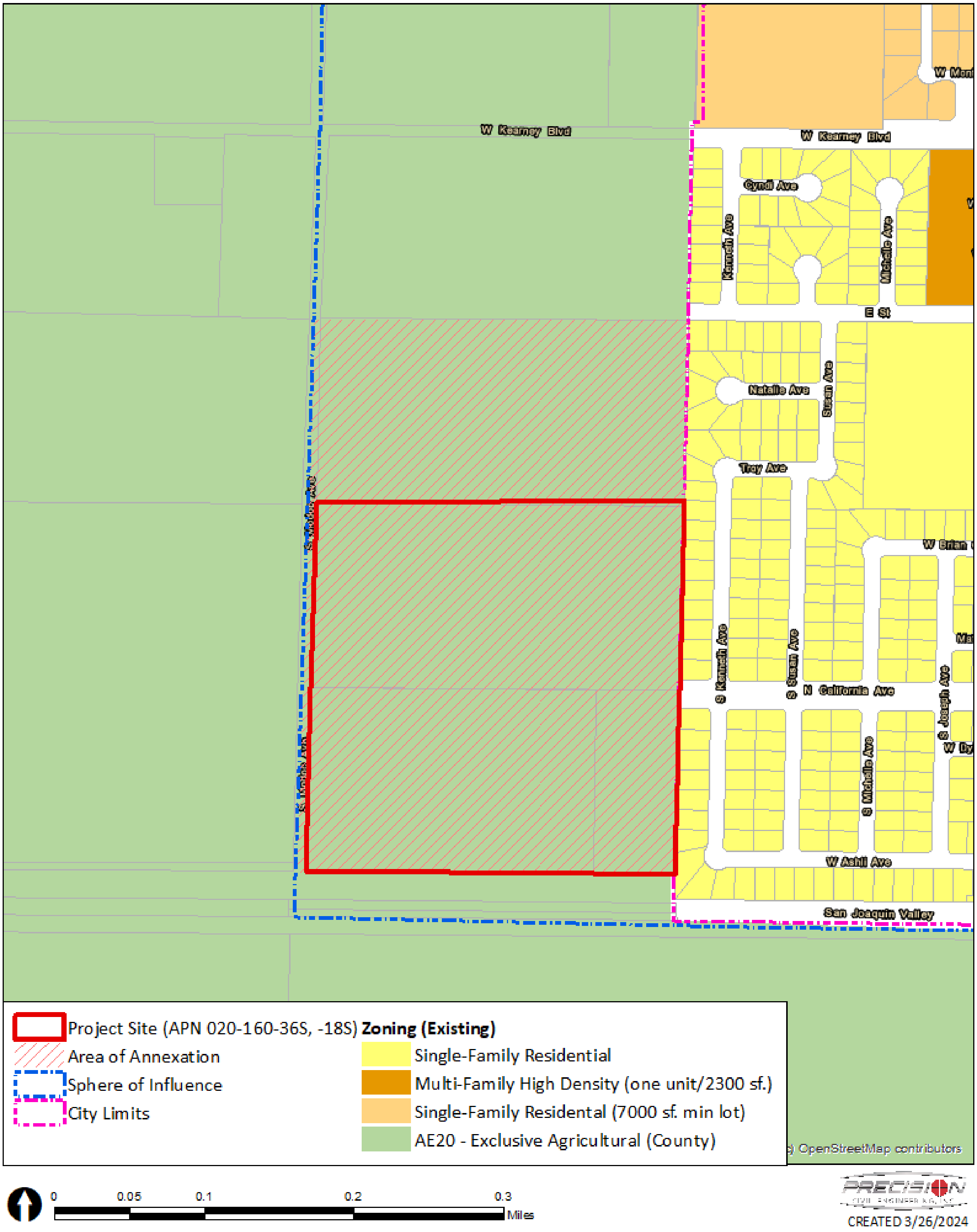


Figure 2-4 Zoning District Map (Existing)

## 2.9 Description of Project

Whispering Falls, LLC. (Applicant) proposes Annexation (ANX) 2023-01, Rezone/Prezone (REZ) 2023-01, General Plan Amendment (GPA) 2023-01, Conditional Use Permit (CUP) 2023-02, Tentative Subdivision Map (TSM) 2023-01, Development Plans (DPL) 2023-01 & 02 , and Variance (VAR) 2023-01 pertaining to ~~three (3)~~ five (5) parcels (APNs 020-160-36S, 020-160-18S, ~~and~~ 020-160-19S, 020-041-45S, and 020-041-47S) that total approximately ~~60~~ 61.89 acres located on the east side of South Modoc Avenue between West Kearney Boulevard and the West California Avenue Alignment/San Joaquin Valley Railroad.

- ANX 2023-01 would annex approximately ~~60 acres~~ 61.89 acres from the County of Fresno to the City of Kerman, in addition to adjacent right-of-way on South Modoc Avenue and the West California Avenue Alignment, and detach the subject area from the Kings River Conservation District (Figure 2-6).
- REZ 2023-01 would pre-zone approximately ~~60 acres~~ 41.49 acres (APNs 020-160-26S, 020-160-18S) to the Smart development Combining District – Residential – minimum 2,500 square feet (SD-R-2.5) zoning district and approximately 20 acres (APN 010-160-19S) to the Smart Development Combining District – minimum 5,000 square feet (SD-R-5) zoning district. The zoning districts would be consistent with the underlying planned land use, Medium Density Residential, pending approval of GPA 2023-01.
- GPA 2023-01 would amend the Kerman 2040 General Plan to add the SD-R-2.5 zoning district as a compatible zoning district within the Medium Density Residential land use designation and set a minimum residential density of five (5) dwelling units per acre. No change is proposed to the maximum density currently permitted.
- TSM 2023-01 would subdivide APN 020-160-26S into 119 lots to account for 118 single-family lots and one (1) lot reserved for 56 multi-family residential units and community center.
- DPL 2023-01 & 02, CUP 2023-02, and VAR 2023-01 would facilitate the development of APN 020-160-26S consisting of a 174-unit residential development consisting of 118 single-family residential units and 56 two-bedroom multi-family residential units. The development would also include a community center and related on/off-site improvements (e.g., roadways, sidewalks, landscaping, open space, parking). CUP 2023-02 (and future Lot Line Adjustment or Tentative Parcel Map) would also facilitate the development of an off-site temporary drainage basin providing is proposed off-site on the parcel identified as APN 020-160-18S. VAR 2023-01 is requested to allow a maximum building height of 45 feet and three stories.

In addition, although not formally submitted, the Applicant proposes to submit an application for an adjacent "second phase" development in the near future. This second phase would include no more than 105 single-family lots, amphitheater, and related on/off-site improvements (e.g., roadways, sidewalks, landscaping, open space and parking), and would be located directly north of West California Avenue on the approximately 20-acre parcel identified as APN 020-160-18S.

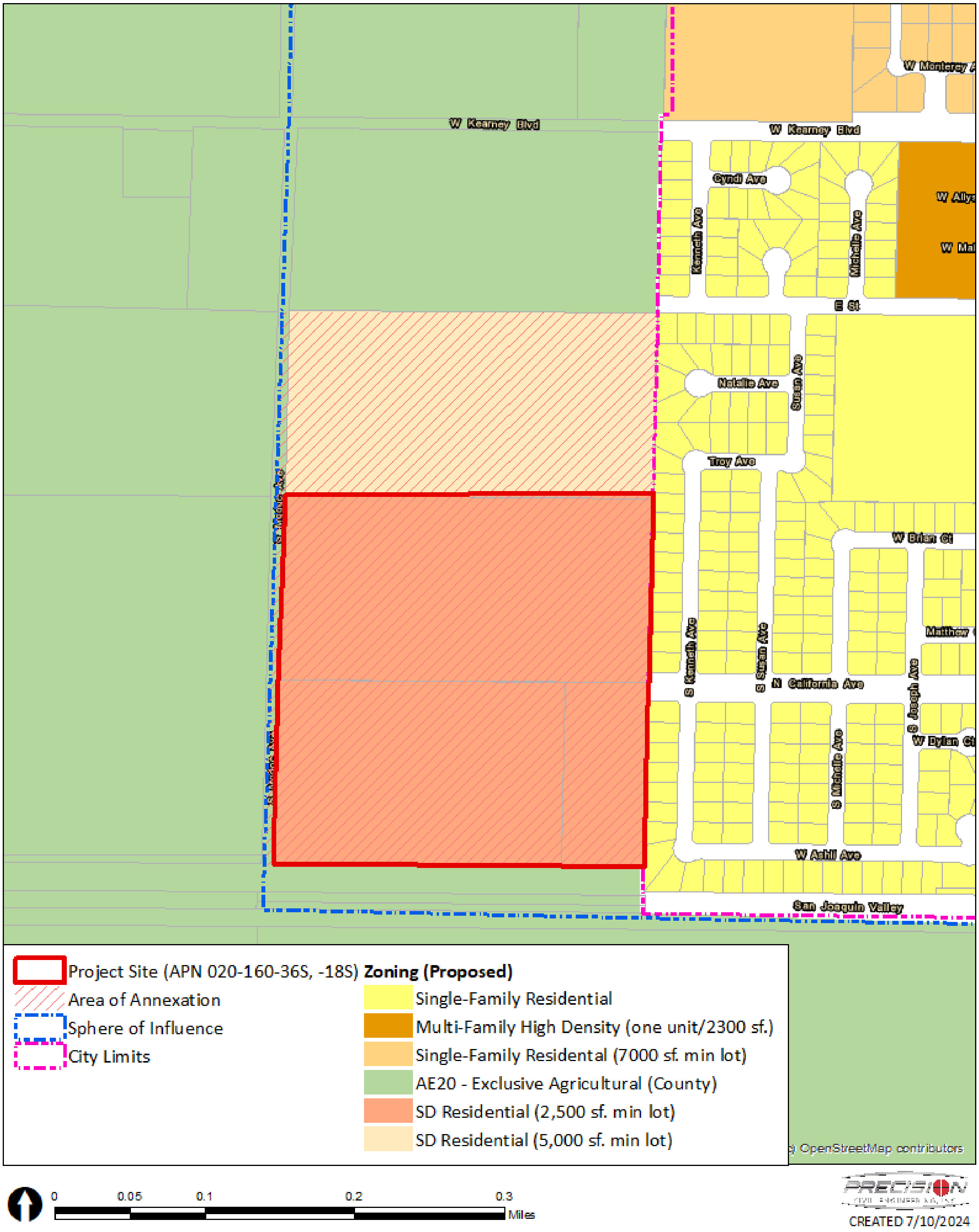


Figure 2-5 Zoning District Map (Proposed)

## 2.10 Project Setting and Surrounding Land Uses

### *Project Setting*

Historically, the parcels within the ~~annexation boundary inclusive of the Project site~~ Project Area have been designated and operated as agricultural land. Since 1998, the Project site has been in agricultural production (orchards or row crops). In 1998, the Project site was planted in orchards and then periodically covered to row crops. In 2018, the site was taken out of agricultural production and has been annually disked. The northern parcels in the annexation boundary are currently in production as orchard and row crops.

The Project Area ~~Within the annexation boundary, the Project site and parcel identified as APN 020-160-18S are~~ is currently vacant and undeveloped, with no existing structures or improvements. There is an existing single-family residence and related structures (e.g., garage/shed) on APN 020-160-19S).

There is no existing improved street frontage accessible to the Project site or parcels identified as APN 020-160-18S and 020-160-19S. The nearest roadway to the site is West Kearney Boulevard located to the north of the Project Area ~~annexation boundary~~ adjacent to parcel identified as APN 020-160-02S (not part of Project Area). The South Modoc Avenue right-of-way runs parallel to the west of the annexation boundary but is not currently improved.

The parcels within the Project Area ~~annexation boundary inclusive of the Project site~~ are relatively flat with a sandy loam soil type that is mostly well drained with more than 80-inch water table depth. The existing biotic site conditions and resources of these parcels can be defined primarily as ruderal and are highly disturbed due to agricultural production and annual disking. The Project site is dominated by non-native herbaceous vegetation. There are no trees, shrubs, or water features on the Project site. APN 020-160-18S is an almond ~~peach~~ orchard. The northernmost parcels in the annexation boundary are plowed and have no vegetative cover.

### *Surrounding Land Uses*

As referenced in Table 2-1, the annexation boundary (inclusive of the Project site) is surrounded by agricultural land to the north, west, and south, and residential uses to the east. The properties to the north and east are planned for residential uses within the City of Kerman Sphere of Influence. The properties to the south and west are planned for agricultural uses within the County of Fresno.

Table 2-1: Existing Uses, General Plan Designations, and Zoning districts of Surrounding Properties (from Project Area ~~Annexation Boundary~~)

| Direction from the Project site | Existing Land Use | Planned Land Use | Zoning district |
|---|---|---|---|
| **North** | Agricultural | Medium Density Residential | AE-20 (County) |
| **South** | Agricultural | Agriculture | AE-20 (County) |
| **East** | Single-family residential | Medium Density Residential | R-1 |
| **West** | Agricultural | Agriculture | AE-20 (County) |

## 2.11 Site Preparation

Site preparation would be limited to APN 020-160-36S and APN 020-160-18S. Site preparation would include removal of the row crops as well as typical grading activities and minor excavation for installation of utility infrastructure for conveyance of water, sewer, stormwater, and irrigation. Site preparation, building, grading, encroachment, and site utilities permits would be subject to review and approval by the appropriate agency and/or department to ensure compliance with applicable codes and regulations. Compliance would be verified through the building permit and inspection process.

## 2.12 Project Construction and Phasing

Construction would be limited to APN 020-160-36S and APN 020-160-18S. The Project would be constructed in two phases. Phase I construction is expected to begin as soon as June 2025 and conclude in June 2026, with operations beginning in 2026/2027. Phase 2 construction is expected to begin in January 2028 and conclude in January 2029 with operations beginning in 2029/2030. The projected dates may change, depending upon review and approval of the entitlement and building permits.

## 2.13 Project Components

This section describes the overall components of the Project, such as the proposed buildings, landscaping, vehicle and pedestrian circulation, and utilities. This section is limited to APN 020-160-36S.

### *Site Layout and Elevations*

As shown in Figure 2-7 and summarized in Table 2-2, the Project proposes a 174-unit residential development that consists of 118 single-family units, 56 multi-family units, 430 parking spaces (2.5 spaces per unit), and 3.19 acres of common open space.

Table 2-2: Development Summary

| Residential Development Summary | | Parking Distribution Summary | |
|---|---|---|---|
| Single Family Units | # | Single-Family Units | 236 (2 spaces per unit) |
| Alley Loaded Single Family Homes | 64 | Multi-Family Units | 56 (1 space per unit) |
| Single Family Cluster Homes | 46 | On-Street Spaces | 138 |
| Wide Shallow Single-Family Homes | 8 | ***Total Parking Spaces*** | ***430 (2.5 spaces per unit)*** |
| ***Total Single-Family Units*** | ***118*** | | |
| Multi-Family Units | # | Open Space Summary | |
| One-bedroom units | 0 | Common Open Space | 138,928 square feet/<br>3.19 acres |
| Two-bedroom units | 56 | | |
| Three-bedroom units | 0 | | |
| ***Total Multi-Family Units*** | ***56*** | | |

The single-family units would consist of 3 types, alley loaded single-family homes, single-family cluster homes, and wide shallow single-family homes, with porches, yards/private open space, and garages. The floor plans for each single-family unit type are shown in Figure 2-8. Unit types range from three to four bedrooms. The proposed elevations for each unit type are shown in Figure 2-9. As shown, the proposed single-family buildings reach a maximum height of 2 ~~3~~ stories, or 35 ~~30~~ feet ~~to plate~~. The proposed buildings would comprise brick and stone veneer, horizontal siding, board and batten siding, stucco finish, and various uses of metal including roofs, garages doors, decorative panel railing, metalawning, and panels.

A total of 4 residential buildings are proposed for the multi-family units, which would be two-bedroom units in either a townhome or apartment unit-flat with garage spaces. The floor plans and square footage for each multi-family unit type are shown in Figure 2-10. Conceptual elevations for each building are shown in Figure 2-11. As shown, the proposed multi-family buildings reach a maximum height of 3 stories, or 30 feet to plate. The proposed buildings would comprise brick and stone veneer, horizontal siding, board and batten siding, stucco finish, and various uses of metal including roofs, garages doors, decorative panel railing, metalawning, and panels. It should be noted that all elevations are conceptual in nature and may change. All changes shall be in compliance with the municipal code and/or project conditions of approval.

In addition to the residential units, a community clubhouse, pavilion, fitness centers, and related amenities including a pool and spa are proposed. The floor plans and square footage are shown in Figure 2-12 and Figure 2-14. The community amenities total 7,476 square feet. Conceptual elevations for each building are shown in Figure 2-13. As shown, the proposed buildings would reach 1 story and comprise stone veneer, horizontal siding, board and batten siding, stucco finish, and various uses of metal including roofing and panels.

Six-foot fencing is proposed at the property lines around the perimeter of the site.

#### Building and Site Design Features

The Project would exceed all mandatory requirements for single-family and multi-family buildings as outlined in the 2022 Energy Code by two to seven percent and verified through the building permit process. Mandatory requirements that would be exceeded include building ventilation and indoor air quality, space conditioning systems, water heating systems, electric power distribution, and electric ready buildings. The Project would not follow any other GreenPoint ratings. Mandatory requirements apply to building ventilation and indoor air quality, space conditioning systems, water heating systems, electric power distribution, and electric ready buildings.

The Project would be built in accordance with all mandatory indoor water use requirements as outlined in the 2022 California Green Building Standards Code, Title 24, Part 11, Section 4.303 – Indoor Water Use and verified through the building permit process. As a residential development that contains plumbing fixtures and fittings, the Project shall comply with water-conserving measures for water closets, urinals, showerheads, and faucets. The Project proposes the use of low flow plumbing fixtures with flow rates that comply with requirements. The single-family units would provide a shower water recycling product manufactured by RAINSTICK (or by other, similar companies) that saves approximately 11,400 gallons per year per each two-person home. In addition, as a residential development, the Project would be required to install submeters to measure water usage of individual units in accordance with the California Plumbing Code.

The Project would also be built in accordance with all mandatory outdoor water use requirements as outlined in the 2022 California Green Building Standards Code, Title 24, Part 11, Section 4.304 – Outdoor Water Use and verified through the building permit process. As a residential development that contains landscaping including trees, shrubs, ground cover/annual plants, and lawn, the Project shall comply with the updated Model Water Efficient Landscape Ordinance (MWELO) (California Code of Regulations, Title 23, Chapter 2.7, Division 2), as implemented and enforced through the building permit process. As proposed, the Project exceeds the MWELO requirements by eight percent as achieved through the use of drought tolerant plant material and the installation of low water use irrigation (i.e., drip irrigation).

### *Site Circulation and Parking*

Access to the site would be provided by three (3) points of ingress/egress from West California Avenue, which is proposed to be extended west from the adjacent subdivision and improved with curb, gutter, sidewalk, and an 8-foot landscape easement on the north and south side of the extended street. The east 20-feet of South Modoc

Avenue right-of-way is proposed to be vacated south of West California Avenue. Internal circulation within the site would be provided by private streets and alleys in addition to pedestrian walkways.

The Project proposes 430 parking spaces including 236 garages for single-family units, 56 garages for multi-family units, and 138 unassigned on-street spaces. All multi-family unit garages would have Electric Vehicle (EV) Charging Stations (EVCS). Of the unassigned on-street spaces, 6 spaces would be "EV capable" (i.e., a parking space linked to a listed electrical panel with sufficient capacity to provide at least 110/120 volts and 20 amperes to the parking space), 14 spaces would be "EV ready" (i.e., a parking space with access to a dedicated 240-volt power supply for Level 2 EV charging), and 3 spaces would provide EVCS. Therefore, more than 10 percent of the parking spaces would accommodate EV in accordance with the 2022 California Green Building Standards Code, Title 24, Part 11 ("Title 24"). The Project would also install right-of-way improvements along West California Avenue frontage (i.e., concrete curb, gutter, sidewalk, and paving per City of Kerman Public Works Standards). Turning radii are also proposed per North Central Fire Protection District and City of Kerman Standards for fire and solid waste vehicle access.

### *Open Space and Landscaping*

Proposed open space and landscaping are depicted in **Figure 2-15**. **Figure 2-16** shows the proposed planting plan of the Project. Approximately 3.19 acres of common open space are proposed. The common open space would be planted with hybrid Bermuda turf grass and low water use shrubs and ground cover (i.e., autumn sage, pink muhly grass, little ollie olive, lantana, rosemary, dwarf bottle brush). Street trees of various types would also be planted along the internal streets and walkways and would include red maple, scarlet oak or Valley oak, Chinese elm, and eastern redbud or palo verde varieties. Eight water features, or swales, are proposed throughout the site. Water features 1-4 would be scaled to the pedestrian experience and standing water would be no more than 1 inch in depth at any point. Water features 6-8 would be shallow narrow "streams" that are 2 to 4 inches from high to low side and standing water would be no more than 2 inches in depth at any point. The water features/swales would also serve as a storm collection system. **Figure 2-17** shows the water feature plan of the Project.

### *Public Services and Utilities*

The Project site would be annexed into City limits and thus, would be required to connect to water, wastewater, and stormwater services. Natural gas, electricity, telecommunications, and solid waste services are provided by private companies. In addition, the Project would be subject to fees for the construction, acquisition, and improvements for public services including but not limited to: Fire Protection Services, Police Protection Services, and Schools. Water, wastewater, and stormwater services are described further below.

Domestic water service would be provided to the site through proposed pipes located in a 10-foot water easement throughout the site. Seven fire hydrants are proposed throughout the site and would be connected to City water.

Sanitary sewer service would be provided to the site through a proposed temporary sanitary sewer lift station located in the northwest corner of the site; the lift station would be connected to a temporary sanitary sewer main in West California Avenue.

An off-site temporary drainage basin providing is proposed off-site on the parcel identified as APN 020-160-18S (Figure 2-18). The basin was sized to adequately accommodate stormwater runoff from the site and would be replaced once permanent storm drainage services are available. Based on the proposed site grading, stormwater runoff will generally drain northwest toward the basin. As discussed above, there are 8 water features proposed throughout the site that would serve a dual purpose as storm water collection.

## 2.14 Required Project Approvals

The City of Kerman requires the following review, permits, and/or approvals for the proposed Project. Other approvals not listed below may be required as identified through the entitlement process.

- Conditional Use Permit
- Annexation
- Pre-Zone/Rezone
- General Plan Amendment
- Tentative Subdivision Map
- Development Plan
- Variance
- Vacation (Public Right-of-Way)
- Building Permit
- Grading Permit
- Encroachment Permit
- Site Utilities Permit
- Sign Permit
- Williamson Act Contract Cancellation
- Lot Line Adjustment/Tentative Parcel Map

In addition, other agencies may have the authority to issue permits prior to implementation of the Project including but not limited to: North Central Fire Protection District, Fresno County Department of Public Health, Fresno Local Agency Formation Commission, San Joaquin Valley Air Pollution Control District, Pacific Gas & Electric, Sebastian Corp., Fresno Irrigation District, Caltrans, and California Regional Water Quality Control Board.

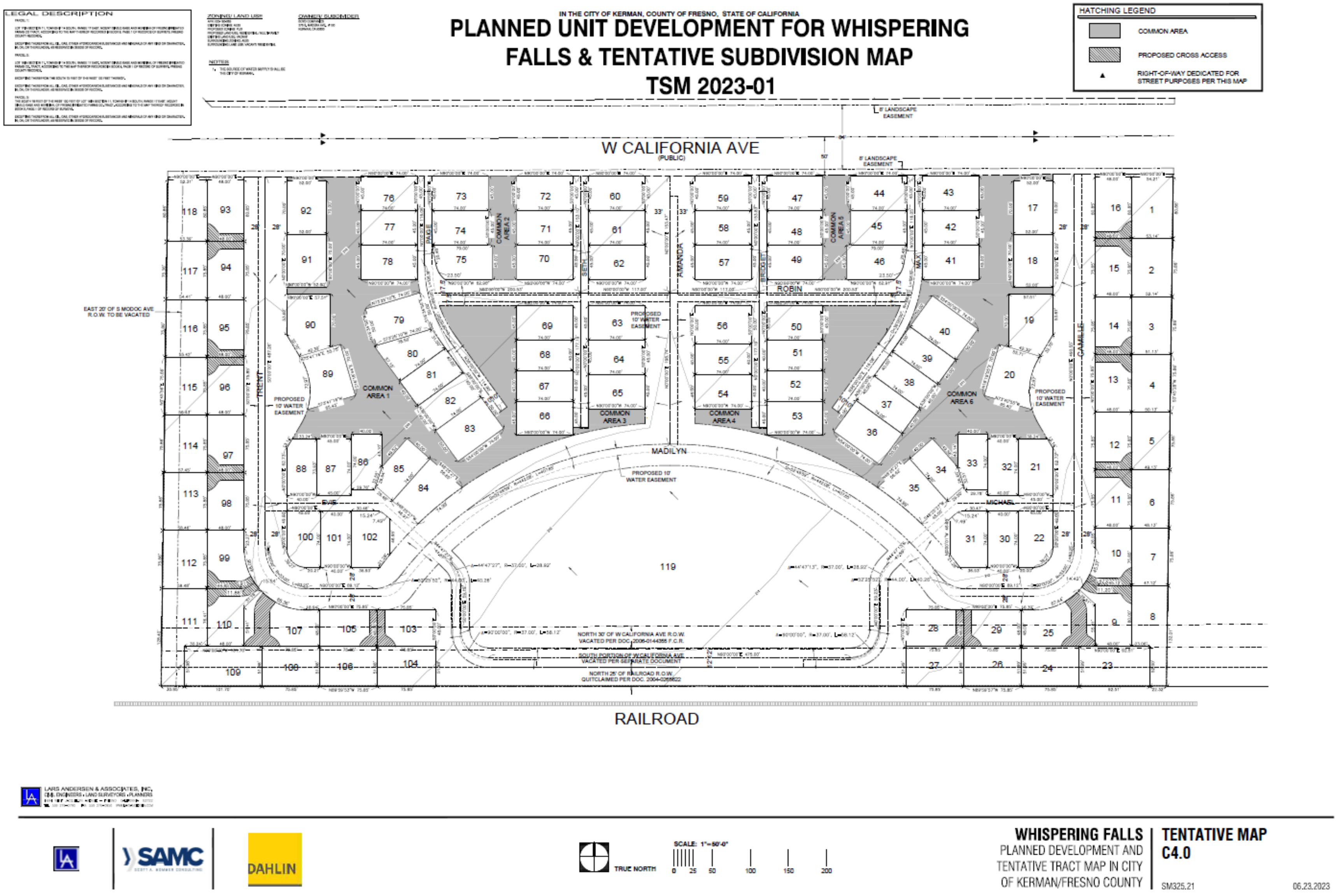
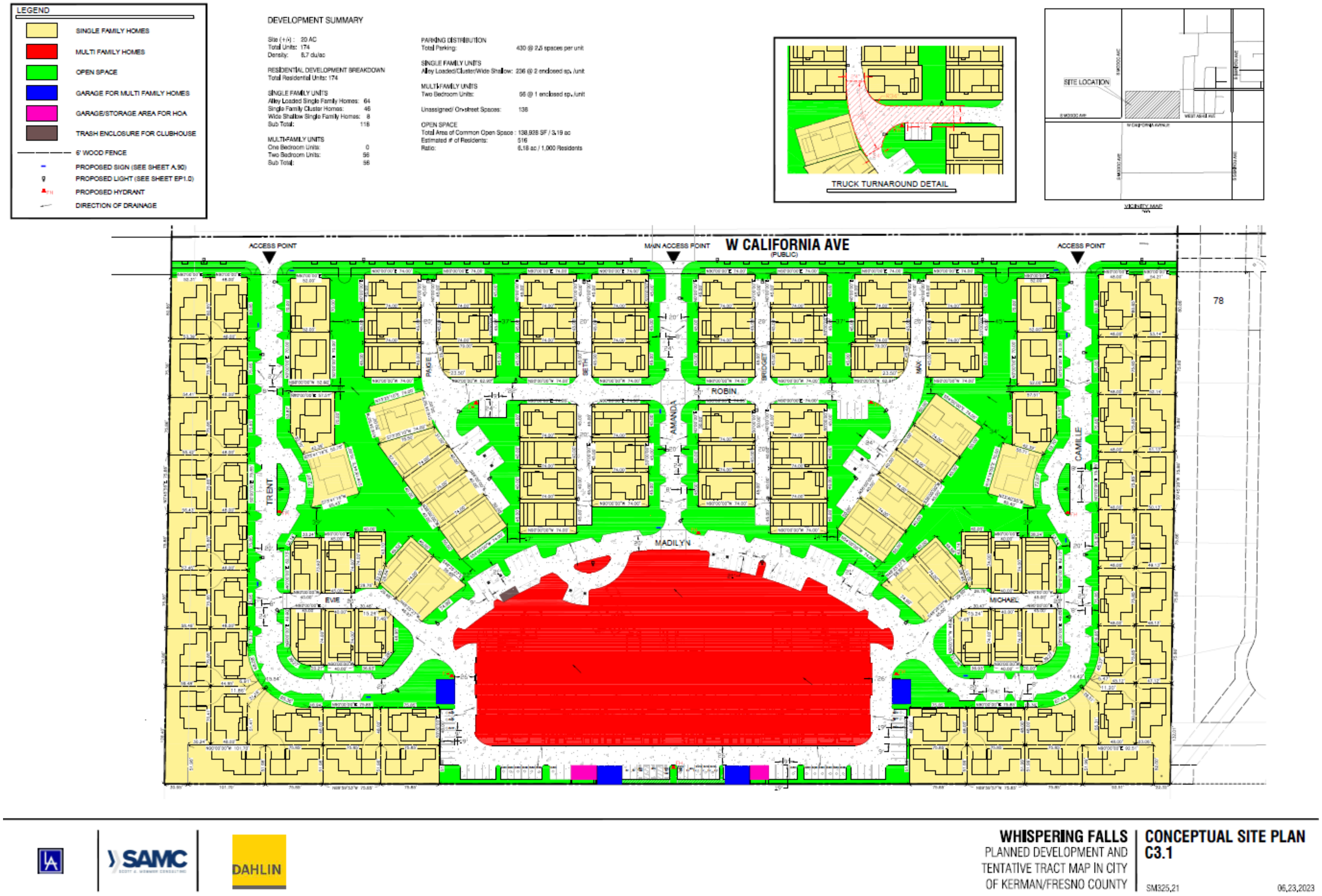


Figure 2-6: Tentative Subdivision Map



LEGEND

| | |
|---|---|
| 🟨 | SINGLE FAMILY HOMES |
| 🟥 | MULTI FAMILY HOMES |
| 🟩 | OPEN SPACE |
| 🟦 | GARAGE FOR MULTI FAMILY HOMES |
| 🟪 | GARAGE/STORAGE AREA FOR HOA |
| 🟫 | TRASH ENCLOSURE FOR CLUBHOUSE |
| — — — | 6' WOOD FENCE |
| ▬ | PROPOSED SIGN (SEE SHEET A.90) |
| ● | PROPOSED LIGHT (SEE SHEET EP1.0) |
| ▲ | PROPOSED HYDRANT |
| ← | DIRECTION OF DRAINAGE |

DEVELOPMENT SUMMARY

Site (+/-): 20 AC
Total Units: 174
Density: 8.7 du/ac

RESIDENTIAL DEVELOPMENT BREAKDOWN
Total Residential Units: 174

SINGLE FAMILY UNITS
Alley Loaded Single Family Homes: 64
Single Family Cluster Homes: 46
Wide Shallow Single Family Homes: 8
Sub Total: 118

MULTI-FAMILY UNITS
One Bedroom Units: 0
Two Bedroom Units: 56
Sub Total: 56

PARKING DISTRIBUTION
Total Parking: 430 @ 2.5 spaces per unit

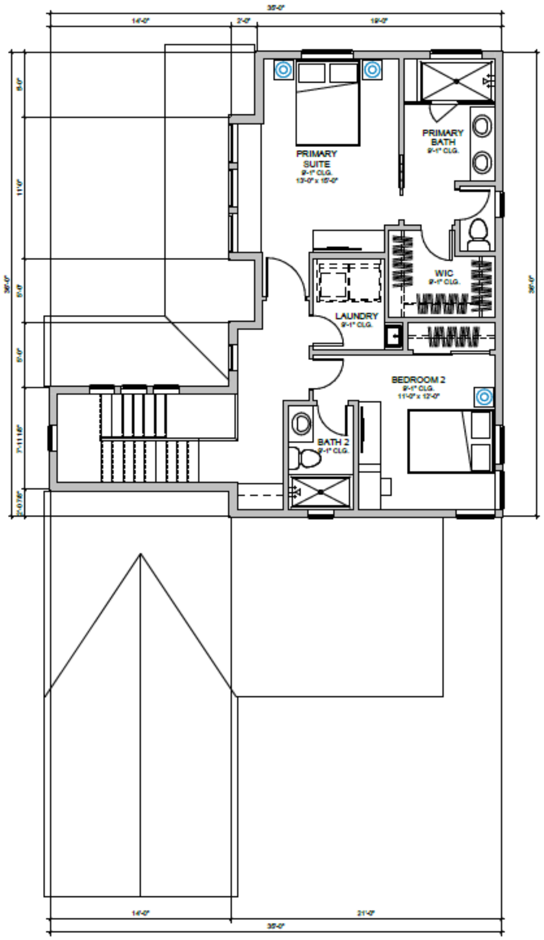
SINGLE FAMILY UNITS
Alley Loaded/Cluster/Wide Shallow: 236 @ 2 enclosed sp. /unit

MULTI-FAMILY UNITS
Two Bedroom Units: 56 @ 1 enclosed sp. /unit

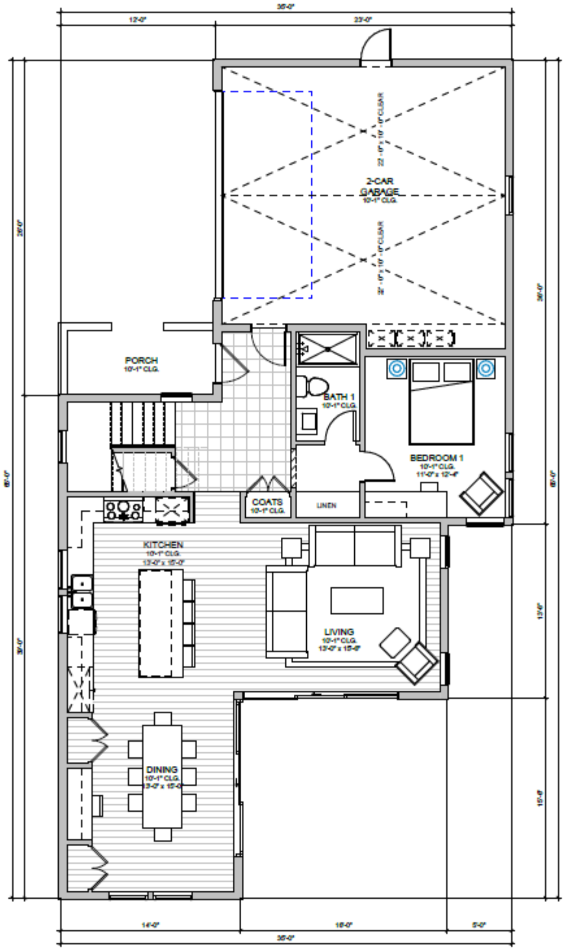
Unassigned/ On-street Spaces: 138

OPEN SPACE
Total Area of Common Open Space: 138,928 SF / 3.19 ac
Estimated # of Residents: 516
Ratio: 6.18 ac / 1,000 Residents

Figure 2-7: Conceptual Site Plan



PLAN 1 SECOND FLOOR PLAN
1/4" = 1'-0"



PLAN 1 FIRST FLOOR PLAN

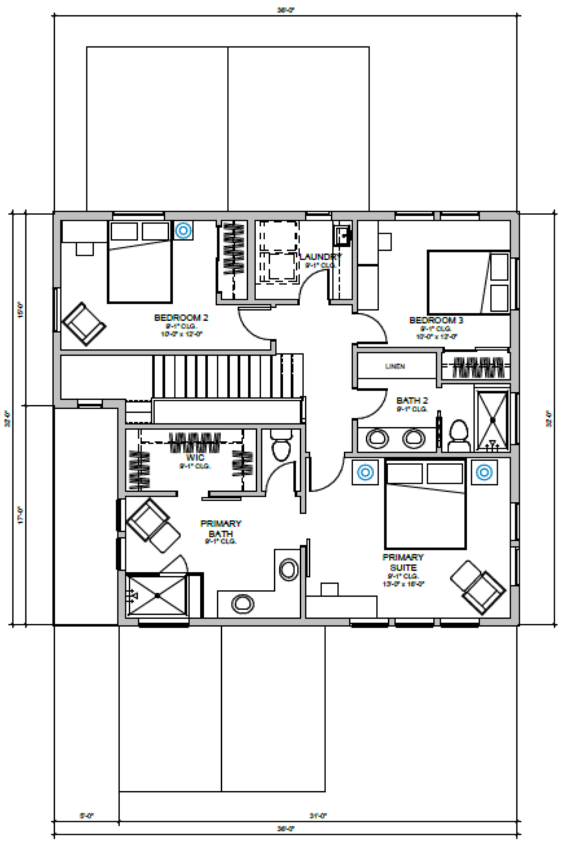
| PLAN 2 - 3 BR / 3 BA | |
|---|---|
| NAME | AREA (SF) |
| FIRST FLOOR | 1076 |
| SECOND FLOOR | 744 |
| TOTAL LIVING AREA | 1820 |
| 2-CAR GARAGE | 565 |
| PORCH | 181 |
| TOTAL NON-LIVING AREA | 746 |

## CLUSTER HOMES PLAN 1 - FLOOR PLANS

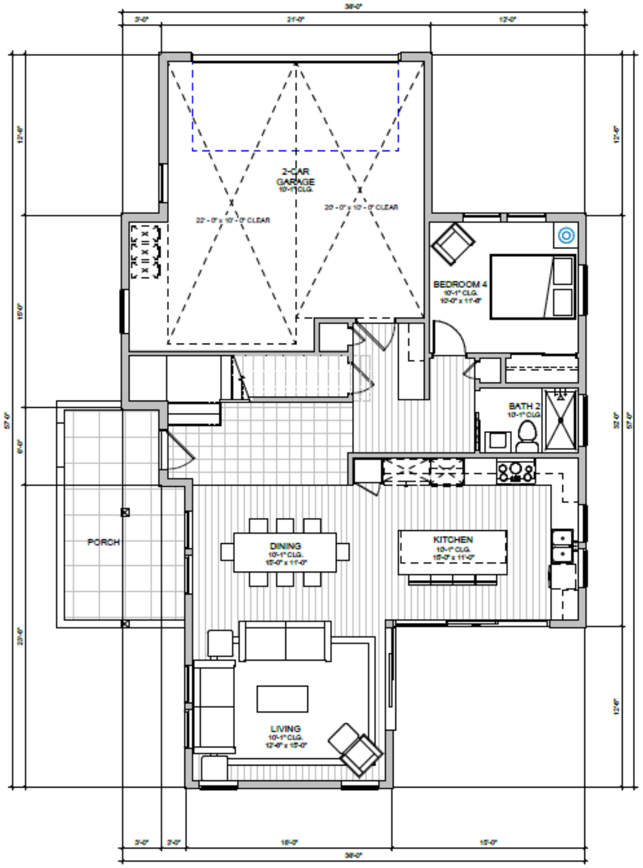
## KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED

BOYD COMPANIES

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.34



PLAN 2 SECOND FLOOR PLAN
1/4" = 1'-0"



PLAN 2 FIRST FLOOR PLAN

**PLAN 1 - 4 BR / 3 BA**

| NAME | AREA (SF) |
|---|---|
| FIRST FLOOR | 1051 |
| SECOND FLOOR | 969 |
| TOTAL LIVING AREA | 2020 |
| 2-CAR GARAGE | 565 |
| PORCH | 181 |
| TOTAL NON-LIVING AREA | 746 |

## CLUSTER HOMES PLAN 2 - FLOOR PLANS

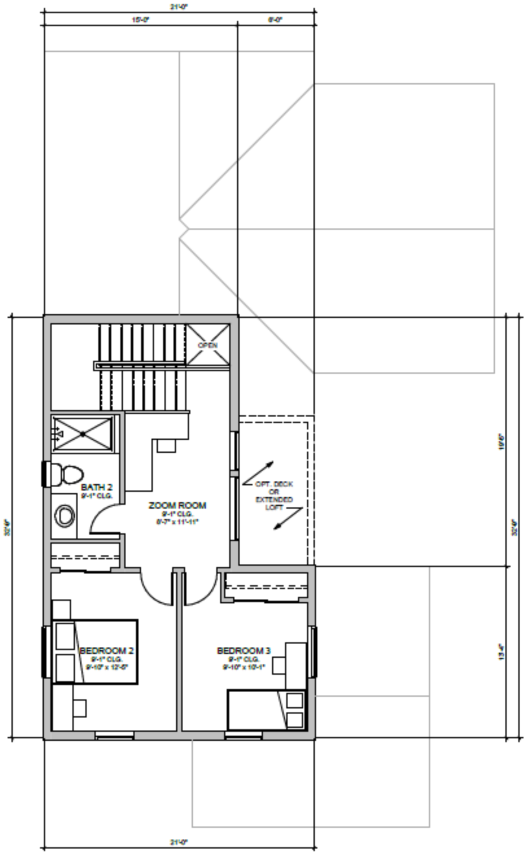
## KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED

**BOYD COMPANIES**

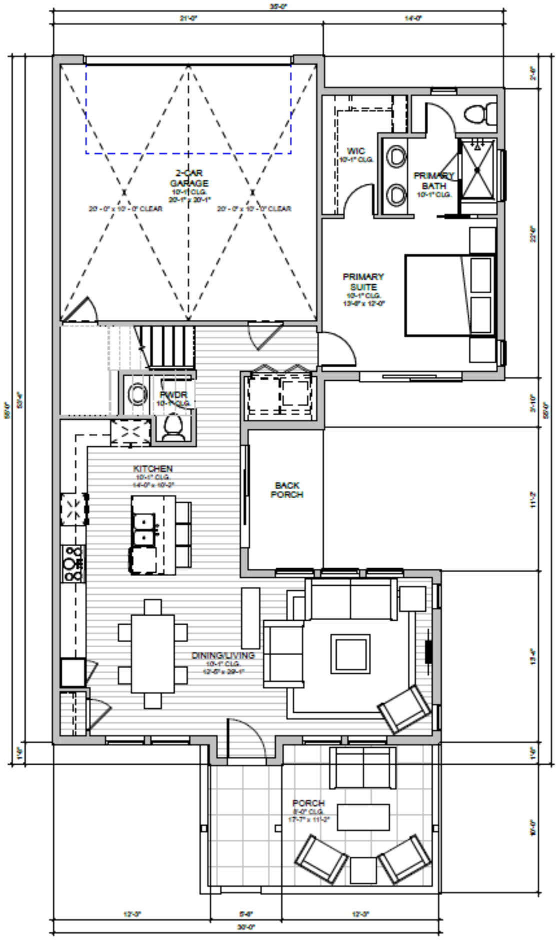
DAHLIN

JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.40



PLAN 1 SECOND FLOOR PLAN
1/4" = 1'-0"



PLAN 1 FIRST FLOOR PLAN

| PLAN 1 - 3 BR / 2.5 BA | |
|---|---|
| NAME | AREA (SF) |
| FIRST FLOOR | 1070 |
| SECOND FLOOR | 476 |
| TOTAL LIVING AREA | 1546 |
| 2-CAR GARAGE | 424 |
| BACK PORCH | 70 |
| PORCH | 207 |
| TOTAL NON-LIVING AREA | 701 |

## ALLEY LOADED PLAN 1 - FLOOR PLANS

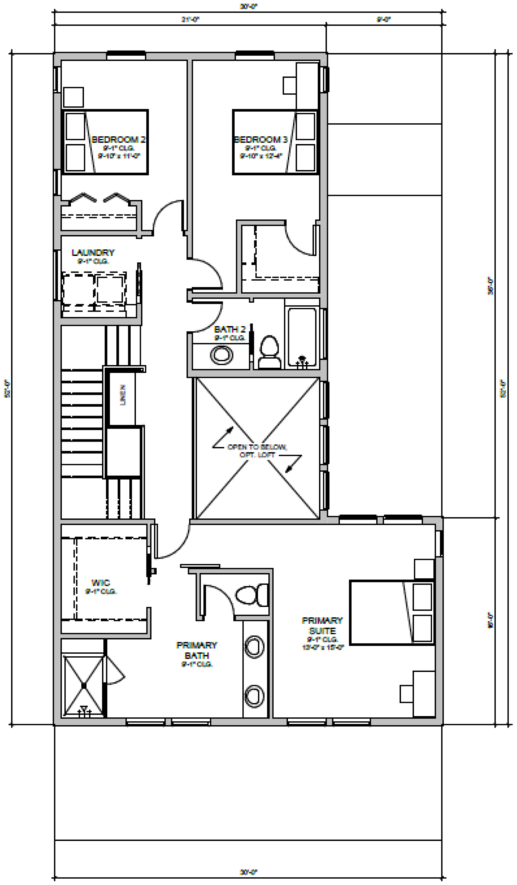
## KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED

**BOYD COMPANIES**

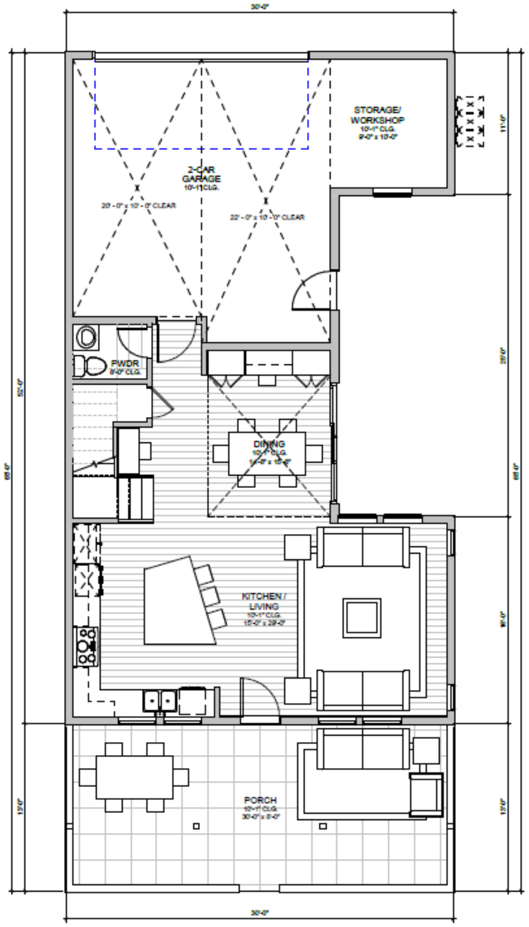
DAHLIN

JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.46



PLAN 2 SECOND FLOOR PLAN
1/4" = 1'-0"



PLAN 2 FIRST FLOOR PLAN

**PLAN 2 - 3 BR / 2.5 BA**

| NAME | AREA (SF) |
|---|---|
| FIRST FLOOR | 784 |
| SECOND FLOOR | 1028 |
| TOTAL LIVING AREA | 1812 |

|  |  |
|---|---|
| 2-CAR GARAGE | 551 |
| PORCH | 390 |
| TOTAL NON-LIVING AREA | 941 |

## ALLEY LOADED PLAN 2 - FLOOR PLANS

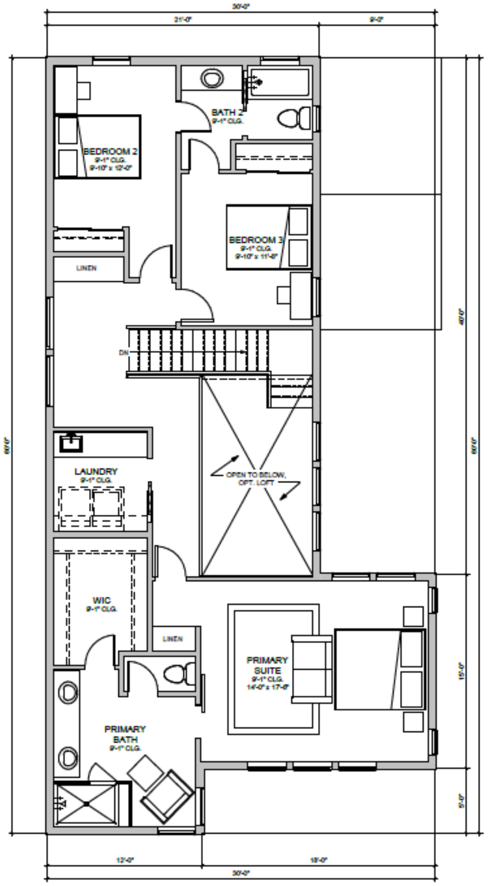
## KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED

**BOYD COMPANIES**

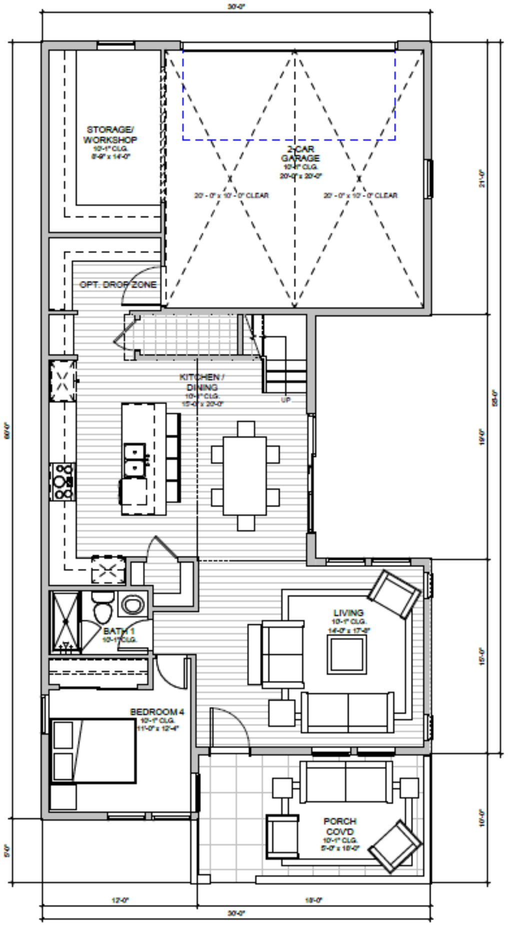
DAHLIN

JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.52



PLAN 3 SECOND FLOOR PLAN
1/4" = 1'-0"



PLAN 3 FIRST FLOOR PLAN

**PLAN 3 - 4 BR / 3 BA**

| NAME | AREA (SF) |
|---|---|
| FIRST FLOOR | 974 |
| SECOND FLOOR | 1156 |
| TOTAL LIVING AREA | 2130 |
| 2-CAR GARAGE | 565 |
| PORCH | 181 |
| TOTAL NON-LIVING AREA | 746 |

## ALLEY LOADED PLAN 3 - FLOOR PLANS

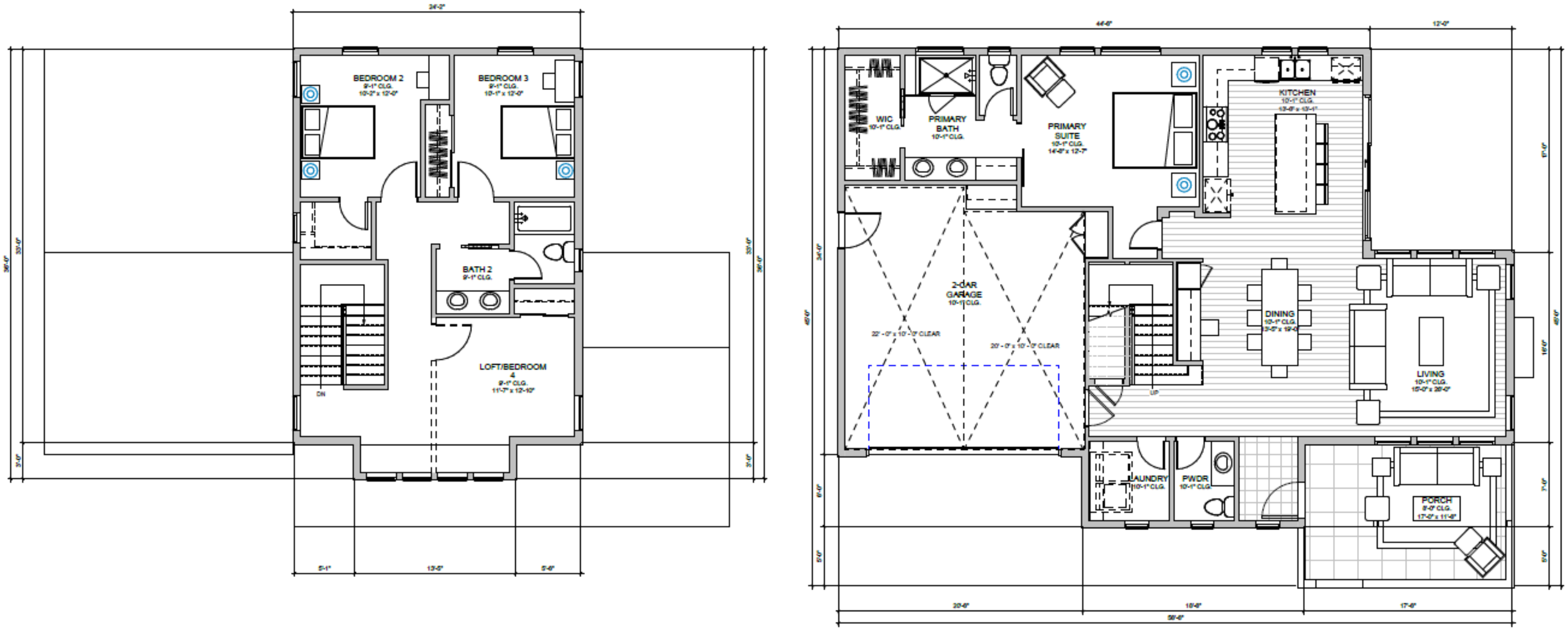
## KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED

**BOYD COMPANIES**

DAHLIN

JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.58



PLAN 1 SECOND FLOOR PLAN
1/4" = 1'-0"

PLAN 1 FIRST FLOOR PLAN

**PLAN 1 - 3 BR / 2.5 BA**

| NAME | AREA (SF) |
|---|---|
| FIRST FLOOR | 1347 |
| SECOND FLOOR | 756 |
| TOTAL LIVING AREA | 2103 |
| 2-CAR GARAGE | 464 |
| PORCH | 212 |
| TOTAL NON-LIVING AREA | 676 |

**WIDE SHALLOW PLAN - FLOOR PLANS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.64

Figure 2-8: Single Family Floor Plans

| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |

FRONT ELEVATION

LEFT ELEVATION

REAR ELEVATION

RIGHT ELEVATION

1/8" = 1'-0"

**CLUSTER PLAN 1A - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN

JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.35

| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |

FRONT ELEVATION LEFT ELEVATION REAR ELEVATION RIGHT ELEVATION

1/8" = 1'-0"

**CLUSTER PLAN 1B - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

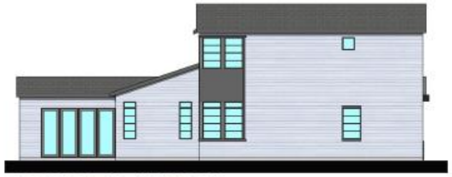
**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.36

| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |


FRONT ELEVATION


LEFT ELEVATION


REAR ELEVATION


RIGHT ELEVATION

1/8" = 1'-0"

**CLUSTER PLAN 1C - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN

JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.37

| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |

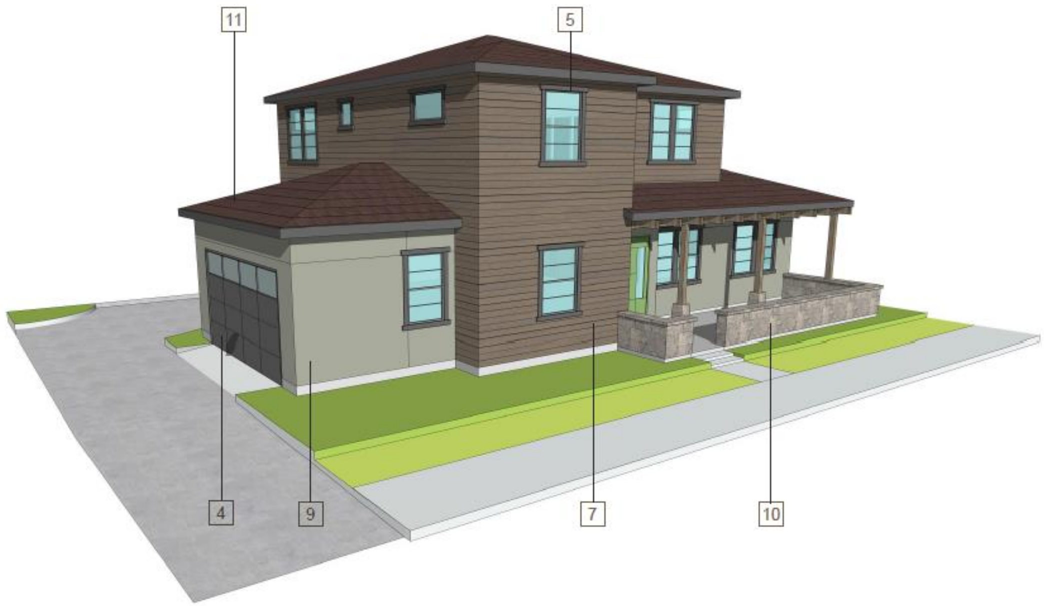
1/8" = 1'-0"

**CLUSTER PLAN 2A - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.41



1 COMPOSITION SHINGLE ROOF
2 STANDING SEAM METAL ROOF
3 PAINTED FRONT DOOR
4 GARAGE DOOR
5 VINYL WINDOW W/ DARK FRAMES
6 BOARD AND BATTEN SIDING
7 HORIZONTAL SIDING
8 VERTICAL SIDING
9 STUCCO FINISH
10 STONE VENEER
11 CONCRETE TILE ROOF
12 WOOD RAILING


FRONT ELEVATION LEFT ELEVATION REAR ELEVATION RIGHT ELEVATION

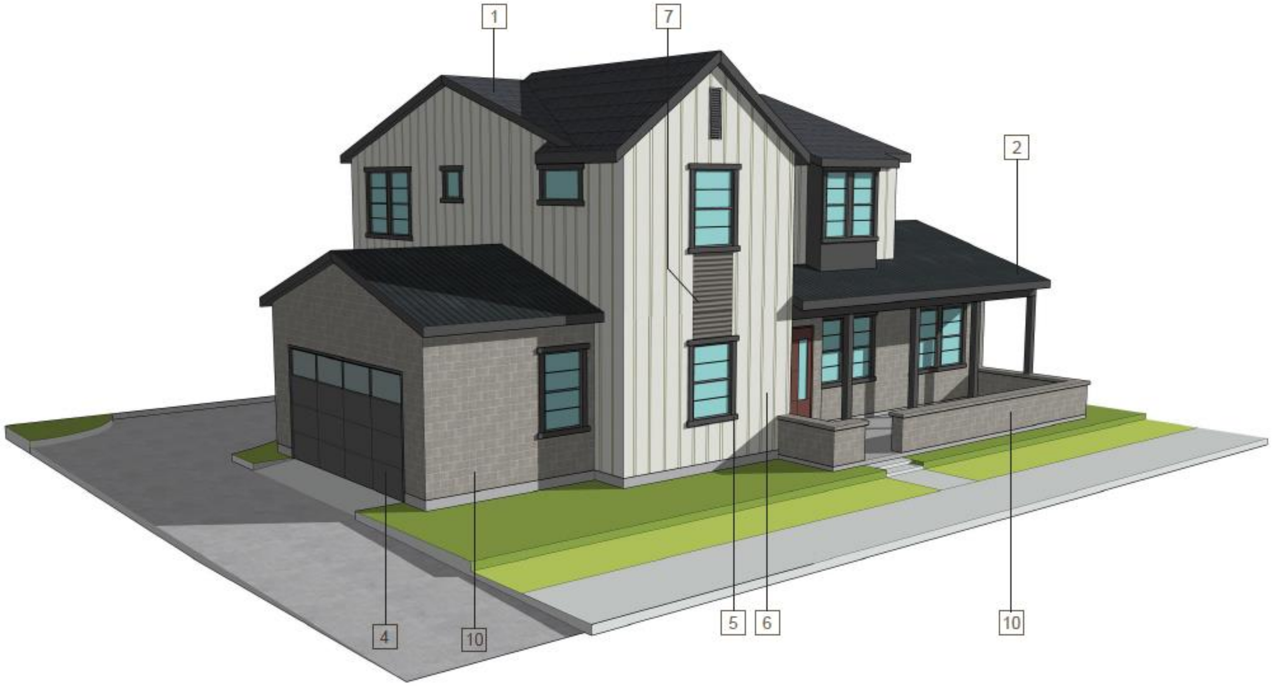
1/8" = 1'-0"

**CLUSTER PLAN 2B - ELEVATIONS**

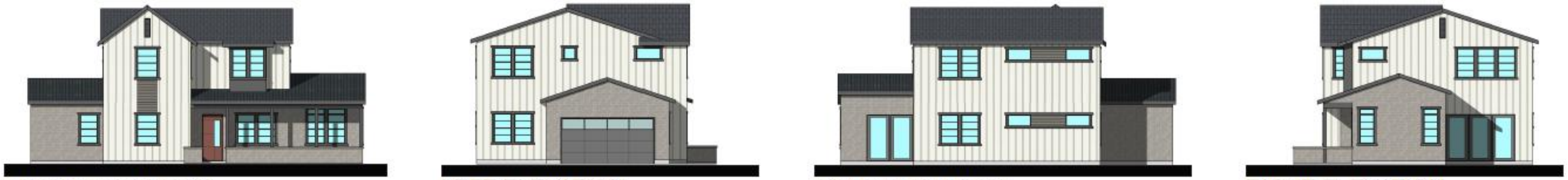
**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.42



| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |



FRONT ELEVATION LEFT ELEVATION REAR ELEVATION RIGHT ELEVATION

1/8" = 1'-0"

**CLUSTER PLAN 2C - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN

JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.43

| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |

FRONT ELEVATION

LEFT ELEVATION

REAR ELEVATION

RIGHT ELEVATION

1/8" = 1'-0"

**ALLEY LOADED PLAN 1A - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN

JOB NO. 1610.001
DATE 07-01-2022

5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.47

| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |

1/8" = 1'-0"

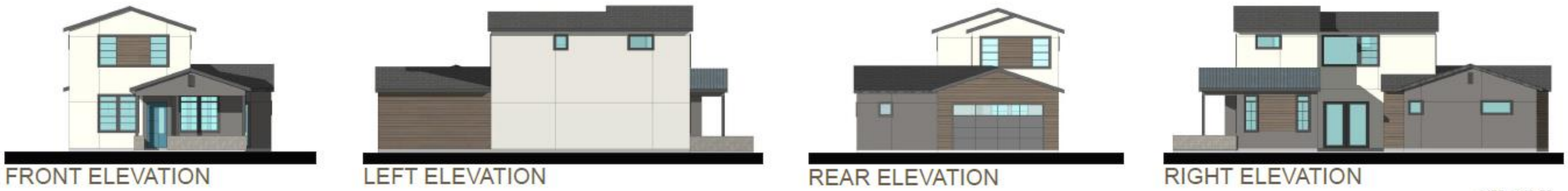
## ALLEY LOADED PLAN 1B - ELEVATIONS

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.48

1 COMPOSITION SHINGLE ROOF
2 STANDING SEAM METAL ROOF
3 PAINTED FRONT DOOR
4 GARAGE DOOR
5 VINYL WINDOW W/ DARK FRAMES
6 BOARD AND BATTEN SIDING
7 HORIZONTAL SIDING
8 VERTICAL SIDING
9 STUCCO FINISH
10 STONE VENEER
11 CONCRETE TILE ROOF
12 WOOD RAILING



1/8" = 1'-0"

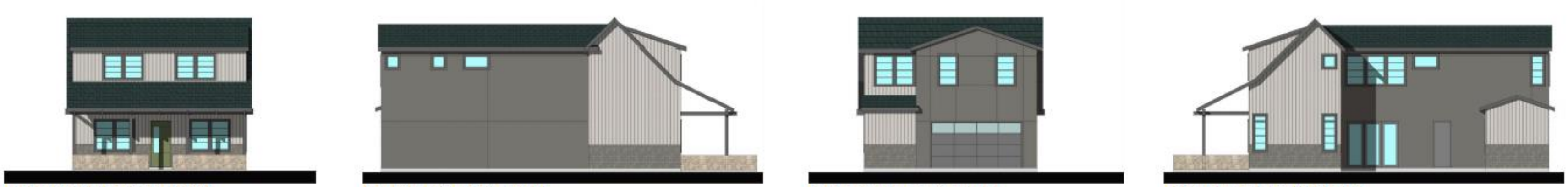
**ALLEY LOADED PLAN 1C - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.49

| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |



FRONT ELEVATION LEFT ELEVATION REAR ELEVATION RIGHT ELEVATION

1/8" = 1'-0"

## ALLEY LOADED PLAN 2A - ELEVATIONS

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.53

1 COMPOSITION SHINGLE ROOF
2 STANDING SEAM METAL ROOF
3 PAINTED FRONT DOOR
4 GARAGE DOOR
5 VINYL WINDOW W/ DARK FRAMES
6 BOARD AND BATTEN SIDING
7 HORIZONTAL SIDING
8 VERTICAL SIDING
9 STUCCO FINISH
10 STONE VENEER
11 CONCRETE TILE ROOF
12 WOOD RAILING

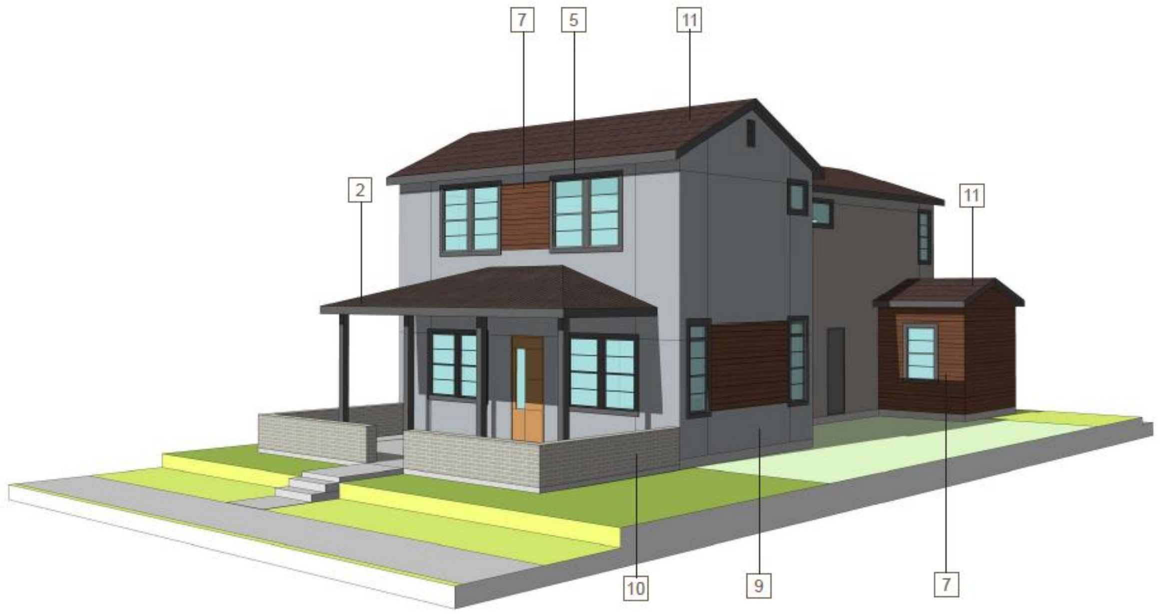
1/8" = 1'-0"

**ALLEY LOADED PLAN 2B - ELEVATIONS**

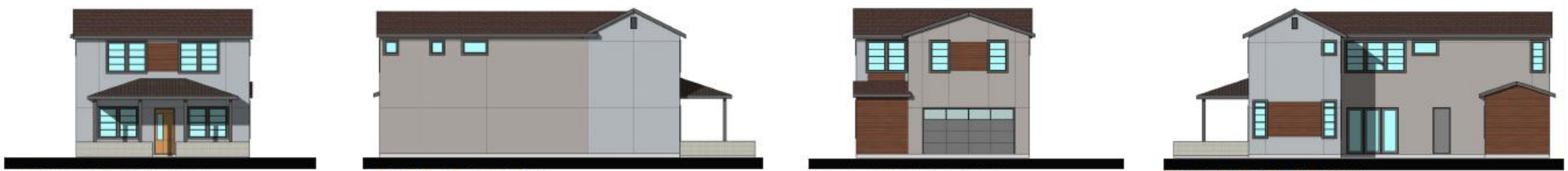
**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.54



| | |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |


FRONT ELEVATION
LEFT ELEVATION
REAR ELEVATION
RIGHT ELEVATION

1/8" = 1'-0"

**ALLEY LOADED PLAN 2C - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.55

|  |  |
|---|---|
| 1 | COMPOSITION SHINGLE ROOF |
| 2 | STANDING SEAM METAL ROOF |
| 3 | PAINTED FRONT DOOR |
| 4 | GARAGE DOOR |
| 5 | VINYL WINDOW W/ DARK FRAMES |
| 6 | BOARD AND BATTEN SIDING |
| 7 | HORIZONTAL SIDING |
| 8 | VERTICAL SIDING |
| 9 | STUCCO FINISH |
| 10 | STONE VENEER |
| 11 | CONCRETE TILE ROOF |
| 12 | WOOD RAILING |

FRONT ELEVATION LEFT ELEVATION REAR ELEVATION RIGHT ELEVATION

1/8" = 1'-0"

**ALLEY LOADED PLAN 3A - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.59


9
1
7
1
10
5
1 COMPOSITION SHINGLE ROOF
2 STANDING SEAM METAL ROOF
3 PAINTED FRONT DOOR
4 GARAGE DOOR
5 VINYL WINDOW W/ DARK FRAMES
6 BOARD AND BATTEN SIDING
7 HORIZONTAL SIDING
8 VERTICAL SIDING
9 STUCCO FINISH
10 STONE VENEER
11 CONCRETE TILE ROOF
12 WOOD RAILING
FRONT ELEVATION
LEFT ELEVATION
REAR ELEVATION
RIGHT ELEVATION
1/8" = 1'-0"
ALLEY LOADED PLAN 3B - ELEVATIONS
KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED
BOYD COMPANIES
DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.60

1 COMPOSITION SHINGLE ROOF
2 STANDING SEAM METAL ROOF
3 PAINTED FRONT DOOR
4 GARAGE DOOR
5 VINYL WINDOW W/ DARK FRAMES
6 BOARD AND BATTEN SIDING
7 HORIZONTAL SIDING
8 VERTICAL SIDING
9 STUCCO FINISH
10 STONE VENEER
11 CONCRETE TILE ROOF
12 WOOD RAILING

FRONT ELEVATION

LEFT ELEVATION

REAR ELEVATION

RIGHT ELEVATION

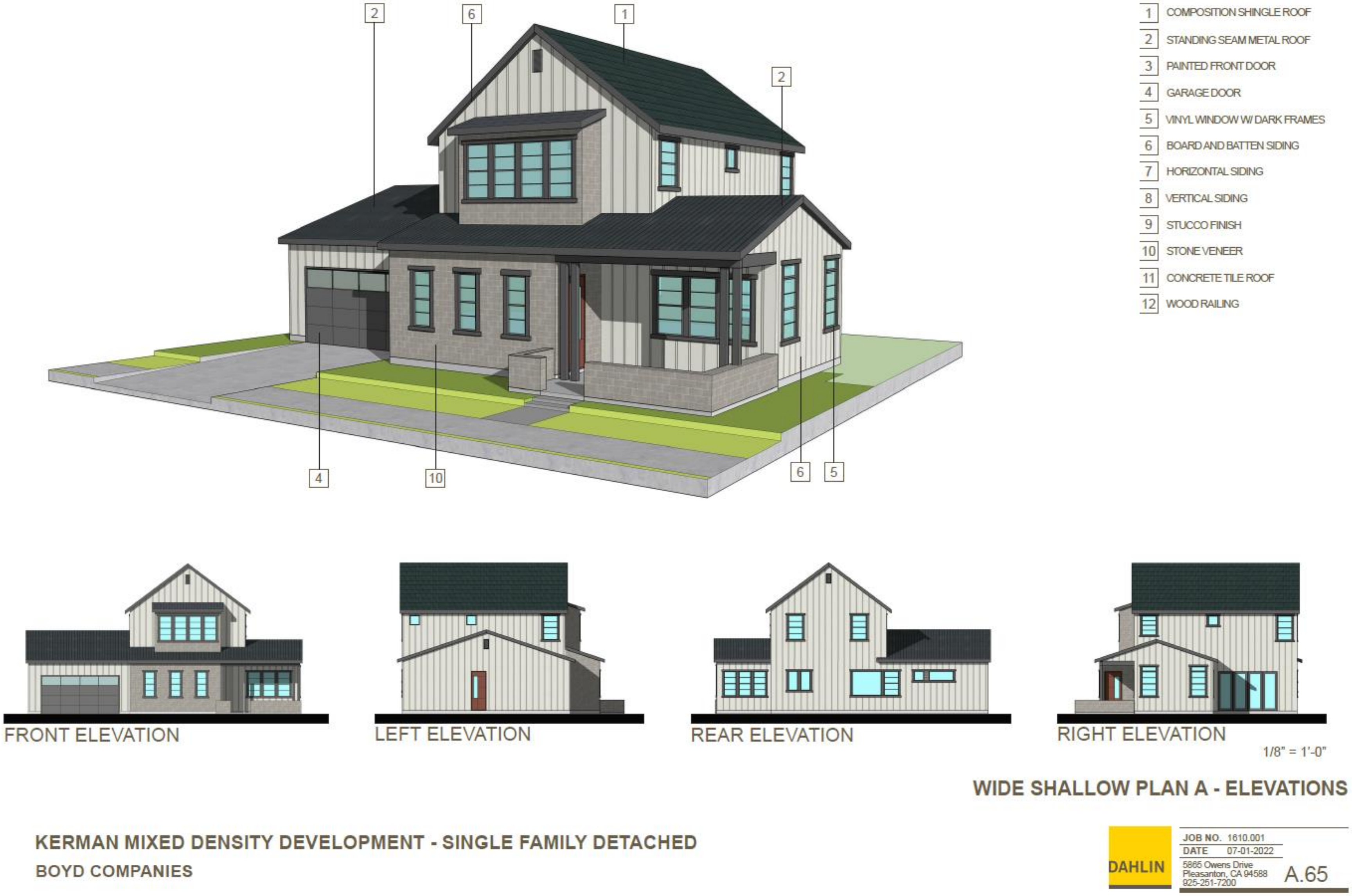
1/8" = 1'-0"

**ALLEY LOADED PLAN 3C - ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED**

**BOYD COMPANIES**

DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.61


2
6
1
2
4
10
6
5
1 COMPOSITION SHINGLE ROOF
2 STANDING SEAM METAL ROOF
3 PAINTED FRONT DOOR
4 GARAGE DOOR
5 VINYL WINDOW W/ DARK FRAMES
6 BOARD AND BATTEN SIDING
7 HORIZONTAL SIDING
8 VERTICAL SIDING
9 STUCCO FINISH
10 STONE VENEER
11 CONCRETE TILE ROOF
12 WOOD RAILING
FRONT ELEVATION
LEFT ELEVATION
REAR ELEVATION
RIGHT ELEVATION
1/8" = 1'-0"
WIDE SHALLOW PLAN A - ELEVATIONS
KERMAN MIXED DENSITY DEVELOPMENT - SINGLE FAMILY DETACHED
BOYD COMPANIES
DAHLIN
JOB NO. 1610.001
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200
A.65

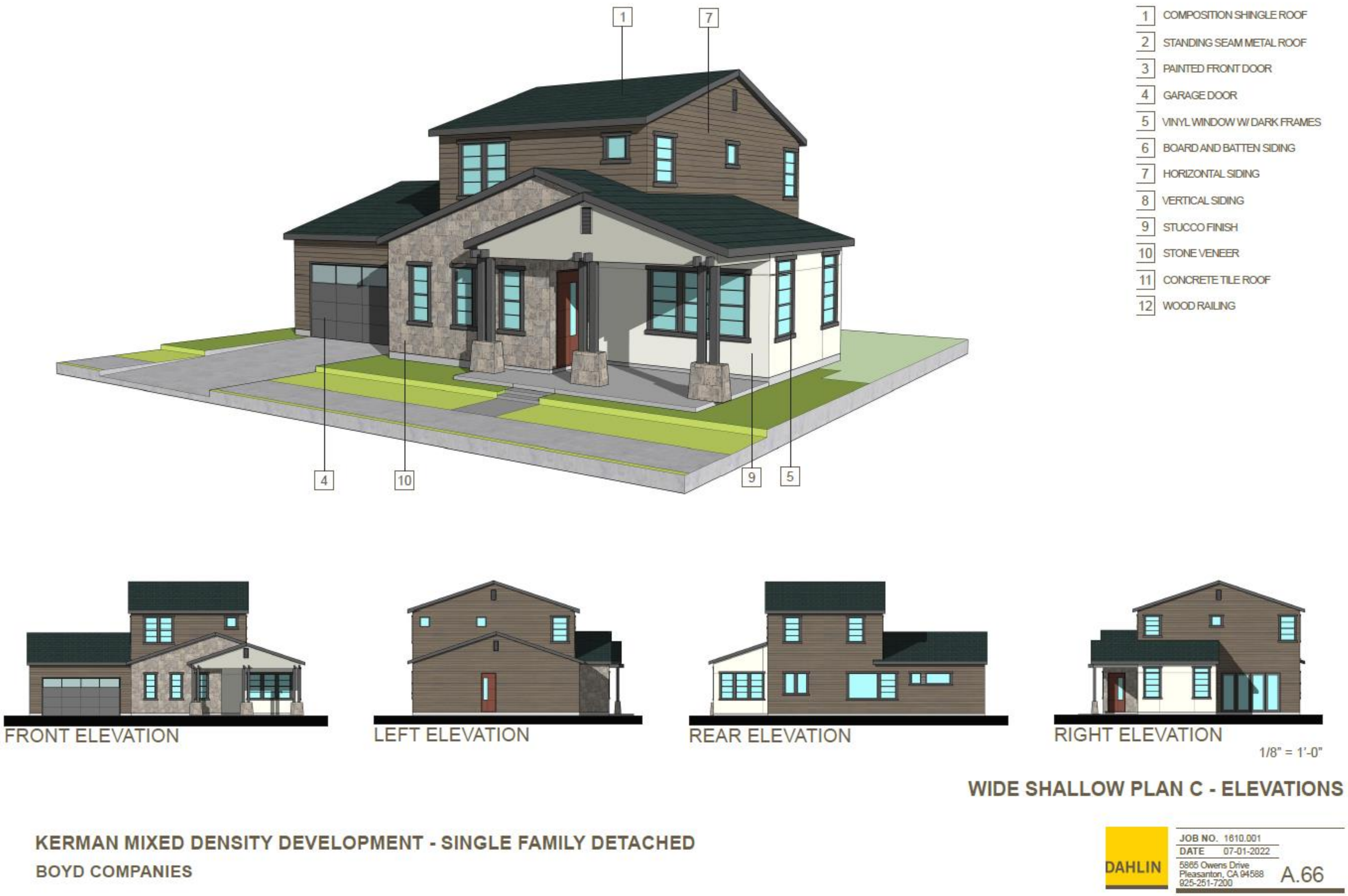


Figure 2-9: Single Family Elevations

**BLDG A PLAN
1ST. FLOOR**

**BLDG A PLAN
2ND. FLOOR**

**BUILDING A FLOOR PLANS**

**KERMAN MIXED DENSITY DEVELOPMENT - APARTMENT DESIGN**

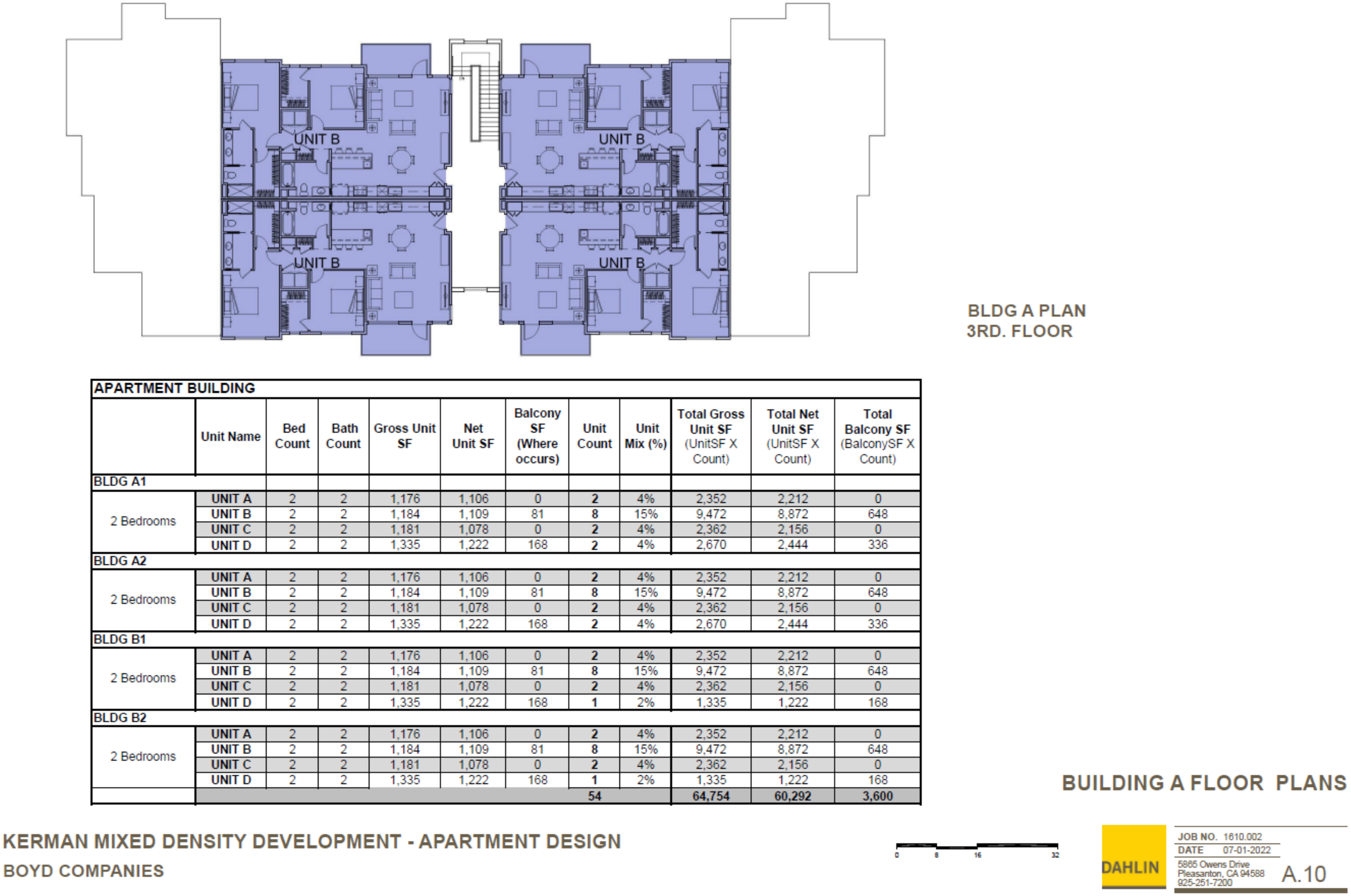
**BOYD COMPANIES**

0 8 16 32

DAHLIN

JOB NO. 1610.002
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.9



BLDG A PLAN
3RD. FLOOR

| APARTMENT BUILDING | Unit Name | Bed Count | Bath Count | Gross Unit SF | Net Unit SF | Balcony SF (Where occurs) | Unit Count | Unit Mix (%) | Total Gross Unit SF (UnitSF X Count) | Total Net Unit SF (UnitSF X Count) | Total Balcony SF (BalconySF X Count) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLDG A1 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 2 | 4% | 2,670 | 2,444 | 336 |
| BLDG A2 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 2 | 4% | 2,670 | 2,444 | 336 |
| BLDG B1 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 1 | 2% | 1,335 | 1,222 | 168 |
| BLDG B2 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 1 | 2% | 1,335 | 1,222 | 168 |
| | | | | | | | 54 | | 64,754 | 60,292 | 3,600 |

BUILDING A FLOOR PLANS

KERMAN MIXED DENSITY DEVELOPMENT - APARTMENT DESIGN

BOYD COMPANIES

DAHLIN

JOB NO. 1610.002
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.10

**BUILDING B FLOOR PLANS**

**KERMAN MIXED DENSITY DEVELOPMENT - APARTMENT DESIGN**

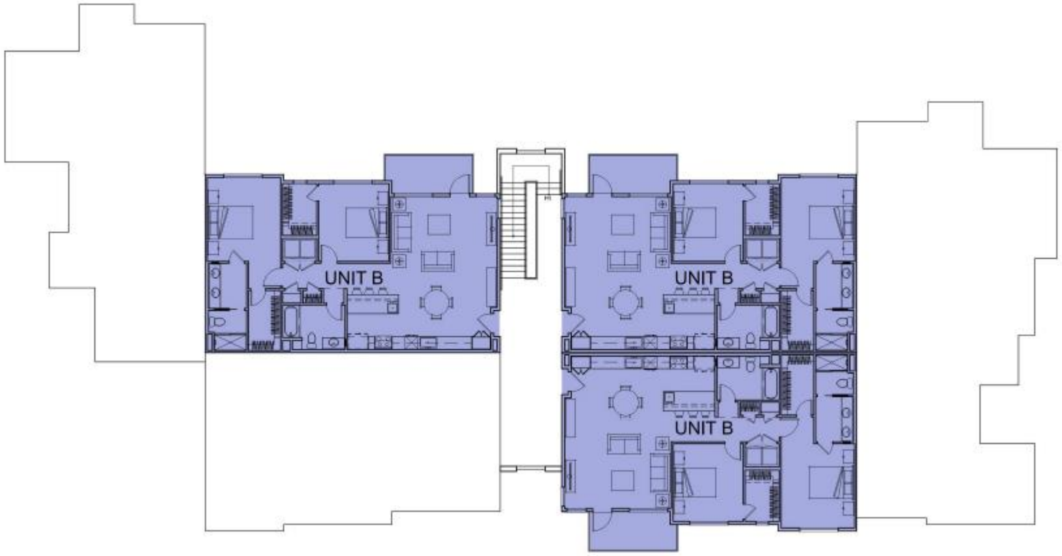
**BOYD COMPANIES**

0 8 16 32

**DAHLIN**

JOB NO. 1610.002
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.12



BLDG B PLAN
3RD. FLOOR

**APARTMENT BUILDING**

| | Unit Name | Bed Count | Bath Count | Gross Unit SF | Net Unit SF | Balcony SF (Where occurs) | Unit Count | Unit Mix (%) | Total Gross Unit SF (UnitSF X Count) | Total Net Unit SF (UnitSF X Count) | Total Balcony SF (BalconySF X Count) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLDG A1 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 2 | 4% | 2,670 | 2,444 | 336 |
| BLDG A2 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 2 | 4% | 2,670 | 2,444 | 336 |
| BLDG B1 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 1 | 2% | 1,335 | 1,222 | 168 |
| BLDG B2 | | | | | | | | | | | |
| 2 Bedrooms | UNIT A | 2 | 2 | 1,176 | 1,106 | 0 | 2 | 4% | 2,352 | 2,212 | 0 |
| | UNIT B | 2 | 2 | 1,184 | 1,109 | 81 | 8 | 15% | 9,472 | 8,872 | 648 |
| | UNIT C | 2 | 2 | 1,181 | 1,078 | 0 | 2 | 4% | 2,362 | 2,156 | 0 |
| | UNIT D | 2 | 2 | 1,335 | 1,222 | 168 | 1 | 2% | 1,335 | 1,222 | 168 |
| | | | | | | | 54 | | 64,754 | 60,292 | 3,600 |

BUILDING B FLOOR PLANS

KERMAN MIXED DENSITY DEVELOPMENT - APARTMENT DESIGN

BOYD COMPANIES

DAHLIN

JOB NO. 1610.002
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.13

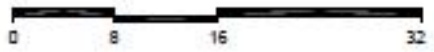
Figure 2-10: Apartment Floor Plans

FRONT ELEVATION

REAR ELEVATION

BUILDING A ELEVATIONS

KERMAN MIXED DENSITY DEVELOPMENT - APARTMENT DESIGN
BOYD COMPANIES



DAHLIN

JOB NO. 1610.002
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.16

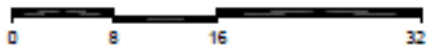
**SIDE ELEVATION 1**

**SIDE ELEVATION 2**

## BUILDING A ELEVATIONS

## KERMAN MIXED DENSITY DEVELOPMENT - APARTMENT DESIGN

**BOYD COMPANIES**



DAHLIN

JOB NO. 1610.002
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.17

**FRONT ELEVATION**

**REAR ELEVATION**

## BUILDING B ELEVATIONS

**KERMAN MIXED DENSITY DEVELOPMENT - APARTMENT DESIGN**

**BOYD COMPANIES**

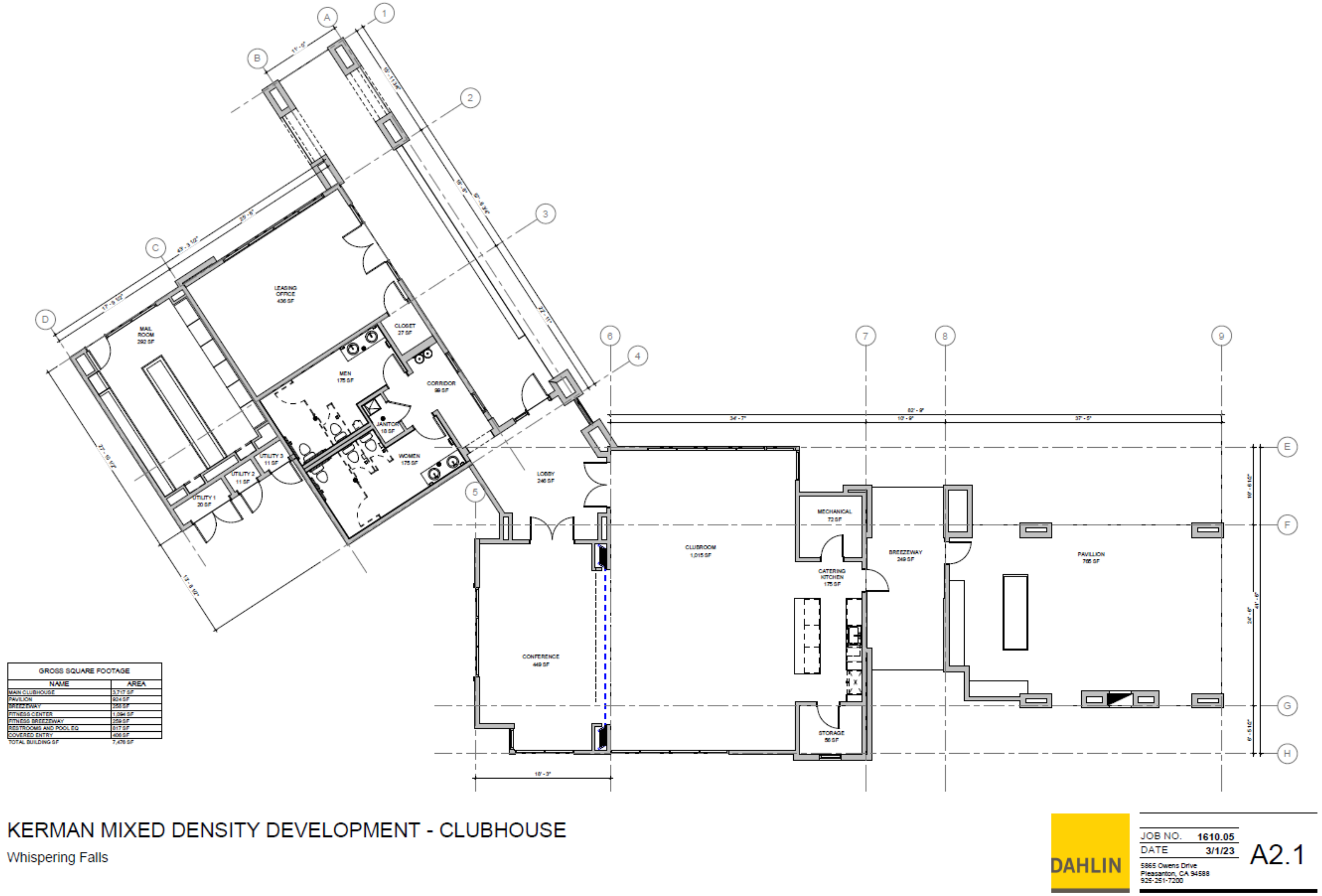
0 8 16 32

DAHLIN

JOB NO. 1610.002
DATE 07-01-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.19

Figure 2-11: Apartment Elevations



GROSS SQUARE FOOTAGE

| NAME | AREA |
|---|---|
| MAIN CLUBHOUSE | 3,717 SF |
| PAVILION | 924 SF |
| BREEZEWAY | 256 SF |
| FITNESS CENTER | 1,094 SF |
| FITNESS BREEZEWAY | 259 SF |
| RESTROOMS AND POOL EQ | 617 SF |
| COVERED ENTRY | 406 SF |
| TOTAL BUILDING SF | 7,476 SF |

Figure 2-12: Clubhouse Floor Plan

**CLUBHOUSE ELEVATIONS**

**KERMAN MIXED DENSITY DEVELOPMENT - CLUBHOUSE**

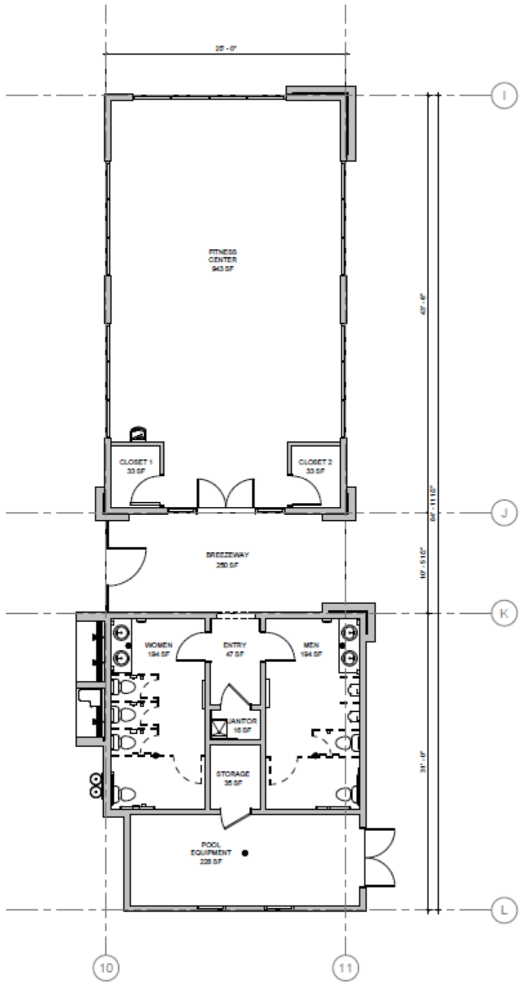
**BOYD COMPANIES**

DAHLIN

JOB NO. 1610.001
DATE 07-15-2022
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A.84

Figure 2-13: Clubhouse Elevations



| GROSS SQUARE FOOTAGE | |
|---|---|
| NAME | AREA |
| MAIN CLUBHOUSE | 3,717 SF |
| PAVILION | 924 SF |
| BREEZEWAY | 256 SF |
| FITNESS CENTER | 1,094 SF |
| FITNESS BREEZEWAY | 259 SF |
| RESTROOMS AND POOL EQ | 817 SF |
| COVERED ENTRY | 406 SF |
| TOTAL BUILDING SF | 7,476 SF |

KERMAN MIXED DENSITY DEVELOPMENT - FITNESS

Whispering Falls

DAHLIN

JOB NO. 1610.05
DATE 3/1/23
5865 Owens Drive
Pleasanton, CA 94588
925-251-7200

A2.2

Figure 2-14: Fitness Center Floor Plan

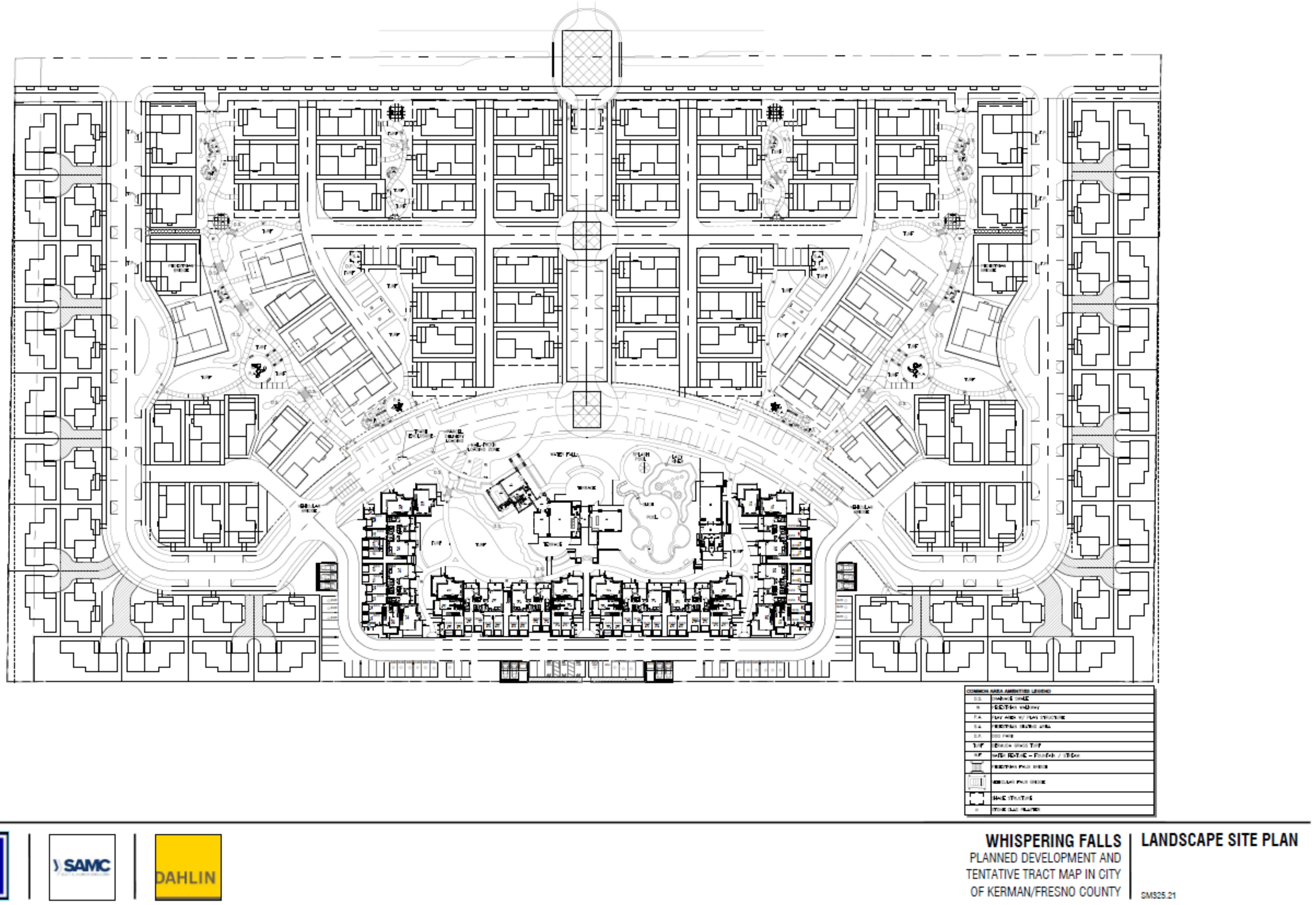
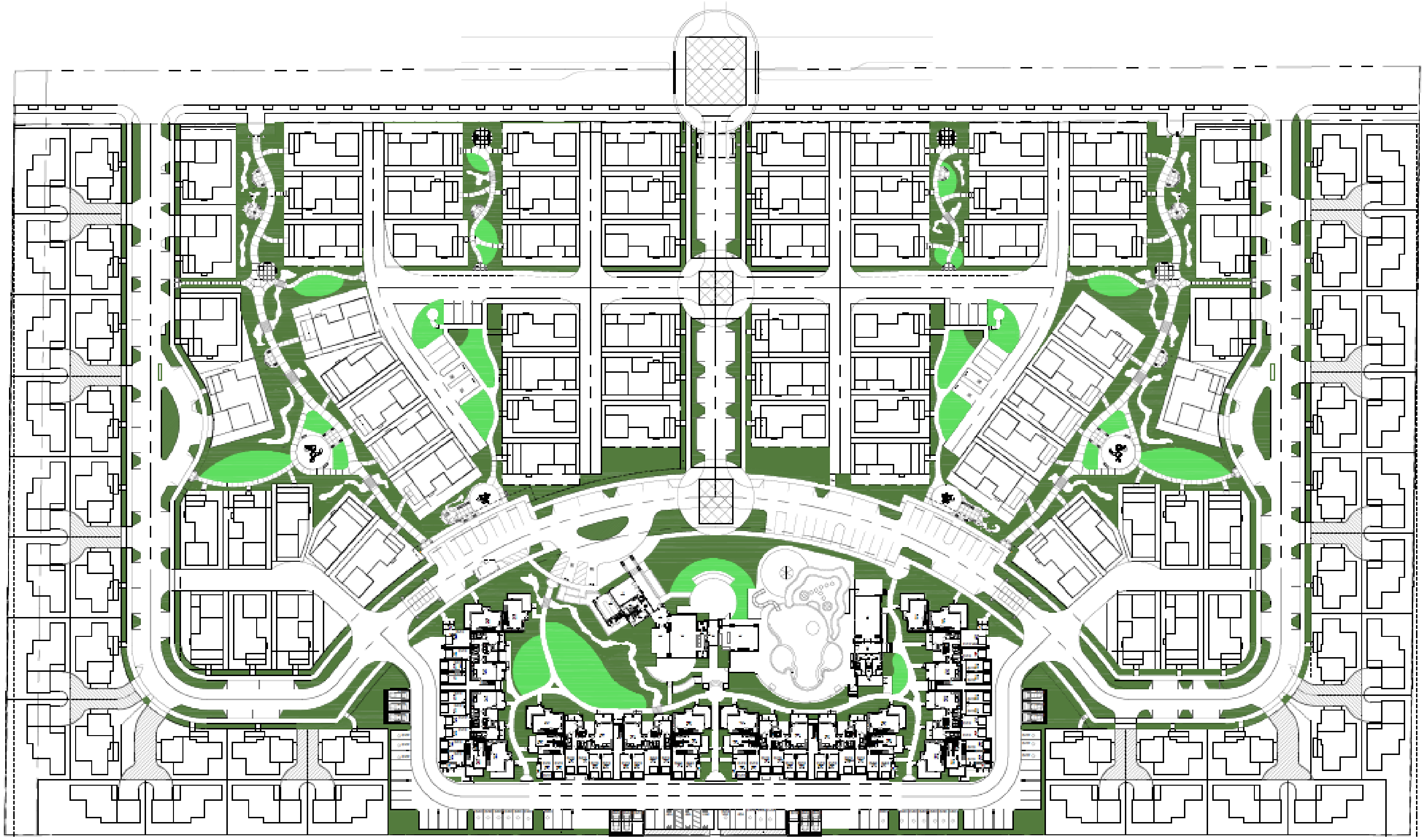


Figure 2-15: Landscape Site Plan



**PROPOSED PLANTING LEGEND**

| SYM. | DESCRIPTION |
|---|---|
| 🟩 | HYBRID BERMUDA TURF GRASS – 'CELEBRATION' HYBRID BERMUDA |
| 🟩 | LOW WATER USE SHRUBS & GROUND COVER – I.E. – AUTUMN SAGE, PINK MUHLY GRASS, LITTLE OLLIE OLIVE, LANTANA, ROSEMARY, DWARF BOTTLEBRUSH |

TOTAL AREA OF LANDSCAPE COMMON SPACE – [illegible] S.F.

SAMC

DAHLIN

**WHISPERING FALLS**
PLANNED DEVELOPMENT AND
TENTATIVE TRACT MAP IN CITY
OF KERMAN/FRESNO COUNTY

**PLANTING PLAN**

SM325.21

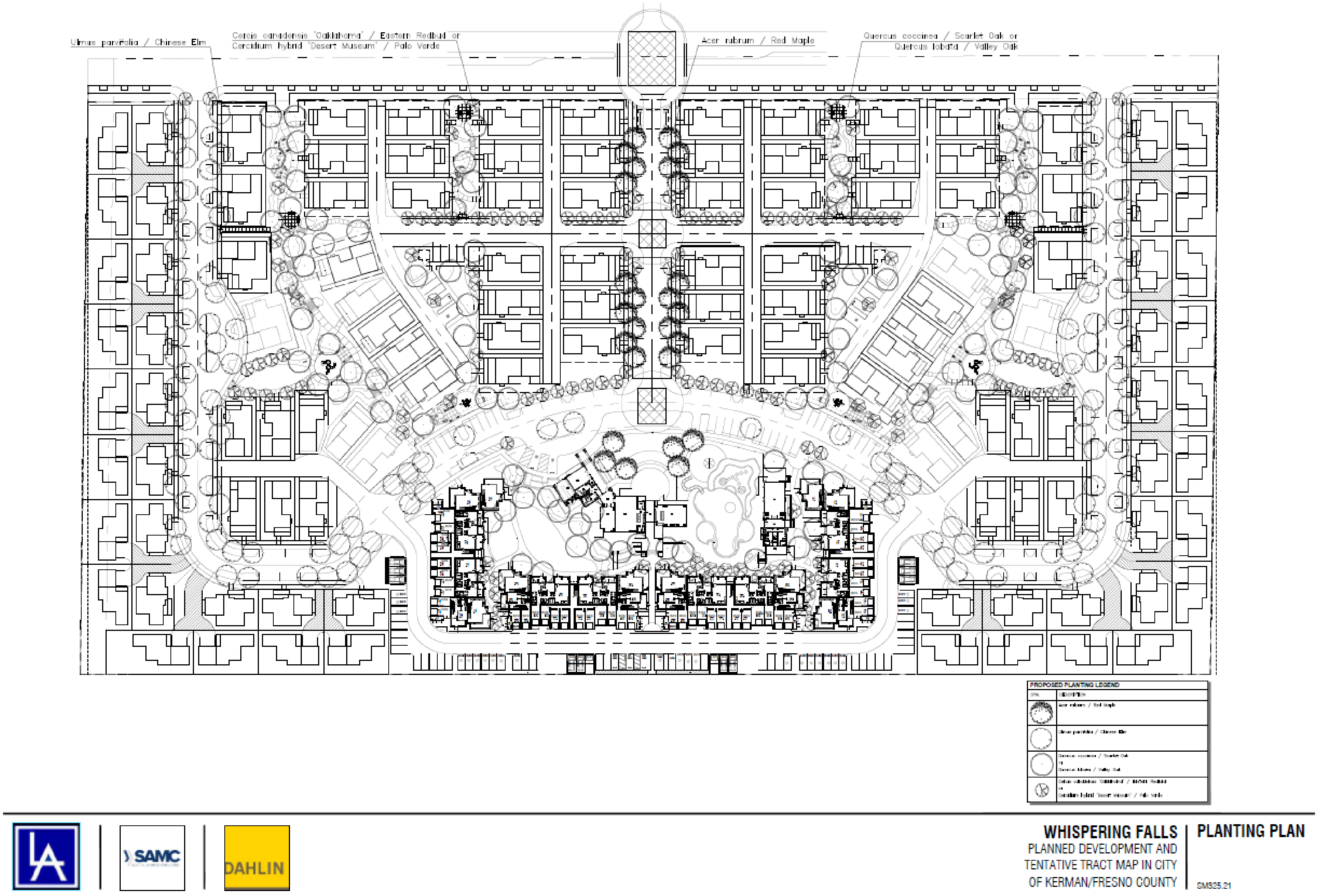


Figure 2-16: Planting Plan

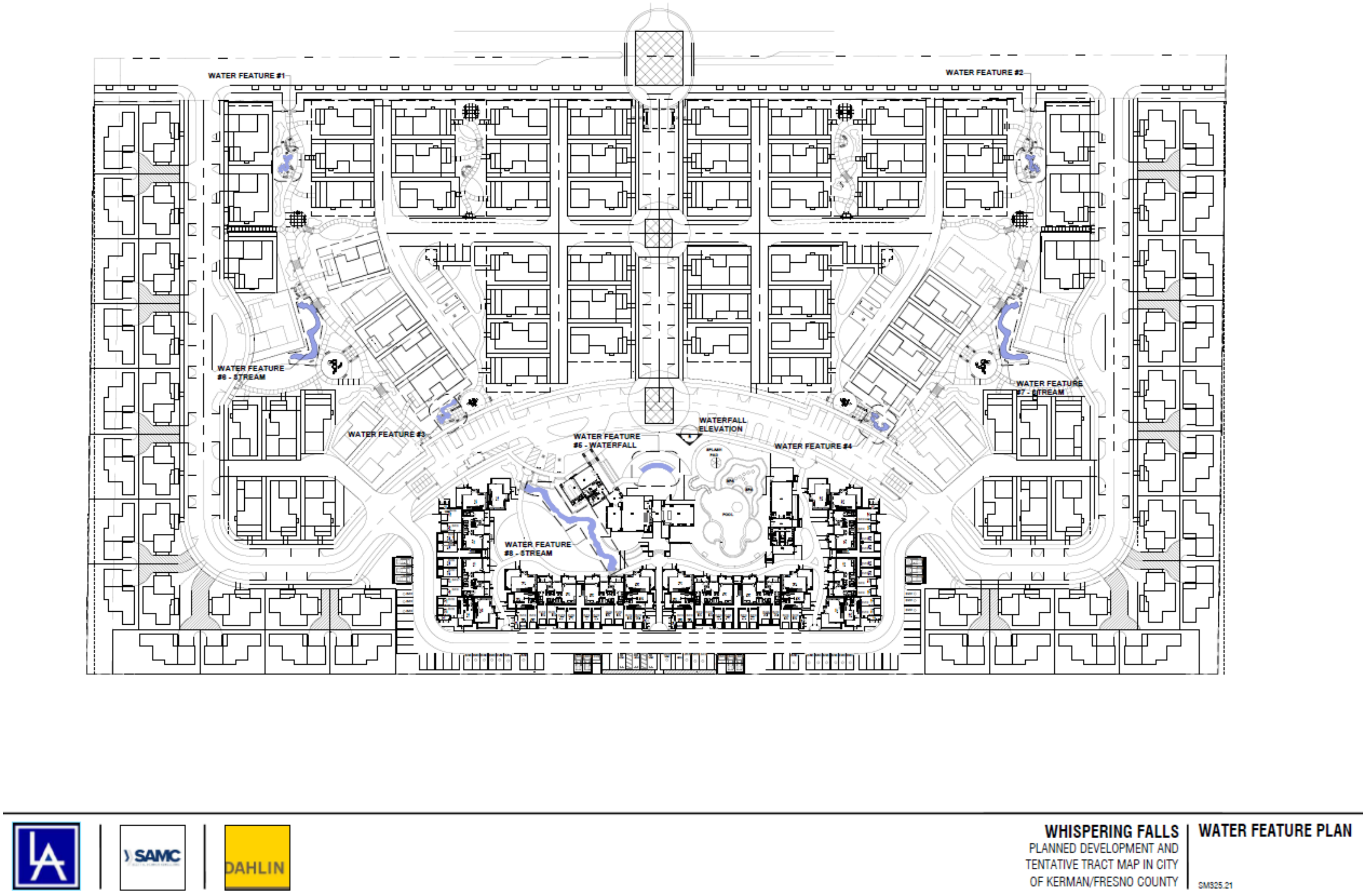
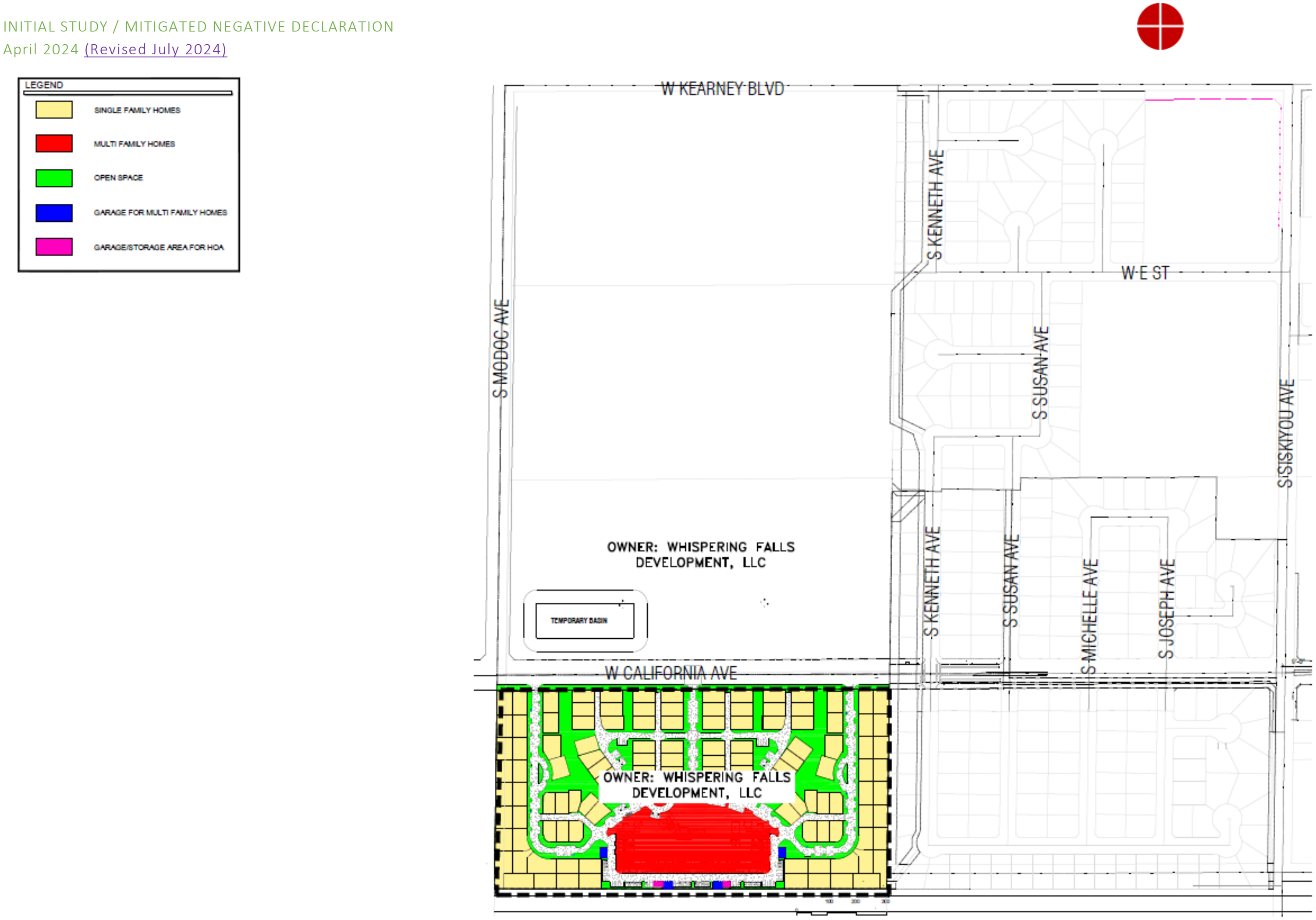


Figure 2-17: Water Feature Plan



**WHISPERING FALLS**
PLANNED DEVELOPMENT AND
TENTATIVE TRACT MAP IN CITY
OF KERMAN/FRESNO COUNTY

**OVERALL SITE PLAN**
**C3.0**
SM325.21 06.23.2023

Figure 2-18: Overall Site Plan

## 2.15 Technical Studies

The analysis of the Project throughout this Initial Study relied in part on the technical studies listed below prepared for the Project, as well as other sources, including, but not limited to, City of Kerman 2040 General Plan Environmental Impact Report (EIR) SCH No. 2019049018 prepared for the City of Kerman 2040 General Plan Update.

- Appendix A: Air Quality, Health Risk, Greenhouse Gas Emissions, and Energy Analysis Technical Report
- Appendix B: Biological Resource Assessment
- Appendix C: CHRIS Search Results
- Appendix D: NAHC Letter
- Appendix E: Acoustical Analysis
- Appendix F: Traffic Impact Study
- Appendix G: Phase I Environmental Site Assessment

## 2.16 Consultation with California Native American Tribes

The State requires lead agencies to consider the potential effects of proposed Projects and consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Resources through the CEQA Guidelines. Pursuant to PRC *Section 21080.3.1*, the lead agency shall begin consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed Project. Such significant cultural resources are either sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe which is either on or eligible for inclusion in the California Historic Register or local historic register, or, the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC *Section 21074(a)(1-2)*). According to the most recent census data, California is home to 109 currently recognized Indian tribes.

Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and Project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See PRC *Section 21083.3.2*.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC *Section 5097.96* and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC *Section 21082.3(c)* contains provisions specific to confidentiality.

A consultation list of tribes with traditional lands or cultural places located within Fresno County was requested and received from the California Native American Heritage Commission (NAHC) on April 11, 2023. The listed tribes include Big Sandy Rancheria of Western Mono Indians, Cold Springs Rancheria of Mono Indians, Dumna Wo-Wah Tribal Government, Kings River Choinumni Farm Tribe, North Valley Yokuts Tribe, Table Mountain Rancheria, Tule River Indian Tribe, and Wuksache Indian Tribe/Eshom Valley Band. The NAHC also conducted a Sacred Lands File (SFL) search which was negative.

The City of Kerman conducted formal tribal consultation for the proposed Project pursuant to AB 52 (Chapter 532, Statutes 2014) and SB 18 (Chapter 905, Statutes 2004) on April 28, 2023, utilizing the consultation list of tribes received from the NAHC. The same tribes listed above were included in the formal consultation.

Consultation for AB 52 ended on May 29, 2023, and consultation for SB 18 ended on July 27, 2023. No response was received.

# 3 DETERMINATION

## 3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, as indicated by the checklist on the following pages.

- ☐ Aesthetics
- ☐ Agriculture and Forestry Resources
- ☒ Air Quality
- ☒ Biological Resources
- ☒ Cultural Resources
- ☐ Energy
- ☒ Geology and Soils
- ☐ Greenhouse Gas Emissions
- ☒ Hazards and Hazardous Materials
- ☐ Hydrology and Water Quality
- ☐ Land Use Planning
- ☐ Mineral Resources
- ☒ Noise
- ☐ Population and Housing
- ☐ Public Services
- ☐ Recreation
- ☐ Transportation
- ☒ Tribal and Cultural Resources
- ☐ Utilities and Service Systems
- ☐ Wildfire

For purposes of this Initial Study, the following answers have the corresponding meanings:

**"No Impact"** means the specific impact category does not apply to the Project, or that the record sufficiently demonstrates that Project specific factors or general standards applicable to the Project will result in no impact for the threshold under consideration.

**"Less Than Significant Impact"** means there is an impact related to the threshold under consideration, but that impact is less than significant.

**"Less Than Significant with Mitigation Incorporation"** means there is a potentially significant impact related to the threshold under consideration, however, with the mitigation incorporated into the Project, the impact is less than significant. For purposes of this Initial Study "mitigation incorporated into the Project" means mitigation originally described in the GP PEIR and applied to an individual Project, as well as mitigation developed specifically for an individual Project.

**"Potentially Significant Impact"** means there is substantial evidence that an effect may be significant related to the threshold under consideration.

## 3.2 Determination

The environmental analysis contained in the Initial Study and Mitigated Negative Declaration is tiered from the Environmental Impact Report (EIR) SCH No. 2019049018 prepared for the Kerman 2040 General Plan (EIR). A copy of the EIR may be reviewed in the City of Kerman, Community Development Department as noted above (See Lead Agency). The Project has been determined to be a subsequent project that is not fully within the scope of EIR SCH No. 2019049018 prepared for the Kerman 2040 General Plan.

Pursuant to Public Resources Code Section 21094 and California Environmental Quality Act (CEQA) Guidelines Section 15168(d), this Project has been evaluated with respect to each item on the attached environmental checklist to determine whether this project may cause any additional significant effect on the environment which was not previously examined in the EIR.

This completed environmental impact checklist form and its associated narrative reflect applicable comments of responsible and trustee agencies and research and analysis conducted to examine the interrelationship between the proposed project and the physical environment. The information contained in the Project application and its related environmental assessment application, responses to requests for comment, checklist, initial study narrative, and any attachments thereto, combine to form a record indicating that an initial study has been completed in compliance with the State CEQA Guidelines and the CEQA.

All new development activities and many non-physical projects contribute directly or indirectly toward cumulative impacts on the physical environment. It has been determined that the incremental effect contributed by this Project toward cumulative impacts is not considered substantial or significant in itself, and/or that cumulative impacts accruing from this project may be mitigated to less than significant with application of feasible mitigation measures.

Based upon the evaluation guided by the environmental checklist form, it was determined that there are no foreseeable substantial impacts from the Project that are additional to those identified in the Kerman 2040 General Plan EIR, after the incorporation of project-specific mitigation measures in the Mitigation Monitoring and Reporting Program. The completed environmental checklist form indicates whether an impact is potentially significant, less than significant with mitigation, less than significant, or no impact beyond that which has already been analyzed in the EIR.

For some categories of potential impacts, the checklist may indicate that a specific adverse environmental effect has been identified which is of sufficient magnitude to be of concern. Such an effect may be inherent in the nature and magnitude of the Project or may be related to the design and characteristics of the individual project. Effects so rated are not sufficient in themselves to require the preparation of an EIR and have been mitigated to the extent feasible. With the Project-specific mitigation imposed, there is no substantial evidence in the record that this Project may have additional significant, direct, indirect or cumulative effects on the environment that are significant and that were not identified and analyzed in the Kerman 2040 General Plan EIR. Both the EIR Mitigation Monitoring and Reporting Program and the Project-specific Mitigation Monitoring and Reporting Program will be imposed on this Project.

The Initial Study has concluded that the Project will not result in any adverse effects which fall within the "Mandatory Findings of Significance" contained in Section 15065 of the CEQA Guidelines. The finding is, therefore, that the Project will not have a significant adverse effect on the environment.

On the basis of this initial evaluation (to be completed by the Lead Agency):

☐ 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 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 (EIR) 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 EIR 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.

Approved By:

Jesus R. Orozco, Community Development Director Date
City of Kerman, Community Development Department

# 4 EVALUATION OF ENVIRONMENTAL IMPACTS

## 4.1 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? | | | | X |
| *b)* Substantially damage scenic resources, including, but not limited to, trees, rock out-croppings, and historic buildings within a state scenic highway? | | | | X |
| *c)* In non-urbanized areas, substantially degrade the existing visual character or quality 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? | | | X | |
| *d)* Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | | | X | |

### *4.1.1 Environmental Setting*

Historically, the ~~parcels within the annexation boundary inclusive of the Project site~~ Project Area ~~have~~ has been designated and operated as agricultural land. Since 1998, the Project site has been in agricultural production (orchards or row crops). In 1998, the Project site was planted in orchards and then periodically covered to row crops. In 2018, the site was taken out of agricultural production and has been annually disked ~~disced~~. The northern parcels ~~in the annexation boundary~~ are currently in production as orchard and row crops.

~~Within the annexation boundary, the~~ The Project site ~~and parcel identified as APN 020-160-18S are~~ is currently vacant and undeveloped, with no existing structures or improvements. There is an existing single-family residence and related structures (e.g., garage/shed) on APN 020-160-19S.

There is no existing improved street frontage accessible to the Project site or parcel identified as APN ~~020-160-18S and~~ 020-160-19S. The nearest roadway to the site is West Kearney Boulevard located to the north of the annexation boundary adjacent to APN 020-160-02S (not part of Project Area). The South Modoc Avenue right-of-way runs parallel to the west of the ~~annexation boundary~~ Project Area but is not currently improved.

The parcels within the ~~annexation boundary inclusive of the~~ Project Area ~~site~~ are relatively flat with a sandy loam soil type that is mostly well drained with more than 80-inch water table depth. The existing biotic site conditions and resources of these parcels can be defined primarily as ruderal and are highly disturbed due to agricultural production and annual disking. The Project site is dominated by non-native herbaceous vegetation. There are no trees, shrubs, or water features on the Project site. APN 020-160-18S is an almond ~~peach~~ orchard. The northernmost parcels in the annexation boundary are plowed and have no vegetative cover.

As referenced in **Table 2-1**, the ~~annexation boundary (inclusive of the Project site)~~ Project Area is surrounded by agricultural land to the north, west, and south, and residential uses to the east. The properties to the north and east are planned for residential uses within the City of Kerman Sphere of Influence. The properties to the south and west are planned for agricultural uses within the County of Fresno.

### *General Plan*

The Kerman General Plan Conservation, Open Space, and Recreation Element helps to protect natural resources and habitats as well as enhancing important attributes to provide recreation for its residents. The General Plan does not identify any scenic vistas or corridors. General Plan policies applicable to the visual appearance and character of the city include:

> ***Policy COS-1.1: Visual Resources Protection.*** *The City shall reserve the existing scenic qualities of the community by regulating entryways, view preservation, and landscaping.*
>
> ***Policy COS-1.2: Night Skies Protection.*** *The City shall protect dark/night skies by encouraging measures that direct outdoor lighting downward and away from open space areas, without compromising the safety and security of the community.*
>
> ***Policy COS-1.4: Landscaping Buffers.*** *The City shall integrate landscaping buffers that contribute to neighborhood character to increase safety at the park, and to reduce negative impacts on adjacent residences.*

### *City of Kerman Residential Design Guidelines*

City of Kerman Residential Design Guidelines provides developers with a clear understanding of the city's expectations for new residential development in the city.[1] The Residential Design Guidelines are used as the framework for evaluation and approval of residential Projects. Section 2.2.13 guides the design, location, and level of illumination from lighting for neighborhood streets, alleys, parks, sidewalks, garage, etc., to conserve energy, prevent overly bright lighting and glare, and to ensure that the design blend into the landscape.

### *City of Kerman Municipal Code*

City of Kerman Municipal Code (KMC) requires exterior lighting to be shown on the site plan for the submittal of a site plan review application (*KMC Section 17.14.030*). The direction of illumination, type of luminaire, and hooding

---

[1] City of Kerman. 2014. City of Kerman Residential Design Guidelines. Accessed July 25, 2023, https://cityofkerman.net/wp-content/uploads/2014/05/1KermanResidentialGuidelines-Nov192014.pdf

or shielding devices needs to be shown for all exterior lighting. The approval of the site plan requires a finding on lighting, including:

*Section 17.14.040 – Action by the city planner*

> *C. The proposed lighting is so arranged as to deflect the light away from adjoining properties;*
>
> *D. The proposed signs will not by size, location, or lighting interfere with traffic or limit visibility;*

Additionally, the Smart Development Combining District (*KMC Section 17.58.060(F)(6)*) requires on-site common open space be centrally located to promote visibility from surrounding units.

### *City of Kerman Standard Construction Details*

The City's Standard Construction Details regulates the design and construction of streetlight and streetlight placement on local streets, collectors, cul-de-sacs, and divided arterial and expressway streets. These lighting standards ensure that all work conforms to the applicable sections of the specifications entitled "Standard Specifications, State of California, Business and Transportation Agency, Department of Transportation" and in accordance with the National Electrical Code. The luminaire and design of the lighting also prevents substantial light and glare. Decorative streetlights are also regulated to ensure the use of LED luminaire, numbering, materials, and design of all types of light.

### *California Scenic Highway Program*

The California Scenic Highway Program was established in 1963 with the purpose of protecting and enhancing the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. There are no officially designated State Scenic Highways in the City of Kerman, inclusive of the Project site. The closest eligible State Scenic Highway is State Route (SR) 168 in the City of Clovis, located approximately 21 miles northeast of the Project site.[2]

## *4.1.2 Impact Assessment*

*Except as provided in PRC Section 21099,* ***would the Project****:*

***a) Have a substantial adverse effect on a scenic vista?***

**No Impact.** The Project ~~site~~ Area is undeveloped and is surrounded by single-family residences to the east and agricultural lands to the north, south, and west. The site is generally flat and there are no long-range scenic views (e.g., mountain ranges) that can be seen from the Project Area ~~site, nor the northern annexation parcels,~~ due to the development directly east of the site. Furthermore, the General Plan does not identify or designate scenic vistas or corridors ~~views~~ within the general vicinity of the Project Area ~~site or the annexation parcels~~. ~~In addition, the General Plan does not identify any scenic vistas or corridors.~~ As a result, the Project would not adversely affect scenic vistas and no impact would occur because of the Project.

---

[2] Caltrans. California State Scenic Highway System Map. Accessed on July 25, 2023, https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa

*b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

**No Impact.** According to the California State Scenic Highway Program, there are no officially designated State Scenic Highways in the City of Kerman, inclusive of the Project site and the annexation parcels. As such, the proposed Project would not damage scenic resources, including trees, rock out-croppings, and historic buildings within a state scenic highway and no impact would occur.

*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?*

**Less than Significant Impact.** The Project site and northern annexation parcels are adjacent to urbanized land. The Project site and northern annexation parcels are currently vacant and undeveloped, and there are limited public access points that would have a view of the site since the site can only be seen from South Modoc Avenue, a dirt road that is primarily used for agricultural operations. In addition, through the entitlement process, development would be subject to compliance with applicable policies and regulations that govern scenic quality including but not limited to the General Plan, Residential Design Guidelines, Kerman Municipal Code, and California Building Code. Compliance would ensure that future development of the site would not conflict with applicable zoning and other regulations governing scenic quality. Therefore, a less than significant impact would occur.

*d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

**Less than Significant Impact.** Generally, lighting impacts are associated with artificial lighting in evening hours either through interior lighting from windows or exterior lighting (e.g., street lighting, parking lot lighting, landscape lighting, cars, and trucks). Development of the Project site would incrementally increase the amount of light from streetlights, exterior lighting, and vehicular headlights. Such sources could create adverse effects on day or nighttime views in the area.

Project construction would also introduce light and glare resulting from construction activities such as construction equipment traversing the site that could adversely affect day or nighttime views. Although construction activities are anticipated to occur primarily during daylight hours, it is possible that some activities could occur during dusk or early evening hours (KMC ***Section 9.26.020*** permits construction work to take place between 7:00 am and 10:00 pm on any day for work that is accomplished pursuant to a building permit). Construction during these time periods could result in light and glare from construction vehicles or equipment. However, construction would occur primarily during daylight hours and would be temporary in nature. Once construction is completed, any light and glare from these activities would cease to occur.

Once developed, the Project would be required to comply with the applicable General Plan policies and the enforceable requirements and restrictions contained in the KMC intended to prevent light and glare impacts (See Environmental Setting). Further, compliance with Title 24 lighting requirements as verified through the Building Permit process would reduce impacts related to nighttime light. The lighting requirements cover outdoor spaces including regulations for mounted luminaires (i.e., high efficacy, motion sensor controlled, time clocks, energy management control systems, etc.). As such, conditions imposed on the Project by the City pursuant to the General Plan, Kerman Municipal Code, and Title 24 would result in a less than significant impact.

### *4.1.3 Mitigation Measures*

None required.

## 4.2 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 Monito-ring Program of the California Resources Agency, to non-agricultural use? | | | X | |
| *b)* Conflict with existing zoning for agricultural use, or a Williamson Act contract? | | | X | |
| *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))? | | | | X |
| *d)* Result in the loss of forest land or conversion of forest land to non-forest use? | | | | X |
| *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? | | | | X |

### *4.2.1 Environmental Setting*

Historically, the parcels within the annexation boundary inclusive of the Project site have been designated and operated as agricultural land. Since 1998, the Project site has been in agricultural production (orchards or row crops). In 1998, the Project site was planted in orchards and then periodically covered to row crops. In 2018, the site was taken out of agricultural production and has been annually disced. The northern parcels in the annexation boundary are currently in production as orchard and row crops. The annexation boundary inclusive of the Project site is planned for residential uses within Kerman's Sphere of Influence (SOI).

#### *Farmland Monitoring and Mapping Program*

The California Department of Conservation manages the Farmland Mapping and Monitoring Program (FMMP) that provides maps and data for analyzing land use impacts to farmland. The FMMP produces the Important

Farmland Finder as a resource map that shows quality (soils) and land use information. Agricultural land is rated according to soil quality and irrigation status, in addition to many other physical and chemical characteristics. The highest quality land is called "Prime Farmland" which is defined by the FMMP as *"farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.* [3] Maps are updated every two years. According to the FMMP, California Important Farmland Finder, the Project site is primarily classified as "Prime Farmland" with areas of "Farmland of Statewide Importance" and "Unique Farmland" as defined below.[4] **Figure 4-1** shows the farmland type classification within the annexation boundary. **Table 4-1** shows the acreage of each farmland type on the Project site and within the annexation area.

- *Prime Farmland (P): Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.*
- *Farmland of Statewide Importance (S): Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.*
- *Unique Farmland (U): Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.*

Table 4-1 Farmland Type in the Project Area

| | Project Site | Annexation area (Project site not included) | Total |
|---|---|---|---|
| Prime Farmland | 16.61 | 22.17 | 38.78 |
| Farmland of Statewide Importance | 2.41 | 22.75 | 25.16 |
| Unique Farmland | 0.13 | 14.43 | 14.56 |

### *California Land Conservation Act*

The California Land Conservation Act of 1965 (i.e., the Williamson Act) allows local governments to enter contracts with private landowners to restrict parcels of land for agricultural or open space uses. In return, property tax assessments of the restricted parcels are lower than full market value since the restricted parcels are assessed according to their restricted use rather than their development potential free of such restriction. The minimum ~~length~~ initial term of a Williamson Act contract is 10 years and automatically renews annually upon its anniversary date; as such, the contract length is essentially indefinite, unless appropriately cancelled. The Project site~~, nor parcel identified as APN 020-160-18S,~~ is not subject to the Williamson Act. The northern ~~annexation~~

---

[3] California Department of Conservation. Important Farmland Categories. Accessed on July 25, 2023, https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx

[4] California Department of Conservation. (2018). California Important Farmland Finder. Accessed on July 25, 2023, https://maps.conservation.ca.gov/DLRP/CIFF/

parcel in the Project Area, APN 020-160-19S, is subject to the Williamson Act. ~~Future development proposed for these parcels would be subject to cancellation of the Williamson Act Contract prior to entitlement approval.~~ California Government Code Section 51243.5 allows cities, at the discretion of LAFCo, to not succeed to the rights, duties, and powers of the county under the Williamson Act if certain criteria are met. As discussed in the Impact Assessment below, the criteria have been met for the subject property under contract.

### *General Plan*

The General Plan established goals, policies, and implementation program regarding the conservation of agricultural land within the city's SOI, as listed below.

***Goal LU-4:*** *To protect agricultural resources in Kerman, particularly prime agricultural land.*

> ***Policy LU-4.1 Agricultural Land Preservation.*** *The City shall preserve and protect agricultural lands by directing development to areas within City limits that are designated for urban-level development, and away from agriculturally designated land to preserve open space and agricultural areas.*
>
> ***Policy LU-4.2 Agricultural Conservation Easements.*** *The City shall consider purchasing agricultural conservation easements to mitigate the loss of agricultural land to urban development within the SOI. These easements must be on land of at least equal quality and size to the land being developed.*
>
> ***Policy LU-4.3 Agricultural Zoning within SOI.*** *The City shall continue to encourage Fresno County to apply large-lot agricultural zoning (20-acre minimum) to unincorporated land within Kerman's Sphere of Influence.*

***Implementation Program H: Agricultural Mitigation Program.*** *The City shall develop an Agricultural Mitigation Program to mitigate the loss of prime agricultural land to urban development within the SOI. This program shall be consistent with the California Department of Conservation's recommendations for the development of an Agricultural Mitigation Program to mitigate for the loss of prime agricultural land at a ratio of 1:1.*

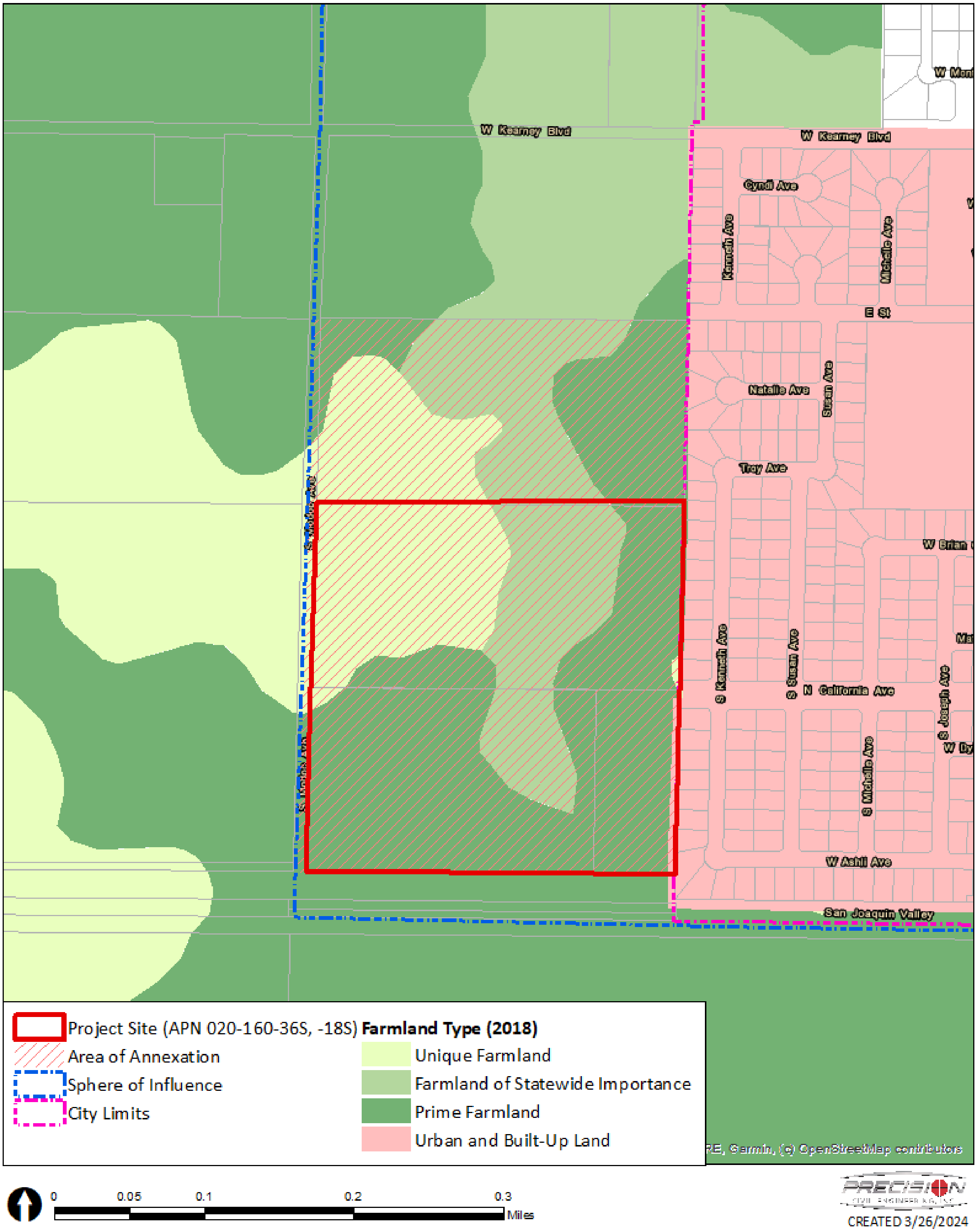


Figure 4-1 Farmland Type

### *4.2.2 Impact Assessment*

*Would the Project:*

*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?

**Less than Significant Impact.** According to the FMMP, California Important Farmland Finder, the Project Area ~~site~~ ~~(annexation boundary)~~ is designated as "Prime Farmland," "Farmland of Statewide Importance," and "Unique Farmland." **Table 4-1** shows the acreage of each farmland type ~~on the Project site and within the annexation area~~. The area ~~site~~ is located within the SOI with a residential land use designation and would be pre-zoned to a residential zoning district consistent with the land use designation. Therefore, development of the Project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use.

While the Project would result in the conversion of agricultural lands to a non-agricultural use, this conversion was evaluated under the Kerman General Plan Update EIR and related document titled Facts, Findings, and Statement of Overriding Considerations Regarding the Environmental Effects from the Environmental Impact Report. According to this document, "The 2040 General Plan land use diagram keeps the expanded areas designated for agriculture consistent with the current Fresno County General Plan agricultural designation and encourages future growth to occur within or adjacent to city limits and not extend outside the SOI. This greenbelt would provide a buffer between the residential, commercial, and industrial development within the city limits and preserve the existing agricultural land adjacent to and beyond the SOI to maintain agricultural lands and rural character of the city."

In addition to this, the Findings of Fact also include the following analysis related to agricultural uses:

"The 2040 General Plan would result in changes to the existing land use designations by allowing the conversion of existing Prime Farmland, Unique Farmland and Farmland of Statewide Importance, specifically within the Sphere of Influence (SOI) to be converted to a mix of land uses, primarily for residential, industrial, or office use and would establish an urban reserve as shown in the 2040 General Plan Land Use Map in Section 2, Project Description, Figure 2-4. Provision of additional land adjacent to the City of Kerman for urban uses provides for orderly urban development and reduces the pressure on converting agricultural lands within more rural Fresno County to urban uses, which would have a greater impact on commercial agricultural operations in the region. Nevertheless, buildout of the 2040 General Plan would result in the loss of agricultural lands as indicated by the FMMP. Implementation of an Agricultural Mitigation Program to mitigate the loss of agricultural land to urban development within the SOI by preserving an equivalent amount and type of agricultural land would offset this impact.

By design, the 2040 General Plan would focus future development in underdeveloped areas and prioritize infill development where there is sufficient infrastructure capacity and public services. One of the themes of the 2040 General Plan is to have agricultural farming practices and urban uses exist harmoniously with conflicts limited through buffers at the City's edge. The 2040 General Plan policies that would protect agricultural resources, particularly prime agricultural land, from premature future development are Goal LU-4 and Policies LU-4.1 to LU-4.4. The Conservation, Open Space, Parks and Recreation Element of the 2040 General Plan would provide conservation and protection of natural resources for agricultural use (see Goal COS-4 and Policies COS-4.4 and

COS 4.7), the Economic Development Element would support and expand the agricultural industry and related tourism (See Goal ED-2, and Policies ED-2.1 through ED-2.5); while the Land Use Element is designed to protect the continued operation of agricultural lands in and around Kerman (see Goal LU-3 and Policies LU-3.1 to LU-3.5, and Goal LU-4 and Policies LU-4.1 to LU-4.4).

Full buildout under the 2040 General Plan would result in conversion of existing agricultural uses in the Planning Area to non-agricultural uses. Impacts would be potentially significant, but with implementation of Policy LU-4.2 to develop an Agricultural Mitigation Program consistent with the DOC's recommendations, the loss of Prime Farmland, Unique Farmland, and/or Farmland of Statewide Importance would be offset with the preservation of an equal acreage of similar prime agricultural land. With the incorporation of the DOC recommended Agricultural Mitigation Program policies (equal preservation) to the 2040 General Plan, impacts related to the conversion of Farmland to non-agricultural use would be less than significant, and no mitigation is required."

As such, the proposed policies in the 2040 General Plan would promote the preservation of scenic natural resources and the development of visual transitions to the city. Implementation of the policies LU-2.2, LU-2.4, LU-2.5, LU-2.6, LU-2.8, HE-1.3, and COS-1.2 would provide a sense of transition between active farmland within the planning area and development within the city, as well as visually attractive gateways into Kerman. Impacts would be less than significant.

*b) Conflict with existing zoning for agricultural use or a Williamson Act contract?*

**Less than Significant Impact.** While the ~~annexation boundary inclusive of the Project site~~ Project Area is currently zoned for agricultural use within the County of Fresno, the Project proposes annexation into Kerman City Limits and therefore, the parcels would be pre-zoned/rezoned to a residential zoning district consistent with the underlying residential land use designation. Upon entitlement approval, Fresno County Local Agency Formation Commission (LAFCO) would review and approve the expansion of the City Limits in consideration of the Project's impact on agricultural land, as required by state law. Once the Project is approved by LAFCO and annexed into the City Limits, the Project would no longer be within the County's agricultural zoning district. Therefore, the Project would not conflict with existing zoning for agricultural use and impacts would be less than significant.

The Project site and parcel identified as APN 020-160-18S are not subject to the Williamson Act. The northern annexation parcel, APN 020-160-19S, is subject to the Williamson Act. ~~The Williamson act Contracts for these parcels can only be terminated in specific circumstances. One option is to seek cancellation by the local agency, i.e., City of Kerman once annexed, which may only occur if the cancellation is found to be consistent with the Williamson Act, or in the public interest, on the basis of specific findings. Therefore, future development proposed for these parcels would be subject to cancellation of the contract(s) in accordance with the Williamson Act. Through compliance, a less than significant impact would occur.~~ Although the parcel is under contract in the County, the contract will be cancelled when it is annexed into the City of Kerman. California Government Code Section 51243.5 allows cities, at the discretion of LAFCo, to not succeed to the rights, duties, and powers of the county under the Williamson Act if certain criteria are met. The relevant code sections are enumerated below.

*51243.5.*

*(a) This section shall apply only to land that was within one mile of a city boundary when a contract was executed pursuant to this article and for which the contract was executed prior to January 1, 1991.*

*(b) For any proposal that would result in the annexation to a city of any land that is subject to a contract under this chapter, the local agency formation commission shall determine whether the city may exercise its option to not succeed to the rights, duties, and powers of the county under the contract.*

*(c) In making the determination required by subdivision (b), pursuant to Section 51206, the local agency formation commission may request, and the Department of Conservation shall provide, advice and assistance in interpreting the requirements of this section. If the department has concerns about an action proposed to be taken by a local agency formation commission pursuant to this section or Section 51243.6, the department shall advise the commission of its concerns, whether or not the commission has requested it to do so. The commission shall address the department's concerns in any hearing to consider the proposed annexation or a city's determination whether to exercise its option not to succeed to a contract, and shall specifically find that substantial evidence exists to show that the city has the present option under this section to decline to succeed to the contract.*

*(d) A city may exercise its option to not succeed to the rights, duties, and powers of the county under the contract if both of the following had occurred prior to December 8, 1971:*

*(1) The land being annexed was within one mile of the city's boundary when the contract was executed.*

*(2) The city had filed with the county board of supervisors a resolution protesting the execution of the contract.*

*(e) A city may exercise its option to not succeed to the rights, duties, and powers of the county under the contract if each of the following had occurred prior to January 1, 1991:*

*(1) The land being annexed was within one mile of the city's boundary when the contract was executed.*

*(2) The city had filed with the local agency formation commission a resolution protesting the execution of the contract.*

*(3) The local agency formation commission had held a hearing to consider the city's protest to the contract.*

*(4) The local agency formation commission had found that the contract would be inconsistent with the publicly desirable future use and control of the land.*

*(5) The local agency formation commission had approved the city's protest.*

*(f) It shall be conclusively presumed that no protest was filed by the city unless there is a record of the filing of the protest and the protest identifies the affected contract and the subject parcel. It shall be conclusively presumed that required notice was given before the execution of the contract.*

*(g) The option of a city to not succeed to a contract shall extend only to that part of the land that was within one mile of the city's boundary when the contract was executed.*

*(h) If the city exercises its option to not succeed to a contract, then the city shall record a certificate of contract termination with the county recorder at the same time as the executive officer of the local agency formation commission files the certificate of completion pursuant to Section 57203. The certificate of contract termination shall include a legal description of the land for which the city terminates the contract.*

*51243.6.*

*The Legislature finds and declares the following:*

*(a) The enforceability of contracts entered into pursuant to this article is necessary to permit the preferential taxation provided to the owners of land under contract, pursuant to Section 8 of Article XIII of the California Constitution.*

*(b) The option granted to a city pursuant to Section 51243.5 to elect not to succeed to a contract may be held only by the city.*

*(c) No contracting landowner has a reasonable expectation that a contract can be terminated immediately pursuant to this article without penalty.*

Based on research and confirmation from the County and LAFCo, the City meets these criteria. The City of Kerman intends to adopt, through resolution of initiation of annexation, these findings in order to elect not to succeed to the contract. Thus, the proposed project will result in a less than significant impact as it will not result in a conflict with 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))?***

**No Impact.** The Project site is not planned or zoned for forest land or timberland as defined by PRC 12220 (g). Further, the Project site would not cause the rezoning of forest land, timberland, or timberland zoned Timberland Production. As a result, the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production as defined by PRC 4526 or GC 5110(g) and no impact would occur.

d) ***Result in the loss of forest land or conversion of forest land to non-forest use?***

**No Impact.** The Project Area ~~site~~ does not contain forest land and is not planned or zoned for forest land or forest uses. Implementation of the Project would therefore not result in the loss of forest land or conversion of forest land to non-forest use. As a result, no impact would occur.

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?***

**Less than Significant Impact.** While the Project Area is ~~site and annexation parcels are~~ zoned for agricultural uses within Fresno County, ~~they are~~ it is planned for residential uses by the City of Kerman. As analyzed under criteria a) and b), the Project would have a less than significant impact on the conversion of Farmland to non-agricultural use due to its planned land use and mandated review through LAFCO. In addition, the Project is adjacent to existing single-family residential development within Kerman's city limits. As such, the proposed residential development would be generally consistent with the existing environment of the adjacent urbanized neighborhood and would follow the pattern of growth as planned in the General Plan. As a result, the Project would not involve other changes in the existing environment that could result in the conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, a less than significant impact would occur because of the Project.

### *4.2.3 Mitigation Measures*

None required.

## 4.3 AIR QUALITY

| Would the Project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| *a)* Conflict with or obstruct implementation of the applicable air quality plan? | | | X | |
| *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? | | | X | |
| *c)* Expose sensitive receptors to substantial pollutant concentrations? | | X | | |
| *d)* Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | | | X | |

### *4.3.1 Environmental Setting*

The Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report was prepared by Johnson Johson and Miller Air Quality Consulting Services (dated August 9, 2023) to evaluate whether the estimated criteria air pollutant, ozone precursor, toxic air contaminant (TAC), and/or greenhouse gas (GHG) emissions generated from construction and/or operation of the proposed Whispering Falls Project would cause significant impacts to air resources in the Project area. The respective analyses were conducted within the context of CEQA, and specifically for the development of APN 020-160-36S. Future development of the northern parcels, APNs 020-160-18S and 020-160-19S, may require additional CEQA analysis when development is proposed.

The methodology follows the Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) prepared by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the quantification of emissions and evaluation of potential impacts to air resources and the SJVAPCD's Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under the California Environmental Quality Act. The modeling parameters, assumptions, findings report, and appendices are provided in Appendix A. Results are incorporated herein.

Air quality impacts are both local and regional. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The Project is located in Kerman, within Fresno County. The Project Area ~~site~~ and Fresno County are in the San Joaquin Valley Air Basin (Air Basin or SJV Air Basin), which experiences some of the most challenging environmental conditions for air quality in the nation. The following section describes these conditions as they pertain to the Air Basin. The information in this section is primarily from the SJVAPCD's GAMAQI.

### *Topography*

The topography of a region is important for air quality because mountains can block airflow that would help disperse pollutants and can channel air from upwind areas that transports pollutants to downwind areas. The SJVAPCD covers the entirety of the SJV Air Basin. The Air Basin is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation).

### *Climate*

The climate is important for air quality because of differences in the atmosphere's ability to trap pollutants close to the ground, which creates adverse air quality; inversely, the atmosphere's ability to rapidly disperse pollutants over a wide area prevents high concentrations from accumulating under different climatic conditions. The SJV Air Basin has an "inland Mediterranean" climate and is characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the SJV Air Basin averages over 260 sunny days per year.

Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually encountered 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor.

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the SJV Air Basin form natural horizontal barriers to the dispersion of air contaminants. The wind generally flows south-southeast through the valley, through the Tehachapi Pass and into the Mojave Desert Air Basin portion of Kern County. As the wind moves through the SJV Air Basin, it mixes with the air pollution generated locally, generally transporting air pollutants from the north to the south in the summer and in a reverse flow in the winter.

The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong, low-level temperature inversions and very stable air conditions, which can lead to Tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of PM2.5 and PM10.

## Criteria Air Pollutants

The Federal Clean Air Act (FCAA) establishes the framework for modern air pollution control. The FCAA, enacted in 1970 and amended in 1990, directs the U.S. EPA to establish ambient air quality standards. These standards are divided into primary and secondary standards. The primary standards are set to protect human health, and the secondary standards are set to protect environmental values, such as plant and animal life. The FCAA requires the EPA to set National Ambient Air Quality Standards for the six criteria air pollutants. These pollutants include particulate matter (PM), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides, and lead.

### Toxic Air Contaminants

A toxic air contaminant (TAC) is an air pollutant not included in the California Ambient Air Quality Standards, but TACs are considered hazardous to human health. Toxic air contaminants are defined by the California Air Resources Board (CARB) as those pollutants that, "may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health."

The health effects associated with TACs are generally assessed locally rather than regionally. Toxic air contaminants can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; TACs can also cause short-term acute effects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. For evaluation purposes, TACs are separated into carcinogens and noncarcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and the cancer risk is expressed as excess cancer cases per one million exposed individuals (typically over a lifetime of exposure).

TACs of concern assessed in this analysis include asbestos, DPM, and benzene.

### Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics.

### Air Quality Standards

The Clean Air Act requires states to develop a general plan to attain and maintain the standards in all areas of the country and a specific plan to attain the standards for each area designated nonattainment. These plans, known as State Implementation Plans or SIPs, are developed by state and local air quality management agencies and submitted to EPA for approval.

The SIP for the State of California is administered by the CARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for each regional air district. SIPs are prepared by the regional air district and sent to CARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

The CARB also administers the California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants include the six federal criteria pollutant standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The federal and state ambient air quality standards are summarized in Table 4-2.

### Table 4-2:California and National Ambient Air Quality Standards

| Pollutant | Averaging Time | California Standards | National Standards | |
|---|---|---|---|---|
| | | Concentration | Primary | Secondary |
| Ozone | 1 Hour | 0.09 ppm (180 µg/m$^3$) | — | Same as Primary Standard |
| | 8 Hour | 0.070 ppm (137 µg/m$^3$) | 0.070ppm (137 µg/m$^3$) | |
| Respirable Particulate Matter | 24 Hour | 50 µg/m$^3$ | 150 µg/m3 | Same as Primary Standard |
| | Annual Arithmetic Mean | 20 µg/m$^3$ | — | |
| Fine Particulate Matter | 24 Hour | — | 35 µg/m$^3$ | Same as Primary Standard |
| | Annual Arithmetic Mean | 12 µg/m$^3$ | 12 µg/m$^3$ | |
| Carbon Monoxide | 1 Hour | 20 ppm (23 mg/m$^3$) | 35 ppm (40 mg/m$^3$) | — |
| | 8 Hour | 9.0 ppm (10 mg/m$^3$) | 9 ppm (10 mg/m$^3$) | — |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m$^3$) | — | — |
| Nitrogen Dioxide | 1 Hour | 0.18 ppm (339 µg/m$^3$) | 100 ppb (188 µg/m$^3$) | — |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m$^3$) | 0.053 ppm (100 µg/m$^3$) | Same as Primary Standard |
| Sulfur Dioxide | 1 Hour | 0.25 ppm (655 µg/m$^3$) | 75 ppb (196 µg/m$^3$) | — |
| | 3 Hour | — | — | 0.5 ppm (1300 µg/m$^3$) |
| | 24 Hour | 0.04 ppm (105 µg/m$^3$) | 0.14 ppm (for certain areas) | — |
| | Annual Arithmetic Mean | — | 0.030 ppm (for certain areas) | — |
| Lead | 30-Day Average | 1.5 µg/m$^3$ | — | — |
| | Calendar Quarter | — | 1.5 µg/m$^3$ | Same as Primary Standard |
| | Rolling 3-Month Average | — | 0.15 µg/m$^3$ | |
| Visibility-Reducing Particles | 8 Hour | See Footnote 1 | No National Standards | |
| Sulfates | 24 Hour | 25 µg/m$^3$ | | |
| Hydrogen Sulfide | 1 Hour | 0.03 ppm (42 µg/m$^3$) | | |
| Vinyl Chloride | 24 Hour | 0.01 ppm (26 µg/m$^3$) | | |

Notes:
1 - In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.
µg/m3 =micrograms per cubic meter
CARB = California Air Resources Board
mg/m3 = milligrams per cubic meter
ppm = parts per million
Source: California Air Resources Board (CARB). 2017. Air Quality Standards. Website: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed July 29, 2023.

Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards. The SJV Air Basin is designated nonattainment for ozone, PM10, and PM2.5.[5]

Thresholds of Significance

### Project-level Thresholds

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a Project would have a significant impact on air quality, the type, level, and impact of emissions generated by the proposed Project must be evaluated.

This analysis uses the air quality significance thresholds contained in Appendix G of the CEQA Guidelines, effective December 28, 2018. A significant impact would occur if the proposed Project would:

a) *Conflict with or obstruct implementation of the applicable air quality 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) *Create objectionable odors affecting a substantial number of people.*

The City of Kerman has not established specific CEQA significance thresholds. Where available guidance provided by the applicable air district can be used to make significance determinations for the CEQA questions listed above. While the final determination of whether a Project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the SJVAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of Project emissions in accordance with the Appendix G requirements. If a Lead Agency finds that a Project has the potential to exceed these air pollution thresholds, according to the SJVAPCD, the Project should be considered to have significant air quality impacts.

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the Project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the Project. Localized emissions from Project construction and operation are also assessed using concentration-based thresholds that determine if the Project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during Project construction and operation are ROG, NOX, PM10, and PM2.5. The SJVAPCD GAMAQI adopted in 2015 contains thresholds for ROG and NOX; SOX, CO, PM10, and PM2.5.

Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and NOX emissions in the presence of sunlight. Therefore, ROG and NOx are termed ozone precursors. The SJVAB often exceeds the state and national ozone standards. Therefore, if the Project emits a substantial quantity of ozone precursors, the Project may contribute to an exceedance of the ozone standard. The SJVAB also exceeds

---

[5] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2017. Ambient Air Quality Standards & Valley Attainment Status. Accessed July 29, 2023, https://www.valleyair.org/aqinfo/attainment.htm

air quality standards for PM10, and PM2.5; therefore, substantial Project emissions may contribute to an exceedance for these pollutants.

The SJVAPCD has adopted significance thresholds for construction-related and operational emissions. These thresholds will be identified and addressed in the appropriate section of this document.

Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. Once operational, some diesel-fueled vehicles would access the Project site. The following Project-specific health risk significance thresholds are applied in this analysis:

- *Maximum Incremental Cancer Risk: >=20 in 1 million.*
- *Hazard Index (Project increment) >=1.0.*

### Fugitive Dust

*Construction*

Fugitive dust would be generated from site grading and other earth-moving activities. Most of this fugitive dust would remain localized and would be deposited near the Project site. However, the potential for impacts from fugitive dust exists unless control measures are implemented to reduce the emissions from the Project site. Therefore, adherence to Regulation VIII would be required during construction of the proposed Project. Regulation VIII would require fugitive dust control measures that are consistent with best management practices (BMPs) established by the SJVAPCD to reduce the proposed Project's construction-generated fugitive dust impacts to a less than significant level.

The SJVAPCD (SJVAPCD or District) adopted Regulation VIII in 1993 and its most recent amendments became effective on October 1, 2004. This is a basic summary of the regulation's requirements as they apply to construction sites. These regulations affect all workers at a regulated construction site, including everyone from the landowner to the subcontractors. Violations of Regulation VIII are subject to enforcement action including fines.

Visible Dust Emissions may not exceed 20 percent opacity during periods when soil is being disturbed by equipment or by wind at any time. Visible Dust Emissions opacity of 20 percent means dust that would obstruct an observer's view of an object by 20 percent. District inspectors are state certified to evaluate visible emissions. Dust control may be achieved by applying water before/during earthwork and onto unpaved traffic areas, phasing work to limit dust, and setting up wind fences to limit windblown dust.

Soil Stabilization is required at regulated construction sites after normal working hours and on weekends and holidays. This requirement also applies to inactive construction areas such as phased Projects where disturbed land is left unattended. Applying water to form a visible crust on the soil and restricting vehicle access are often effective for short-term stabilization of disturbed surface areas. Long-term methods including applying dust suppressants and establishing vegetative cover.

Carryout and Trackout occur when materials from emptied or loaded vehicles falls onto a paved surface or shoulder of a public road or when materials adhere to vehicle tires and are deposited onto a paved surface or shoulder of a public road. Should either occur, the material must be cleaned up at least daily, and immediately if it extends more than 50 feet from the exit point onto a paved road. The appropriate clean-up methods require the complete removal and cleanup of mud and dirt from the paved surface and shoulder. Using a blower device or dry sweeping with any mechanical device other than a PM10-efficient street sweeper is a violation. Larger construction sites, or sites with a high amount of traffic on one or more days, must prevent carryout and trackout from occurring by installing gravel pads, grizzlies, wheel washers, paved interior roads, or a combination thereof at each exit point from the site. In many cases, cleaning up trackout with water is also prohibited as it may lead to plugged storm drains. Prevention is the best method.

Unpaved Access and Haul Roads, as well as unpaved vehicle and equipment traffic areas at construction sites must have dust control. Speed limit signs limiting vehicle speed to 15 mph or less at construction sites must be posted every 500 feet on uncontrolled and unpaved roads.

Storage Piles and Bulk Materials have handling, storage, and transportation requirements that include applying water when handling materials, wetting or covering stored materials, and installing wind barriers to limit visible dust emissions. Also, limiting vehicle speeds, loading haul trucks with a freeboard of six inches or greater along with applying water to the top of the load, and covering the cargo compartments are effective measures for reducing visible dust emissions and carryout from vehicles transporting bulk materials.

Dust Control Plans identify the dust sources and describe the dust control measures that will be implemented before, during, and after any dust generating activity for the duration of the Project. Owners or operators are required to submit plans to the SJVAPCD at least 30 days prior to commencing the work for the following:

- *Residential developments of ten or more acres of disturbed surface area.*
- *Non-residential developments of five or more acres of disturbed surface area.*
- *The relocation of more than 2,500 cubic yards per day of materials on at least three days.*

Operations may not commence until the SJAVPCD has approved the Dust Control Plan. A copy of the plan must be on site and available to workers and District employees. All work on the site is subject to the requirements of the approved dust control plan. A failure to abide by the plan by anyone on site may be subject to enforcement action.

Record Keeping is required to document compliance with the rules and must be kept for each day any dust control measure is used. The SJVAPCD has developed record forms for water application, street sweeping, and "permanent" controls such as applying long term dust palliatives, vegetation, ground cover materials, paving, or other durable materials. Records must be kept for one year after the end of dust generating activities (Title V sources must keep records for five years).

Exemptions exist for several activities. Those occurring above 3,000 feet in elevation are exempt from all Regulation VIII requirements. Further, Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities exempts the following construction and earthmoving activities:

- *Blasting activities permitted by California Division of Industrial Safety.*
- *Maintenance or remodeling of existing buildings provided the addition is less than 50% of the size of the existing building or less than 10,000 square feet (due to asbestos concerns, contact the SJVAPCD at least two weeks ahead of time).*
- *Additions to single family dwellings.*
- *The disking of weeds and vegetation for fire prevention on sites smaller than ½ acre.*

- *Spreading of daily landfill cover to preserve public health and safety and to comply with California Integrated Waste Management Board requirements.*

Nuisances are prohibited at all times because District Rule 4102 – Nuisance applies to all construction sources of fugitive dust, whether or not they are exempt from Regulation VIII. It is important to monitor dust-generating activities and implement appropriate dust control measures to limit the public's exposure to fugitive dust.

### *4.3.2 Impact Assessment*

*Would the Project:*

*a) Conflict with or obstruct implementation of the applicable air quality plan?*

**Less than Significant Impact.** The CEQA Guidelines indicate that a significant impact would occur if the Project would conflict with or obstruct implementation of the applicable air quality plan. The GAMAQI indicates that Projects that do not exceed SJVAPCD regional criteria pollutant emissions quantitative thresholds would not conflict with or obstruct the applicable air quality plan (AQP). An additional criterion regarding the Project's implementation of control measures was assessed to provide further evidence of the Project's consistency with current AQPs. This document proposes the following criteria for determining Project consistency with the current AQPs:

1. *Will the Project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional thresholds identified by the District for Regional Air Pollutants.*
2. *Will the Project comply with applicable control measures in the AQPs? The primary control measures applicable to development Projects include Regulation VIII—Fugitive PM10 Prohibitions and Rule 9510 Indirect Source Review.*

*Contribution to Air Quality Violations*

A measure for determining if the Project is consistent with the air quality plans is if the Project would not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the air quality plans. Regional air quality impacts and attainment of standards are the result of the cumulative impacts of all emission sources within the air basin. Individual Projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the Project is based on its cumulative contribution. Because of the region's nonattainment status for ozone, $PM_{2.5}$, and $PM_{10}$—if Project-generated emissions of either of the ozone precursor pollutants (ROG and $NO_X$), $PM_{10}$, or $PM_{2.5}$ would exceed the SJVAPCD's significance thresholds—then the Project would be considered to contribute to violations of the applicable standards and conflict with the attainment plans.

As shown in Table 4-3 and Table 4-4Table 4-4 under Impact AIR-2 below, the Project's construction and operational regional emissions would not exceed SJVAPCD's regional criteria pollutant emissions quantitative thresholds. Therefore, the proposed Project would not be considered in conflict with or obstruct implementation of the applicable air quality plan based on this criterion.

*Compliance with Applicable Control Measures*

SJVAPCD's AQPs contain a number of control measures, which are enforceable requirements through the adoption of rules and regulations. A description of rules and regulations that apply to this Project is provided below.

> **SJVAPCD Rule 9510—Indirect Source Review (ISR)** is a control measure in the 2006 $PM_{10}$ Plan that requires $NO_X$ and $PM_{10}$ emission reductions from development Projects in the San Joaquin Valley. The $NO_X$ emission reductions help reduce the secondary formation of $PM_{10}$ in the atmosphere (primarily ammonium nitrate and ammonium sulfate) and also reduce the formation of ozone. Reductions in directly emitted $PM_{10}$ reduce particles such as dust, soot, and aerosols. Rule 9510 is also a control measure in the 2016 Plan for the 2008 8-Hour Ozone Standard. Developers of Projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases through on-site measures or pay off-site mitigation fees. The proposed Project would be subject to Rule 9510.
>
> **Regulation VIII—Fugitive** $PM_{10}$ **Prohibitions** is a control measure that is one main strategies from the 2006 $PM_{10}$ for reducing the $PM_{10}$ emissions that are part of fugitive dust. Residential Projects over 10 acres and non-residential Projects over 5 acres are required to file a Dust Control Plan (DCP) containing dust control practices sufficient to comply with Regulation VIII. The Project will be required to comply with Regulation VIII and would implement dust control measures during the construction period.
>
> **Rule 2201—New and Modified Stationary Source Review Rule** requires the review of new and modified Stationary Sources of air pollution and to provide mechanisms including emission trade-offs by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards. Components of the Project may be required to obtain permits and abide by associated regulations set forth by Rule 2201.

Other control measures that apply to the Project are Rule 4641—Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operation that requires reductions in VOC emissions during paving and Rule 4601—Architectural Coatings that limits the VOC content of all types of paints and coatings sold in the San Joaquin Valley. These measures apply at the point of sale of the asphalt and the coatings, so Project compliance is ensured without additional mitigation measures.

The Project would comply with all applicable SJVAPCD rules and regulations. Therefore, the proposed Project would not conflict with or obstruct implementation of the applicable air quality attainment plan under this criterion.

As described above, the proposed Project's construction and operational regional emissions would not exceed SJVAPCD's regional criteria pollutant emissions quantitative thresholds. Furthermore, the proposed Project would comply with all applicable SJVAPCD rules and regulations. Accordingly, the proposed Project would not conflict with or obstruct implementation of the applicable air quality plans, and, therefore, this impact would be less than significant.

*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?*

**Less than Significant Impact.** To result in a less than significant impact, the following criteria must be true:

1. *Regional analysis: emissions of nonattainment pollutants must be below the SJVAPCD's regional significance thresholds. This is an approach recommended by the District in its GAMAQI.*
2. *Summary of Projections: the Project must be consistent with current air quality attainment plans including control measures and regulations. This is an approach consistent with Section 15130(b) of the CEQA Guidelines.*
3. *Cumulative health impacts: the Project must result in less than significant cumulative health effects from the nonattainment pollutants. This approach correlates the significance of the regional analysis with health effects, consistent with the court decision, Bakersfield Citizens for Local Control v. City of Bakersfield (2004) 124 Cal.App.4th 1184, 1219-20.*

*Regional Emissions*

Air pollutant emissions have both regional and localized effects. This analysis assesses the regional effects of the Project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the Project. Localized emissions from Project construction and operation are assessed under Impact AIR-3—Sensitive Receptors using concentration-based thresholds that determine if the Project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during Project construction and operation are ROG, $NO_X$, $PM_{10}$, and $PM_{2.5}$. The SJVAPCD GAMAQI adopted in 2015 contains thresholds for CO, $NO_X$, ROG, $SO_X$, $PM_{10}$, and $PM_{2.5}$.

Ozone is a secondary pollutant that can be formed miles from the source of emissions, through reactions of ROG and $NO_X$ emissions in the presence of sunlight. Therefore, ROG and $NO_X$ are termed ozone precursors. The Air Basin often exceeds the state and national ozone standards. Therefore, if the Project emits a substantial quantity of ozone precursors, the Project may contribute to an exceedance of the ozone standard. The Air Basin also exceeds air quality standards for $PM_{10}$, and $PM_{2.5}$; therefore, substantial Project emissions may contribute to an exceedance for these pollutants. The SJVAPCD's annual emission significance thresholds used for the Project define the substantial contribution for both operational and construction emissions as follows:

- *100 tons per year CO*
- *10 tons per year $NO_X$*
- *10 tons per year ROG*
- *27 tons per year $SO_X$*
- *15 tons per year $PM_{10}$*
- *15 tons per year $PM_{2.5}$*

The Project does not contain sources that would produce substantial quantities of $SO_2$ emissions during construction and operation. Modeling conducted for the Project show that $SO_2$ emissions are well below the SJVAPCD GAMAQI thresholds, as shown in the modeling results contained in Attachment A of Appendix A. No further discussion of $SO_2$ is required.

***Construction Emissions***

Construction activities associated with development of the proposed Project would include site preparation, grading, building construction, paving, and architectural coatings. Emissions from construction-related activities are generally short-term in duration but may still cause adverse air quality impacts. During construction, fugitive dust would be generated from earth-moving activities. Exhaust emissions would also be generated from off-road construction equipment and construction-related vehicle trips. Emissions associated with construction of the proposed Project are discussed below.

Table 4-3Table 4-3 provides the construction emissions estimate for the proposed Project. Please refer to the Modeling Parameters and Assumptions section of this technical memorandum for details regarding assumptions used to estimate construction emissions. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required pursuant to CEQA guidelines.

Table 4-3: Construction Regional Air Pollutant Annual Emissions (Unmitigated)

| Parameter | Air Pollutants (ton/year) | | | | |
|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| Project Construction (2024) | 0.371 | 3.466 | 3.483 | 0.564 | 0.280 |
| Project Construction (2025) | 0.233 | 1.670 | 2.469 | 0.195 | 0.087 |
| Project Construction (2026) | 1.167 | 1.574 | 2.421 | 0.193 | 0.080 |
| ***Total Project Construction Emissions (tons/year)*** | ***1.771*** | ***6.710*** | ***8.373*** | ***0.952*** | ***0.447*** |
| **Significance Threshold (tons/year)** | **10** | **10** | **100** | **15** | **15** |
| **Exceeds Significance Threshold?** | **No** | **No** | **No** | **No** | **No** |

Notes:
$PM_{10}$ and $PM_{2.5}$ emissions are from the mitigated output to reflect compliance with Regulation VIII—Fugitive $PM_{10}$ Prohibitions.
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

As shown in Table 4-3, estimated emissions from construction of Project are below the SJVAPCD significance thresholds. Therefore, the regional construction emissions would be less than significant on a Project basis.

### *Operational Emissions*

As previously discussed, the pollutants of concern include ROG, $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$. Emissions were assessed for full buildout operations in the 2025 operational year. The 2025 operational year was chosen as it would be the best representation of the Project as it is year earliest year the Project is anticipated to become operational. Emissions were estimated for full Project buildout in the earliest operational year, thus generating the full amount of expected operational activity. The SJVAPCD Criteria Air Pollutant Significance thresholds were used to determine impacts. Operational annual emissions are shown in Table 4-4 below.

Table 4-4: Operational Annual Emissions for Full Buildout (Unmitigated)

| Emissions Source | Tons per Year | | | | |
|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| Area | 1.387 | 0.072 | 1.369 | 0.006 | 0.006 |
| Energy Consumption | 0.017 | 0.283 | 0.120 | 0.023 | 0.023 |

| | | | | | |
|---|---|---|---|---|---|
| Mobile (On-road Vehicles) | 0.921 | 0.945 | 8.091 | 1.752 | 0.452 |
| **Total Project Annual Emissions** | **2.325** | **1.300** | **9.580** | **1.781** | **0.481** |
| **Thresholds of Significance** | **10** | **10** | **100** | **15** | **15** |
| **Exceeds Significance Threshold?** | **No** | **No** | **No** | **No** | **No** |

Notes:
$NO_X$ = oxides of nitrogen
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
$PM_{10}$ = particulate matter 10 microns or less in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

As shown in Table 4-4, the proposed Project would not result in net operational-related air pollutants or precursors that would exceed the applicable thresholds of significance. Therefore, Project operations would not be considered to have the potential to generate a significant quantity of air pollutants; long-term operational impacts associated with the Project's criteria pollutant emissions would be less than significant.

*c) Expose sensitive receptors to substantial pollutant concentrations?*

**Less than Significant Impact with Mitigation Incorporated.** Emissions occurring at or near the Project have the potential to create a localized impact that could expose sensitive receptors to substantial pollutant concentrations. Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. The SJVAPCD considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools.

The closest existing sensitive receptors (to the site area) are residences. One residence is a farmhouse currently located within the jobsite and there is also an existing subdivision of homes on the entire east side of the jobsite with 25 homes approximately 50 feet from the eastern Project boundary. There is a Daycare facility (Over the Rainbow Daycare) 0.14 of a mile to the east in the existing residential subdivision. There is also an Elementary School (Liberty Elementary) 0.18 of a mile away from the east side of the Project boundary. There are no hospitals or convalescent facilities within ¼ mile of the Project boundary.

*Localized Impacts*

Emissions occurring at or near the Project have the potential to create a localized impact also referred to as an air pollutant hotspot. Localized emissions are considered significant if when combined with background emissions, they would result in exceedance of any health-based air quality standard. In locations that already exceed standards for these pollutants, significance is based on a significant impact level (SIL) that represents the amount that is considered a cumulatively considerable contribution to an existing violation of an air quality standard. The pollutants of concern for localized impact in the SJVAB are $NO_2$, $SO_X$, and CO.

The SJVAPCD has provided guidance for screening localized impacts in the GAMAQI that establishes a screening threshold of 100 pounds per day of any criteria pollutant. If a Project exceeds 100 pounds per day of any criteria pollutant, then ambient air quality modeling would be necessary. If the Project does not exceed 100 pounds per day of any criteria pollutant, then it can be assumed that it would not cause a violation of an ambient air quality standard.

### Construction: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$

Local construction impacts would be short-term in nature lasting only during the duration of construction. As shown in Table 4-5 below, on-site construction emissions would be less than 100 pounds per day for each of the criteria pollutants. To present a conservative estimate, on-site emissions for on-road construction vehicles were included in the localized analysis. Based on the SJVAPCD's guidance, the construction emissions would not cause an ambient air quality standard violation.

Table 4-5: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$ for Construction

| Source | On-site Emissions (pounds per day) | | | | |
|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| Construction (2024) | 3.71 | 36.50 | 33.23 | 9.46 | 5.43 |
| Construction (2025) | 1.80 | 12.26 | 16.66 | 0.73 | 0.48 |
| Construction (2026) | 36.18 | 12.53 | 17.94 | 0.89 | 0.46 |
| **Entire Project Construction Duration (2024-2026)** | | | | | |
| **Maximum Daily On-site Emissions** | **36.18** | **36.50** | **33.23** | **9.46** | **5.43** |
| Significance Thresholds | — | 100 | 100 | 100 | 100 |
| Exceed Significance Thresholds? | — | No | No | No | No |
| Note: Overlap of construction activities is based on the construction schedule shown in Attachment A.<br>Source of Emissions: CalEEMod Output and Additional Supporting Information (Attachment A).<br>Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023. | | | | | |

### Operation: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$

Localized impacts could occur in areas with a single large source of emissions—such as a power plant—or at locations with multiple sources concentrated in a small area, such as a distribution center. Although residential development Projects are typically less likely to cause a localized air quality impact compared to land uses with large sources of emissions or multiple concentrated sources of emissions, the proposed Project would emit air pollutants that have the potential to create a localized impact. The maximum daily operational emissions would occur at Project buildout, which was assumed to occur in 2025 for the purposes of providing a conservative estimate of emissions. Operational emissions include those generated on-site by area sources such as consumer products, and landscape maintenance, energy use from natural gas combustion, and motor vehicles operation at the Project site. To assess localized air impacts, motor vehicle emissions were estimated for on-site and localized operations using an adjusted trip length of 0.5 mile.

As shown in Table 4-6 below, operational modeling of on-site emissions for the Project indicate that the Project would not exceed 100 pounds per day for each of the criteria pollutants. Therefore, based on the SJVAPCD's guidance, the operational emissions would not cause an ambient air quality standard violation. As such, impacts would be less than significant.

Table 4-6: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$ for Operations

| Source | On-site Emissions (pounds per day) | | | | |
|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| Area | 8.53 | 1.44 | 15.54 | 0.13 | 0.13 |
| Energy Consumption | 0.09 | 1.55 | 0.66 | 0.13 | 0.13 |
| Mobile (On-road Vehicles) | 5.23 | 2.01 | 13.56 | 0.58 | 0.15 |
| **Daily Total** | **13.86** | **5.00** | **29.77** | **0.83** | **0.41** |
| **Significance Thresholds** | — | **100** | **100** | **100** | **100** |
| **Exceed Significance Thresholds?** | — | **No** | **No** | **No** | **No** |

Source of Emissions: CalEEMod Output (Attachment A).
Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023.

*Toxic Air Contaminants*

***Construction***

Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. The SJVAPCD's current threshold of significance for TAC emissions is an increase in cancer risk for the maximally exposed individual of 20 in a million (formerly 10 in a million).

A Project-level assessment was conducted of the potential community health risk and health hazard impacts on surrounding sensitive receptors resulting from the emissions of TACs during construction. A summary of the assessment is provided below, while the detailed assessment is provided in Attachment B of Appendix A.

Construction activity using diesel-powered equipment emits DPM, a known carcinogen. Diesel particulate matter includes exhaust $PM_{10}$ and exhaust $PM_{2.5}$. A 10-year research program demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.[6] Health risks from TACs are a function of both concentration and duration of exposure. Construction diesel emissions are temporary, affecting an area for a period of weeks or months. Additionally, construction-related sources are mobile and transient in nature.

The health risk assessment evaluated DPM (represented as exhaust $PM_{10}$) emissions generated during construction of the proposed Project and the related health risk impacts for sensitive receptors located within approximately 1,000 feet of the Project boundary.

---

[6] California Air Resources Board (CARB). 2015. The Report on Diesel Exhaust. Accessed July 29, 2023, https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/de-fnds.htm.

The Project site is located within 1,000 feet of existing sensitive receptors that could be exposed to diesel emission exhaust during the construction period. To estimate the potential cancer risk associated with construction of the proposed Project from equipment exhaust (including DPM), a dispersion model was used to translate an emission rate from the source location to concentrations at the receptor locations of interest (i.e., receptors at nearby residences). A maximally exposed receptor (MER) was determined for construction and through the use of the dispersion modeling. A graphical representation of the inputs used in the dispersion modeling, including the locations of modeled receptor locations, is included as part of Attachment B of Appendix A.

Table 4-7 presents a summary of the proposed Project's construction cancer risk and chronic non-cancer hazard impacts at the MER from Project construction prior to the application of any equipment mitigation.

Table 4-7: Health Risks from Unmitigated Project Construction

| Scenario | Health Impact Metric | Carcinogenic Inhalation Health Risk in One Million | Chronic Inhalation Hazard Index |
|---|---|---|---|
| **Risks and Hazards from Project Construction to the Off-site MER[1]** | | | |
| Unmitigated Project Construction | Risks and Hazards at the MER | 29.03 | 0.015 |
| | **Applicable Threshold of Significance** | **20** | **1** |
| | Exceeds Individual Source Threshold? | Yes | No |

Notes:
MER = Maximally Exposed Receptor
[1] The MER was determined to be an existing residence located east of the Project site 36°43'13.6"N 120°04'58.3"W (Receptor #6).
Source: Attachment B.

As shown in Table 4-7, estimated health risks from elevated DPM concentrations during construction of the proposed Project would exceed the applicable cancer risk significance threshold in at least one scenario. This represents a potentially significant construction TAC exposure impact. Therefore, mitigation is required to reduce the impact during the construction period.

***Mitigation Measure AIR-1***requires the Project applicant, Project sponsor, or construction contractor to provide documentation to the City of Kerman that the construction fleet meet one of the following two requirements (1) all off-road diesel-powered construction equipment greater than 75 horsepower meet EPA or CARB Tier 4 Interim off-road emissions standards, or (2) off-road diesel-powered construction equipment greater than 75 horsepower be equipped with Level 3 diesel particulate filters or meet Tier 4 Interim emissions standards. Table 4-8 shows the health risks and non-cancer hazard index for construction with implementation ***MM AIR-1***.

Table 4-8: Mitigated Health Risks from Project Construction

| Scenario | Health Impact Metric | Carcinogenic Inhalation Health Risk in One Million | Chronic Inhalation Hazard Index |
|---|---|---|---|
| Risks and Hazards from Mitigated Project Construction at the MER[1]—Tier 4 Scenario | | | |
| Construction with Tier 4 Equipment | Risks and Hazards at the MER | 6.27 | 0.003 |
| Risks and Hazards from Mitigated Project Construction at the MER[1]—Level 3 Filters Scenario | | | |
| Construction with | Risks and Hazards at the MER | 8.75 | 0.005 |

| Scenario | Health Impact Metric | Carcinogenic Inhalation Health Risk in One Million | Chronic Inhalation Hazard Index |
|---|---|---|---|
| Level 3 Filters | | | |
| **Maximum Risks and Hazards at the MER[1] After the Incorporation of Mitigation Measure AIR-1** | | | |
| Mitigated Construction | Risks and Hazards at the MER | 8.75 | 0.005 |
| | **Applicable Threshold of Significance** | **20** | **1** |
| | Exceeds Individual Source Threshold? | No | No |

Notes:
MER = Maximally Exposed Receptor
[1] The MER was determined to be an existing residence located east of the Project site 36°43'13.6"N 120°04'58.3"W (Receptor #6).
Source: Attachment B.

As noted in Table 4-8, calculated health metrics from the proposed Project's construction DPM emissions would not exceed the cancer risk significance threshold or non-cancer hazard index significance threshold at the MER with incorporation of ***MM AIR-1***. Therefore, the proposed Project would not result in a significant impact on nearby sensitive receptors from TACs during construction with incorporation of mitigation.

### *Operations*

*Operational DPM*

As described in the Traffic Impact Study prepared for the proposed Project (Appendix F), the Project is expected to generate 1,608 average daily trips. The proposed Project would primarily generate trips associated with residents and visitors traveling to and from the Project site.

Unlike warehouses or distribution centers, the daily vehicle trips generated by the proposed residential Project would be primarily generated by passenger vehicles. Passenger vehicles typically use gasoline engines rather than the diesel engines that are found in heavy-duty trucks. Gasoline-powered vehicles do emit TACs in the form of toxic organic gases, some of which are carcinogenic. Compared to the combustion of diesel, the combustion of gasoline has relatively low emissions of TACs. Thus, residential Projects typically produce limited amounts of TAC emissions during operation from passenger vehicle trips. DPM emissions were estimated for the Project-generated truck trips using EMFAC2021 to assess the Project's potential to generate elevated levels of TACs from Project trips. Health risk impacts were compared to the prioritization screening threshold to determine if a more refined health risk assessment conducted using dispersion modeling would be required. Detailed assumptions are provided in Attachment B of Appendix A. The results of the operational HRA from Project-generated sources of DPM during operations are summarized below, while the complete assessment is included as part of Attachment B.

As shown in Table 4-9, the Project would not exceed the applicable cancer risk or chronic risk prioritization screening threshold levels. The primary source of the DPM emissions responsible for chronic risk are from diesel trucks. DPM does not have an acute risk factor. Since the Project does not exceed the applicable SJVAPCD screening thresholds for cancer risk, acute risk, or chronic risk, the impact related to the Project's potential to expose sensitive receptors to substantial pollutant concentrations from non-permitted sources would be less than significant. Therefore, the proposed Project would not result in a significant impact on nearby sensitive receptors from Project-generated TACs during operations.

Table 4-9: Summary of the Health Impacts Risk Impacts (Operational DPM Emissions)

| Exposure Scenario | Maximum Cancer Risk (Risk per Million) | Chronic Non-Cancer Hazard Index |
|---|---|---|
| 70-Year Exposure | 1.85 | 0.0054 |
| **Applicable Prioritization Screening Threshold** | **10** | **1** |
| **Exceeds Prioritization Screening Threshold?** | **No** | **No** |

Notes:
MER = Maximally Exposed Receptor
Operational DPM MER UTM: (332324.72, 3896137.38)
Source: Attachment B.

### *Valley Fever*

Valley fever, or coccidioidomycosis, is an infection caused by inhalation of the spores of the fungus, *Coccidioides immitis* (*C. immitis*). The spores live in soil and can live for an extended time in harsh environmental conditions. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities.

The San Joaquin Valley is considered an endemic area for Valley fever. The San Joaquin Valley is considered an endemic area for Valley fever. During 2000–2018, a total of 65,438 coccidioidomycosis cases were reported in California; median statewide annual incidence was 7.9 per 100,000 population and varied by region from 1.1 in Northern and Eastern California to 90.6 in the Southern San Joaquin Valley, with the largest increase (15-fold) occurring in the Northern San Joaquin Valley. Incidence has been consistently high in six counties in the Southern San Joaquin Valley (Fresno, Kern, Kings, Madera, Tulare, and Merced counties) and Central Coast (San Luis Obispo County) regions.[7] California experienced 7,392 new probable or confirmed cases of Valley fever in 2020. A total of 466 Valley fever cases were reported in Fresno County in 2020.[8]

The distribution of *C. immitis* within endemic areas is not uniform and growth sites are commonly small (a few tens of meters) and widely scattered. Known sites appear to have some ecological factors in common suggesting that certain physical, chemical, and biological conditions are more favorable for *C. immitis* growth. Avoidance, when possible, of sites favorable for the occurrence of *C. immitis* is a prudent risk management strategy. Listed below are ecologic factors and sites favorable for the occurrence of *C. immitis*:

---

[7] Centers for Disease Control and Prevention (CDC). 2020. Regional Analysis of Coccidioidomycosis Incidence—California, 2000–2018. Accessed July 29, 2023, https://www.cdc.gov/mmwr/volumes/69/wr/mm6948a4.htm?s_cid=mm6948a4_e

[8] California Department of Public Health (CDPH). 2021. Coccidioidomycosis in California Provisional Monthly Report January 2021. Accessed July 29, 2023, https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciinCAProvisionalMonthlyReport.pdf

1) *Rodent burrows (often a favorable site for C. immitis, perhaps because temperatures are more moderate and humidity higher than on the ground surface)*
2) *Old (prehistoric) Indian campsites near fire pits*
3) *Areas with sparse vegetation and alkaline soils*
4) *Areas with high salinity soils*
5) *Areas adjacent to arroyos (where residual moisture may be available)*
6) *Packrat middens*
7) *Upper 30 centimeters of the soil horizon, especially in virgin undisturbed soils*
8) *Sandy, well-aerated soil with relatively high water-holding capacities*

Sites within endemic areas less favorable for the occurrence of *C. immitis* include:

1) *Cultivated fields*
2) *Heavily vegetated areas (e.g., grassy lawns)*
3) *Higher elevations (above 7,000 feet)*
4) *Areas where commercial fertilizers (e.g., ammonium sulfate) have been applied*
5) *Areas that are continually wet*
6) *Paved (asphalt or concrete) or oiled areas*
7) *Soils containing abundant microorganisms*
8) *Heavily urbanized areas where there is little undisturbed virgin soil.*[9]

The Project is situated on a site previously disturbed that does not provide a suitable habitat for spores. Specifically, the Project site has been previously disturbed and has previously been tilled. Therefore, development of the proposed Project would have a lower probability of the site having *C. immitis* growth sites than if the site had been previously undisturbed.

Although conditions are not favorable, construction activities could generate fugitive dust that contain *C. immitis* spores. The Project will minimize the generation of fugitive dust during construction activities by complying with SJVAPCD's Regulation VIII. Therefore, this regulation, combined with the relatively low probability of the presence of *C. immitis* spores would reduce Valley fever impacts to less than significant.

During operations, dust emissions are anticipated to be relatively small because most of the Project area where operational activities would occur would be occupied by the proposed buildings, landscaping, and pavement associated with the proposed residential development; it is anticipated that all internal travel areas would be paved. This condition would lessen the possibility of the Project from providing habitat suitable for *C. immitis* spores and for generating fugitive dust that may contribute to Valley fever exposure. Impacts would be less than significant.

<u>*Naturally Occurring Asbestos*</u>

---

[9] United States Geological Survey (USGS). 2000. Operational Guidelines (Version 1.0) for Geological Fieldwork in Areas Endemic for Coccidioidomycosis (Valley Fever), 2000, Open-File Report 2000-348. Accessed July 29, 2023, https://pubs.usgs.gov/of/2000/0348/pdf/of00-348.pdf.

Review of the map of areas where naturally occurring asbestos in California are likely to occur found no such areas in the immediate Project area. Therefore, development of the Project is not anticipated to expose receptors to naturally occurring asbestos.[10] Impacts would be less than significant.

In summary, the Project would not exceed SJVAPCD localized emission daily screening levels for any criteria pollutant. The Project is not a significant source of TAC emissions during operations. The Project would be significant source of TAC emissions during construction after incorporation of ***MM AIR-1***. The Project is not in an area with suitable habitat for Valley fever spores and is not in area known to have naturally occurring asbestos. Therefore, the Project would not result in significant impacts to sensitive receptors after incorporation of mitigation.

***Mitigation Measure AIR-1.*** *Before a construction permit is issued for the proposed Project, the Project applicant, Project sponsor, or construction contractor shall submit provide reasonably detailed compliance with one of the following requirements to the City of Kerman:*

a) *Option 1) Where portable diesel engines are used during construction, all off-road equipment with engines greater than 75 horsepower shall have engines that meet either United States Environmental Protection Agency (EPA) or California Air Resources Board (CARB) Tier 4 Interim off-road emission standards except as otherwise specified herein. If engines that comply with Tier 4 Interim or Tier 4 Final off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier 3) that is commercially available. For purposes of this Project design feature, "commercially available" shall mean the equipment at issue is available taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic proximity to the Project site of equipment. If the relevant equipment is determined by the Project applicant to not be commercially available, the contractor can confirm this conclusion by providing letters from at least two rental companies for each piece of off-road equipment that is at issue.*

b) *Option 2) Prior to the issuance of any demolition, grading, or building permits (whichever occurs earliest), the Project applicant and/or construction contractor shall prepare a construction operations plan that, during construction activities, requires all off-road equipment with engines greater than 75 horsepower to meet either the particulate matter emissions standards for Tier 4 Interim engines or be equipped with Level 3 diesel particulate filters. Tier 4 Interim engines shall, at a minimum, meet EPA or CARB particulate matter emissions standards for Tier 4 Interim engines. Alternatively, use of CARB-certified Level 3 diesel particulate filters on off-road equipment with engines greater than 75 horsepower can be used in lieu of Tier 4 Interim engines or in combination with Tier 4 Interim engines. The construction contractor shall maintain records documenting its efforts to comply with this requirement, including equipment lists. Off-road equipment descriptions and information shall include, but are not limited to, equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier*

---

[10] U.S. Geological Survey. 2011. Van Gosen, B.S., and Clinkenbeard, J.P. California Geological Survey Map Sheet 59. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Open-File Report 2011-1188 Accessed July 29, 2023, https://pubs.usgs.gov/of/2011/1188/.

*rating), horsepower, and engine serial number. The Project applicant and/or construction contractor shall submit the construction operations plan and records of compliance to the City of Kerman.*

**Less than Significant Impact.**

***d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?***

**Less than Significant Impact.** Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. According to the *CBIA v. BAAQMD* ruling, impacts of existing sources of odors on the Project are not subject to CEQA review. Therefore, the analysis to determine if the Project would locate new sensitive receptors near an existing source of odor is not used to determine significance for this impact.

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc. warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Although the Project is less than 50’ from the nearest sensitive receptor, the Project is not expected to be a significant source of odors. The screening levels for these land use types are shown in Table 4-10.

**Table 4-10: Screening Levels for Potential Odor Sources**

| Odor Generator | Screening Distance |
|---|---|
| Wastewater Treatment Facilities | 2 miles |
| Sanitary Landfill | 1 mile |
| Transfer Station | 1 mile |
| Composting Facility | 1 mile |
| Petroleum Refinery | 2 miles |
| Asphalt Batch Plant | 1 mile |
| Chemical Manufacturing | 1 mile |
| Fiberglass Manufacturing | 1 mile |
| Painting/Coating Operations (e.g., auto body shop) | 1 mile |
| Food Processing Facility | 1 mile |
| Feed Lot/Dairy | 1 mile |
| Rendering Plant | 1 mile |
| Wastewater Treatment Facilities | 2 miles |
| Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023. | |

*Project Construction and Project Operation*

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. Project operations would not be anticipated to produce odorous emissions, as the Project would not be considered an odor generator based on the land uses shown in Table 4-10. Construction activities associated with the proposed Project could result in short-term odorous emissions from diesel exhaust associated with construction equipment. However, these emissions would be intermittent and would dissipate rapidly from the source. In addition, this diesel-powered equipment would only be present onsite temporarily during construction activities. The temporary and intermittent nature of construction activities would decrease the likelihood of the odors concentrating in a single area or lingering for any notable period of time. As such, these odors would likely not be noticeable for extended periods of time beyond the Project's site boundaries. Therefore, construction would not create objectionable odors affecting a substantial number of people from use of diesel-powered equipment. As there would not be conditions under which the Project would have the potential to expose a substantial number of people to odors emitted from construction or operations of the Project, and the impact would be less than significant.

### *4.3.3 Mitigation Measures*

The Project shall implement and incorporate, as applicable, the Air Quality related mitigation measures as identified above and in the MITIGATION MONITORING AND REPORTING PROGRAM contained in SECTION 5.

## 4.4 BIOLOGICAL RESOURCES

| Would the Project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| *a)* Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | | X | | |
| *b)* Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | | | | X |
| *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? | | | | X |
| *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? | | X | | |
| *e)* Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | | | | X |
| *f)* Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. | | | | X |

### 4.4.1 Environmental Setting

A Biological Resource Assessment was conducted by Argonaut Ecological Consulting, Inc., in June 2023, and is provided in Appendix B. The assessment includes assessing the types of current habitats and sensitive species associated with the habitats. The biological evaluation methods include performing site reconnaissance, reviewing public and commercial databases, historical and current aerial photographs, and other published information and data. The respective assessment was conducted specifically for APNs 020-160-36S, 020-160-18S, and 020-160-19S. The following environmental setting summarizes information from the Biological Resource Assessment.

#### *Methodology*

Data and Literature Review

Documents and sources of information used to prepare this evaluation include the following:

- *Aerial photography (Google Earth®, Bing®, and historic aerials).*
- *California Department of Fish and Wildlife, California Natural Diversity Database*
- *(CNDDB/RareFind - Recent version with updates) EcoAtles 2023.*
- *U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey of Fresno County (Soils mapper).*
- *U.S. Fish and Wildlife Service, National Wetland Inventory Map.*
- *U.S. Fish and Wildlife Service, Information for Planning and Consultation (IPaC) query, March 3, 2023.*
- *U.S. Geological Survey, Historical Topographic Map, Kerman Quadrangle, 1924,*
- *University of Texas, Austin, Perry-Castañeda Map Collection*

Aerial Photography and Wetland Mapping

Historical aerial photographs dating back to the 1980s of the Study Area (defined as APNS 020-160-36S, 020-160-18S, 020-160-19S) were reviewed to identify site features and determine land-use changes over time. Also reviewed were wetland mapping and aerial photographs to determine if the Study Area recently supported wetlands.

Field Investigation

A site investigation was performed on April 30, 2023. The entire Study Area was reviewed, and all habitat features were mapped. Soils, vegetation, and drainage patterns within the Study Area were inspected to determine the habitat present and suitability for species of concern. The site was walked using transects to provide full coverage.

#### *Physical Resources*

Climate

The Study Area climate is typical of the central San Joaquin Valley, with long, hot, dry summers and cool, mild winters. In the winter, rainfall averages approximately 9.99 inches per year, falling mainly between November and April (Western Regional Climate Center, 2004). During 2021 total rainfall, the Fresno region had a total of 8.22 inches; in 2022, there was a total of 5.43 inches. Since the fall of 2022, the regional rainfall totaled 21 inches (through May 2023) near Fresno.

Topography, Drainage, and Soils

*Topography and Drainage:* The Study Area lies within the Central Valley and is at an elevation of 2l (msl). Historically, no mapped streams, creeks, or other drainage features existed within or near the Study Area, as seen in a 1946 topographic map. There is no defined drainage path within or from the Study Area, but the general direction of drainage is likely toward the northwest.

*Soils:* The site soil types – Hesperia sandy loam, deep (66% of the Study Area), Traver sandy loam (25%), El Peco sandy loam (15%), Hanford coarse sandy loam (8%), and Hesperia sandy loam shallow (2%).

Habitat

There are several California habitat classification systems. Most classification systems describe natural communities without established classifications for developed or agricultural habitats. CALVEG is a United States Department of Agriculture (USDA) Forest Service product providing a comprehensive spatial dataset of existing vegetation cover over California. The data were created using a combination of automated systematic procedures, remote sensing classification, photo editing, and field-based observations. Analyses are based "on a crosswalk of the CALVEG classifications to the California Wildlife Habitat Relationships (CWHR)." CALVEG lists the site as an "agricultural/non-native/ruderal" habitat.

TSM 2023-01 portions of the Study Area are dominated by a non-native herb, rip-gut brome (Bromus diandrus). Other forbs present include Hordeum marinum (barley), Volpais myuros (rats tail fescue). Alfalfa is present along the edges of the parcel, along with other ruderal species, including Erodium cicutarum (stork's bill). The 20-acre parcel north of TSM 2023-01 is an almond ~~peach~~ orchard. The only wildlife observed within the Study Area is a large population of ground squirrels and jackrabbits.

Waters/Wetland

According to the National Wetland Inventory Map, there are no mapped waters (streams, drainages, wetlands) within or immediately adjacent to the Study Area, either currently or historically. The entire Study Area was walked to look for any evidence of potential wetlands/waters habitat, and wetland, waters, or any other aquatic habitat (either perennial or seasonal) is present.

Special Status Species

A query of the California Natural Diversity Database (CNDDB) and the USFWS IPaC was performed to determine which special status species could be present within the Study Area. No critical habitat exists for any species within or near the Study Area. The Study Area is not within any Critical Habitat for any listed species. Table 1 in the Biological Resource Assessment shows a summary of the potential occurrence and impact of special status species in or near the Study Area. Most species are assessed as being absent while two (2) species are assessed as likely absent:

- ***Burrowing owl:*** *Occupies grasslands and some disturbed sites but needs ground burrowing mammal burrows for nesting. Ground burrows are present but no evidence of the current burrowing owl occupation.*

- ***San Joaquin kit fox:*** *No denning habitat within or near the Study Area. It could occasionally forage in the area if the species is in the area.*

### *Conclusion*

The Biological Resource Assessment identified the following conclusions and recommended mitigation measures to avoid any potential impacts to special status species.

- *The Study Area has historically been disturbed in agricultural production. The two northern parcels (orchard and row crops) are currently in production, and TSM 2023-01 is currently fallow.*
- *The habitat value of wildlife is limited, and the only wildlife, or signs of wildlife, was a few birds.*
- *There are no potential waters or wetlands within or near the Study Area.*
- *The Study Area does not support habitat associated with special status species breeding or nesting. However, TSM 2023-01 could support ground-nesting burrowing, given the presence of ground-burrowing mammals. The likely hood of occupation is low but not impossible.*
- *San Joaquin kit fox could pass through the Study Area or attempt to forage within the area. There is no denning habitat within the Study Area or evidence of a suitable prey base.*

### *4.4.2 Impact Assessment*

***Would the Project:***

***a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?***

**Less than Significant with Mitigation Incorporated.** The Project Area ~~site~~ is currently vacant and undeveloped, with no existing structures or improvements. The existing biotic site conditions and resources of the Project Area ~~site~~ can be defined primarily as ruderal and is disturbed due to annual discing. There is herbaceous vegetation throughout the Project site. There are no trees, shrubs, or water features on site.

As described in the Environmental Setting, the site conditions provide low suitability for habitat for any candidate, sensitive, or special-status species that may occur on the Project Area ~~site~~ or vicinity. However, the Project Area ~~site~~ could support ground-nesting burrowing, given the presence of ground-burrowing mammals. Therefore, to reduce impacts to protected burrowing owls that may occur during site construction and development, the Project shall incorporate ***Mitigation Measure (MM) BIO-1 and BIO-2***. Through incorporation of the mitigation measures, potentially significant impacts would be reduced to less than significant with mitigation incorporated and the Project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

***Mitigation Measure BIO-1:*** *Burrowing owls avoidance. The Project shall implement the following measures to avoid any potential impacts of nesting habitat of the Project in compliance with the federal Migratory Bird Treaty Act and relevant Fish and Game Codes:*

- ***Avoidance.*** *Initiate grading/ground disturbance from Sept 1 – February 1 during the non-breeding period.*
- ***Preconstruction Surveys.*** *If construction is initiated during the nesting period (Feb 1 – Aug 30), conduct a preconstruction survey to confirm that no burrowing owl has taken up residence in any parcels with ground burrowing mammals. If burrowing owl occupation is found, consult with the California Department of Fish and Wildlife to determine the appropriate avoidance and minimization measures.*

***Mitigation Measure BIO-2:*** *San Joaquin kit fox Avoidance. The following measures are recommended to avoid any potential impact to San Joaquin kit fox during construction. These measures are designed to avoid and minimize any impact on San Joaquin kit fox in the unlikely event an individual is present within the Study Area at any time during construction.*

- ***Prior to Construction:*** *Prepare and conduct an employee education program prior to the start of construction. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the Project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the Project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during Project construction and implementation (as summarized below). A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the Project site.*
- ***Avoidance and Minimization Measures During Construction:*** *The following measures should be included within the worker education program and in any Project specification and contract.*
    1. *Project-related vehicles should observe a daytime speed limit of 20 mph throughout the site in all Project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. No nighttime construction should occur, given the species is primarily nocturnal.*
    2. *To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a Project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.*
    3. *Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped.*
    4. *All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.*
    5. *No firearms shall be allowed on the Project site.*

6. *No pets, such as dogs or cats, should be permitted on the Project site to prevent harassment, mortality of kit foxes, or destruction of dens.*
7. *The use of rodenticides and herbicides in Project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe labels and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.*
8. *A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program, and their name and telephone number shall be provided to the Service.*
9. *Upon completion of the Project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, etc., should be re-contoured if necessary and revegetated, if possible, to promote restoration of the area to pre-Project conditions.*
10. *Any contractor or employee responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured, or entrapped kit fox.*
11. *The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or the finding of a dead or injured animal and any other pertinent information.*
12. *New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map marked with the location of where the kit fox was observed should also be provided to the Service at the address below.*

***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 the U.S. Fish and Wildlife Service?***

**No Impact.** According to the General Plan and Biological Resource Assessment, there are no known riparian habitats or other sensitive natural communities identified in the Project Area ~~on the Project site or within the immediate vicinity of the Project~~. In addition, the site does not contain any water features that would provide habitat for riparian species. Further, the site consists of ruderal, non-native vegetation. For these reasons, it can be determined that the Project Area ~~site~~ does not provide any riparian or sensitive natural community habitat and thus, no impact would occur because of the Project.

***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?***

**No Impact.** Based on the search of the NWI, the Project Area ~~site~~ does not contain any federally protected wetlands. As a result, it can be determined that the Project site would not result in any impact on state or federally protected wetlands and no impact would occur because of the Project.

d) *Would the Project 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?*

**Less than Significant with Mitigation Incorporated.** Wildlife movement corridors are linear habitats that function to connect two (2) or more areas of significant wildlife habitat. These corridors may function on a local level as links between small habitat patches (e.g., streams in urban settings) or may provide critical connections between regionally significant habitats (e.g., deer movement corridors).

Wildlife corridors typically include vegetation and topography that facilitate the movements of wild animals from one area of suitable habitat to another, in order to fulfill foraging, breeding, and territorial needs. These corridors often provide cover and protection from predators that may be lacking in surrounding habitats. Wildlife corridors generally include riparian zones and similar linear expanses of contiguous habitat.

As concluded in the Biological Resource Assessment, the habitat value of the Project Area ~~site~~ for wildlife is limited, and the area ~~site~~ does not contain suitable habitat that could support wildlife species in nesting, breeding, foraging, or escaping from predators. However, though unlikely, ground-nesting burrowing could be supported given the presence of ground-burrowing mammals, and San Joaquin kit fox could pass through the site or attempt to forage within the area. To reduce impacts to the two species, ***MM BIO-1*** and ***BIO-2*** are implemented. As such, it can be determined that the Project would not interfere with wildlife movement and a less than significant impact within mitigation incorporated.

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

**No Impact.** KMC *Chapter 12.20—Trees and Shrubs in Public Places* establishes standards and regulations related to the planting, maintenance, and removal of trees and shrubs along public streets. However, there are no trees within the Project site. As such, the Project would have no impact.

f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

**No Impact.** There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans applicable to the Project Area ~~site~~. As such there would be no impact.

### *4.4.3 Mitigation Measures*

The Project shall implement and incorporate, as applicable, the Biological Resources related mitigation measures as identified above and in the MITIGATION MONITORING AND REPORTING PROGRAM contained in SECTION 5.

## 4.5 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 as defined in *Section 15064.5*? | | X | | |
| *b)* Cause a substantial adverse change in the significance of an archaeological resource pursuant to *Section 15064.5*? | | X | | |
| *c)* Disturb any human remains, including those interred outside of formal cemeteries? | | | X | |

### *4.5.1 Environmental Setting*

Generally, the term 'cultural resources' describes property types such as prehistoric and historical archaeological sites, buildings, bridges, roadways, and tribal cultural resources. As defined by CEQA, cultural resources are considered "historical resources" that meet criteria in *Section 15064.5(a)* of the CEQA Guidelines. If a Lead Agency determines that a Project may have a significant effect on a historical resource, then the Project is determined to have a significant impact on the environment. No further environmental review is required if a cultural resource is not found to be a historical resource.

#### *California Historical Resource Information System Record Search*

The Southern San Joaquin Valley Information Center (SSJVIC) was requested to conduct a California Historical Resources Information System (CHRIS) Record Search for the Project site and surrounding "Cultural Resources Project Area" (0.5-mile radius from perimeter of Project Area ~~site~~). Results of the CHRIS Record Search were provided on March 27, 2023 (Record Search File Number 23-098). Full results are provided in **Appendix C**.

The CHRIS Record Searches generally review file information based on results of Class III pedestrian reconnaissance surveys of Project sites conducted by qualified individuals or consultant firms which are required to be submitted, along with official state forms properly completed for each identified resource, to the Regional Archaeological Information Center. Guidelines for the format and content of all types of archaeological reports have been developed by the California Office of Historic Preservation, and reports will be reviewed by the regional information centers to determine whether they meet those requirements.

The results of the SSJVIC CHRIS Record Search indicate:

(1) There were no previous cultural resource studies conducted within the Cultural Resources Project Area.
(2) There are no recorded archaeological resources or historical buildings and structures within the Project Area. There is one recorded resource within the one-half mile radius, P-10-003930, a historic era railroad.
(3) The State Office of Historic Preservation Built Environment Resources Directory (OHP BERD), which includes listings of the California Register of Historical Resources, California State Historical Landmarks,

California State Points of Historical Interest, and the National Register of Historic Places, lists no previously recorded buildings or structures within or adjacent to the proposed Project Area.

Further, the SSJVIC provided the following comments and recommendations:

(1) Prior to ground disturbance activities, we recommend a qualified, professional consultant conduct a field survey to determine if cultural resources are present.
(2) Contact the Native American Heritage Commission (NAHC) for a list of Native American tribes that can assist with information regarding traditional, cultural, and religious heritage values. Consult NAHC's "Sacred Lands Inventory" file to determine what sacred resources, if any, exist within this Project Area and the way in which these resources might be managed.
(3) If this Project will result in alteration or demolition of any existing structures more than 45 years old, then we recommend the structures first be recorded and evaluated for historical significance.

### *California Native American Heritage Commission (NAHC)*

A consultation list of tribes with traditional lands or cultural places located within Fresno County was requested and received from the California Native American Heritage Commission (NAHC) on April 11, 2023. The listed tribes include Big Sandy Rancheria of Western Mono Indians, Cold Springs Rancheria of Mono Indians, Dumna Wo-Wah Tribal Government, Kings River Choinumni Farm Tribe, North Valley Yokuts Tribe, Table Mountain Rancheria, Tule River Indian Tribe, Wuksache Indian Tribe/Eshom Valley Band. The NAHC also conducted a Sacred Lands File (SLF) check which received negative results. Correspondence is provided in Appendix D.

### *AB 52 and SB 18 Tribal Consultation*

The City of Kerman conducted formal tribal consultation pursuant to AB 52 (Chapter 532, Statutes 2014) and SB 18 (Chapter 905, Statutes 2004) one April 28, 2023, utilizing the consultation list of tribes received from the NAHC. The same tribes listed above were included in the formal consultation. Consultation for AB 52 ended on May 29, 2023, and consultation for SB 18 ended on July 27, 2023. No response was received.

### *General Plan*

The Kerman General Plan Conservation, Open Space, Parks and Recreation Element identifies the following policies related to historic and cultural resources.

***Goal COS-3*** *To protect sites and structures of historical and cultural significance, and to enhance the availability of new cultural amenities.*

> ***Policy COS-3.1 Tribal Consultation Requirements Compliance.*** *The City shall continue to comply with SB 18 and AB 52 by consulting with local California Native American tribes. If archaeological resources of Native American origin are identified during Project construction, a qualified archaeologist shall consult with Kerman to begin native American consultation procedures. Appropriate Native American tribes shall be contacted by the City or qualified archaeologist. As part of this process, it may be determined that archaeological monitoring may be required; a Native American monitor may also be required in addition to the archaeologist. The Project proponent shall fund the costs of the qualified archaeologist and Native American monitor (as needed) and required analysis and shall implement any mitigation determined to be necessary by the City, qualified archaeologist, and participating Native American tribe.*

> ***Policy COS-3.5 Discretionary Development Review for Cultural Resources.*** *The City shall review discretionary development Projects, as part of any required CEQA review, to identify and protect important archaeological, paleontological, and cultural sites and their contributing environment from damage, destruction, and abuse. Consistent with CEQA findings, the City shall require Project-level mitigation to include accurate site surveys, consideration of Project alternatives to preserve archaeological and paleontological resources, provisions for resource recovery, and preservation measures when displacement is unavoidable.*

The General Plan also identifies the Plaza Veterans Park is of particular significance because it retains much of its early 20th Century form. The City also recognizes the importance of new cultural programs and events to enhance the quality of life of residents as part of the city's cultural resources.

### *4.5.2 Impact Assessment*

*Would the Project:*

*a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?*

**Less than Significant with Mitigation Incorporated.** Based on the CHRIS Records Search conducted on March 27, 2023, there are no known local, state, or federal designated historical resources pursuant to *Section 15064.5* in the ~~annexation boundary or~~ Project Area ~~site~~. While there is no evidence that historical resources exist ~~on~~ in the Project Area ~~site, or annexation boundary~~, there is some possibility that hidden and buried resources may exist with no surface evidence that may be impacted by future physical development. In the event of the accidental discovery and recognition of previously unknown historical resources before or during construction activities, the Project shall also incorporate ***Mitigation Measure (MM) CUL-1*** to assure construction activities do not result in significant impacts to any potential historical resources discovered below ground surface. Thus, if such resources were discovered, implementation of the required mitigation measures would reduce the impact to less than significant. As a result, the Project would have a less than significant impact with mitigation incorporated.

***Mitigation Measure CUL-1:*** *In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the construction of each phase of the Project:*

*a. Cultural Resources Alert on Project Plans. The Project proponent shall note on any plans that require ground disturbing excavation that there is a potential for exposing buried cultural resources.*

*b. Stop Work Near any Discovered Cultural Resources. Should previously unidentified cultural resources be discovered during construction of the Project, the Project proponent shall cease work within 50 feet of the resources, and City of Kerman shall be notified immediately. The Project archaeologist meeting the Secretary of the Interior Professional Qualifications Standards for archeology shall immediately to evaluate the find pursuant to Public Resources Code Section 21083.2.*

*c. Mitigation for Discovered Cultural Resources. If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the Project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than-significant level. If the archaeologist and, if applicable, a Native American monitor or other interested tribal representative determine it is appropriate, cultural materials* *collected from the site shall be processed and analyzed in a laboratory according to standard archaeological procedures. The age of the materials shall be determined using radiocarbon dating and/or other appropriate procedures; lithic artifacts, faunal remains, and other cultural materials shall be identified and analyzed according to current professional standards. The significance of the site(s) shall be evaluated according to the criteria of the California Register of Historical Resources (CRHR) and if applicable, National Register of Historic Places (NRHP). The results of the investigations shall be presented in a technical report following the standards of the California Office of Historic Preservation publication "Archaeological Resource Management Reports: Recommended Content and Format (1990 or latest edition)." Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the City of Kerman. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center (SSJVIC). The resources shall be photo documented and collected by the archaeologist for submittal to the City of Kerman. The archaeologist shall be required to submit to the City of Kerman for review and approval a report of the findings and method of curation or protection of the resources. This report shall be submitted to the SSJVIC after completion. Recommendations contained therein shall be implemented throughout the remainder of ground disturbance activities. Further grading or site work within the area of discovery shall not be allowed until the preceding steps have been taken.*

*d. Data Recovery. Should the results of item c. yield resources that meet CRHR significance standards and if the resource cannot be avoided by Project construction, the Project applicant shall ensure that all feasible recommendations for mitigation of archaeological impacts are incorporated into the final design and approved by the City prior to construction. Any necessary data recovery excavation, conducted to exhaust the data potential of significant archaeological sites, shall be carried out by a qualified archaeologist meeting the SOI's PQS for archeology. Data recovery shall be conducted in accordance with a research design reviewed and approved by the City, prepared in advance of fieldwork, and using the appropriate archaeological field and laboratory methods consistent with the California Office of Historic Preservation Planning Bulletin 5, Guidelines for Archaeological Research Design, or the latest edition thereof. If the archaeological resource(s) of concern are Native American in origin, the qualified archaeologist shall confer with the City and local California Native American tribe(s). As applicable, the final Data Recovery reports shall be submitted to the City prior to issuance of any grading or construction permit. Recommendations contained therein shall be implemented throughout all ground disturbance activities. Recommendations may include, but would not be limited to, Cultural Resources Monitoring, and/or measures for unanticipated discoveries. The final report shall be submitted to the SSJVIC upon completion.*

*e. Disposition of Cultural Resources. Upon coordination with the City of Kerman, any pre-historic archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines.*

*f. Cultural Resources Monitoring. If mitigation measures are recommended by reports written under item c. or d., the Project applicant shall retain a qualified archaeologist to monitor Project-related, ground-disturbing activities which may include the following but not limited to: grubbing, vegetation removal, trenching, grading, and/or excavations. The archaeological monitor shall coordinate with any Native American monitor as required. Monitoring logs must be completed by the archaeologist daily. Cultural resources monitoring may be reduced for the Project if the qualified archaeologist finds it appropriate to reduce the monitoring efforts. Upon completion of* *ground disturbance for the Project, a final report must be submitted to the City for review and approval documenting the monitoring efforts, cultural resources find, and resource disposition. The final report shall be submitted to the SSJVIC.*

*b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?*

**Less than Significant Impact with Mitigation Incorporated.** Based on the CHRIS Records Search conducted March 27, 2023, there are no known archeological resources pursuant to *Section 15064.5* in the ~~annexation boundary or on the~~ Project Area ~~site~~. While there is no evidence that archeological resources exist, there is some possibility that existing structures qualify as historical resources or hidden and buried resources may exist with no surface evidence that may be impacted by future physical development. In the event of the accidental discovery and recognition of previously unknown historical resources before or during construction activities, the Project shall incorporate ***MM CUL-1*** as described under criterion a) to assure construction activities do not result in significant impacts to any potential archeological resources discovered above or below ground surface. Thus, if such resources were discovered, implementation of the required mitigation measures would reduce the impact to less than significant. As a result, the Project would have a less than significant impact with mitigation incorporated.

*c) Disturb any human remains, including those interred outside of formal cemeteries?*

**Less Than Significant Impact.** There is no evidence that human remains exist in the ~~annexation boundary or~~ Project Area ~~site~~. Nevertheless, there is some possibility that a non-visible buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a significant impact. If any human remains are discovered during construction, then the Project would be subject to CCR *Section 15064.5(e)*, PRC *Section 5097.98*, and California Health and Safety Code *Section 7050.5*. Regulations contained in these sections address and protect human burial remains. Compliance with these regulations would ensure impacts to human remains, including those interred outside of formal cemeteries, are less than significant.

### *4.5.3 Mitigation Measures*

The Project shall implement and incorporate, as applicable, the Cultural Resources related mitigation measures as identified above and in the MITIGATION MONITORING AND REPORTING PROGRAM contained in SECTION 5.

## 4.6 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 impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation? | | | X | |
| *b)* Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | | | X | |

### *4.6.1 Environmental Setting*

The Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report was prepared by Johnson Johson and Miller Air Quality Consulting Services (dated August 9, 2023). The respective analyses were conducted within the context of CEQA, and specifically for the development of APN 020-160-36S. Future development of the northern annexation parcels, APNs 020-160-18S and 020-160-19Smay require additional CEQA analysis when development is proposed.

Appendix F of the CEQA Guidelines provides guidance in determining whether a Project will result in the inefficient, wasteful, and unnecessary consumption of energy. According to Appendix F of the CEQA Guidelines, the goal of energy conservation implies the “wise and efficient use” of energy through 1) decreasing overall per capita energy consumption, 2) decreasing reliance on fossil fuels such as coal, natural gas, and oil, and 3) increasing reliance on renewable energy sources.

Per Appendix F, a Project would be considered inefficient, wasteful, and unnecessary if it violated existing energy standards, had a negative effect on local and regional energy supplies and requirements for additional capacity, had a negative effect on peak and base period demands for electricity and other energy forms, and effected energy resources. Appendix F includes the following criteria to determine whether a threshold of significance is met:

1. *The Project energy requirements and its energy use efficiencies by amount and fuel type for each stage of the Project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.*
2. *The effects of the Project on local and regional energy supplies and on requirements for additional capacity.*
3. *The effects of the Project on peak and base period demands for electricity and other forms of energy.*
4. *The degree to which the Project complies with existing energy standards.*
5. *The effects of the Project on energy resources.*
6. *The Project’s Projected transportation energy use requirements and its overall use of efficient transportation alternatives.*

The proposed Project would be served with electricity provided by Pacific Gas and Electric Company (PG&E). In 2020, approximately 85 percent of the electricity PG&E supplied was from GHG-free sources including nuclear, large hydroelectric, and eligible renewable sources of energy.[11]

### *Building Energy Efficiency Standards – Title 24*

California's energy code is designed to reduce wasteful and unnecessary energy consumption in newly constructed and existing buildings. The Building Energy Efficiency Standards (Title 24, Parts 6 and 11 of the California Code of Regulations) are updated by the California Energy Commission every three years. The Standards relate to various energy efficiency measures including but not limited to ventilation, air conditioning, and lighting.[12] The 2022 Building Energy Efficiency Standards became effective in January 2023. The state's "green building code" (i.e., CALGreen) is contained within the Building Energy Efficiency Standards, Title 24, Part 11. The CALGreen standards address environmental and sustainable practices during building construction including energy efficiency. CALGreen applies to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure and additions and alterations on a statewide basis. Compliance with these energy efficiency regulations and programs reduces wasteful, inefficient, or unnecessary consumption of energy sources.

### *Kerman General Plan*

The Kerman General Plan Housing Element identifies the following policies related to energy conservation and sustainable development.

***Goal HE-6*** *To encourage energy efficiency in all new and 2015-2023 Housing.*

> ***Policy HE-6.1. Energy Conservation in New Housing.*** *The City shall encourage the use of energy conserving techniques in the siting and design of new housing.*
>
> ***Policy HE-6.2. State Energy Conservation Requirements.*** *The City shall actively implement and enforce all State energy conservation requirements for new residential construction.*
>
> ***Policy HE-6.3. Public Education on Energy Conservation.*** *The City shall promote public awareness of the need for energy conservation.*

The Kerman General Plan Conservation, Open Space, and Recreation Element identifies the following policies related to energy resource conservation. .

***Goal COS-5*** *To minimize energy consumption and reduce greenhouse gas emissions as part of the statewide effort to combat climate change.*

---

[11] Pacific Gas & Electric (PG&E). 2021. Corporate Sustainability Report 2021. Accessed July 29, 2023, https://www.pgecorp.com/corp_responsibility/reports/2021/pf04_renewable_energy.html

[12] California Energy Commission. 2019 Building Energy Efficiency Standards. Accessed on August 17, 2023, https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency

***Policy COS-5.1 Reduction of Fossil Fuels Reliance****. The City shall promote the development and use of renewable energy resources (e.g., solar, thermal, wind, tidal) to reduce dependency on petroleum-based energy sources.*

***Policy COS-5.2 GHG Reduction in Coordination with Regional Agencies.*** *The City shall work with FCOG and the San Joaquin Valley Air Pollution Control District to develop and implement regional plans for the reduction of GHG emissions.*

***Policy COS-5.3 Sustainable Building Practices.*** *The City shall promote sustainable building practices that incorporate a "whole systems" approach to design and construction that consumes less energy, water, and other non-renewable resources, such as facilitating passive ventilation and effective use of daylight.*

***Policy COS-5.4 Renewable Energy Features in New Projects.*** *During the development review process, the City shall encourage Projects to integrate features that support the generation, transmission, efficient use, and storage of renewable energy sources.*

***Policy COS-5.5 Energy-Efficient Municipal Buildings.*** *The City shall consider CALGreen Tier 1 energy performance, along with LEED Silver or Gold equivalent status for new municipal buildings to maximize energy efficiency.*

***Policy COS-5.6 Electric Vehicle Charging.*** *The City shall encourage and support expanding Electric Vehicle (EV) charging stations and the purchase of electric vehicles.*

***Policy COS-5.7 Energy Conservation Awareness.*** *The City shall increase awareness about energy efficiency and conservation to encourage residents, businesses, and industries to conserve energy.*

### *4.6.2 Impact Assessment*

***Would the Project:***

***a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?***

Less than Significant Impact.

*Construction Energy Demand*

Construction would be limited to APN 020-160-36S and APN 020-160-18S. The Project would be constructed in two phases. Phase I construction is expected to begin as soon as June 2025 and conclude in June 2026, with operations beginning in 2026/2027. Phase 2 construction is expected to begin in January 2028 and conclude in January 2029 with operations beginning in 2029/2030. The projected dates may change depending upon review and approval of the entitlement and building permits. ~~The proposed Project is anticipated to begin construction as early as January 2024 and last approximately three years.~~ Table 4-11 provides estimates of the Project's construction fuel consumption from off-road construction equipment for the entire Project, categorized by construction activity.

Table 4-11: Construction Off-Road Fuel Consumption

| Project Component | Construction Activity | Fuel Consumption (gallons) |
|---|---|---|
| Whispering Falls Residential Development Construction | Site Preparation | 2,728 |
| | Grading | 9,663 |

| Project Component | Construction Activity | Fuel Consumption (gallons) |
|---|---|---|
| | Building Construction | 29,247 |
| | Paving | 1,395 |
| | Architectural Coating | 162 |
| **Total from Project Construction** | | **43,195** |
| Source: Energy Consumption Calculations (Attachment C of Appendix A). | | |

As shown in Table 4-11, off-road construction equipment usage associated with the proposed Project would be estimated to consume approximately 43,195 gallons of diesel fuel over the entire construction period. There are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

On-road vehicles for construction workers, vendors, and haulers would require fuel for travel to and from the site during construction. Table 4-12 provides an estimate of the total on-road vehicle fuel usage during construction.

Table 4-12: Construction On-Road Fuel Consumption

| Project Component | Construction Activity | Total Annual Fuel Consumption (gallons) |
|---|---|---|
| Whispering Falls Residential Development Construction | Site Preparation | 185 |
| | Grading | 29,648 |
| | Building Construction | 38,334 |
| | Paving | 299 |
| | Architectural Coating | 485 |
| **Total from Project Construction** | | **68,951** |
| Source: Energy Consumption Calculations (Attachment C of Appendix A). | | |

As shown in Table 4-12, construction trips are estimated to consume approximately 68,951 gallons of gasoline and diesel fuel combined. There are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the City of Kerman or the larger Fresno County area. Therefore, it is expected that construction fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Overall, the proposed Project would require 43,195 gallons of diesel fuel for construction off-road equipment and 68,951 gallons of gasoline and diesel for on-road vehicles during construction. There are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region, and as such, impacts would be less than significant.

### *Long-Term Energy Demand*

#### ***Building Energy Demand***

As shown in Table 4-13, the proposed Project is estimated to demand 1,787,098 kilowatt-hours (kWh) of electricity on an annual basis. The proposed Project would be built according to code and would meet or exceed the latest building standards in effect at the time that building permits are issued. The Project would be built all-electric as a Project design feature and would not use natural gas.

Table 4-13: Long-Term Electricity Usage

| Land Use | Total Electricity Demand (kWh/year) |
|---|---|
| Single Family Housing | 1,102,897 |
| Apartments Low Rise | 275,234 |
| Parking | 408,967 |
| Other Asphalt Surfaces | 0 |
| **Total Project** | **1,787,098** |

Notes:
DU = Dwelling Units
kWh = kilowatt hour
The estimates above represent total estimated electricity consumption on an annual basis from operations of the proposed Project.
Source: Energy Consumption Calculations (Attachment C of Appendix A).

Buildings and infrastructure constructed pursuant to the proposed Project would comply with the versions of CCR Titles 20 and 24, including California Green Building Standards (CALGreen), that are applicable at the time that building permits are issued. In addition, the Project is being built as all-electric and would not use natural gas. The proposed Project is estimated to demand 1,787,098 kWh of electricity per year and would not utilize natural gas. This would represent an increase in demand for electricity. It should be noted that the electricity consumption estimate was prepared assuming compliance with existing rules and regulations and may not reflect Project design features that could further reduce the proposed Project energy demand.

It would be expected that building energy consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than for any other similar buildings in the region. Current state regulatory requirements for new building construction contained in the CALGreen and Title 24 standards would increase energy efficiency and reduce energy demand in comparison to existing commercial and residential structures, and therefore would reduce actual environmental effects associated with energy use from the proposed Project. Additionally, the CALGreen and Title 24 standards have increased efficiency standards through each update. The proposed Project would be built in accordance with regulations in effect at the time building permits are issues and would generate on-site renewable energy from inclusion of solar panels.

Therefore, while the proposed Project would result in increased electricity demand, the electricity would be consumed more efficiently and would be typical of other residential Projects. If buildout of the Project is delayed, compliance with future building code standards would result in increased energy efficiency.

Based on the above information, the proposed Project would not result in the inefficient or wasteful consumption of electricity or natural gas, and impacts would be less than significant.

*Transportation Energy Demands*

Table 4-14 provides an estimate of the daily and annual fuel consumed by vehicles traveling to and from the proposed Project. These estimates were derived using the same assumptions used in the operational air quality analysis for the proposed Project.

Table 4-14: Long-Term Operational Vehicle Fuel Consumption

| Vehicle Type | Percent of Vehicle Trips | Daily VMT | Annual VMT | Average Fuel Economy (miles/ gallon)[1] | Total Daily Fuel Consumption (gallons) | Total Annual Fuel Consumption (gallons) |
|---|---|---|---|---|---|---|
| Passenger Cars (LDA) | 52.44 | 7,226 | 2,637,572 | 30.21 | 239.2 | 87,307 |
| Light Trucks and Medium Duty Vehicles (LDT1, LDT2, MDV) | 43.60 | 6,008 | 2,192,947 | 22.62 | 265.6 | 96,957 |
| Light-Heavy to Medium-Heavy Diesel Trucks (LHD1, LHD2, and MHDT) | 0.93 | 128 | 46,776 | 11.16 | 11.5 | 4,192 |
| Heavy-Heavy Diesel Trucks (HHDT) | 2.12 | 292 | 106,630 | 6.11 | 47.8 | 17,461 |
| Motorcycles (MCY) | 0.25 | 34 | 12,574 | 41.37 | 0.8 | 304 |
| Other (OBUS, UBUS, SBUS, MH) | 0.66 | 91 | 33,196 | 7.59 | 12.0 | 4,375 |
| **Total** | **100.0** | **13,779** | **5,029,695** | — | **577** | **210,596** |

Notes:
Percent of Vehicle Trips and VMT based on values in the Project-specific CalEEMod output files.
“Other” consists of buses and motor homes.
VMT = vehicle miles traveled
Source: Energy Consumption Calculations (Attachment C of Appendix A).

As shown above, daily vehicular fuel consumption is estimated to be 577 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 210,596 gallons (see Attachment C of Appendix A).

In terms of land use planning decisions, the proposed Project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. In addition, the vehicle fleet mix would be typical of other residential development in the region. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region.

In summary, the daily vehicular fuel consumption is estimated to be 577 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 210,596 gallons. The proposed Project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. The proposed Project would be well-positioned to accommodate an existing population and anticipated growth in the City of Kerman. The residential Project is located adjacent to existing residential development to the east. In addition, vehicles accessing the Project site would be typical of other residential uses in the region. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region, and impacts would be less than significant.

*b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

**Less than Significant Impact.** The City's General Plan includes strategies to promote energy efficiency in development in the City of Kerman. These General Plan policies require City action and are not applicable at the individual Project level. However, the proposed Project would not impede or conflict with any of the energy strategies outlined in the General Plan due to compliance with all local rules and regulations. The proposed Project would comply with the versions of CCR Titles 20 and 24, including CALGreen, that are applicable at the time that building permits are issued and with all applicable City measures. Part 11, Chapter 4 and 5 of the State's Title 24 energy efficiency standards establishes mandatory measures for residential and nonresidential buildings. Examples of these mandatory measure include solar, electric vehicle (EV) charging infrastructure, bicycle parking, energy efficiency, water efficiency and conservation, and material conservation and resource efficiency.

The proposed Project would be required to comply with mandatory measures; specifically, the Project would comply with mandatory measures for residential development. Where applicable, the Project would comply with more stringent local regulations. In addition, the proposed Project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips, or substantially lengthen existing trips. The proposed Project would be well positioned to accommodate existing population. The area to the east and northeast of the Project site are primarily residences. The rest of the Project is surrounded by farmland with a few rural residences. Approximately one (1) mile southeast of the Project are a packing house and a Farm Supply Store. In addition, the Project would provide connectivity within the Project site and to adjacent uses.

Compliance with these aforementioned mandatory measures and Project design features would ensure that the proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, operational energy efficiency and renewable energy standards consistency impacts would be less than significant.

For the above reasons, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

### *4.6.3 Mitigation Measures*

None required.

## 4.7 GEOLOGY AND SOILS

| Would the Project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| *a)* Directly or Indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:<br>*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.* | | | | X |
| *ii. Strong seismic ground shaking?* | | | X | |
| *iii. Seismic-related ground failure, including liquefaction?* | | | X | |
| *iv. Landslides?* | | | | X |
| *b)* Result in substantial soil erosion or the loss of topsoil? | | | X | |
| *c)* Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | | | X | |
| *d)* Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? | | | | X |
| *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 waste water? | | | | X |

| | | | | | |
|---|---|---|---|---|---|
| *f)* | Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | | X | | |

### *4.7.1 Environmental Setting*

The City of Kerman is in the San Joaquin Valley which is one of the two large valleys comprising the Great Valley Geomorphic Province. The San Joaquin Valley is surrounded by Sierra Nevada (east), Coast Ranges (west), Tehachapi (south), and the Sacramento Valley (north). A brief discussion of the likelihood of seismic activities to occur in or affect Fresno is provided below. The following discussion is based on the Fresno County Multi-Jurisdictional Hazard Mitigation Plan (HMP) adopted in May 2018 as well as the Kerman General Plan Public Health and Safety Element.[13]

#### *Faulting*

There are no known active faults in the city, inclusive of the Project Area ~~annexation boundary and Project site~~. No Alquist-Priolo Earthquake Fault zoning has been established for the city. The nearest active fault and Alquist-Priolo Fault zoning to the city is the Ortigalita Fault, which is located approximately 45 miles west of the ~~annexation boundary and~~ Project Area ~~site~~. [14] Due to the distance from an active fault, there is low potential for ground rupture in the city.

#### *Ground Shaking*

According to the HMP, Kerman is in an area that is seismically active; however, the potential for dangerous seismic activity is slight. This is due to the city's long distance to faults. The most notable past earthquake in Kerman is the Coalinga earthquake in 1983, which measured magnitude 6.7 on the Richter scale. The earthquake did not cause any damage in Kerman but was felt by residents.

#### *Liquefaction*

Liquefaction primarily occurs in areas of recently deposited sands and silts and in areas of high groundwater levels. Susceptible areas include sloughs and marshes that have been filled in and developed over. In addition to necessary soil conditions, liquefaction is induced by intense and prolonged ground shaking, usually above a ground acceleration of 0.3g before liquefaction occurs within sandy soil with relative densities typical of the San Joaquin alluvial deposits. Based on historic aerial imagery and search of the National Wetlands Inventory (Section 4.10), Project site does not include former or current waters (streams, drainages, wetlands) that have been drained, filled, and developed.

#### *Erosion*

---

[13] County of Fresno. (2018). Fresno County Multi-Jurisdictional Hazard Mitigation Plan. Accessed on July 26, 2023, https://www.fresnocountyca.gov/files/sharedassets/county/public-health/fresno-county-hmp-final.pdf

[14] California Department of Conservation. "CGS Seismic Hazard Program: Alquist-Priolo Fault Hazard Zones." Accessed on July 26, 2023, https://gis.data.ca.gov/maps/ee92a5f9f4ee4ec5aa731d3245ed9f53/explore?location=37.213952%2C-117.946341%2C7.19

Wind and flowing water are the primary agents of erosion in the San Joaquin Valley. Two types of areas with moderate to high erosion potential are identified by the HMP: soils in the Sierra Nevada and foothills on slopes over 30 percent and soils in the western San Joaquin Valley and Coast Ranges. According to the HMP, Kerman has a low significance for erosion hazards.

### *Ground Subsidence*

Ground subsidence is the settling or sinking of surface soil deposits with little or no horizontal motion. Soils with high silt or clay content are subject to subsidence. While the County of Fresno identifies a significant hazard significance for subsidence due to heavy groundwater withdrawal, Kerman has a low significance for subsidence hazards. Areas with potential for subsidence hazards are in western Fresno County over 25 miles southwest from the Project Area ~~annexation boundary and Project site~~, as mapped in the HMP.

### *Subsurface Soils*

A search of the Web Soil Survey by the USDA Natural Resources Conservation Service indicates that the following soils comprise the Project Area ~~annexation boundary and Project site~~. Figure 4-2 shows the location of these soils.[15]

> ***Hsm:*** *Hesperia sandy loam, deep, 0 percent slope, well drained, negligible runoff, with rare potential of flooding and no potential of ponding. The depth to water table is more than 80 inches. The Hsm soils account for 36.1% of the Project site.*
>
> ***Ts:*** *Traver sandy loam, moderately deep, 0 to 2 percent slopes, well drained, medium runoff, with rare potential of flooding and no potential of ponding. The depth to water table is more than 80 inches. The Ts soils account for 24.3% of the Project site.*
>
> ***Ec:*** *El Peco sandy loam, 0 to 2 percent slopes, somewhat poorly drained, medium runoff, with rare potential of flooding and no potential of ponding. The depth to water table is more than 80 inches. The Ec soils account for 23.7% of the Project site.*
>
> ***Ha:*** *Hanford coarse sandy loam, 0 to 2 percent slopes, well drained, very low runoff, with no potential of flooding and ponding. The depth to water table is more than 80 inches. The Ha soils account for 15.9% of the Project site.*
>
> ***Hso:*** *Hesperia sandy loam, shallow, 0 percent slope, well drained, low runoff, with rare potential of flooding and no potential of ponding. The depth to water table is more than 80 inches. The Ec soils account for less than 0.0% of the Project site.*

### *California Building Code*

The California Code of Regulations (CCR) Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The California Building Code incorporates by

---

[15] United States Department of Agriculture Natural Resources Conservation Service. "Web Soil Survey." Accessed on July 26, 2023, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

reference the International Building Code with necessary California amendments. About one-third of the text within the California Building Standards Code has been tailored for California earthquake conditions. These standards are applicable to all new buildings and are required to provide the necessary safety from earthquake related effected emanating from fault activity.

### *General Plan*

The Kerman General Plan includes objectives and policies relevant to natural hazards in the Public Health and Safety Element since Salinas is subject to earthquakes, liquefaction, flooding, landslides, and erosion:

***Goal PH-4:*** *To prevent the loss of life and personal property by reducing the risk and magnitude of hazards from natural and man-made hazards, including earthquakes, floods, fires, and climate change.*

> ***Policy PH-4.1: Hazard Mitigation Plan.*** *The City shall continue to actively participate in and implement the Fresno County Multi-Hazard Mitigation Plan to reduce risks from natural disasters.*
>
> ***Policy PH-4.2: Mitigation Funding.*** *The City shall continue to pursue funding opportunities to implement Kerman Projects that are identified in the Fresno County Multi-Hazard Mitigation Plan.*
>
> ***Policy PH-4.3: Building Regulations for Seismic Safety.*** *The City shall require all new development to be constructed in accordance with the current seismic safety design standards at the time of initial building plan submittal.*

***Goal PH-5:*** *To protect residents and employees from potential hazards from unreinforced masonry buildings and other substandard buildings.*

> ***Policy PH-5.1 Unreinforced Masonry Buildings Abatement/Rehabilitation.*** *The City shall continue to abate or rehabilitate unreinforced masonry buildings, as defined by the Uniform Housing Code.*

Figure 4-2 Soils Map

### *4.7.2 Impact Assessment*

***Would the Project:***

*a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*

*i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

**No Impact.** There are no known active earthquake faults in Kerman, inclusive of the ~~annexation boundary and~~ Project Area ~~site~~, nor is Kerman within an Alquist-Priolo earthquake fault zone as established by the Alquist-Priolo Fault Zoning Act. Thus, the Project would not cause rupture of a known earthquake fault and therefore, would have no impact.

*ii. Strong seismic ground shaking?*

**Less than Significant Impact.** The ~~annexation boundary and~~ Project Area ~~site~~ is in a zone with a low potential for dangerous seismic activity. Future development would be required to comply with current seismic protection standards in the CBC which would significantly limit potential damage to structures and thereby reduce potential impacts including the risk of loss, injury, or death. Compliance with the CBC would ensure a less than significant impact.

*iii. Seismic-related ground failure, including liquefaction?*

**Less than Significant Impact.** There are no known active earthquake faults in Kerman and Kerman has historically been subject to low to moderate ground shaking. The ~~annexation boundary and~~ Project Area ~~site~~ are in an area with low susceptibility to liquefaction with no known geologic hazards or unstable soil conditions. Due to the distance from an active fault, there is low potential for ground rupture. Further, the ~~annexation boundary and~~ Project Area ~~site~~ is primarily made up of sandy loam soils that are well drained, which are less susceptible to liquefaction than silt or sands. In addition, development would be required to comply with CBC, the city's grading and drainage standards, and specific requirements that address liquefaction. For these reasons, the Project does not have any aspect that could result in seismic-related ground failure including liquefaction and a less than significant impact would occur because of the Project.

*iv. Landslides?*

**No Impact.** The topography of the ~~annexation boundary and~~ Project Area ~~site~~ is relatively flat with stable, native soils, and the site is not in the immediate vicinity of rivers or creeks that would be more susceptible to landslides. Therefore, no impact would occur because of the Project.

*b) Result in substantial soil erosion or the loss of topsoil?*

**Less than Significant Impact.** Soil erosion and loss of topsoil can be caused by natural factors, such as wind and flowing water, and human activity. Development of the Project site would require typical site preparation activities such as grading and trenching which may result in the potential for short-term soil disturbance or erosion impacts. Construction would also involve the use of water which may cause further soil disturbance. Such impacts would be addressed through compliance with regulations set by the State Water Resources Control

Board (SWRCB). Namely, the SWRCB requires sites larger than one (1) acre to comply with the General Permit for Discharges of Storm Water Associated with Construction Activity. The General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer (QSD). The SWPPP estimates the sediment risk associated with construction activities and includes best management practices (BMP) to control erosion. BMPs specific to erosion control cover erosion, sediment, tracking, and waste management controls. Implementation of the SWPPP minimizes the potential for the Project to result in substantial soil erosion or loss of topsoil. With these provisions in place, impacts to soil and topsoil by the Project would be considered less than significant.

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

**Less than Significant Impact.** Ground subsidence is the settling or sinking of surface soil deposits with little or no horizontal motion. Soils with high silt or clay content are subject to subsidence. Subsidence typically occurs in areas with groundwater withdrawal or oil or natural gas extraction. The topography of the site is relatively flat with stable, native soils and no apparent unique or significant landforms. Furthermore, the Project Area ~~site~~ is in an area of low significance for seismic activity due to its distance from faults. Such factors minimize the potential for other geologic hazards such as landslides, lateral spreading, subsidence, liquefaction, or collapse. Therefore, any development on the native, stable soils is unlikely to become unstable and result in geologic hazards. In addition, the Project would be required to comply with current seismic protection standards in the CBC which would significantly limit potential seismic-related hazards such as landslides, lateral spreading, subsidence, liquefaction, or collapse. Compliance with the CBC would ensure a less than significant impact.

d) *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?*

**No Impact.** The ~~annexation boundary and~~ Project Area ~~site~~ are relatively flat with native soils of sandy loam, which is not expansive. Sandy loam soils are not classified as expansive soil, as defined in Table 18-1-B of the Uniform Building Code and would not create substantial direct or indirect risks to life or property. Thus, no impact would occur because of the Project.

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?*

**No Impact.** The ~~annexation boundary and~~ Project Area ~~site~~ is proposed to be annexed into Kerman's City Limits and thus, would be required to connect to the city's wastewater services. Thus, no permanent septic tanks or alternative wastewater disposal systems would be installed, and no impact would occur.

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

**Less than Significant Impact with Mitigation Incorporated.** There are no known paleontological resources or unique geological features known to the City in the ~~annexation boundary and~~ Project Area ~~site~~. Nevertheless, there is some possibility that a non-visible, buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a significant impact. However, ***Mitigation Measure (MM) GEO-1*** requires that if unknown paleontological resources are discovered during construction activities, work within a

25-foot buffer would cease until a qualified paleontologist determined the appropriate course of action. With implementation of ***MM GEO-1***, the Project would have a less-than-significant impact.

***Mitigation Measure GEO-1:*** *If any paleontological resources are encountered during ground-disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or another appropriate facility regarding any discoveries of paleontological resources.*

*If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations, and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects or such effects must be mitigated. Construction in that area shall not resume until the resource-appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the City of Kerman, Community Development Department.*

### *4.7.3 Mitigation Measures*

The Project shall implement and incorporate, as applicable, the Geology and Soils related mitigation measures as identified above and in the MITIGATION MONITORING AND REPORTING PROGRAM contained in SECTION 5.

## 4.8 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? | | | X | |
| *b)* Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | | | X | |

### *4.8.1 Environmental Setting*

The Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report was prepared by Johnson Johson and Miller Air Quality Consulting Services (dated August 9, 2023) to evaluate whether the estimated criteria air pollutant, ozone precursor, toxic air contaminant (TAC), and/or greenhouse gas (GHG) emissions generated from construction and/or operation of the proposed Whispering Falls Project would cause significant impacts to air resources in the Project area. The respective analyses were conducted within the context of CEQA, and specifically for the development of APN 020-160-36S. Future development of the northern annexation parcels, APNs 020-160-18S and020-160-19S may require additional CEQA analysis when development is proposed.

The methodology follows the Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) prepared by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the quantification of emissions and evaluation of potential impacts to air resources and the SJVAPCD's Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under the California Environmental Quality Act. The modeling parameters, assumptions, findings report, and appendices are provided in Appendix A. Results are incorporated herein.

*Greenhouse Gases*

Greenhouse gases and climate change are cumulative global issues. The CARB and EPA regulate GHG emissions within the State of California and the U.S., respectively. Meanwhile, the CARB has the primary regulatory responsibility within California for GHG emissions. Local agencies can also adopt policies for GHG emission reduction.

Many chemical compounds in the Earth's atmosphere act as GHGs as they absorb and emit radiation within the thermal infrared range. When radiation from the sun reaches the Earth's surface, some of it is reflected into the atmosphere as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy from the sun to the Earth's surface should be approximately equal to the amount of energy radiated back into space, leaving the temperature of the earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide [$CO_2$], methane [$CH_4$], and nitrous oxide [$N_2O$]), while others are exclusively human made (like gases used for aerosols).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below.

### *Carbon Dioxide*

Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

### *Methane*

Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

### *Nitrous Oxide*

Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

### *Fluorinated Gases*

Hydrofluorocarbons, perfluorinated chemicals, and sulfur hexafluoride are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high global warming potential gases.

### *Emissions Inventories and Trends*

According to the CARB's recent GHG inventory for the State, released 2021, California produced 418.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2019. The major source of GHGs in California is transportation, contributing approximately 39.7 percent of the state's total GHG emissions in 2019.[16] This puts total emissions at 12.8 $MMTCO_2e$ below the 2020 target of 431 million metric tons. California statewide GHG emissions dropped below the 2020 GHG limit in 2016 and have remained below the 2020 GHG limit since then.

### *Potential Environmental Impacts*

For California, climate change in the form of warming has the potential to incur and exacerbate environmental impacts, including but not limited to changes to precipitation and runoff patterns, increased agricultural demand for water, inundation of low-lying coastal areas by sea-level rise, and increased incidents and severity of wildfire events.[17] Cooling of the climate may have the opposite effects. Although certain environmental effects are widely

---

[16] California Air Resources Board (CARB). 2021. California Greenhouse Gas Emissions for 2000 to 2019. Accessed July 29, 2023, https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf

[17] Moser et al. 2009. Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. Accessed July 29, 2023, http://www.susannemoser.com/documents/CEC-500-2008-071_Moseretal_FutureisNow.pdf

accepted to be a potential hazard to certain locations, such as rising sea level for low-lying coastal areas, it is currently infeasible to predict all environmental effects of climate change on any one location.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial and manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

### *Regulatory Requirements*

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The governor has also issued several executive orders (EOs) related to the state's evolving climate change policy. Of particular importance are AB 32 and SB 32, which outline the state's GHG reduction goals of achieving 1990 emissions levels by 2020 and a 40 percent reduction below 1990 emissions levels by 2030.

In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

### *CEQA Guidelines*

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

### *Thresholds of Significance*

#### ***San Joaquin Valley Air Pollution Control District***

The SJVAPCD's Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA presents a tiered approach to analyzing project significance with respect to GHG emissions. Project GHG emissions are considered less than significant if they can meet any of the following conditions, evaluated in the order presented:

- *Project is exempt from CEQA requirements;*

- *Project complies with an approved GHG emission reduction plan or GHG mitigation program;*
- *Project implements Best Performance Standards (BPS); or*
- *Project demonstrates that specific GHG emissions would be reduced or mitigated by at least 29 percent compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period.*

### *Project-level Thresholds*

Section 15064.4(b) of the CEQA Guidelines' amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- *Consideration #1: The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.*
- *Consideration #2: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.*
- *Consideration #3: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an Environmental Impact Report (EIR) must be prepared for the project.*

### *Newhall Ranch*

In the California Supreme Court decision in the *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (62 Cal.4th 204 [2015], and known as the Newhall Ranch decision), the Supreme Court was concerned that new development may need to reduce GHG emissions more than existing development to demonstrate it is meeting its fair share of reductions. New development does do more than its fair share through compliance with enhanced regulations, particularly with respect to motor vehicles, energy efficiency, and electricity generation. If no additional reductions are required from an individual project beyond that achieved by regulations, then the amount needed to reach the 2020 target is the amount of GHG emissions a project must reduce to comply with Statewide goals.

The State's regulatory program implementing the 2008 Scoping Plan is now fully mature. All regulations envisioned in the Scoping Plan have been adopted by the responsible agencies and the effectiveness of those regulations have been estimated by the agencies during the adoption process and then are tracked to verify their effectiveness after implementation. The Governor Brown, in the introduction to Executive Order B-30-15, states "California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32)." The progress was evident in emission inventories prepared by CARB, which showed that the State inventory dropped below 1990 levels for the first time in 2016.[18] The State projects that it will meet the 2020 target and achieve continued progress towards meeting the 2017 Scoping Plan target for 2030.[19] CARB adopted the 2022 Scoping Plan on December 16, 2022 that addresses long-term GHG goals set forth by AB 1279.[20] The 2022 Scoping Plan outlines the State's pathway to achieve carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045. In the 2022 Scoping Plan, CARB advocates for compliance with a local GHG reduction strategy consistent with CEQA Guidelines section 15183.5.

#### *GHG Threshold Applied in the Analysis*

The City of Kerman has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines amendments adopted on December 28, 2018. In the absence of an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the project's GHG emissions impact determination is based on the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The project's GHG emissions are provided for informational purposes only.

### *4.8.2 Impact Assessment*

#### *Would the Project:*

*a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

**Less than Significant Impact.** The proposed Project may contribute to climate change impacts through its contribution of GHGs. The proposed Project would generate a variety of GHGs during construction and operations, including several defined by AB 32, such as $CO_2$, $CH_4$, and $N_2O$ from the exhaust of equipment during construction and on-road vehicle trips during construction and operations.

In the absence of an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the Project's GHG emissions impact determination is based on the extent to which the Project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The Project's GHG emissions are provided for informational purposes only.

#### *Construction Emissions*

Construction emissions would be generated from the exhaust of construction equipment, material delivery trips, haul truck trips, and worker commuter trips. Detailed construction assumptions are provided in Modeling Parameters and Assumptions section of the technical memorandum. Construction-generated GHGs were

---

[18] California Air Resources Board (CARB). 2018. Climate Pollutants Fall Below 1990 Levels for the First Time. Accessed July 29, 2023 https://ww2.arb.ca.gov/news/climate-pollutants-fall-below-1990-levelsfirst-time

[19] California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update, the Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. January 17, 2017. Accessed July 20, 2023 https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

[20] The Final 2022 Scoping Plan was released on November 16, 2022, and adopted by CARB in December 2022.

quantified and are disclosed in Attachment A of Appendix A. $MTCO_2e$ emissions during construction of the Project are summarized below in Table 4-15.

Table 4-15 Construction Greenhouse Gas Emissions

| **Project Construction (2024-2026)** | **$MTCO_2e$ per Year** |
|---|---|
| Site Preparation (2024) | 72 |
| Grading (2024) | 225 |
| Paving (2024) | 38 |
| Building Construction (2024) | 180 |
| Building Construction (2025) | 317 |
| Building Construction (2026) | 311 |
| Architectural Coating (2026) | 3 |
| **Total Construction $MTCO_2e$** | **1,146** |
| **Emissions Amortized Over 30 Years[1]** | **38.2** |

Notes:

$MTCO_2e$ = metric tons of carbon dioxide equivalent

[1] Construction GHG emissions are amortized over the 30-year lifetime of the Project.

Source: CalEEMod Output (Attachment A).

During the construction of the proposed Project, approximately 1,146 $MTCO_2e$ would be emitted. Neither the City of Kerman nor the SJVAPCD have an adopted threshold of significance for construction related GHG emissions. Because impacts from construction activities occur over a relatively short-term period, they contribute a relatively small portion of the overall lifetime Project GHG emissions. In addition, GHG emission reduction measures for construction equipment are relatively limited. Therefore, a standard practice is to amortize construction emissions over the anticipated lifetime of a Project so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. However, emissions were quantified for informational purposes only. The total emissions generated during construction were amortized based on the life of the development (30 years) and added to the operational emissions to determine the total emissions from the Project, as shown below.

### *Operational Emissions*

Operational or long-term emissions occur over the life of the Project. The operational emissions for the proposed Project are shown in Table 4-16. Sources for operational emissions include the following:

- *Motor Vehicles: These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the Project site. As described in the traffic study prepared for the proposed Project, the Project is expected to generate 1,608 average daily trips.*
- *Natural Gas: These emissions refer to the GHG emissions that occur when natural gas is burned on the Project site. Natural gas uses could include heating water, space heating, dryers, stoves, or other uses. As the Project would be built all-electric as a Project design feature, no natural gas would be used.*
- *Indirect Electricity: These emissions refer to those generated by offsite power plants to supply electricity required for the Project.*

- *Water Transport: These emissions refer to those generated by the electricity required to transport and treat the water to be used on the Project site.*
- *Waste: These emissions refer to the GHG emissions produced by decomposing waste generated by the Project.*

Detailed modeling results and more information regarding assumptions used to estimate emissions are provided in Attachment A of Appendix A. Operational emissions are shown in Table 4-16.

Table 4-16 Operational Greenhouse Gas Emissions for Project Buildout

| Source Category | Project Total Buildout Year ($MTCO_2e$/year) |
|---|---|
| Area | 72 |
| Energy Consumption | 494 |
| Mobile (On-road Vehicles) | 1,801 |
| Water Usage | 18 |
| Solid Waste Generation | 46 |
| Refrigerants | 0.34 |
| Amortized Construction Emissions | 38.2 |
| **Total** | **2,470** |

Notes:

$MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: CalEEMod Output (Attachment A).

As previously noted, the Project's estimated emissions were estimated for disclosure purposes. However, significance for GHG emissions is analyzed by assessing the Project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed in detail below, the Project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of GHGs. As such, the Project's generation of GHG emissions would not result in a significant impact on the environment.

### *Impact Analysis (Project's Compliance with Consideration No. 3 Regarding Consistency with Adopted Plans to Reduce GHG Emissions)*

The following analysis assesses the Project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed above, the City of Kerman has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines. The SJVAPCD has adopted a Climate Action Plan, but it does not contain measures that are applicable to the Project. Therefore, the SJVAPCD Climate Action Plan cannot be applied to the Project. Since no other local or regional Climate Action Plan is in place, the Project is assessed for its consistency with CARB's adopted 2008, 2017, and 2022 Scoping Plans. This would be achieved with an assessment of the proposed Project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update and addressing the Project's consistency with the 2022 Scoping Plan.

#### *Greenhouse Gas Impact Analysis*

The following analysis assesses the proposed Project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. The proposed Project is assessed for its consistency with CARB's adopted Scoping Plans. This would be achieved with an assessment of the proposed Project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update and addressing the Project's consistency with the 2022 Scoping Plan.

*Consistency with SB 32*

The 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) includes the strategy that the State intends to pursue to achieve the 2030 targets of Executive Order S-3-05 and SB 32. The 2017 Scoping Plan includes the following summary of its overall strategy for reaching the 2030 target:

- *SB 350*
    - *Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030.*
    - *Doubling of energy efficiency savings by 2030.*
- *Low Carbon Fuel Standard (LCFS)*
    - *Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).*
- *Mobile Source Strategy (Cleaner Technology and Fuels Scenario)*
    - *Maintaining existing GHG standards for light- and heavy-duty vehicles.*
    - *Put 4.2 million zero-emission vehicles (ZEVs) on the roads.*
    - *Increase ZEV buses, delivery and other trucks.*
- *Sustainable Freight Action Plan*
    - *Improve freight system efficiency.*
    - *Maximize use of near-zero emission vehicles and equipment powered by renewable energy.*
    - *Deploy over 100,000 zero-emission trucks and equipment by 2030.*
- *Short-Lived Climate Pollutant (SLCP) Reduction Strategy*
    - *Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.*
    - *Reduce emissions of black carbon 50 percent below 2013 levels by 2030.*
- *SB 375 Sustainable Communities Strategies*
    - *Increased stringency of 2035 targets.*
- *Post-2020 Cap-and-Trade Program*
    - *Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.*
    - *CARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, CARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities*

*and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.*

- *By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.*

Table 4-17 provides an analysis of the Project's consistency with the 2017 Scoping Plan Update measures.

Table 4-17: Consistency with SB 32 2017 Scoping Plan Update

| Scoping Plan Measure | Project Consistency |
|---|---|
| **SB 350 50% Renewable Mandate.** Utilities subject to the legislation will be required to increase their renewable energy mix from 33% in 2020 to 50% in 2030. This has been increased to 60%. | **Consistent**: The Project will purchase electricity from a utility subject to the SB 350 Renewable Mandate SB 100 Renewable Mandate. SB 100 revised the Renewable Portfolio Standard goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The specific provider for the City of Kerman and the proposed Project is Pacific Gas and Electric (PG&E). |
| **SB 350 Double Building Energy Efficiency by 2030.** This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current Projected 2030 levels. | **Not Applicable**. This measure applies to existing buildings. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency over time. |
| **Low Carbon Fuel Standard.** This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030. | **Consistent**. Vehicles accessing the Project site will use fuel containing lower carbon content as the fuel standard is implemented. |
| **Mobile Source Strategy (Cleaner Technology and Fuels Scenario).** Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses. | **Consistent**. The Project consists of residential development and would not engage in vehicle manufacturing; however, vehicles would access the Project site during Project operations. Future Project residents and other visitors can be expected to purchase increasing numbers of more fuel efficient and zero emission cars and trucks each year. Residential deliveries will be made by increasing numbers of ZEV delivery trucks. |
| **Sustainable Freight Action Plan.** The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030. | **Not Applicable**. The measure applies to owners and operators of trucks and freight operations. However, deliveries that would be made to the future residential development are expected to be made by increasing number of ZEV delivery trucks. |
| **Short-Lived Climate Pollutant (SLCP) Reduction Strategy.** The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030. | **Consistent.** Sources of black carbon are already regulated by the CARB and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion source. The Project residences would not include wood burning hearths. Natural gas hearths produce |

| Scoping Plan Measure | Project Consistency |
|---|---|
| | very little black carbon compared to woodburning fireplaces and heaters. The Project would be built all-electric as a Project design feature and would not include natural gas. |
| **SB 375 Sustainable Communities Strategies.** Requires Regional Transportation Plans to include a sustainable communities strategy for reduction of per capita vehicle miles traveled. | **Not Applicable**. The Project does not consist of a proposed regional transportation plan; therefore, this measure is not applicable to the proposed Project. |
| **Post-2020 Cap-and-Trade Program.** The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers. | **Consistent.** The post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA Projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period. |
| **Natural and Working Lands Action Plan.** The CARB is working in coordination with several other agencies at the federal, state, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land. | **Not Applicable**. The Project consists of residential development and will not be considered natural or working lands. |

Source: California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update. January 20. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed August 2023.

### *Consistency Regarding GHG Reduction Goals for 2050 under Executive Order S-3-05 and GHG Reduction Goals for 2045 under the 2022 Scoping Plan*

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures with any level of certainty, as they have not yet been developed; nevertheless, it can be anticipated that operation of the Project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80 percent reduction below 1990 levels by 2050. In its 2008 Scoping Plan, CARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update; however, CARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; large scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately." The 2017 Scoping Plan provides an intermediate target that is intended to achieve reasonable progress toward the 2050 target. In addition, the 2022 Scoping Plan outlines objectives, regulations, planning efforts, and investments in clean technologies and infrastructure that outlines how the State can achieve carbon-neutrality by 2045.

Accordingly, taking into account the proposed Project's emissions, Project design features, and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the Project would be consistent with State GHG Plans and would further the State's goals of reducing GHG emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, carbon neutral by 2045, and 80 percent below 1990 levels by 2050, and does not obstruct their attainment. Impacts would be less than significant.

Taking into account the proposed Project's design features and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the proposed Project would be consistent with State and local GHG Plans would not obstruct their attainment. The proposed Project's GHG impacts would be less than significant.

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

**Less than Significant Impact.** The analysis contained above under criterion a) evaluates whether the Project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of GHGs. As discussed under criterion a) above, the Project would not conflict with any applicable plan, policy, or regulation of agency to reduce. As such, Project impacts in this regard would be less than significant.

### *4.8.3 Mitigation Measures*

None required.

## 4.9 HAZARDS AND HAZARDOUS MATERIAL

| 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? | | | X | |
| *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? | | | X | |
| *c)* Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | | | X | |
| *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? | | X | | |
| *e)* For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area? | | | | X |
| *f)* Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | | | X | |
| *g)* Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | | | X | |

### *4.9.1 Environmental Setting*

For the purposes of this section, the term “hazardous materials” refers to "injurious substances," which include flammable liquids and gases, poisons, corrosives, explosives, oxidizers, radioactive materials, and medical supplies and waste. These materials are either generated or used by various commercial and industrial activities.

Hazardous wastes are injurious substances that have been or will be disposed. Potential hazards arise from the transport of hazardous materials, including leakage and accidents involving transporting vehicles. There also are hazards associated with the use and storage of these materials and wastes. Hazardous materials are grouped into the following four categories based on their properties:

- Toxic: causes human health effect
- Ignitable: has the ability to burn
- Corrosive: causes severe burns or damage to materials
- Reactive: causes explosions or generates toxic gases

"Hazardous wastes" are defined in California Health and Safety Code *Section 25141(b)* as wastes that: "…because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause or significantly contribute to an increase in mortality or an increase in serious illness or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed." A hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. If improperly handled, hazardous materials and hazardous waste can result in public health hazards if released into the soil or groundwater or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer. The California Code of Regulations, Title 22, *Sections 66261.20-24* contains technical descriptions of toxic characteristics that could cause soil or groundwater to be classified as hazardous waste.

Hazardous waste generators may include industries, businesses, public and private institutions, and households. Federal, state, and local agencies maintain comprehensive databases that identify the location of facilities using large quantities of hazardous materials, as well as facilities generating hazardous waste. Some of these facilities use certain classes of hazardous materials that require risk management plans to protect surrounding land uses. The release of hazardous materials would be subject to existing federal, State, and local regulations and is similar to the transport, use, and disposal of hazard materials.

### *Regulatory Setting*

The California Environmental Protection Agency (CalEPA) was established in 1991 to protect the environment. CalEPA oversees the Unified Program through Certified Unified Program Agencies (CUPAs), which consolidates six (6) environmental programs to ensure the handling of hazardous waste and materials in California. The local CUPA in Fresno County, HazMat Compliance Program, oversees the following six (6) CUPA programs: [21]

- *Hazardous Materials Business Plan (HMBP)*
- *California Accidental Release Program (CalARP)*
- *Underground Storage Tank Program (UST)*
- *Aboveground Storage Tank Program (APSA)*
- *Hazardous Waste Generator Program*

---

[21] County of Fresno. HazMat Compliance: The Designated CUPA. Accessed on August 23, 2023, https://www.fresnocountyca.gov/Departments/Public-Health/Environmental-Health/HazMat-Compliance-The-Designated-CUPA

- *Tiered Permitting Program*

The Department of Toxic Substances Control (DTSC) is another agency in California that regulates hazardous waste, conducts inspections, provide emergency response for hazardous materials-related emergencies, protect water resources from contamination, removing wastes, etc. DTSC acts under the authority of Resource Conservation and Recovery Act (RCRA) and California Health and Safety Code. The DTSC implements California Code of Regulations (CCR) Title 22 Division 4.5 to manage hazardous waste. Government Code *Section 65962.5* requires that DTSC shall compile and update at least annually a list of:

> *(1) All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code ("HSC").*
>
> *(2) All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.*
>
> *(3) All information received by the Department of Toxic Substances Control pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.*
>
> *(4) All sites listed pursuant to Section 25356 of the Health and Safety Code.*
>
> *(5) All sites included in the Abandoned Site Assessment Program.*

This list of hazardous waste sites in California, referred to as the Cortese List, is then distributed to each city and county. According to the CCR Title 22, soils excavated from a site containing hazardous materials is considered hazardous waste, and remediation actions should be performed accordingly. Cleanup requirements are determined case-by-case by the jurisdiction.

### *Phase I Environmental Site Assessment*

A Phase I Environmental Site Assessment (ESA) was performed at the Project site in accordance with the current Standards for Practice for Phase I ESA per the American Society for Testing and Materials (ASTM): E1527-21 guidelines. The respective analyses were conducted specifically for APN 020-160-36S. Future development of the northern annexation parcels, APNs 020-160-18S and 020-160-19S may require additional assessment when development is proposed. The Phase I ESA was performed by RMA GeoScience in order to provide an indication whether hazardous materials and or soil contamination may be present on the Project site. The report (dated June 2, 2023) is attached as Appendix G. Results are incorporated herein.

The methodology follows the Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) prepared by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the quantification of emissions and evaluation of potential impacts to air resources and the SJVAPCD's Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under the California Environmental Quality Act. The modeling parameters, assumptions, findings report, and appendices are provided in Appendix A. Results are incorporated herein.

The ATSM E1527-21 defines recognized environmental conditions as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions. De minimis conditions generally do not present a material risk of harm to public health or the environment and generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

ASTM E1527-21 defines recognized environmental conditions (RECs) as "(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment." This assessment has revealed no evidence of RECs in connection with the subject property.

ASTM E1527-21 defines controlled recognized environmental conditions (CRECs) as "a recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitation or other property use limitations)." This assessment has revealed no evidence of CRECs in connection with the subject property.

ASTM E1527-21 defines historical recognized environmental conditions (HRECs) as "a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations)." This assessment has revealed no evidence of HRECs in connection with the subject property.

ASTM E1527-21 defines business environmental risks (BERs) as "a risk which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of commercial real estate and is not necessarily an issue required to be investigated under this practice. A BER may include one or more of the non-scope issues that were indicated in Section 1.4 of the Phase I ESA report.

This assessment has revealed the following BERs in connection with the subject property.

- *The former structures located on the western and eastern portions of the subject property were constructed before the 1978 ban on the manufacture of friable asbestos containing materials. Therefore, asbestos-containing construction materials may be present in the building materials used for their construction. An asbestos survey was not conducted as part of this investigation, but it is recommended.*
- *The Consumer Products Safety Commission limited lead content in residential paint in 1978. The use of paint containing lead was also prohibited in areas where consumers have direct access to painted surfaces. Based on the estimated construction dates of the former structures located on the western and eastern portions of the subject property, lead-based paint may be present in or on original building materials. An assessment of lead-based paint in building materials was not conducted as part of this investigation, but it is recommended.*
- *Much of the subject property has been used for agricultural purposes sometime prior to 1973. It is recommended that prior to development, the subject property be tested for agricultural pesticides.*

ASTM E1527-21 defines de minimis conditions as "a condition related to a release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a de minimis condition is not a REC nor a CREC." This assessment revealed no evidence of de minimis conditions in connection with the subject property.

Based on the findings, no further environmental investigation is warranted at this time.

### *Record Search*

The United States Environmental Protection Agency (EPA) Superfund National Priorities List (NPL)[22], California Department of Toxic Substance Control's EnviroStor database [23], and the State Water Resources Control Board's GeoTracker database[24] include hazardous release and contamination sites. A search of each database was conducted on July 26, 2023. The searches revealed no hazardous material release sites on the Project site or within the Project vicinity.

### *General Plan*

The General Plan include objectives and policies relevant to hazards and hazardous materials in its Public Health and Safety Element:

***Goal PH-6*** *To protect residents from exposure to hazardous materials and wastes.*

> ***Policy PH-6.1 Avoidance of Natural Resources Contamination.*** *The City shall require that uses generating hazardous materials and wastes do not contaminate air, water, or soil resources.*
>
> ***Policy PH-6.2 Location of New Hazardous Uses.*** *The City shall require that proposed activities and land uses that use, store, or dispose of hazardous materials or wastes be located in the industrial area in the southern portion of the city.*
>
> ***Policy PH-6.3 Emergency Preparedness Plan for New Projects with Hazardous Materials.*** *The City shall require new Projects that are using, producing, or generating hazardous materials, such as cold storage facilities, prepare an emergency preparedness plan.*
>
> ***Policy PH-6.4 Household Hazardous Waste Education.*** *The City shall support educational programs that inform the public about household hazardous waste and proper disposal methods.*
>
> ***Policy PH-6.5 Integrated Pest Management Practices.*** *The County shall encourage and support the use of Integrated Pest Management practices to reduce pesticide use and human health risks.*
>
> ***Policy PH-6.6 Notification of Pesticide Application.*** *The City will work to obtain notification of the application of restricted materials (pesticides applied by spray techniques) for areas inside or within the ¼ mile of the Kerman Planning Area.*

---

[22] United States Environmental Protection Agency. Superfund National Priorities List. Accessed July 26, 2023, https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=33cebcdfdd1b4c3a8b51d416956c41f1

[23] California Department of Toxic Substances Control. Envirostor. Accessed July 26, 2023, https://www.envirostor.dtsc.ca.gov/public/

[24] California State Water Resources Control Board. GeoTracker. Accessed July 26, 2023, https://geotracker.waterboards.ca.gov/

### 4.9.2 Impact Assessment

*Would the Project:*

*a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

**Less than Significant Impact.** The Project proposes a residential development. The type of hazardous materials that would be associated with Project operations are those typical of residential uses such as cleaning supplies and HVAC equipment. Because of the proposed residential use, it is not expected that the Project would routinely transport, use, or dispose of hazardous materials other than those typical of residential uses and such materials would not be of the type of quantity that would pose a significant hazard to the public.

Some appliances and electronics used or stored by residents may contain hazardous components (e.g., refrigerants, oils, etc.); however, these hazardous components are regulated by the EPA under the Toxic Substances Control Act and Clean Air Act and transport of such components are regulated by the U.S. Department of Transportation, Office of Hazardous Materials Safety as implemented in California by Title 13 of the California Code of Regulations (CCR), California Building Code, and Uniform Fire Code, as adopted by the City. Through compliance with regulations, appliances and electronics associated with the Project are not expected to create a significant hazard to the public or the environment.

Potential impacts during construction of the Project could result from the use of fuels and lubricants for construction equipment. However, these impacts would be short-term and temporary, and would be reduced to less than significant levels through compliance with local, state, and federal regulations including but not limited to compliance with EPA's oil spills prevention and preparedness regulations, California Office of Emergency Services implementation of hazardous materials accident prevention, and California Department of Toxic Substance Control permitting, and regulations as administered by Fresno County, in addition to standard equipment operating practices as indicated in operator manuals. Therefore, the Project would have a less than significant impact.

*b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

**Less than Significant Impact.** As described under criterion a), it is not anticipated that the Project itself would involve any operations that would require routine transport, use, or disposal of hazardous materials and therefore is not anticipated to create a significant hazard to the public or the environment through release of hazardous materials, including any reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. While potential impacts would occur through construction-related transport and disposal of hazardous materials, such impacts would be short-term and temporary, and would be reduced to less than significant levels through compliance with local, state, and federal regulations in addition to standard equipment operating practices as described under criterion a). Therefore, the Project would have a less than significant impact.

*c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

**Less than Significant Impact.** Liberty Elementary School is approximately 850 feet northwest of the Project site. As described under criteria a) and b) above, the Project is not anticipated to emit hazard emissions or handle hazardous materials, substances, or water that would pose a risk or threat to the school or surrounding area. Therefore, a less than significant impact would occur.

*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?*

**Less than Significant with Mitigation Incorporated.** According to NPL, EnviroStor, and GeoTracker, the Project Area ~~site~~ does not include any hazardous material release sites pursuant to Government Code *Section 65962.5*. The Phase 1 ESA found no evidence of RECs, CRECs, and HRECs in connection with the subject property. However, the assessment revealed BERs in connection with the subject property, including possible asbestos-containing construction materials, lead-based paint in building materials, and agricultural pesticides. ***Mitigation Measure HAZ-1, HAZ-2, and HAZ-3*** establish further assessment to ensure that the BER items of concern are assessed. As such, the Project would not create a significant hazard to the public of the environment with mitigation measures incorporated. Impacts would be less than significant.

***Mitigation Measure HAZ-1:*** *Asbestos Survey. Prior to the demolition or renovation of any existing structure on site, an Asbestos Survey shall be conducted to determine the quantity of asbestos-containing construction material to be removed in the Project. As regulated by National Emission Standards for Hazardous Air Pollutants (NESHAP), the inspection must be conducted by a Cal-OSHA Certified Asbestos Consultant (CAC). The Asbestos Survey report shall be submitted to the City of Kerman Community Development Department for review and approval. Alternatively, if the developer is opting to treat all of the material as RACM and will notify as such, the survey may be bypassed.*

*A completed and signed Asbestos Notification Form must be submitted to the San Joaquin Valley Air Pollution Control District (SJVAPCD) 10 working days prior to the commencement of any regulated asbestos (RACM) abatement. If it is determined that there are asbestos-containing materials or soils on site, the developer shall utilize specialists/professionals for asbestos removal/abatement to reduce potential health risks to construction workers. Demolition activities that would expose construction workers and/or the public to asbestos-containing materials shall be conducted in accordance with the applicable regulations, including, but not limited to:*

- *San Joaquin Valley Air Pollution Control District*
- *California Health and Safety Code (Section 39650 et seq.)*
- *California Code of Regulations (Title 8, Section 1529)*
- *California Occupational Safety and Health Administration regulations (California Code of Regulations, Title 8, Section 1529 [Asbestos] and Section 1532.1 [Lead])*
- *Code of Federal Regulations (Title 40, Part 61 [asbestos], Title 40, Part 763 [asbestos], and Title 29, Part 1926 [asbestos and lead])*

***Mitigation Measure HAZ-2:*** *Lead-Based Paint Inspection. Prior to the demolition of any existing structure on site, a lead-based paint inspection is required to determine whether the lead-based paint is present in or on the original building materials. The inspection shall be conducted on-site by a state-certified Lead Inspector or Assessor in accordance with the California Code of Regulations, Title 8, Section 1532.1. The investigation report shall be submitted to the City of Kerman Community Development Department for review and approval.*

*If it is determined that lead-based paint exists on site, the developer shall utilize professionals for lead-based paint removal to reduce potential health risks to construction workers and/or the public. Pursuant Section 1532.1, construction workers must establish and implement a compliance program, and provide a written Pre-Job Notification to the nearest Division of Occupational Safety and Health Cal/OSHA office 24 hours before the start of a project.*

***Mitigation Measure HAZ-3:*** *Test for Agricultural Pesticides. Prior to construction activities onsite, a limited Phase II investigation shall be conducted to assess the surface soil of the project site for residual organochlorine and lead arsenate pesticides. The Phase II investigation shall be conducted in accordance with guidelines developed by the Department of Toxic Substances Control (DTSC) and Environmental Protection Agency (EPA) for site assessments. The Phase II investigation shall estimate the potential threat to public health and the environment if concentrations of pesticides are encountered using methods outlined in DTSC's Preliminary Endangerment Assessment Guidance Manual and DTSC's Screening Level Human Health Risk Assessment guidance for implementing screening level risk analysis. The Phase II investigation shall be submitted to the City of Kerman Community Development Department for review and approval by an independent third-party reviewer. If the Phase II testing reveals concentrations of organochlorine pesticides and lead arsenic above health-based screening levels for residential exposure, remediation of the site shall be required to address residual organochlorine and lead arsenate pesticides above health-based level of concern. Remediation may include excavation and disposal of impacted soil or capping elevated areas beneath paved areas. The Construction Contractor shall implement the recommendations outlined in the Phase II.*

e) ***For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?***

**No Impact.** The nearest public airport or public use airport is the Fresno-Chandler Executive Airport located approximately 14.5 miles east of the Project Area ~~site~~. The Project Area ~~site~~ is not located within any land use plan or within two (2) miles of a public airport or public use airport. As such, the Project would not result in a safety hazard for people residing or working in the Project site and no impact would occur.

f) ***Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

**Less than Significant Impact.** The Project would not involve any new or altered infrastructure associated with evacuation, emergency response, and emergency access routes within the City of Kerman or County of Fresno. Construction may require lane closure; however, these activities would be short-term and access through West California Avenue would be maintained through standard traffic control. Following construction, this roadway would continue to provide access to the site. Furthermore, the Project would be subject to compliance with applicable standards for on-site emergency access including turn radii and fire access. Therefore, through the compliance, the Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant.

g) ***Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?***

**Less than Significant Impact.** According to the Fresno County HMP, wildfire happens nearly every year in Kerman, but the geographical extent affects less than 10% of the planning area with limited severity. Development of the Project would increase paved areas, decreasing the probability of wildfires. In addition, the site is not identified by Cal Fire to be in a Moderate, High, or Very High Fire Hazard Severity Zone (FHSZ). Future development of the site would result in the construction of structures and installation of infrastructure that would be reviewed and conditioned by the city for compliance with all applicable standards, specifications, and codes. In addition, any structure occupied by humans would be required to be constructed in adherence to the Wildland Urban Interface Codes and Standards of the CBC Chapter 7A. Compliance with such regulations would ensure that the Project meets standards to help prevent loss, injury, or death involving wildland fires. For these reasons, the Project would have a less than significant impact.

### *4.9.3 Mitigation Measures*

The Project shall implement and incorporate, as applicable, the Hazards and Hazardous Material related mitigation measure as identified above and in the MITIGATION MONITORING AND REPORTING PROGRAM contained in SECTION 5.

## 4.10 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? | | | X | |
| *b)* Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin? | | X | | |
| *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:<br>*i.* *Result in a substantial erosion or siltation on- or off-site;* | | | X | |
| *ii.* *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site:* | | | X | |
| *iii.* *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or* | | | X | |
| *iv.* *Impede or redirect flood flows?* | | | X | |
| *d)* In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation? | | | X | |
| *e)* Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | | | X | |

### *4.10.1 Environmental Setting*

The Project proposed to be annexed into Kerman's city limits and would be required to connect to the city's water and stormwater services. The city's water and stormwater services are described as follows.

#### *Water*

The city's Public Works Department Water Division is responsible for the city's wells, distribution lines, water meters, and back-flow prevention systems. The 2020 Urban Water Management Plan (UWMP), adopted July 2022, analyzes data to ensure adequate urban water supplies for the future, promotes water conservation policies and programs, and provides mechanisms for response during water drought conditions. According to the 2022 UWMP, the city provides potable water services to approximately 16,016 residents, and 3,767 metered connections within its service area as of 2020. The UWMP Projected a service population of 24,354 residents by 2045. The city owns and operates six (6) active wells to extract groundwater from the Kings Subbasin. These wells have individual capacities ranging from 900 gallons per minute (gpm) to 1,500 gpm, with a total of 6,700 gpm. [25]

The General Plan proposes a dual water system, including a primary system to provide potable water for domestic uses from deep wells and a secondary system that provides non-potable water for landscaping, industrial, and fire protection from surface water and/or shallow groundwater. The General Plan includes the following goals and policies in its Conservation, Open Space, and Recreation Element and Public Facilities and Services Element to promote water conservation, as listed below.

***Goal COS-4*** *To effectively manage water resources by adequately planning for the development, conservation, and protection of water resources for present and future generations.*

> ***Policy COS-4.3 Native and Drought-Tolerant Plants.*** *The City shall require the use of native and drought-tolerant plants for new landscaping in existing and future parks and street medians.*
>
> ***Policy COS-4.6 Water Use Efficiency for New Development.*** *The City shall encourage new development and majority retrofits of existing development to incorporate water conservation techniques. Such techniques include requiring low-flow plumbing fixtures in new construction that meet or exceed the California Plumbing Code, use of graywater for landscaping, retention of stormwater runoff for groundwater recharge, use of reclaimed water for outdoor irrigation (where available), and landscape water efficiency standards that meet or exceed the standards in the California Model Water Efficiency Landscape Ordinance.*

***Goal PFS-2*** *To ensure a quality and reliable water supply to meet the needs of residents, businesses, and the agricultural industry.*

> ***Policy PFS-2.1 Water, Sewer, and Storm Drainage Infrastructure.*** *The City shall continue to install and upgrade water, sewer, and storm drainage infrastructure to meet current and Projected growth demand, as well as current water quality standards.*

---

[25] City of Kerman. (2022). Final 2020 Urban Water Management Plan. Accessed July 26, 2023, https://cityofkerman.net/wp-content/uploads/2022/07/City-of-Kerman-FINAL-2020-UWMP-WSCP-reduced.pdf

> ***Policy PFS-2.4 Kerman Wastewater Treatment Plant.*** *The City should preclude the intrusion of any land uses that are incompatible with operation of the Kerman Waste Water Treatment Plant.*
>
> ***Policy PFS-2.5 Pollutants from Water Run-off.*** *During the development review process, the City shall require new development to provide facilities and/or measures to reduce pollutants in water run-off prior to entering the city's stormwater collection system. Options could include bioswales and other best management practices currently available at time of development.*
>
> ***Policy PFS-2.8 Groundwater Recharge.*** *The City shall support adequate groundwater recharge by developing storm ponding and retention basins where feasible. In some areas these ponds or basins can be incorporated into a recreational area or used as wildlife habitat area or may be required by new development to offset impacts associated with new nonpermeable surfaces.*

#### *Stormwater*

The City's Public Works Department Storm Water Management Division manages Kerman's storm drain system and monitors storm water quality. The City maintains stormwater facilities within existing rights-of-way. The City's stormwater system consists of a system of drains and ponding basins located throughout the City. The stormwater ponding basins consist of 11 percolation basins that provide groundwater recharge. The percolated stormwater is subsequently pumped as groundwater for local crop irrigation. Average annual precipitation in the Kerman area is 11 inches.

### *4.10.2 Impact Assessment*

***Would the Project:***

*a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

**Less than Significant Impact.** The Project site is undeveloped and therefore would require grading, excavation, and loading activities associated with construction which could temporarily increase runoff, erosion, and sedimentation. Typical sources of potential construction-related stormwater pollution would be the handling, storage, and disposal of construction materials that contain pollutants, the maintenance and operation of construction equipment, and earth moving activities. The potential for construction-related stormwater pollution would be significantly minimized through preparation of the required SWPPP (Section 4.7) in compliance with the General Permit for Discharges of Storm Water Associated with Construction Activity. The SWPPP estimates the sediment risk associated with construction activities and includes best management practices (BMP) to control erosion. BMPs specific to erosion control cover erosion, sediment, tracking, and waste management controls. Implementation of the SWPPP minimizes the potential for the Project to result in substantial soil erosion or loss of topsoil. These provisions minimize the potential for the Project to violate any waste discharge requirements or otherwise substantially degrade surface or ground water quality. Further, runoff resulting from the Project would be managed by the Storm Water Management Division in compliance with the Storm Drainage Master Plan in addition to approved grading and drainage plans. Thus, compliance with existing regulations including the General Construction Permit, BMPs, and Storm Drainage Master Plan would ensure potential impacts related to water quality and waste discharge are less than significant.

*b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?*

**Less than Significant Impact.** The City's long-term water resource planning for existing and future demand is addressed in the City's 2020 Urban Water Management Plan (UWMP).[26] The City's sole source of water supply is the underlying groundwater basin, Kings Subbasin. The City currently has six wells throughout the community, with an existing well capacity range from 900 to 1,500 gallons per minute (gpm). The total combined capacity is approximately 6,700 gpm, 9.65 million gallons per day (MGD), and 3,522 million gallons per year (MGY).

As population and development within the city increases, the UWMP indicates that additional wells and storage tanks will be added to the water system to meet the growing demand. These increases are accounted for in the UWMP projections, which are based on the 2040 General Plan. In the General Plan, the Project site is planned for medium and high-density residential uses. The proposed Project would be consistent with the permitted density of these land uses and would not result in a higher density that would not have been previously accounted for.

Existing and future water demands for residential uses are shown in Table 4-18. As shown, the City anticipates 3,520 single-family residential users and 215 multi-family residential users in 2025. Water demand for both use types is expected to increase to 3,828 for single-family residential users and 234 for multi-family residential users by 2030. The Project is anticipated to be developed and operational between 2025 and 2030. Since the Project site would be developed within the density allowed in the underlying planned land use designation, it can be assumed that the Project would be accommodated by existing groundwater supplies and impacts would be less than significant.

Table 4-18 City of Kerman Existing and Future Water Demands by Use Type

| Use Type | 2020 | 2025 | 2030 |
|---|---|---|---|
| Single Family Residential | 3,237 | 3,520 | 3,828 |
| Multi-Family Residential | 198 | 215 | 234 |

***Source:*** *City of Kerman, 2020 UWMP, Table 4-3 Demands for Potable Water (Actual), Table 4-4 Projected Number of Total Connections by User Type*

Table 4-19 shows the estimated water demand for the proposed Project. Water demand was estimated using CalEEMod (Appendix A). As shown, the proposed Project is estimated to generate an indoor water demand of 19,209 gpd and an outdoor water demand of 64,581 gpd. Development of the Project would account for less than 0.90 percent of the City's 9.65 MGD well capacity. Therefore, it can be assumed that the Project would be accommodated by existing groundwater supplies and impacts would be less than significant.

Table 4-19 Whispering Falls Projected Water Demand

| Unit Type | Indoor Water (gpd) | Outdoor water (gpd) |
|---|---|---|
| Single-family units | 13,027 | 63,530 |
| Multi-family units | 6,182 | 1,051 |
| **Total** | 19,209 | 64,581 |

---

[26] City of Kerman (2021). 2020 Urban Water Management Plan. Accessed October 12, 2023, https://cityofkerman.net/239/Water-Division

Furthermore, adherence to connection requirements and recommendations pursuant to the City's water conservation efforts (e.g., compliance with California Plumbing Code, efficient appliances, efficient landscaping, etc.) should not negatively impact water supply or impede water management. In particular, the Project would be built accordance with all mandatory outdoor water use requirements as outlined in the applicable California Green Building Standards Code, Title 24, Part 11, Section 4.304 – Outdoor Water Use and verified through the building permit process. As a residential development that would contain landscaping pursuant to KMC regulations, the Project shall comply with the updated Model Water Efficient Landscape Ordinance (MWELO) (California Code of Regulations, Title 23, Chapter 2.7, Division 2), as implemented and enforced through the building permit process. Therefore, through compliance, the potential for the Project to substantially decrease groundwater supplies is limited and impacts would be less than significant.

In addition, development of the Project site would increase impervious surfaces which could increase stormwater runoff and reduce groundwater recharge. According to the UWMP, the City maintains stormwater facilities within existing rights-of-way. The City's stormwater system consists of a system of drains and ponding basins located throughout the city. The stormwater ponding basins consist of 11 percolation basins that provide groundwater recharge. The percolated stormwater is subsequently pumped as groundwater for local crop irrigation.

As previously described, an off-site temporary drainage basin is proposed off-site on the parcel identified as APN 020-160-18S (Figure 2-18). The basin was sized to adequately accommodate stormwater runoff from the site and would be replaced once permanent storm drainage services are available. Based on the proposed site grading, stormwater runoff will generally drain northwest toward the basin. There are 8 water features proposed throughout the site that would serve a dual purpose as storm water collection. Further, runoff resulting from the Project would be managed by the Storm Water Management Division in compliance with the Storm Drainage Master Plan in addition to approved grading and drainage plans. Thus, compliance would ensure potential impacts related to groundwater recharge are less than significant.

Overall, based on the information collected from the UWMP and the City of Kerman, the proposed Project would not generate significantly greater water demand than would otherwise occur with a higher intensity land use. As a result, it can be presumed that the existing and planned water distribution system and supplies should be adequate to serve the Project, and the Project would thereby not interfere substantially with groundwater recharge or impede sustainable groundwater management of the basin. In addition, adherence to connection requirements and recommendations pursuant to the City's water supply planning efforts (i.e., compliance with California Plumbing Code, efficient appliances, efficient landscaping, etc.) should not negatively impact the City's water provision. Lastly, compliance with approved grading and drainage plans would ensure impacts to groundwater recharge are less than significant. For these reasons, a less than significant impact would occur.

*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 off-site?*

**Less than Significant Impact.** Erosion is a natural process in which soil is moved from place to place by wind or from flowing water. The effects of erosion within the Project Area can be accelerated by ground-disturbing activities associated with development. Siltation is the settling of sediment to the bed of a stream or lake which increases the turbidity of water. Turbid water can have harmful effects to aquatic life by clogging fish gills, reducing spawning habitat, and suppress aquatic vegetation growth.

Implementation of the proposed Project would result in the development of ruderal land that has undergone significant disturbance (i.e., annual discing, agricultural operations). Bare soils, common within agricultural land, are more susceptible to erosion than an already developed urban land, thus it is expected erosion could occur on-site. During construction activities, and in compliance with the Project's SWPPP, construction-related erosion controls and BMPs would be implemented to reduce potential impacts related to erosion and siltation. These BMPs would include, but are not limited to, covering and/or binding soil surfaces to prevent soil from being detached and transported by water or wind, and the use of barriers such as straw bales and sandbags to control sediment. Together, the controls and BMPs are intended to limit soil transportation and erosion and construction impacts related to on- and off-site improvements.

Development of the site would also result in an increase in the amount of impervious surface, which could increase the volume of runoff. However, the impervious surface area would significantly reduce the amount of exposed soil which would minimize the potential for erosion and siltation. In addition, the Project would be required to maintain the overall site drainage pattern in accordance with an approved grading and drainage plan. According to the Project's preliminary grading plan, the site will drain northwest toward West California Avenue. A series of water features/swales on site would serve as a storm collection system. Run off would drain toward an off-site temporary drainage basin to the north of the Project site. The basin was sized to adequately accommodate stormwater runoff from the site and would be replaced once permanent storm drainage services are available. Therefore, compliance with requirements would reduce or eliminate the Project's potential to substantially alter the existing drainage pattern of the site as to cause substantial erosion or siltation and impacts would be less than significant.

*ii. Substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?*

**Less than Significant Impact.** During construction, the site's vegetation and soil would be disturbed, thereby temporarily altering the natural hydrology of the site. In turn, this could increase the volume and velocity of stormwater runoff which could increase the potential for flooding on- or off-site. As previously discussed, development of the site would require compliance with the SWPPP, approved grading and drainage plan, and implementation of BMPs that would control and direct runoff. Compliance would ensure that construction impacts related to the alteration of the site's natural hydrology and the potential increase in runoff that would result in flooding on- or off-site would be less than significant.

*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?*

**Less than Significant Impact.** Development of the site would disturb the site's vegetation and soil and temporarily alter the natural hydrology of the site. However, compliance with the SWPPP, approved grading and drainage plan, and implementation of BMPs that would control, and direct runoff would reduce construction impacts related to alteration of the site's natural hydrology and the potential increase in runoff or polluted runoff in excess of existing or planned stormwater drainage systems. Therefore, construction would not result in the creation or contribution of additional sources of runoff or polluted runoff in exceedance of the existing or planned stormwater drainage systems and impacts would be less than significant.

Regarding operational impacts, development of the site would result in an increase in the impervious surface area which would increase runoff from the site. However, compliance with the approved grading and drainage plans would reduce the potential for the Project to cause substantial additional polluted runoff or runoff in excess of existing or planned stormwater drainage systems. A less than significant impact would occur.

*iv. Impede or redirect flood flows?*

**Less than Significant Impact.** Although the construction of the proposed Project would increase impervious surfaces, the Project would be required to maintain the site's drainage pattern through Project-specific grading and drainage plans that would be reviewed and approved by the City prior to the issuance of building permits. Through compliance, the potential for the Project to impede or redirect flood flows would be minimized or eliminated and a less than significant impact would occur.

*d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?*

**Less than Significant Impact.** The Project site is designated as Zone X on the most recent Flood Insurance Rate Map (FIRM) No. 06019C2075H dated February 18, 2009 (see Figure 4-3). Zone X is a flood hazard area with a 0.2 percent annual chance of flood hazard and one (1) precent annual chance flood with average depth less than one foot or with drainage areas of less than one (1) square mile. In addition, the Project site is not in a tsunami or seiche zone (i.e., standing waves on rivers, reservoirs, ponds, and lakes), therefore the risk of inundation is unlikely. For these reasons, the Project would have a less than significant impact.

*e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

**Less than Significant Impact.** A groundwater sustainability plan was adopted for the Kings Groundwater Sub-basin on November 21, 2019, by the North Kings Groundwater Sustainability Agency (NKGSA), of which the City of Kerman is a member.[27] The goal of the Kings Basin and NKGSA was to ensure that the subbasin maintains a reliable water supply for current and future beneficial uses without experiencing undesirable results through 2040. The proposed Project is required to comply with the adopted plan (North Kings Groundwater) to meet the 2040 sustainability deadline for the basin. During the preparation of the city's 2020 UWMP, the city coordinated with the North Kings Groundwater Sustainability Agency, Fresno Irrigation District, County of Fresno, and Kings Basin Water Authority to ensure that the city's UWMP is in compliance with the goals of these agencies. As such, compliance with the City's 2020 UWMP would ensure that the Project does not conflict or obstruct the implementation of the NKGSA plan. In addition, the city has largely attained the balanced use of groundwater supplies well ahead of the legislative requirement of 2040, thus making the city compliant with the North Kings Groundwater Sustainability Plan goals. As mentioned above, impacts to groundwater supplies from the proposed

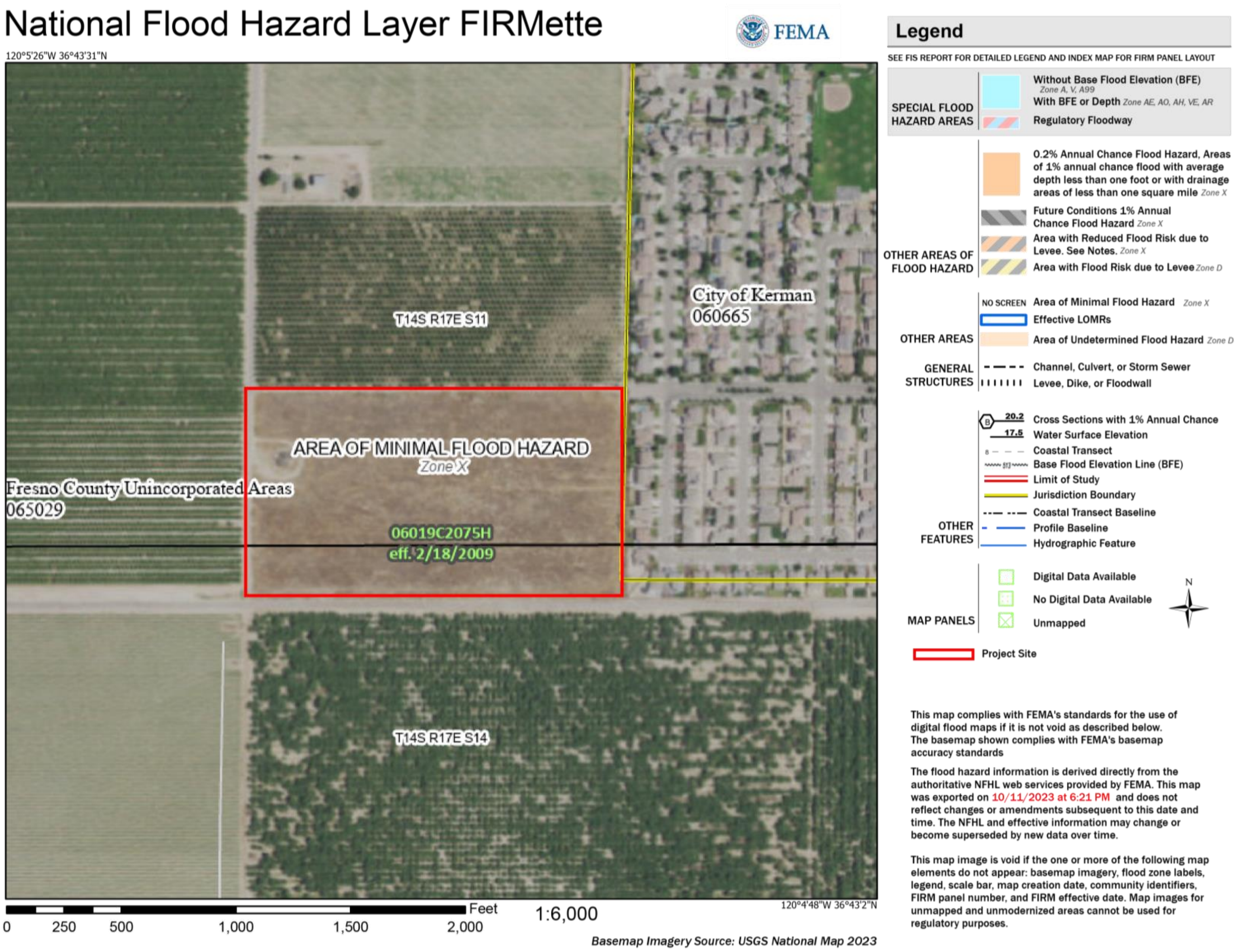
---

[27] North Kings Groundwater Sustainability Agency (2020). Groundwater Sustainability Plan. Accessed July 28, 2023, https://northkingsgsa.org/groundwater-sustainability-plan/

Project will not be beyond those analyzed in the General Plan, PEIR, or UWMP. For these reasons, a less than significant impact would occur because of the Project.

### *4.10.3 Mitigation Measures*

None required.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/11/2023 at 6:21 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

*Basemap Imagery Source: USGS National Map 2023*

Figure 4-3 Flood Zone Map

## 4.11 LAND USE 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? | | | X | |
| *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? | | | X | |

### *4.11.1 Environmental Setting*

The Project Area ~~site~~ is within Kerman's Sphere of Influence (SOI). The Project proposes the annexation of the Area ~~site~~ into the city limits of Kerman.

The Project site has a City of Kerman 2040 General Plan land use designation of MDR – Medium Density Residential (15 acres) and HDR – High Density Residential (5 acres) (Figure 2-3).

According to the General Plan, the MDR land use designation *"allows for residential development at a density of up to 12 units per gross acre. Development in this category could include a mix of single-family and multifamily residences, including duplexes, triplexes, fourplexes, and mobile homes."* The MDR land use designation is compatible with the R-1-7, R-1-12, R-2, SD-R-5, SD-R-4.5, SD-R-3.5, PD-R-7, and PD-R-12 zoning districts. Typical uses of this land use designation include single-family detached dwellings, small-lot multifamily dwellings including duplexes, triplexes, fourplexes, and mobile homes, accessory dwelling units, and compatible public and quasi-public uses (e.g., churches, day-care centers, community centers, parks, and schools).

According to the General Plan, the HDR land use designation *"allows for residential development at a density of up to 20 units per gross acre. Development in this category could encompass apartment complexes, senior housing, and condominiums."* The HDR land use designation is compatible with the R-3, SD-R-2.5, and PD-R-2.5 zoning districts. Typical uses of this land use designation include large-lot multifamily dwellings, including apartment complexes, senior housing, and condominiums, accessory dwelling units, and compatible public and quasi-public uses (e.g., churches, day-care centers, community centers), parks, and schools). The minimum density permitted in the HDR land use designation is 20 dwelling units per acre. The maximum density permitted is 24 dwelling units per acre.

The Project site is outside City limits and located within the County of Fresno Agricultural Exclusive – 20 Acres (AE-20) zoning district (Figure 2-4). Because the site is outside City limits, proposed development would require annexation and a pre-zone/rezone of the site to a zoning district consistent with the City of Kerman 2040 General Plan planned land use designation for the site. Consistent zoning districts for the MDR land use designation are R-1-7, R-1-12, R-2, SD-R-5, SD-R-4.5, SD-R-3.5, PD-R-7, and PD-R-12. Consistent zoning districts for the HDR land use designation are R-3, SD-R-2.5, and PD-R-2.5.

REZ 2023-01 would pre-zone approximately 79.41 acres to the Smart development Combining District – Residential – minimum 2,500 square feet (SD-R-2.5) zoning district. The zoning district would be consistent with the underlying planned land use, Medium Density Residential, pending approval of GPA 2023-01.

GPA 2023-01 would amend the Kerman 2040 General Plan to add the SD-R-2.5 zoning district as a compatible zoning district within the Medium Density Residential land use designation and set a minimum residential density of five (5) dwelling units per acre. No change is proposed to the maximum density currently permitted.

### *4.11.2 Impact Assessment*

*Would the Project:*

*a) Physically divide an established community?*

**Less than Significant Impact.** Typically, physical division of an established community would occur if a Project introduced new incompatible uses inconsistent with the planned or existing land uses or created a physical barrier that impeded access within the community. Typical examples of physical barriers include the introduction of new, intersecting roadways, roadway closures, and construction of new major utility infrastructure (e.g., transmission lines, storm channels, etc.).

#### *Surrounding Land Uses*

The Project Area ~~site~~ is surrounded by single-family residences to the east and agricultural uses to the north, south, and west. ~~The agricultural uses to the immediate north comprise the annexation parcels~~. As referenced in Table 2-1, properties to the north, south, and west are zoned for agricultural uses within the County of Fresno, and the properties north and east are planned for residential uses in Kerman. Proposed site improvements would be regulated by development standards and zoning regulations, including height, landscaping, setbacks, improvements, right-of-way dedications, open space, and parking, etc. As such, the Project would be consistent and therefore compatible with the existing residential use surrounding the Project site. Therefore, implementation of the Project would be generally consistent with the existing and planned land uses within the Project area.

#### *Circulation System*

Access to the Project site would be provided by 3 points of ingress/egress from West California Avenue, which is proposed to be extended west from the adjacent subdivision and improved with curb, gutter, sidewalk, and an 8-foot landscape easement on the north and south side of the extended street. The extension of West California Avenue is identified in the Kerman General Plan Circulation Diagram as a future collector. With the extension of West California Avenue, the Project would be able to be served by the existing circulation system and related infrastructure. Therefore, implementation of the Project would not include the introduction of new, intersecting roadways. The east 20-feet of South Modoc Avenue right-of-way is proposed to be vacated south of West California Avenue which dead ends at the railway. While the Project would include a roadway closure, this portion of South Modoc Avenue is not identified as a future roadway in the General Plan Circulation Diagram. Therefore, a less than significant impact would occur.

#### *Utility Infrastructure*

The Project site is proposed to be annexed into the city limits and thus, would be required to connect to water, wastewater, and stormwater services. Natural gas, electricity, telecommunications, and solid waste services are provided by private companies. Utility systems are described and analyzed in Section 4.10 and Section 4.15. Based on the analysis, implementation of the Project would not result in the construction of new, major utility infrastructure.

As such, the Project does not represent a significant change in the surrounding area as it would develop a vacant and undeveloped site with residential uses that are consistent and compatible with existing uses surrounding the Project site. In addition, the Project includes the extension of a roadway designated in the General Plan and does not include major utility infrastructure. For these reasons, the Project would not result in the physical division of an established community and would thereby have a less than significant impact.

b) *Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*

**Less than Significant Impact.** The Project proposes to construct a 174-unit residential development with the approval of the associated annexation, pre-zone/rezone, conditional use permit, and tentative subdivision map. The ~~annexation boundary, inclusive of the~~ Project Area ~~site~~, would be annexed to the City of Kerman to the Medium Density Residential and High Density Residential land use designations. The annexation boundary was determined by Fresno LAFCO. Approval of the pre-zone/rezone and General Plan Amendment would ensure that the proposed zoning designation, SD-R-2.5, is consistent with the underlying land use designation.

Generally, policy conflicts are environmental impacts when they would result in direct physical impacts or where those conflicts relate to avoiding or mitigating environmental impacts. As such, associated physical environmental impacts are discussed in this document under specific topical sections, such as Biological Resources, Cultural Resources, and Tribal Cultural Resources. The Project includes a General Plan Amendment and Rezone to provide more flexibility for residential development. A discussion of land use policies that are applicable to the Project are included in Table 4-20. As discussed below, the Project is generally consistent with the proposed General Plan residential land use designation. In addition, the Project is within Area 1 of the City's proposed SOI, which is the priority development area for the City.

Table 4-20 Discussion on Land Use Policies in the General Plan for Residential Development

| General Plan Policy | Project Consistency |
|---|---|
| ***Policy LU-1.4 Limit Residential Development Along Highways.*** *The City shall limit residential development from fronting State Highway 145 and State Highway 180 to ensure public safety. Residential development along these facilities shall be designed and buffered to reduce noise and air pollutant impacts to the maximum extent reasonably feasible and consistent with CEQA review.* | **Consistent.** The Project site does not front and is not within the vicinity of any State Highways. |
| ***LU-1.5 High-Density Residential Development Near Goods and Services.*** *The City shall encourage the development of high-density residential uses near commercial uses, parks, and schools.* | **Consistent.** The Project site is planned for medium and high residential development in the General Plan and would be developed with both single-family and multi-family residential uses. According to the General Plan Land Use Diagram, the site is within 0.25- to -0.50-miles |

| | |
|---|---|
| | of planned schools, parks, service commercial, and industrial uses. |
| ***LU-1.6 Agricultural Buffers.*** *The City shall require non-agricultural land uses adjacent to active agricultural uses to incorporate adequate buffers (e.g., setbacks, fences) to protect public health and limit conflicts with adjoining agricultural operations and pesticide applications.* | **Consistent.** The Project site is surrounded by agricultural land to the north, west, and south, and residential uses to the east. The Project would be buffered from adjacent agricultural uses by proposed roadways, adequate setbacks in conformance with the KMC, and fencing. |
| ***CIRC-1.12 Residential Driveways.*** *During the development review process, the City shall strive to restrict residential driveways from entering onto collector and arterial streets* | **Consistent.** Proposed residential units would be internal to the Project site. Access to the site would be provided by 3 ingress/egress points of access on West California Avenue (collector). Internal circulation would be provided throughout the site. Driveways and garages would be accessed from private roadways and alleys. No driveways would enter onto West California Avenue. |
| ***HE-3.1 Preserving Neighborhood Character.*** *The City shall preserve the character, scale, and quality of established residential neighborhoods by protecting them from the encroachment of incompatible or potentially disruptive land uses and/or activities.* | **Consistent.** The Project site is planned for medium and high residential development in the General Plan and would be developed with both single-family and multi-family residential uses as allowed. Through the entitlement process, the Project would be conditioned to comply with applicable residential development and design standards within the KMC. |
| ***HE-6.1 Energy Conservation in New Housing.*** *The City shall encourage the use of energy conserving techniques in the siting and design of new housing.* | **Consistent.** The Project would be reviewed and conditioned to comply with Title 24 and other energy regulations during the entitlement process. |
| ***HE-6.2 State Energy Conservation Requirements.*** *The City shall actively implement and enforce all State energy conservation requirements for new residential construction.* | |

Further, through the entitlement process, the Project would be reviewed for compliance with applicable regulations inclusive of those adopted for the purpose of avoiding or mitigating environmental effects. Overall, the entitlement process would ensure that the Project complies with the General Plan, KMC, and any other applicable policies and regulations. As such, a less than significant impact would occur.

### *4.11.3 Mitigation Measures*

None required.

## 4.12 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? | | | | X |
| *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? | | | | X |

### *4.12.1 Environmental Setting*

For the purposes of CEQA, mineral resources are land areas or deposits deemed significant by the California Department of Conservation (DOC). Mineral resources include oil, natural gas, and metallic and nonmetallic deposits, including aggregate resources. The California Geological Survey (CGS) classifies and designates areas within California that contain or potentially contain significant mineral resources. Lands are classified into Aggregate and Mineral Resource Zones (MRZs), which identify known or inferred significant mineral resources. According to the General Plan, the Kerman Planning Area, inclusive of the Project Area ~~site~~, is not located in an area with mineral deposit significance and there are no active mine operations. In addition, the City of Kerman, inclusive of the Project Area ~~site~~, is not within a CalGEM-recognized oilfield and there are no oil and gas wells on-site. [28]

### *4.12.2 Impact Assessment*

*Would the Project:*

*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?*

**No Impact.** There are no identified mineral deposits of significance or active mine operations in the Project Area site ~~or within the annexation boundary~~. Therefore, the Project would not 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. Therefore, no impact would occur.

*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?*

---

[28] California Department of Conservation. Well Finder. Accessed on July 28, 2023, https://maps.conservation.ca.gov/doggr/wellfinder/

**No Impact.** There are no identified mineral deposits of significance or active mine operations in the Project Area site ~~or within the annexation boundary~~. As a result, the Project would not 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. Further, the site is not delineated in the General Plan, a Specific Plan, or other land use plan as a locally important mineral resource recovery site, thus it would not result in the loss of availability of a locally important mineral resource. Therefore, no impact would occur.

### *4.12.3 Mitigation Measures*

None required.

## 4.13 NOISE

| | Would the Project: | 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? | | X | | |
| *b)* | Generation of excessive groundborne vibration or groundborne noise levels? | | | X | |
| *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? | | | | X |

### *4.13.1 Environmental Setting*

An Acoustical Analysis of the Project was conducted by WJV Acoustics, Inc. (WJVA). The analysis was conducted specifically for the development proposed on APN 020-160-36S. Future development of the northern annexation parcels, APNs 020-160-18S and 020-160-19Smay require additional assessment when development is proposed. The full report (dated October 8, 2023) is provided in Appendix E. A summary of the Acoustical Analysis is provided below.

#### *Noise Exposure Criteria*

The City of Kerman 2040 General Plan sets noise compatibility standards for transportation noise sources in terms of the Day-Night Average Level (Ldn). Implementing ***Policy PH-8.2*** of the Public Health and Safety Element establishes a land use compatibility criterion as 60 dB Ldn for exterior noise exposure within outdoor activity areas of residential land uses. Outdoor activity areas generally include backyards of single-family residences, individual patios or decks of multi-family developments and common outdoor recreation areas of multi-family developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

Additionally, Implementing ***Policy PH-8.2*** of the Public Health and Safety Element requires that interior noise levels attributable to exterior transportation noise sources not exceed 45 dB Ldn. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

The General Plan also provides exterior noise level standards for nontransportation (stationary) noise sources. The standards become more restrictive during the nighttime hours (10:00 p.m. to 7:00 a.m.). The stationary noise level standards are established in terms of the hourly average equivalent noise level (Leq) and the maximum hourly noise level (Lmax). Table 4-21 provides the applicable exterior noise level standards for stationary noise sources.

Table 4-21 Non-Transportation Noise Level Standards, dBA, Kerman

| Daytime (7 am – 10 pm) | | Nighttime (10 pm – 7 am) | |
|---|---|---|---|
| Leq | Lmax | Leq | Lmax |
| 50 | 70 | 45 | 65 |

***Source:*** *City of Kerman General Plan, Public Health and Safety Element*

### *Existing Background Noise Levels*

The Project site is not located adjacent to any existing arterial roadway or highways. Existing noise sources in the Project vicinity include SJVR operations, noise associated with agricultural activities and noise associated with urban residential land uses (e.g., vehicle movements on local roadways, construction and landscaping activities, barking dogs, birds, human voices, etc.).

Measurements of existing ambient noise levels in the Project vicinity were conducted by WJVA. Long-term (i.e., 24-hour) ambient noise level measurements were conducted at two (2) locations: Sites LT-1 and LT-2. Site LT-1 was predominantly exposed to noise sources typical of an urban/residential environment, including traffic on local roadways, HVAC units, construction and landscaping activities, barking dogs, birds, human voices, etc. Site LT-2 was predominately exposed to noise sources associated with agricultural activities as well as railroad operations along the SJVR line. The locations of monitoring sites are provided in Appendix E.

Additionally, short-term (i.e., 15-minute) ambient noise level measurements were conducted at four (4) locations, Sites ST-1 through ST-4, to quantify ambient noise levels in the morning and afternoon hours. Table 4-22 summarizes short-term noise measurements. The data includes energy average (Leq) maximum (Lmax) as well as five (5) individual statistical parameters. Overall, sources of noise include traffic (all sites), aircraft (ST-1), agricultural activities (ST-2), construction activities (ST-3), birds (ST-3), dogs barking (ST-3, ST-4), and landscaping activities (ST-3). There were no instances where measurements were more than maximum hourly noise levels per City of Kerman noise level standards. The locations of monitoring sites are provided in Appendix E.

Table 4-22 Summary of Short-Term Noise Measurement Data, Whispering Falls Project Site

| Site | Time | Leq | Lmax | L2 | Lg | L25 | L50 | L90 | Sources |
|---|---|---|---|---|---|---|---|---|---|
| ST-1 | 8:30 am | 44.2 | 62.0 | 57.4 | 45.6 | 41.7 | 40.8 | 36.2 | TR |
| ST-1 | 4:15 pm | 45.9 | 58.4 | 56.2 | 43.5 | 42.3 | 39.4 | 35.5 | TR, AC |
| ST-2 | 8:50 am | 50.6 | 59.4 | 51.8 | 49.6 | 44.1 | 42.7 | 40.0 | TR, AG |
| ST-2 | 4:35 pm | 51.4 | 64.2 | 53.8 | 50,7 | 44.1 | 41.1 | 39.2 | TR |
| ST-3 | 9:10 pm | 51.0 | 66.1 | 53.3 | 51.2 | 46.5 | 44.4 | 42.8 | TR, C, B, D |
| ST-3 | 5:00 pm | 52.2 | 67.8 | 54.1 | 52.6 | 48.0 | 45.9 | 42.4 | TR, L |
| ST-4 | 9:30 am | 48.3 | 57.5 | 54.2 | 52.4 | 49.1 | 46.1 | 42.6 | TR, D |
| ST-4 | 5:20 pm | 41.5 | 52.9 | 46.8 | 44.4 | 42.0 | 40.1 | 38.2 | TR, D |
| TR = Traffic, AC = Aircraft, AG = Agricultural Activities, C = Construction Activities, B = Birds, D = Barking Dogs, L = Landscaping Activities | | | | | | | | | |

***Source:*** *Acoustical Analysis conducted by WJVA*

### *4.13.2 Impact Assessment*

*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 in other applicable local, state, or federal standards?*

**Less than Significant Impact with Mitigation Incorporated.** The Project site is located south of the future alignment of West California Avenue and east of South Siskiyou Avenue. The Project site would be exposed to Traffic noise associated with vehicles on the future alignment of West California Avenue as well as train noise associated with railroad operations along the San Joaquin Valley Railroad (SJVR). The closest proposed single family lots to West California Avenue are located approximately 75 feet south of the future centerline of roadway. The closest proposed single-family lots to the SJVR railroad line are approximately 115 feet north of the centerline of railroad line.

#### *Railroad Noise Exposure*

The SJVR line is located approximately 50 feet south of the closest proposed single-family backyards to the railroad line. The railroad consists of jointed rails with the top of the rails being approximately two (2) feet above Project site grade. Train engineers are required to sound warning horns when within approximately 0.25 mile of a grade crossing.

According to data obtained from the U.S. Department of Transportation Federal Railroad Administration (FRA), trains along this portion of the railroad line do not exceed 25 mph in speed. Additionally, according to both the FRA and the SJVR trainmaster, typical operations consist of two (2) train movements per day along the line, typically one (1) occurring during daytime hours and one (1) occurring during nighttime hours. There is a grade crossing at S. Siskiyou Avenue (approximately 0.25-miles from the Project site) where locomotive engineers are required to sound their warning horn.

Using a railroad noise exposure formula, railroad operations data, and noise measurement results, WJVA estimates that railroad noise exposure along the Project railroad frontage would be approximately 60 dB Ldn, which equals the City's maximum exterior noise level standard. Additionally, based on the 24-hour noise level measurements at ambient noise measure site LT-2, Project site noise exposure would be in the range of approximately 60-63 dB Ldn. This would exceed the City's maximum exterior noise level standard and therefore, mitigation would be required, and the Project shall incorporate ***Mitigation Measure (MM) NOI-1***.

***Mitigation Measure NOI-1:*** *A soundwall with a minimum height of seven (7) feet shall be constructed along the southern property line adjacent to the San Joaquin Valley Railroad rail line. The wall shall be constructed of concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall. Compliance shall be verified during the Final Map review and approval process by the City of Kerman Public Works Department.*

To mitigate exterior train noise exposure along the southern Project site boundary it would be necessary to construct a sound wall along the rear of the southernmost lots. The sound wall would provide acoustical shielding of the outdoor activity areas (backyards) of the proposed single-family homes located closest to the SJVR railroad line. WJVA used a sound wall insertion loss program based on the FHWA model to calculate the minimum required height of a noise barrier along the southern portion of the Project site. The calculations indicated that a sound wall along the southern Project boundary would need to be constructed to a minimum height of seven (7) feet relative to the closest building pad elevations. This would reduce train noise exposure by approximately 5 dB resulting in a projected noise exposure of approximately 58 dB Ldn. Impacts would be less than significant with mitigation incorporated.

### *Interior Noise Exposure*

The City of Kerman interior noise level standard is 45 dB $L_{dn}$. The worst-case noise exposure within the proposed residential development would be approximately 58 dB $L_{dn}$ at first-floor receiver locations and approximately 63 dB $L_{dn}$ at second-floor receiver locations, for the first row of lots facing the SJVR railroad line. This means that the proposed residential construction must be capable of providing a minimum outdoor-to-indoor noise level reduction (NLR) of approximately 18 dB (63-45=18).

A specific analysis of interior noise levels was not performed by WJVA. However, it may be assumed that residential construction methods complying with current building code requirements will reduce exterior noise levels by approximately 25 dB if windows and doors are closed. This would be sufficient for compliance with the City's 45 dB $L_{dn}$ interior standard at all proposed lots. Requiring that it be possible for windows and doors to remain closed for sound insulation means that air conditioning or mechanical ventilation would be required. Since all units would have air conditioning and mechanical ventilation, impacts would be less than significant.

### *Traffic Noise Exposure*

WJVA utilized the FHWA Traffic Noise Model to quantify expected Project-related increases in traffic noise exposure along roadways in the Project vicinity. Traffic noise exposure levels for existing, existing plus project, 2040 cumulative, and 2040 cumulative plus project traffic conditions were calculated based on the FHWA model and traffic volumes provided by the Project traffic engineer, VRPA Technologies, Inc.

Project-related significant impacts would occur if an increase in traffic noise associated with the Project would result in noise levels exceeding the City's applicable noise level standards at the location(s) of sensitive receptors. For the purpose of this analysis, a significant impact is also assumed to occur if traffic noise levels were to increase by 3 dB at sensitive receptor locations where noise levels already exceed the City's applicable noise level standards (without the Project), as 3 dB generally represents the threshold of perception in change for the human ear. This analysis of Project traffic noise focuses on residential land uses, as they represent the most restrictive noise level criteria by land use type provided in the General Plan.

The City's exterior noise level standard for residential land uses is 60 dB $L_{dn}$. Traffic noise was modeled at 18 receptor locations. The eighteen modeled receptors are located at roadway setback distances representative of the sensitive receptors (residences) along each analyzed roadway segment. Project-related traffic for existing conditions, existing plus project, 2040 cumulative, and 2040 cumulative plus project traffic conditions would not result in noise levels at any sensitive receptors to exceed the City's noise level standard, nor result in an increase of 3 dB in any sensitive receptor locations where noise levels already exceed the City's noise level standard. Therefore, impacts would be less than significant.

### *Construction Noise and Vibration Exposure*

Construction noise would occur at various locations within and near the Project site throughout the buildout period. Existing sensitive receptors could be located as close as 100 feet from construction activities. Table 4-23 provides typical construction-related noise levels at distances of 50, 100 feet, 200 feet, and 300 feet.

Construction noise is not considered to be a significant impact if construction is limited to daytime hours and construction equipment is adequately maintained and muffled. The City of Kerman limits the hours of construction activities to between 7:00 am and 10:00 pm. A noise impact could occur if construction activities were to occur outside these hours, or if equipment was not adequately maintained and muffled. Therefore, the Project shall incorporate ***Mitigation Measures NOI-2 and NOI-3*** to reduce impacts to less than significant levels. With mitigation incorporated, impacts would be less than significant.

***Mitigation Measure NOI-2:*** *Noise sensitive land uses (e.g., residential uses, schools, churches) within 500 feet of the exterior boundaries of the Project site shall be notified about the estimated duration and hours of construction activity at least 30 days before the start of construction, with the exception of construction activities related to emergency work. The notice shall be an informational document containing the estimated duration and hours of construction activity, a primary contact for complaints, and reference to compliance with Kerman Municipal Code Chapter 9.26 Prohibition of Unreasonably Loud and Unnecessary Noise. The notice shall be mailed by first class mail to every owner whose name and address appears on the last equalized County Assessment Roll for any property within 500 feet of the exterior boundaries of the Project site. Proof of mailing shall be provided to the City of Kerman, Community Development Department. Separate notices and proof of mailings shall be sent and submitted for all phases of construction.*

***Mitigation Measure NOI-3:*** *Temporary sound barriers shall be erected between the construction area/site and existing residential structures. Sound barriers shall be of sufficient height and length to block the line of sight between the construction site and residential structures and shall be continuous with no gaps or holes between panels or the ground. Sound barriers shall be constructed of material with a weight of two (2) pounds per square foot and shall have a minimum Sound Transmission Class (STC) rating of 28. Sound blankets may be used in place of temporary sound barriers; however, it must be demonstrated the sound blankets meet a STC rating of 28 and shall be of sufficient length to overlap each other and the ground surface. Implementation of temporary sound barriers shall be indicated in the General Construction Notes for the project and verified by the City of Kerman Building Division during the building permit process.*

Table 4-23 Typical Construction Equipment Maximum Noise Levels, dBA

| Type of Equipment | 50 ft. | 100 ft. | 200 ft. | 300 ft. |
|---|---|---|---|---|
| Concrete Saw | 90 | 84 | 78 | 74 |
| Crane | 81 | 75 | 69 | 65 |
| Excavator | 81 | 75 | 69 | 65 |
| Front End Loader | 79 | 73 | 67 | 63 |
| Jackhammer | 89 | 83 | 77 | 73 |
| Paver | 77 | 71 | 65 | 61 |
| Pneumatic Tools | 85 | 79 | 73 | 69 |
| Dozer | 82 | 76 | 70 | 66 |
| Rollers | 80 | 74 | 68 | 64 |
| Trucks | 86 | 80 | 72 | 70 |
| Pumps | 80 | 74 | 68 | 64 |

| | | | | |
|---|---|---|---|---|
| Scrapers | 87 | 81 | 75 | 71 |
| Portable Generators | 80 | 74 | 68 | 64 |
| Backhoe | 86 | 80 | 74 | 70 |
| Grader | 86 | 80 | 74 | 70 |

*Source: FHWA, Noise Control for Buildings and Manufacturing Plants*, Bolt, Beranek & Newman, 1987

### *b) Generation of excessive groundborne vibration or groundborne noise levels?*

**Less than Significant Impact.** The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these activities are anticipated to occur with construction or operation of the proposed Project. Vibration from construction activities could be detected at the closest sensitive land uses, especially during movements by heavy equipment or loaded trucks and during some paving activities. Typical vibration levels at distances of 25, 100 feet and 300 feet are summarized by Table 4-24. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above and impacts would be less than significant.

Table 4-24 Typical Vibration Levels During Construction

| Equipment | PPV (in/sec) | | |
|---|---|---|---|
| | At 50 ft. | At 100 ft. | At 300 ft. |
| Bulldozer (Large) | 0.042 | 0.019 | 0.006 |
| Bulldozer (Small) | 0.001 | 0.0006 | 0.0002 |
| Loaded Truck | 0.027 | 0.017 | 0.005 |
| Jackhammer | 0.012 | 0.008 | 0.002 |
| Vibratory Roller | 0.097 | 0.046 | 0.013 |
| Caisson Drilling | 0.042 | 0.019 | 0.006 |

*Source: Caltrans*

After full Project build out, it is not expected that ongoing operational activities will result in any vibration impacts at nearby sensitive uses. Activities involved in trash bin collection could result in minor on-site vibrations as the bin is placed back onto the ground. Such vibrations would not be expected to be felt at off-site sensitive uses. Impacts would be less than significant.

### *c) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?*

**No Impact.** The nearest public airport or public use airport is the Fresno-Chandler Executive Airport located approximately 14.5 miles east of the Project site. The Project site is not located within any land use plan or within two (2) miles of a public airport or public use airport. As such, the Project would not result in exposing people residing or working in the Project area to excessive noise levels. Therefore, there would be no impact.

### *4.13.3 Mitigation Measures*

The Project shall implement and incorporate, as applicable, the Noise related mitigation measures as identified above and in the MITIGATION MONITORING AND REPORTING PROGRAM contained in SECTION 5.

## 4.14 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)? | | | X | |
| *b)* Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | | | | X |

### *4.14.1 Environmental Setting*

CEQA Guidelines *Section 15126.2(d)* requires that a CEQA document discuss the ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. The CEQA Guidelines provide an example of a major expansion of a wastewater treatment plant that may allow for more construction within the service area. The CEQA Guidelines also note that the evaluation of growth inducement should consider the characteristics of a Project that may encourage or facilitate other activities that could significantly affect the environment. Direct and Indirect Growth Inducement consists of activities that directly facilitate population growth, such as construction of new dwelling units. A key consideration in evaluating growth inducement is whether the activity in question constitutes "planned growth."

### *4.14.2 Impact Assessment*

***Would the Project:***

***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)?***

**Less than Significant Impact.** The Project includes a General Plan Amendment and Prezone/Rezone (REZ). GPA No. 2023-01 requests adding the SD-R-2.5 zoning district as a compatible zoning district within the Medium Density Residential (MDR) land use designation and setting a minimum residential density of five (5) dwelling units per acre. REZ No. 2023-01 requests to pre-zone the Project Area ~~annexation boundary~~ to Smart Development (SD) Combining District – Residential (R) – 2.5 acres and SD-R-5, consistent with the underlying land use designation. The Project proposes 174 residential units, which could generate approximately 649 residents based on an average household size of 3.73.[29] As of 2022, Kerman is estimated to have 4,551 housing units and a total population of 15,980.[30] The only other project in the pipeline for approval by the City of Kerman is the "Crown-Schaad Residential Subdivision" project which would result in 163 units, generating approximately 607 residents. With both projects, the City could expect to increase its housing units from 4,551 to 4,888 units and population from 15,980 to 17,236 residents. The 2040 Kerman General Plan projects 5,715 housing units and a population of 20,470 through 2040. Therefore, the Project and the other project currently in the pipeline for approval would not exceed Kerman General Plan projects. Further, the proposed residential development for APN 020-160-36S would be consistent with the maximum density allowed within the planned land use designation, and therefore, housing units generated by the proposed Project would be within the Kerman General Plan projections for the City. Future development of the northern annexation parcel, APN ~~020-160-18S, and~~ 020-160-19S may require additional assessment when development is proposed to ensure consistency with the permitted density and planned population growth in the area. Therefore, the Project would not induce substantial unplanned population growth and a less than significant impact would occur.

---

[29] U.S. Census Bureau. "Selected Housing Characteristics." American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04, 2022. Accessed on July 9, 2024, https://data.census.gov/table/ACSDP5Y2022.DP04?q=household%20size&g=160XX00US0638226

[30] U.S. Census Bureau. "Selected Housing Characteristics." American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04, 2022. Accessed on July 9, 2024, https://data.census.gov/table/ACSDP5Y2022.DP04?q=household%20size&g=160XX00US0638226

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

**No Impact.** The Project Area ~~site~~ is vacant, with no improvements, people, or housing. Thus, development of the Project site would not result in the physical displacement of people or housing. While there is an existing single-family residence on the northern ~~annexation~~ parcel APN 020-160-19S, this parcel is not proposed for development at this time. Future development of this parcel may require additional analysis when development is proposed to ensure that displacement would not have a significant impact. As a result, the Project would have no impact.

### *4.14.3 Mitigation Measures*

None required.

## 4.15 PUBLIC SERVICES

| Would the Project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| *a)* Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| *i.* Fire protection? | | | X | |
| *ii.* Police protection? | | | X | |
| *iii.* Schools? | | | X | |
| *iv.* Parks? | | | X | |
| *v.* Other public facilities? | | | X | |

### *4.15.1 Environmental Setting*

The Project site would be annexed into Kerman city limits and thus, would be subject to fees for the construction, acquisition, and improvements for public services and facilities. Public services and facilities are further described below.

#### *Fire Protection Services*

Fire protection services in the city are provided by the North Central Fire Protection District ("District"). The District, formed on July 31, 1947, currently operates a total of six (6) fire stations and one (1) headquarter, serving over 320 square miles and a population of 50,000, including unincorporated areas along the northern and western boarders of the City of Fresno, the incorporated City of Kerman, and the township of Biola. Fire Station 55, located at 15850 W Kearney Blvd, Kerman, CA 93630, serves the City of Kerman and its surrounding unincorporated areas. The station is equipped with Engine No. 55, staffed by a minimum of four (4) firefighters, Truck No. 55, a 105-feet smeal ladder truck with 400-gallon capacity, and Water Tender No. 55, which holds up to 3,000 gallons of water.[31] The District reviews all building permits and subdivision maps to ensure the adequate location of access and fire suppression equipment, as well as conducts fire protection system inspections of new

---

[31] North Central Fire Protection District. Fire Station 55 Kerman. Accessed on July 28, 2023, https://www.northcentralfire.org/fire-station-55-kerman

construction and routine fire and life safety inspections of existing buildings. The General Plan Public Health and Safety Element includes the following goals and policies to reduce the potential for fire hazards and fire demand:

> ***Policy PH-2.1 Adequate Staffing and Equipment.*** *The City shall coordinate with the North Central Fire District through the site plan review process and the State's environmental review process to ensure that future development does not outpace the expansion of the Central County Fire Department staffing, and the development of strategically located and fully equipped fire stations.*
>
> ***Policy PH-2.2 Adequate Water Supply for Fire Suppression.*** *The City shall require new Projects to have adequate water supplies to meet the fire-suppression needs of the Project without compromising existing fire suppression services to existing uses.*
>
> ***Policy PH-2.3 North Central Fire District Capital Improvement Plan.*** *The City shall encourage North Central Fire District to establish a 20-year Capital Improvement Plan that includes increased service capacity in Kerman, including a fire ladder truck and fire station.*
>
> ***Policy PH-2.4 Fire Prevention Education.*** *The City shall continue to coordinate with North Central Fire District in providing education on fire prevention training to City staff, residents, and business owners.*

### *Police Protection Services*

Police protection services in the city are provided by the Kerman Police Department (KPD). The KPD is located at 850 South Madera Avenue, Kerman, CA 93630, which is approximately 1.3 miles east of the Project site. The KPD is staffed with 22 full-time officers and maintains 28 vehicles. The General Plan identifies the following policies to provide effective and responsive police protection.

> ***Policy PH-1.1 Police Officer Ratio.*** *The City shall strive to achieve a ratio of one officer per 700 citizens to ensure adequate staffing to provide law enforcement services.*
>
> ***Policy PH-1.2 Police Department Response Times.*** *The City shall continue to support the Police Department in maintaining prompt response times.*
>
> ***Policy PH-1.3 Community Crime Prevention and Public Safety.*** *The City shall actively involve the community in crime prevention and public safety awareness by educating and involving the public in all the tenets of community-oriented public safety.*
>
> ***Policy PH-1.4 Video Policing Plan for New Projects.*** *The City shall require large residential developments (50 or more units) and large commercial developments (more than 50,000 square feet) to include a video policing plan.*

### *Schools*

Educational services within the city are primarily served by the Kerman Unified School District (KUSD), which was formed in 2002, after merging the smaller districts in the area. KUSD's service area includes the City of Kerman and spans as far north to the San Joquin River and south to West South Avenue . KUSD consists of approximately 5,600 students with eight (8) campuses: Goldenrod Elementary School, Kerman-Floyd Elementary School, Liberty

Elementary School, Sun Empire Elementary School, Kerman Middle School, Kerman High School, and Enterprise High School (alternative education programs), and Kerman Unified Online School.[32] Schools within a one (1)-mile radius of the Protect site include Liberty Elementary School (0.3 miles northeast) and Kerman Middle School (1 mile northeast). Funding for schools and school facilities impacts is outlined in Education Code *Section 17620* and Government Code *Section 65995 et. seq.* (State statutes) which govern the amount of fees that can be levied against new development. These fees are used to construct new or expanded school facilities. Payment of fees authorized by the statute is deemed "full and complete mitigation." A School Facilities Fee would be assessed for future development based on the rates in place at the time payment is due. In addition, the Kerman General Plan includes the following policy for educational facilities:

> ***Policy PFS-1.6 Educational Facilities and Programs.*** *The City shall continue supporting the provision of excellent schools and high-quality educational and vocational training facilities and programs to ensure residents have fair and equal access to social and educational opportunities.*

### *Parks and Recreation*

Park and recreation facilities are overseen by the city of Kerman Parks and Recreation Department. Currently, there are approximately 47 acres of parkland, including ten (10) city parks: Plaza Veterans Park, B Street Park, Wooten Park, Kiwanis Park, Katey's Kids Park, Trini's Park, Rotary Park, Lions Park, Kerckhoff Park, Soroptimist Park.[33] The General Plan Conservation, Open Space, and Recreation Element includes the following goals and policies related to park and recreational facilities and services:

> ***Policy COS-2.1 Parkland Standard.*** *The City shall continue to acquire and develop adequate park sites to serve future City growth at a standard of 4 acres of combined park and open space land per 1,000 residents.*
>
> ***Policy COS-2.2 Parkland Dedication.*** *The City shall continue to require developers to dedicate parkland or pay in-lieu fees.*
>
> ***Policy COS-2.9 Parks and Open Space Funding.*** *The City shall continue to pursue a combination of public and private funds, regulatory processes, and innovative strategies to fund parkland development and maintenance.*
>
> ***Policy COS-2.11 Land and Monetary Donations for Parks.*** *The City shall continue to seek land and monetary donations towards park facilities. The City may announce and recognize these efforts in recreation schedules, publications, plaques, notices, or other appropriate methods.*
>
> ***Policy COS-2.12 Private Recreational Facilities.*** *The City shall encourage the development of private recreational facilities to increase the availability of local recreational amenities such as racquetball, mini-golf, softball, and rock climbing.*

---

[32] Kerman Unified School District. About Us. Accessed on July 28, 2023, https://www.kermanusd.com/domain/10
[33] City of Kerman. Parks. Accessed on July 28, 2023, https://cityofkerman.net/park-facilities/

***Policy COS-2.13 City Recreation Programs.*** *The City will continue to offer recreational programs designed to serve all ages and abilities within the community with the goal of enhancing health outcomes and overall quality of life for all residents.*

### *4.15.2 Impact Assessment*

*Would the Project:*

***a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:***

*i. Fire protection?*

**Less than Significant Impact.** The Project site is currently served by the North Central Fire Protection District ("District") and would continue to be served by the District after annexation into the City of Kerman. Fire Station No. 55 is approximately 0.5 miles northeast of the Project site. According to the District, a new fire station would be required when the population reaches 20,000-25,000. Kerman's current population is approximately 16,000; the Project would not result in an additional 4,000 residents. In addition, the District confirmed that there are enough fire fighters on duty to serve residents within a five (5) mile radius of the Fire Station while still meeting the District's performance objectives. Therefore, the Project's proximity to the existing Fire Station would support adequate service ratios, response times, and other performance objectives for fire protection services.

Through the entitlement and building permit process, the Project would be required to comply with the CBC and Uniform Fire Code to ensure fire safety elements are incorporated into Project design. Proposed interior streets would be required to provide appropriate widths and turning radii to safely accommodate emergency response and the transport of emergency/public safety vehicles. The Project would also be designed to meet District requirements regarding water flow, water storage requirements, hydrant spacing, infrastructure sizing, and emergency access. In addition, the Project would be required to implement a fire facilities fee through its Homeowners Association to help fund equipment necessary. The fee would be agreed upon by the Applicant and District. Through compliance, impacts would be less than significant.

*ii. Police protection?*

**Less than Significant Impact.** The Project Area ~~site and annexation boundary~~ would be annexed into City Limits and therefore would be served by the Kerman Police Department (KPD). The KPD is located at 850 South Madera Avenue, Kerman, CA 93630, which is approximately 1.3 miles east of the annexation boundary. The Project's proximity to the existing station would support adequate service ratios, response times, and other performance objectives for police protection services. For these reasons, it can be determined that the Project would not result in the need for new or altered facilities that could have an environmental impact and a less than significant impact would occur.

*iii. Schools?*

**Less than Significant Impact.** The Project Area ~~site and annexation boundary~~ are within the Kerman Unified School District (KUSD) with two (2) schools within a one-mile radius including Liberty Elementary School (0.3 miles northeast) and Kerman Middle School (1 mile northeast). Since residential development is proposed, the Project would introduce residents to the area and therefore could generate new students that would increase the school districts' enrollment. KUSD's per-unit enrollment rate is 0.963 students per dwelling. Therefore, development of APN 020-160-36S would generate approximately 168 students. To offset impacts of the development, a school impact fee would be assessed for the Project based on the rates in place at the time payment is due. Future development of the northern parcels in the annexation boundary would also require payment of school impact fees at the time development is proposed. As stated in Government Code *Section 65995 et. seq.*, payment of a school impact fee is deemed full and complete mitigation for potential impacts to schools caused by development. Therefore, payment of the assessed School Impact Fee would reduce impacts related to new school facilities resulting from implementation of the Project and impacts would be less than significant.

*iv. Parks?*

**Less than Significant Impact.** Park and recreational facilities are typically impacted by an increase in use from residential development. The Project proposes residential development that would introduce residents to the area and therefore could increase the demand for and use of existing public parks or other recreational facilities. The Project would be required to pay in-lieu fees to mitigate any potential impacts to the City's park and recreation facilities generated by the incremental population increase. The City aims to maintain a standard of 4 acres of combined park and open space land per 1,000 residents (General Plan *Policy COS-2.1*). The Project proposes approximately 3.19 acres of common open space (limited to use for residents and privately maintained), which equates to 6.18 acres of common open space per 1,000 residents (516 residents are estimated). Therefore, the Project would maintain the City's standard requirement. Compliance with the City's standards and payment of in-lieu fees would reduce any impacts resulting from increased residential demand for park and recreational facilities so as to not cause substantial physical deterioration of the public facilities. For these reasons, the Project would have a less than significant impact.

*v. Other public facilities?*

**Less than Significant Impact.** As previously discussed, the Project would introduce residents to the area and thus increase the demand for other public services, such as courts, libraries, hospitals, etc. Increased demand as a result of the Project could result in development or expansion of public facilities. Typical environmental impacts associated with the development of these facilities include air quality, greenhouse gas emissions, noise, traffic, etc. The expansion of these facilities would be subject to CEQA as they are proposed. In addition, future development would be subject to the payment of impact fees in order to mitigate any potential impacts to these public facilities. As a result, the Project would have a less than significant impact.

### *4.15.3 Mitigation Measures*

None required.

## 4.16 RECREATION

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

### *4.16.1 Environmental Setting*

See Section 4.15.

### *4.16.2 Impact Assessment*

***Would the Project:***

***a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

**Less than Significant Impact.** Park and recreational facilities are typically impacted by an increase in use from residential development. The Project proposes residential development that would introduce residents to the area and therefore could increase the demand for and use of existing public parks or other recreational facilities. The City's parkland standard is four (4) acres of combined park and open space per 1,000 residents (General Plan *Policy COS-2.1*). The City also requires developers to dedicate parkland or pay in-lieu fees (General Plan *Policy COS-2.1*) to mitigate any potential impacts to the City's parks and other recreational facilities. Per the City of Kerman Community Development Department, the Project would be required to pay in-lieu fees. In addition, the Project is required to provide common open space on site at a ratio of four (4) acres per 1,000 residents (KMC Chapter 17.58). The Project proposes approximately 3.19 acres of common open space for its residents. With an estimated residential population of 516, the Project would exceed the requirement by providing 6.18 acres of common open space per 1,000 residents. For these reasons, the Project would have a less than significant impact.

***b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?***

**Less than Significant Impact.** The Project includes on-site recreational facilities as described under criterion a). Other than the on-site facilities, the Project would not require the construction or expansion of off-site recreational facilities. The on-site recreational facilities would be developed in accordance with on-site open space requirements pursuant to the KMC. Compliance would ensure that the facilities would not be in an area or be built to a scale that would cause an adverse physical effect on the environment. As a result, a less than significant impact would occur.

### *4.16.3 Mitigation Measures*

None required.

## 4.17 TRANSPORTATION

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

### *4.17.1 Environmental Setting*

The Project site is currently vacant and undeveloped, with no existing structures or improvements. Street frontage includes South Modoc Avenue, a dirt road that bounds the site to the west.

#### *Fresno County Active Transportation Plan (ATP)*

Fresno Council of Governments (FCOG) adopted the Fresno County Regional Active Transportation Plan (ATP) on February 22, 2018. [34] The ATP's goal is to create a safe, attractive, complete, and comfortable network for biking, walking, and other human-powered transportation. *Chapter 10* of the ATP provides a community profile, goals, and policies for the City of Kerman.

According to the ATP, the existing California Avenue, an east-west roadway east of the Project site, is a Class II Bikeway (Bike Lane). However, there are no existing pedestrian facilities that connect to the Project site. Planned bicycle facilities identified in the ATP include a Class II Bikeway (Bike Lane) extending west along California Avenue across the northern boundary of the Project site, and Class I Bikeway/Pedestrian Trail along the railroad that is located south of the site. No facilities are identified for South Modoc Avenue.

It should be noted that the proposed improvements identified in the ATP were recommended prior to adoption of the City of Kerman 2040 General Plan Update. Figure 4-4: Active Transportation Facilities of the Circulation Element of the 2040 General Plan Update identifies planned bicycle facilities in the Project vicinity. Planned bicycle facilities identified in this figure include a Class I Bikeway/Pedestrian Trail along West California Avenue across the northern boundary of the Project site to connect to a proposed Class I Bikeway (Bike Path) on South

---

[34] Fresno Council of Governments. (2018). 2018 Fresno County Regional Active Transportation Plan. Accessed July 31, 2023, https://www.fresnocog.org/Project/active-transportation/

Modoc Avenue.

### *General Plan*

The Circulation Element of the Kerman General Plan established goals and policies to maintain the operations of existing roadway systems as new development occurs. These policies aim to prevent negative impacts caused by new developments and ensure that adequate transportation system is provided. The following goals and policies are generally applicable to the proposed Project.

***Goal CIRC-1.1*** *To provide a safe and efficient roadway system that serves all users and enhances the community of Kerman.*

> ***Policy CIRC-1.2 Complete Streets.*** *The City shall plan a multimodal transportation system that provides safe, comfortable, and convenient access that accommodates various vehicle types and users, including automobiles, agricultural equipment, public transit, bicyclists, and pedestrians.*
>
> ***Policy CIRC-1.5 ADA Compliance.*** *The City shall strive to ensure that the circulation system is safe and accessible, consistent with the American with Disabilities Act (ADA), to allow mobility-impaired users, such as disabled persons and seniors, to safely travel within and beyond the city.*
>
> ***Policy CIRC-1.9 Landscaped Medians.*** *The City shall continue to expand the construction and maintenance of landscaped medians on all expressways, arterials, and major collector roadways, focusing on low-water-use and drought tolerant plants.*
>
> ***Policy CIRC-1.10 Adequate Egress/Ingress.*** *During subdivision review process, the City shall require that all subdivisions, except for cul-de-sac streets, have a minimum of two egress/ingress points.*
>
> ***Policy CIRC-1.11 New Street Names.*** *During the review of subdivisions, the City shall ensure the new street names are continuations of existing streets for streets that are aligned, and that addresses are logically assigned.*
>
> ***Policy CIRC-1.12 Residential Driveways.*** *During the development review process, the City shall strive to restrict residential driveways from entering onto collector and arterial streets.*

***Goal CIRC-2*** *To ensure the design, construction, and maintenance of a safe, efficient, and complete roadway system that is well designed, visually attractive, and provides access to all parts of Kerman.*

> ***Policy CIRC-2.1 Level of Service (LOS) and Vehicle Miles of Travel (VMT) Standards.*** *The City shall maintain LOS standards for use in considering conditions of approval for discretionary development Projects and use VMT analysis as the standard for evaluating environmental impacts under the California Environmental Quality Act (CEQA).*
>
> ***Policy CIRC-2.2 Maintain Adequate Level of Service (LOS).*** *The City shall plan the roadway system to maintain adequate roadway LOS to avoid congestion and reduce VMT. A level of service of C will be the desirable minimum service level in Kerman at which highway, arterial, and collector segments will operate. A level of service of B will be the desirable minimum service level in Kerman at which intersections and rail crossings will operate.*
>
> ***Policy CIRC-2.5 Greenhouse Gas Reduction.*** *The City shall strive to achieve VMT reductions consistent with the California Air Resources Board (CARB) 2017 Scoping Plan statewide greenhouse gas (GHG) emission*

*reduction goals of 40 percent below 1990 emissions levels by 2030, or the latest guidance from CARB, as updated.*

***Policy CIRC-2.6 Vehicle Miles Traveled (VMT) Standards.*** *The City shall establish a 13 percent below baseline conditions as a clear and realistic VMT threshold of significance to determine impacts on the environment related to development Projects, or as determined and adopted through the Fresno Council of Governments (FCOG) SB 743 Regional Guidelines Development process. The City will develop a baseline using the FCOG VMT calculation tool.*

***Policy CIRC-2.7 Mitigation of Vehicle Miles Traveled (VMT) Transportation Impacts.*** *The City shall require Projects having potentially significant VMT transportation impacts under CEQA to implement feasible mitigation measures necessary to reduce the VMT for or induced by the Project to the applicable performance metrics. Such mitigation measures may include, but are not limited to:*

- *Provide infrastructure and facilities for walking and bicycling, particularly those that connect with and ensure access to existing active transportation infrastructure and transit;*
- *Include on-site EV charging capabilities;*
- *Incorporate traffic-calming measures ;*
- *Unbundle parking (separate/optional cost) from residential units in multifamily housing developments;*
- *Provide incentives to carpool or use active transportation; and/or*
- *Provide payment into an in-lieu fee program to reduce VMT.*

***Goal CIRC-4*** *To ensure adequate off-street parking that is safe.*

***Policy CIRC-4.1 Parking on the Public Right-of-Way.*** *The City shall limit parking on the public right-of-way along, particularly along Madera Avenue, with public health and safety priorities.*

***Policy CIRC-4.2 Parking Lots for New Projects.*** *During the development review process, the City shall ensure that parking lots for new Projects incorporate landscaping, adequate lighting, proper pedestrian and bicycle connectivity, and are designed to facilitate vehicle maneuverability.*

***Policy CIRC-4.3 Frontage of New Parking Lots.*** *During the development review process, the City shall ensure that new parking lots along Madera Avenue between California Avenue and Kearney Boulevard are designed so that the parking lot does not occupy the entire frontage of the site.*

***Goal CIRC-5*** *To promote bicycling, walking, and using public transit, as functional alternatives to single-passenger automobile travel.*

***Policy CIRC-5.1 Alternative Modes of Transportation.*** *The City shall encourage Project site designs and subdivision street and lot designs that support alternative modes of transportation, including public transit, bicycling, and walking.*

***Policy CIRC-5.3 Continuous Bicycle Network.*** *The City shall design a safe and logical bicycle path network that links key destinations within the planning area to promote the use of bicycles as a mode of transportation to reduce greenhouse gas emissions and to encourage exercise.*

***Policy CIRC-5.6 Pedestrian-Friendly Streets.*** *The City shall design and improve streets to be*

> *"pedestrian-friendly" by incorporating features including wide and unobstructed sidewalks, bulb outs at intersections, narrow traffic lanes at key locations to slow traffic speed, adequate street lighting, and trees for natural shade cover.*

### *CEQA Guidelines*

Under Senate Bill 743 (SB743), traffic impacts are related to Vehicle Miles Traveled (VMT). The VMT metric became mandatory on July 1, 2020. Senate Bill (SB) 743 requires that relevant CEQA analysis of transportation impacts be conducted using a metric known as vehicle miles traveled (VMT) instead of Level of Service (LOS). VMT measures how much actual automobile travel (additional miles driven) a proposed Project would create on California roads. If the Project adds excessive automobile travel onto roads, then the Project may cause a significant transportation impact. Therefore, LOS measures of impacts on traffic facilities are no longer a relevant CEQA criteria for transportation impacts.

To implement SB 743, the CEQA Guidelines were amended by adding *Section 15064.3.* According to *Section 15064.3*, VMT measures the automobile travel generated from a proposed Project (i.e., the additional miles driven). Here, 'automobile' refers to on-road passenger vehicles such as cars and light-duty trucks. If a proposed Project adds excessive automobile travel on California roads thereby exceeding an applicable threshold of significance, then the Project may cause a significant transportation impact.

Among its provisions, *Section 15064.3(b)* establishes criteria for analyzing transportation impacts. Specifically, *Section 15064.3(b) (1)* establishes a less than significant presumption for certain land use Projects that are proposed within ½-mile of an existing major transit stop or along a high-quality transit corridor. If this presumption does not apply to a land use Project, then the VMT can be qualitatively or quantitatively analyzed.

In the case that quantitative models or methods are not available to the lead agency to estimate the VMT for the Project being considered, provisions of CEQA Guidelines *Section 15064.3(b)(3)* permits the lead agency to conduct a qualitative analysis. The qualitative analysis may evaluate factors including but not limited to the availability of transit, proximity to other destinations, and construction traffic.

Lastly, *Section 15064.3(b)(4)* of the CEQA Guidelines states that *"[a] lead agency has discretion to evaluate a Project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a Project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revision to model outputs should be documented and explained in the environmental document prepared for the Project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section."*

### *SB 743 Technical Advisory*

In April 2018, the Governor's Office of Planning and Research (OPR) issued the Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory) (revised December 2018) to provide technical recommendations regarding VMT, thresholds of significance, and mitigation measures for a variety of land use Project types.

The Technical Advisory includes screening thresholds for agencies to use in order to identify when a Project should be expected to cause a less-than-significant impact without conducting a detailed study.

- *Screening Thresholds for Small Project.* Absent substantial evidence indicating that a Project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact. This threshold is based on a CEQA categorical exemption for existing facilities, including additions to existing structures of up to 10,00 square feet, so long as the Project is in an area where public infrastructure is available to allow for maximum planned development and the Project is not in an environmentally sensitive area.
- *Map-Based Screening Threshold for Residential and Office Projects.* Residential and office Projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below threshold VMT. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office Projects from needing to prepare a detailed VMT analysis.
- *Presumption of Less Than Significant Impact Near Transit Thresholds.* Proposed CEQA Guideline Section 15064.3, subdivision (b)(1), states that lead agencies generally should presume that certain Projects (including residential, retail, and office Projects, as well as Projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop20 or an existing stop along a high quality transit corridor will have a less-than-significant impact on VMT. This presumption would not apply, however, if Project-specific or location-specific information indicates that the Project will still generate significant levels of VMT.
- *Presumption of Less Than Significant Impact for Affordable Residential Development.* Adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. Therefore, a Project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT.

According to the Technical Advisory, lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types.

### *Fresno COG VMT Tool*

Fresno Council of Governments (COG) and its member agencies, including the City of Kerman, has developed a series of SB 743 Implementation Regional Guidelines and Tools in 2021 to discusses and provide guidance for VMT analysis on screening land use development Projects under CEQA.[35] Subsequently, the City of Kerman officially adopted the COG's Regional Guidelines and Tools in 2022. According to the Guidelines, Projects can be screened out if:[36]

- *Within Transit Priority Area/High Quality Transit Corridor (within 0.5 miles of a transit stop, consistent with RTP/SCS, FAR > 0.75, limited parking, does not reduce the number of affordable housing units)*

---

[35] Fresno Council of Governments. Fresno COG's SB743 Regional Guidelines and Tools. Accessed on August 1, 2023, https://www.fresnocog.org/Project/sb743-regional-guidelines-development/

[36] Fresno Council of Governments. Fresno COG's SB743 Implementation Regional Guidelines. Accessed on August 1, 2023, https://fresnocog.wpenginepowered.com/wp-content/uploads/2021/01/Fresno-COG-VMT-Report_01-08-2021.pdf

- *Local-serving retail less than 50,000 square feet*
- *Low trip generator, generating less than 500 average daily trips (ADT)*
- *High level of affordable units*
- *Institutional/government and public service uses*
- *Projects located in low VMT zones, as identified in Fresno COG's screening map* [37]

If none of the screening criteria listed above applies, Project VMT of small Projects can be calculated using the Fresno VMT calculation tool. Small Projects include residential Projects with 500 dwelling units or fewer, office Projects with 375 employees or fewer, or mixed-use Projects that generate less than 5,000 ADT.

A VMT Analysis Report was prepared for the Project by VRPA Technologies, Inc., dated February 2024. The analysis was prepared for APN 020-160-36S. Future development of the northern annexation parcels, APNs 020-160-18S and 020-160-19Smay require additional assessment when development is proposed. The VMT Analysis Report is provided in Appendix F and results are incorporated in the impact assessment below.

### *Traffic Impact Study*

A Traffic Impact Study was prepared for the Project by VRPA Technologies, Inc., dated February 2024. The analysis was prepared for APN 020-160-36S. Future development of the northern annexation parcels, APNs 020-160-18S and 020-160-19Smay require additional assessment when development is proposed. The Traffic Impact Study Report is provided in Appendix F and results are incorporated in the impact assessment below.

---

[37] Fresno Council of Governments. Fresno County VMT Screening Application. Accessed August 1, 2023, https://gis1.lsa.net/fcogvmt/

### *4.17.2 Impact Assessment*

*Would the Project:*

*a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

**Less Than Significant Impact.** The Project would be required to comply with all Project-level requirements implemented by a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Compliance is further discussed below. Overall, the Project would not conflict with a program plan, ordinance, or policy addressing the circulation system and a less than significant impact would occur.

#### *Roadway Facilities*

Access to the site would be provided by three points of ingress/egress from West California Avenue, which is proposed to be extended west from the adjacent subdivision and improved with curb, gutter, sidewalk, and an eight-foot landscape easement on the north and south side of the extended street. The east 20-feet of South Modoc Avenue right-of-way is proposed to be vacated south of West California Avenue. West California Avenue and South Modoc Avenue within the Project vicinity are designated as collectors in the General Plan Circulation Element. Internal circulation within the site would be provided by private streets and alleys in addition to pedestrian walkways.

The Project would be required to submit public improvement plans for off-site improvements through the building permit process, for review and approval by the City to ensure improvements would be consistent with adopted standards, specifications, and approved street plans. Through compliance, the Project would result in improvements to the roadway network consistent with the goals, objectives, and policies of the General Plan as shown on the Circulation Diagram and described in the Circulation Element.

#### *Pedestrian and Bicycle Facilities*

There are no existing pedestrian facilities including sidewalks, trails, or paths adjacent to the Project site. There is an existing Class II, striped and marked bike lane and sidewalk on West California Avenue to the east of the site that dead ends and the Project site. Figure 4-4: Active Transportation Facilities of the Circulation Element of the 2040 General Plan Update identifies planned bicycle facilities in the Project vicinity. Planned bicycle facilities identified in this figure include a bikeway along West California Avenue across the northern boundary of the Project site to connect to a the existing Class II Bikeway (Bike Lane) on Kearney Boulevard and Gateway Drive to the north. The City requires an extension of the Class II Bikeway along West California Avenue that would connect to the existing Class II facility to the east of the site and in the future, would be connected to Kearney Boulevard as northerly developed occurs.

The Project would also result in public street improvements along West California Avenue including concrete curb, gutter, sidewalk, paving, and an eight-foot landscape easement per City of Kerman Public Works Standards. Off-site improvements would be verified and ensured through the Building Permit process. Provision of the pedestrian and bicycle facilities would be ensured through the Building Permit process. Therefore, the Project would be consistent with the General Plan and ATP and thereby would not conflict with a program, plan, ordinance, or policy addressing bicycle and pedestrian facilities.

### *Transit Facilities*

There are no existing or planned transit facilities adjacent to or in proximity to the Project site as identified by the General Plan and Fresno County Rural Transit Agency (FCRTA). The closest bus stop to the Project is located approximately three miles northeast of the site on the west side of the south leg of the intersection of Goldenrod Avenue and Whitesbridge Road (SR 180). This route runs twice daily from Firebaugh to Fresno, stopping in the City of Kerman a total of eight times a day. Therefore, the Project would not conflict with a program, plan, ordinance, or policy addressing transit facilities.

*b) Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?*

**Less than Significant Impact.** A quantitative VMT analysis was conducted by VRPA Technologies for the proposed Project (Appendix F). According to the Fresno County SB 743 guidelines, residential developments may be screened if they generate less than 500 daily trips or if they are in a low VMT area per the Fresno COG regional travel model. The Project is expected to generate 1,608 trips. Therefore, it is not screened due to generation of less than 500 daily trips. According to Fresno COG's VMT Screening Application available on Fresno COG's website and based on data from the regional travel model, the Project site is in a Traffic Analysis Zone (TAZ) that has a medium level of VMT generation. Therefore, the Project is not screened out due to location in a low VMT area.

Fresno COG's VMT screening process recommends that land developments that generate less than 500 daily trips be screened out of requiring a VMT analysis. This threshold was based on analysis of GHG emissions which are highly correlated to VMT. The methodology used to determine Fresno COG's screening threshold was applied to the proposed Project to determine whether it would have a less than significant VMT impact using the methodology that Fresno COG used in developing the screening threshold.

The determination of the screening threshold for which detailed VMT analysis is not required is based on the analysis on page 11 of the Fresno County SB 743 Implementation Regional Guidelines. The Fresno COG screening guidelines reference a GHG emission threshold of 3,000 metric tons of carbon dioxide equivalent per year. Fresno COG then uses a generalized assumption that 50% of the GHG emissions from a land development result from vehicle emissions. This allows Fresno COG to relate the threshold of 3,000 metric tons of carbon dioxide per year to size expressed in terms of VMT generated per day and daily trip generation.

For the Project, the GHG threshold of 3,000 metric tons of carbon dioxide per year from the Fresno COG guidance was used, but instead of using a generalized assumption that 50% of GHG emissions from a land development result from vehicle emissions, the CalEEMod air quality analysis model was used by VRPA to determine VMT generation specific to the residential portion of the Project. A VMT analysis was conducted, finding that the Project would generate approximately 1,470 metric tons of carbon monoxide produced by vehicle trips associated with the Project. It was estimated that this would account for 75% of residential greenhouse gas emissions. Since Project GHG emissions produced by vehicles are 1,460 metric tons per year, residential GHG emissions would be 1,960 metric tons per year (1,460 divided by 0.75). Therefore, the Project would fall below the threshold of 3,000 metric tons per year and impacts would be less than significant.

*c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

**Less than Significant Impact.** The Project design does not contain any geometric design features that would create hazards. Implementation of the Project would not require the improvement and expansion of the roadway network serving the Project site. The site would be accessible via three (3) points of ingress/egress on West California Avenue with gated entry. Adequate inside/outside turning radii are also proposed for fire and solid waste vehicle access. In addition, the Project would be required to submit public improvement plans through the Building Permit process for review and approval by the City to ensure offsite improvements would be consistent with adopted City Standards, Specifications, and the approved street plans. Compliance with such standards, specifications, and plans would ensure that any traffic hazards are minimized. Lastly, the Project proposes a residential development of a site that is planned and zoned for residential use within an area comprising existing and planned residential uses. Therefore, the Project does not propose an incompatible use because it is consistent with the existing development in the area and is similar in nature to the surrounding uses. As a result, implementation of the Project would result in a less than significant impact related to hazards due to roadway design features or incompatible uses.

*d) Result in inadequate emergency access?*

**Less than Significant Impact.** The Project does not involve a change to any emergency response plan. In addition, the City of Kerman Public Works Department and North Central Fire Protection District have reviewed the Project and imposed standard conditions to ensure adequate site access including emergency access. In the case that Project construction requires lane closures, access through West California Avenue would be maintained through standard traffic control and therefore, potential lane closures would not affect emergency evacuation plans. Thus, a less than significant impact would occur because of the Project.

### *4.17.3 Mitigation Measures*

None required.

## 4.18 TRIBAL CULTURAL RESOURCES

| **Would the Project:**<br>Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC *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 |
|---|---|---|---|---|
| *a)* Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC *Section 5020.1(k)*, or, | | X | | |
| *b)* 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 PRC *section 5024.1*. In applying the criteria set forth in subdivision (c) of PRC *section 5024.1*, the lead agency shall consider the significance of the resource to a California Native American tribe. | | X | | |

### *4.18.1 Environmental Setting*

See Section 4.5.

### *4.18.2 Impact Assessment*

*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:*

*a) 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*

**Less than Significant Impact with Mitigation Incorporated.** As discussed in Section 4.5, the annexation boundary and Project site do not contain any property or site features that are eligible for listing in the California Register of Historical Sources, or in a local register of historical resources as defined in PRC *Section 5020.1(k)*. Nevertheless, there is some possibility that a non-visible, buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a significant impact. As such, implementation of ***Mitigation Measure CUL-1*** as described in Section 4.5 would reduce any impacts to less than significant.

*b)* ***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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

**Less than Significant Impact with Mitigation Incorporated.** The annexation boundary and Project Area ~~site~~ and its resources have not been determined by the City to be significant pursuant to *Section 5024.1*. However, as discussed in Section 4.5, there is some possibility that a non-visible, buried site may exist and may be uncovered during ground disturbing construction activities which could constitute a significant impact. Therefore, the Project shall incorporate ***Mitigation Measure CUL-1*** to assure construction activities do not result in significant impacts to any potential resources of significance to a California Native American tribe discovered above or below ground surface. Thus, if such resources were discovered, implementation of the required mitigation measures would reduce the impact to less than significant. As a result, the Project would have a less than significant impact with mitigation incorporated.

### *4.18.3 Mitigation Measures*

The Project shall implement and incorporate, as applicable, the Tribal Cultural Resources related mitigation measures identified above and in the MITIGATION MONITORING AND REPORTING PROGRAM contained in SECTION 5.

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

### *4.19.1 Environmental Setting*

The Project site would be annexed into Kerman city limits and thus, would be required to water, wastewater, and stormwater services. When future development is proposed for the northern annexation parcels, they would also be required to connect to City utilities. Natural gas, electricity, and telecommunications are provided by private companies. Each utility system is described below.

#### *Water*

Water supply, usage, and services are described in Section 4.10.

#### *Wastewater*

The City of Kerman provides sewer service to the community. The sewage collection system consists of a network of 6-inch and 8-inch diameter collection lines that connect to larger mains. Sewage from most of the southern half of Kerman flows into an 18- inch trunk line in Madera Avenue from California Avenue to Church Avenue, and then in a 27-inch trunk line in Church Avenue from Madera Avenue to the Wastewater Treatment Plan (WWTP). The remainder of the city flows into an 18-inch trunk line in Del Norte Avenue from Whitesbridge Avenue to Church Avenue and then in Church Avenue from the Del Norte Avenue alignment to the WWTP.

Kerman's collection system operates with one permanent lift station that is located at the intersection of Siskiyou Ave and Kearney Blvd. This facility currently receives flows from the area generally west and north of that location and discharges into the Del Norte Avenue line.

The City's WWTP is located south of Church Avenue on the Del Norte Avenue alignment and provides a secondary level of treatment. The original plant was designed with a hydraulic capacity of approximately 1.34 million gallons per day (mgd) but was upgraded in 2011 to a capacity of 2.0 mgd. The upgraded WWTP consists of an influent pump station, headworks, two new clarifiers, a sludge press, expanded storage and disposal ponds, one acre of new drying beds, and a new 5,000-gallon storage tank for receiving domestic septic. The aeration tanks from the original plant were also converted to digesters.

Treated effluent from the plant is discharged into disposal ponds where it is allowed to evaporate and percolate into the soil and recharge the groundwater table. The City's secondary effluent is not disinfected. Secondary effluent is reclaimed to irrigate non-potable crops. The flows at the treatment plant exhibit very little seasonal variation. This condition occurs because the flows are predominantly from residential uses since there are not significant industrial, agriculture-related or seasonally operated industries within the city. The average daily flow for 2015 was 0.99 mgd. If the past growth rates continue the upgraded WWTP has been determined to be sufficient until the year 2027, assuming a 3% per year population growth rate.

### *Solid Waste*

Kerman contracts with Mid Valley Disposal for solid waste, recycling, and composting services. Collection is provided four (4) days a week to residential, commercial, and industrial customers. Mid Valley Disposal hauls solid waste to the American Avenue Landfill, about 6 miles southwest of Kerman, and recyclables to their new state-of-the-art Material Recovery Facility (MRF) in Fresno. The MRF is capable of processing 35 tons of material an hour for diversion to manufacturers and can process wood into wood chips and mulch safe for public use. Lastly, Mid Valley hauls compostable organic waste to a 68,000 square foot composting facility located in Kerman. Opened in 2017, the composting facility can handle 60,000 tons of organic material per year and produces high-quality finished compost.

### *Stormwater*

Stormwater services are described in Section 4.10.

### *Natural Gas and Electricity*

Pacific Gas & Electric (PG&E) would provide electricity supply, electricity transmission, and natural gas to new development at the Project site. According to the PG&E Distribution Investment Deferral Framework (DIDF) Map, there are PG&E-maintained power lines along the street frontages surrounding the Project site.[38]

### *Telecommunications*

Accordingly, telecommunications providers in the area incrementally expand and update their service systems in response to usage and demand. Upon request, the site would be connected to existing broadband infrastructure and subject to applicable connection and service fees.

### *4.19.2 Impact Assessment*

*Would the Project:*

*a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

**Less than Significant Impact.** Once annexed, the Project site would be required to connect to water, stormwater, and wastewater services, and utilize solid waste, collection services. Natural gas, electricity, and telecommunications would be provided by private companies. The City has reviewed the Project to determine adequate capacity in these systems and ensure compliance with applicable connection requirements. In addition to connections to water, stormwater, solid waste, and wastewater services, the Project would be served by PG&E for natural gas and electricity and by the appropriate telecommunications provider for the Project site. Therefore, all wet and dry public utilities, facilities, and infrastructure are in place and available to serve the Project site without the need for relocated, new, or expanded facilities. While new utility and service connections would need to be extended to and from the Project site (e.g., sewer, stormwater runoff, electrical), these new connections would not result in a need to modify the larger off-site infrastructure. Therefore, the Project would not require or result in the relocation or construction of new or expanded facilities and as such, and impact would be less than significant.

*b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?*

**Less than Significant Impact.** Water supply reliability is assessed based on the characteristics of the City's water supplies during various water year types. The City's 2020 UWMP defines these water year types as follows.

- *Normal Year: this condition represents the water supplies the City considers available during normal conditions. This could be a single year or an average range of years that most closely represents the average water supply available to the supplier. To determine the amount of water available during a normal year, the City evaluated the total volume of water supplied over the last twenty years. During this*

---

[38] PG&E. (2022). Distribution Investment Deferral Framework (DIDF) Map. Accessed on August 1, 2023, https://www.pge.com/b2b/distribution-resource-planning/grid-needs-assessment-map.html

*period, the City's maximum water usage occurred during 2008. Therefore, the average year selected is 2008, when 1,273 MG of water was supplied.*

- *Single Dry Year – The single dry year is recommended to be the year that represents the lowest water supply available. The year 2001 represents the single dry year for the City, during which, the City supplied 787 MG of water.*
- *Five-Consecutive Year Drought – The driest five-year historical sequence for the supplier, which may be the lowest average water supply available for five years in a row. For the five-year drought period, the City evaluated the average volume of water that was supplied during the State's most recent drought period, which occurred during the years of 2012 to 2016. During this period, the average volume of water that was supplied was approximately 1,043 MG. Between 2012 and 2016, the volume of water supplied decreased at an average annual rate of approximately 5.7 percent.*

According to the UWMP, the City is expected to have adequate water supplies during normal years to meet its projected demands through 2045.The UWMP also indicates that based on the resiliency of the groundwater basin and extraction of potable groundwater from City wells, it is not anticipated that a single or multiple dry year period will critically reduce the availability of water supply to the city. Anticipated groundwater supplies are sufficient to meet all demands through the year 2045 even under drought conditions. To continue to utilize groundwater, the UWMP stresses the importance of the City continuing its current efforts towards conservation. Demand reduction actions are described in Chapter 8: Water Shortage Contingency Plan of the UWMP. Each action has a penalty, charge, or other enforcement method to ensure compliance. Adherence to these requirements would ensure impacts would be less than significant.

Furthermore, as discussed under Section 4.10, adherence to connection requirements and recommendations pursuant to the City's conservation efforts (e.g., compliance with California Plumbing Code, efficient appliances, efficient landscaping, etc.) should not negatively impact water supply or impede water management. In particular, the proposed Project would be required to be built accordance with all mandatory outdoor water use requirements as outlined in the applicable California Green Building Standards Code, Title 24, Part 11, Section 4.304 – Outdoor Water Use and verified through the building permit process. As a residential development that would contain landscaping pursuant to SMC regulations, future development shall comply with the updated Model Water Efficient Landscape Ordinance (MWELO) (California Code of Regulations, Title 23, Chapter 2.7, Division 2), as implemented and enforced through the building permit process. Therefore, through compliance, the potential for the Project to substantially decrease groundwater supplies is limited and impacts would be less than significant.

Overall, based on the information collected from the UWMP, the Project would not generate significantly greater water demand as to substantially decrease groundwater supplies. Additionally, adherence to connection requirements and recommendations pursuant to water conservation efforts as well as compliance with applicable California Green Building Standards Code and MWELO would reduce water demand and reduce the potential for the Project to substantially decrease water supply available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years. For these reasons, the Project would have a less than significant impact.

c) *Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?*

**Less than Significant Impact.** According to the 2020 UWMP, the City owns and operates a citywide wastewater collection and treatment system. The City's existing sewer collection system consists of a network of 6 and 8-inch diameter "collection" lines that connect to larger "mains" that range from 10 to 27-inches in diameter. Wastewater from most of the southern half of Kerman flows into an 18-inch trunk line that runs along Madera Avenue from California Avenue to Church Avenue, and then to a 27-inch trunk line that runs along Church Avenue from Madera Avenue to the Wastewater Treatment Plant (WWTP). The remainder of the City's collection lines flow into an 18-inch trunk line that runs along Del Norte Avenue from Whitesbridge Avenue to Church Avenue and then along Church Avenue from the Del Norte Avenue alignment to the WWTP. The City's sewer collection system operates with one permanent lift station that is located at the intersection of Siskiyou and Kearney. This facility currently receives flows from the areas generally to the north and west of the lift station and discharges into the Del Norte Avenue line.

The City owns and operates the existing WWTP under the current Waste Discharge Requirements (WDRs) Order No. R5-2007-0115. The WWTP is located south of Church Avenue on the Del Norte Avenue alignment. The WWTP was originally designed with a hydraulic capacity of approximately 1.2 million gallons per day (MGD), and consisted of an influent pump station, a headworks with an auger for grinding solids, a Parshall flume flowmeter, a lift station with pumps, a primary aeration pond (Complete Mixed Lagoon No. 1), three secondary aeration ponds (Partially Mixed Lagoons Nos. 1, 2, and 3), three settling ponds (Settling Ponds Nos. 1, 2 and 3), and three disposal ponds (Disposal Ponds Nos. 4, 5 and 6). In 2011, the City's WWTP was upgraded to provide secondary level of treatment and the plant's designed hydraulic capacity was increased to 2.0 MGD.

Treated wastewater from the WWTP is currently discharged to 30 acres of disposal ponds where it is allowed to evaporate and percolate into the soil and recharge the groundwater table. The City's secondary effluent is not disinfected and is therefore classified as an "oxidized" (undisinfected secondary) wastewater according to California Code of Regulations (CCR) Title 22. According to the UWMP, the total volume of wastewater collected within the City's service area in 2020 was 366 MG.

Sanitary sewer service would be provided to the site through a proposed temporary sanitary sewer lift station located in the northwest corner of the site; the lift station would be connected to a temporary sanitary sewer main in West California Avenue. If water use accounts for approximately 120 percent of wastewater generation, maximum buildout of the Project site would result in an estimated wastewater generation of approximately 23,050 gpd (19,209 gpd of indoor water demand multiplied by 120 percent). This would account for less than one percent of the WWTP capacity. Therefore, the wastewater treatment plant would have the capacity to meet the wastewater generated from maximum buildout of the site and the Project's impacts on wastewater facilities would be less than significant. In summary, maximum buildout of the Project site is anticipated to generate additional wastewater beyond existing conditions. However, the estimated generation would be within the capacity of the WWTP. Impacts would be less than significant.

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?*

**Less than Significant Impact.** The Kerman General Plan Public Facilities and Services Element contains ***Policy PFS-1.3 Integrated Waste Management System***, which requires the City to ensure that residents and businesses have a cost-effective, integrated waste management system. Solid waste services are subject to the California Integrated Waste Management Act of 1989 (AB 939), which requires each jurisdiction in California to divert at least 50% of its waste stream away from landfills either through waste reduction, recycling, or other means.

The City of Kerman contracts with Mid Valley Disposal for solid waste, recycling, and composting services. Mid Valley Disposal disposes solid waste at the American Avenue Landfill (SWIS Number 10-AA-009). The American Avenue Landfill will continue operation until 2031. It currently has a maximum throughput of 2,200 tons per day, a remaining capacity of 29,358,535 cubic yards, and a maximum permit capacity of 32,700,000 cubic yards.[39]

*Construction*

CALGreen mandates locally permitted new residential building construction and demolition to recycle and/or salvage for reuse a minimum 65% of the nonhazardous construction and demolition debris generated during the Project. Further, the recycling of construction and demolition materials is required for any City-issued building or demolition permit that generates at least eight cubic yards of material by volume. Therefore, the Project would be required to implement techniques to reduce and recycle waste during construction activities in accordance with mandatory requirements under CALGreen as implemented through the building permit process. Compliance would be ensured through the building permit process. Therefore, through compliance, solid waste generated through construction activities is not anticipated to generate solid waste in excess of state or local standards, in excess of the capacity of the local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Therefore, the Project would have a less than significant impact.

*Operations*

The Project is anticipated to generate approximately 146 tons of solid waste per year (105 tons per year (0.28 tons per day / 1.03 cubic yards per day) for single-family residences and 41 tons per year (0.11 tons per day / 0.40 cubic yards per day) for multi-family residences) as estimated by CalEEMod (Appendix A). The estimation accounts for compliance with AB 939. According to the review of the Project by Mid Valley Disposal, the Project whole require three (3) bins for the single-family residences (recycling, organics, and trash). The multi-family development would require bins for trash, recycling, and organic services that could accommodate the anticipated waste generated per week, which would be approximately 2.8 cubic yards. Solid waste generated through Project operations would account for less than 0.1 percent of the daily permitted throughout capacity of the landfill. As such, Project operations are not anticipated to generate solid waste in excess of state or local standards, in excess of the capacity of the local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Therefore, the Project would have a less than significant impact.

*e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

---

[39] California Department of Resources Recycling and Recovery (2023). "SWIS Facility/Site Search." Accessed on October 11, 2023, https://www2.calrecycle.ca.gov/SolidWaste/Site/Search

**Less than Significant Impact.** As described under criterion d), Project construction and operational activities that generate solid waste would be handled, transported, and disposed of in accordance with AB 939 and CALGreen regulations related to solid waste. The multi-family component of the Project would also be subject to AB 341, the state's mandatory commercial recycling law, AB 827, the state's customer access to recycling law. AB 341 requires all businesses that generate four cubic yards or more of solid waste per week and multi-family properties with five or more units to arrange for recycling services. AB 827 requires recycling and organics recycling containers at the "front-of-house" to collect waste generated. These containers are required to be placed adjacent to trash containers and be visible, easily accessible, and clearly marked. Compliance would be ensured through the building permit process. Therefore, through compliance, the Project would comply with laws and regulations that would ensure impacts related to solid waste are reduced to less than significant levels.

### *4.19.3 Mitigation Measures*

None required.

## 4.20 WILDFIRE

| | If located in or near state responsibility 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? | | | X | |
| *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? | | | | X |
| *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? | | | | X |
| *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? | | | | X |

### *4.20.1 Environmental Setting*

The City of Kerman is an urbanized community that is surrounded by agricultural lands. According to the Fresno County HMP, wildfires happen nearly every year in Kerman, but the geographical extent affects less than 10% of the planning area with limited severity. The city, inclusive of the Project Area ~~site and annexation boundary~~, is not located in or near state responsibility or lands classified as moderate, high, or very high fire hazard severity zones as identified by CAL FIRE.[40] Rather, the Project site is within an "area of local responsibility" that is an area of low fire risk. As an area of local responsibility, the North Central Fire Protection District is responsible for providing fire protection services in Kerman (See Section 4.15).

---

[40] California Department of Forestry and Fire Protection. FHSZ Viewer. Accessed on July 26, 2023, https://egis.fire.ca.gov/FHSZ/.

### *4.20.2 Impact Assessment*

*If located in or near state responsibility or lands classified as very high fire hazard severity zones, Would the Project:*

*a) Substantially impair an adopted emergency response plan or emergency evacuation plan?*

**Less than Significant Impact.** The Project would not impair access to the existing roadway network. Construction may require lane closure; however, these activities would be short-term and access would be maintained through standard traffic control. Following construction, this roadway would continue to provide access to the site. Safe and convenient vehicular and pedestrian circulation would be provided in addition to adequate access for emergency vehicles. To determine and ensure adequate vehicular and pedestrian circulation and emergency vehicle access, the Project has been reviewed and conditioned by the City for compliance with applicable code and regulations including applicable emergency response and evacuation plans. Therefore, the Project would not substantially impair any emergency response plan or emergency evacuation plan and no impact would occur.

*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?*

**No Impact.** The Project site is located on a relatively flat property with minimal slope and is not in an area that is subject to strong prevailing winds or other factors that would exacerbate wildfire risks. The site is highly disturbed and is not located within a wildland (i.e., wild, uncultivated, and uninhabited land), which precludes the risk of wildfire. Further, the Project site is within an "area of local responsibility" and is not identified by Cal Fire to be in a VHFHSZ. For these reasons, no impact would occur as a result of this Project.

*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?*

**No Impact.** Once annexed, the Project site would be located within city limits. Therefore, all existing and proposed infrastructure such as roads and utilities would be required to be maintained accordingly. As previously discussed, all proposed Project components (including utilities, roadway, buildings, walls, and landscaping) would be located within the boundaries of the Project site and have been reviewed and/or conditioned by the City for compliance with applicable codes and regulations. Through compliance, such infrastructure would not exacerbate fire risk or result in temporary or ongoing impacts to the environment and no impact would occur.

*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?*

**No Impact.** The city inclusive of the Project site is not located in or near state responsibility or lands classified as very high fire hazard severity zones. The topography of the Project site is relatively flat with stable, native soils, and the site is not in the immediate vicinity of rivers or creeks that would be more susceptible to landslides. Therefore, no impact would occur.

### *4.20.3 Mitigation Measures*

None required.

## 4.21 MANDATORY FINDINGS OF SIGNIFICANCE

| Would the Project: | | 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? | | X | | |
| *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)? | | X | | |
| *c)* | Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | | X | | |

### *4.21.1 Impact Assessment*

*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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?*

**Less than Significant Impact with Mitigation Incorporated.** The analyses of environmental issues contained in this Initial Study indicate that the Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Standard requirements that will be implemented through the entitlement process and the attached mitigation monitoring and reporting program have been incorporated in the project to reduce all potentially significant impacts to less than significant, including *Mitigation Measures AIR-1, BIO-1, BIO-2, CUL-1, CUL-2, GEO-1, HAZ-1, HAZ-2, HAZ-3, NOI-1, NOI-2, and NOI-3*. Therefore, the Project would have a less than significant impact with mitigation incorporated.

*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.)*

**Less than Significant Impact with Mitigation Incorporated.** CEQA Guidelines *Section 15064(i)* states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. Standard requirements that will be implemented through the entitlement process and the attached mitigation monitoring and reporting program have been incorporated in the project to reduce all potentially significant impacts to less than significant, including *Mitigation Measures AIR-1, BIO-1, BIO-2, CUL-1, CUL-2, GEO-1, HAZ-1, HAZ-2, HAZ-3, NOI-1, NOI-2, and NOI-3*. The Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increased need for housing, increase in traffic, air pollutants, etc.). As such, Project impacts are not considered to be cumulatively considerable given the insignificance of project induced impacts. The impact is therefore less than significant with mitigation incorporated.

*c) Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?*

**Less than Significant Impact with Mitigation Incorporated.** The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have substantial impact on human beings, either directly or indirectly. Standard requirements that will be implemented through the entitlement process and the attached mitigation monitoring and reporting program have been incorporated in the project to reduce all potentially significant impacts to less than significant, including *Mitigation Measures AIR-1, BIO-1, BIO-2, CUL-1, CUL-2, GEO-1, HAZ-1, HAZ-2, HAZ-3, NOI-1, NOI-2, and NOI-3*. Therefore, the Project would have a less than significant impact with mitigation incorporated.

# 5 MITIGATION MONITORING AND REPORTING PROGRAM

This mitigation measure monitoring and reporting checklist was prepared pursuant to California Environmental Quality Act (CEQA) Guidelines *Section 15097* and *Section 21081.6* of the Public Resources Code (PRC). The timing of implementing each mitigation measure is identified in in the checklist, as well as identifies the entity responsible for verifying that the mitigation measures applied to a Project are performed. Project applicants are responsible for providing evidence that mitigation measures are implemented. As lead agency, the City of Kerman is responsible for verifying that mitigation is performed/completed.

| Mitigation Measures | Party Responsible for Implementing Mitigation | Timing of Verification | Responsible for Verification | Verification of Completion | |
|---|---|---|---|---|---|
| | | | | Date | Initials |
| **Air Quality** | | | | | |
| ***Mitigation Measure AIR-1.*** *Before a construction permit is issued for the proposed Project, the Project applicant, Project sponsor, or construction contractor shall submit provide reasonably detailed compliance with one of the following requirements to the City of Kerman:*<br>*a) Option 1) Where portable diesel engines are used during construction, all off-road equipment with engines greater than 75 horsepower shall have engines that meet either United States Environmental Protection Agency (EPA) or California Air Resources Board (CARB) Tier 4 Interim off-road emission standards except as otherwise specified herein. If engines that comply with Tier 4 Interim or Tier 4 Final off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier 3) that is commercially available. For purposes of this Project design feature, "commercially available" shall mean the equipment at issue is available taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic proximity to the Project* | Project Applicant | Prior to issuance of a construction permit | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *site of equipment. If the relevant equipment is determined by the Project applicant to not be commercially available, the contractor can confirm this conclusion by providing letters from at least two rental companies for each piece of off-road equipment that is at issue.*<br>*b) Option 2) Prior to the issuance of any demolition, grading, or building permits (whichever occurs earliest), the Project applicant and/or construction contractor shall prepare a construction operations plan that, during construction activities, requires all off-road equipment with engines greater than 75 horsepower to meet either the particulate matter emissions standards for Tier 4 Interim engines or be equipped with Level 3 diesel particulate filters. Tier 4 Interim engines shall, at a minimum, meet EPA or CARB particulate matter emissions standards for Tier 4 Interim engines. Alternatively, use of CARB-certified Level 3 diesel particulate filters on off-road equipment with engines greater than 75 horsepower can be used in lieu of Tier 4 Interim engines or in combination with Tier 4 Interim engines. The construction contractor shall maintain records documenting its efforts to comply with this requirement, including equipment lists. Off-road equipment descriptions and information shall include, but are not limited to, equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, and engine serial number. The Project applicant and/or construction contractor shall submit the construction operations plan and records of compliance to the City of Kerman.* | | | | | |
| Biological Resources | | | | | |
| ***Mitigation Measure BIO-1:*** *Burrowing owls avoidance. The Project shall implement the following measures to avoid any potential impacts* | Project Applicant | Prior to issuance of a construction permit | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *of nesting habitat of the Project in compliance with the federal Migratory Bird Treaty Act and relevant Fish and Game Codes:*<br>• ***Avoidance.*** *Initiate grading/ground disturbance from Sept 1 – February 1 during the non-breeding period.*<br>• ***Preconstruction Surveys.*** *If construction is initiated during the nesting period (Feb 1 – Aug 30), conduct a preconstruction survey to confirm that no burrowing owl has taken up residence in any parcels with ground burrowing mammals. If burrowing owl occupation is found, consult with the California Department of Fish and Wildlife to determine the appropriate avoidance and minimization measures.* | | | | | |
| ***Mitigation Measure BIO-2:*** *San Joaquin kit fox Avoidance. The following measures are recommended to avoid any potential impact to San Joaquin kit fox during construction. These measures are designed to avoid and minimize any impact on San Joaquin kit fox in the unlikely event an individual is present within the Study Area at any time during construction.*<br>• ***Prior to Construction:*** *Prepare and conduct an employee education program prior to the start of construction. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the Project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the Project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during Project* | Project Applicant | Prior to issuance of a construction permit | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *construction and implementation (as summarized below). A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the Project site.*<br>• ***Avoidance and Minimization Measures During Construction:*** *The following measures should be included within the worker education program and in any Project specification and contract.*<br>*1. Project-related vehicles should observe a daytime speed limit of 20 mph throughout the site in all Project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. No nighttime construction should occur, given the species is primarily nocturnal.*<br>*2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a Project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.*<br>*3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped.*<br>4. *All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.*<br>5. *No firearms shall be allowed on the Project site.*<br>6. *No pets, such as dogs or cats, should be permitted on the Project site to prevent harassment, mortality of kit foxes, or destruction of dens.*<br>7. *The use of rodenticides and herbicides in Project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe labels and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.*<br>8. *A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program, and their name and telephone number shall be provided to the Service.*<br>*9. Upon completion of the Project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, etc., should be re-contoured if necessary and revegetated, if possible, to promote restoration of the area to pre-Project conditions.*<br>*10. Any contractor or employee responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured, or entrapped kit fox.*<br>*11. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or the finding of a dead or injured animal and any other pertinent information.*<br>*12. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map marked with the location of where the kit fox was observed should also be provided to the Service at the address below.* | | | | | |
| **Cultural Resources** | | | | | |
| ***Mitigation Measure CUL-1:*** *In order to avoid the potential for impacts to historic and prehistoric archaeological resources, the following measures shall be implemented, as necessary, in conjunction with the* | Project Applicant | Prior to issuance of a construction permit | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *construction of each phase of the Project:*<br>*a. Cultural Resources Alert on Project Plans. The Project proponent shall note on any plans that require ground disturbing excavation that there is a potential for exposing buried cultural resources.*<br>*b. Stop Work Near any Discovered Cultural Resources. Should previously unidentified cultural resources be discovered during construction of the Project, the Project proponent shall cease work within 50 feet of the resources, and City of Kerman shall be notified immediately. The Project archaeologist meeting the Secretary of the Interior Professional Qualifications Standards for archeology shall immediately to evaluate the find pursuant to Public Resources Code Section 21083.2.*<br>*c. Mitigation for Discovered Cultural Resources. If the professional archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource, he/she shall notify the Project proponent and other appropriate parties of the evaluation and recommended mitigation measures to mitigate the impact to a less-than-significant level. If the archaeologist and, if applicable, a Native American monitor or other interested tribal representative determine it is appropriate, cultural materials collected from the site shall be processed and analyzed in a laboratory according to standard archaeological procedures. The age of the materials shall be determined using radiocarbon dating and/or other appropriate procedures; lithic artifacts, faunal remains, and other cultural materials shall be identified and analyzed according to current professional standards. The significance of the site(s) shall be evaluated according to the criteria of the California Register of Historical Resources (CRHR) and if applicable, National Register of Historic Places (NRHP). The results of the investigations shall be presented in a technical report following the* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *standards of the California Office of Historic Preservation publication "Archaeological Resource Management Reports: Recommended Content and Format (1990 or latest edition)." Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing and data recovery, among other options. Treatment of any significant cultural resources shall be undertaken with the approval of the City of Kerman. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System, Southern San Joaquin Valley Information Center (SSJVIC). The resources shall be photo documented and collected by the archaeologist for submittal to the City of Kerman. The archaeologist shall be required to submit to the City of Kerman for review and approval a report of the findings and method of curation or protection of the resources. This report shall be submitted to the SSJVIC after completion. Recommendations contained therein shall be implemented throughout the remainder of ground disturbance activities. Further grading or site work within the area of discovery shall not be allowed until the preceding steps have been taken.*<br>*d. Data Recovery. Should the results of item c. yield resources that meet CRHR significance standards and if the resource cannot be avoided by Project construction, the Project applicant shall ensure that all feasible recommendations for mitigation of archaeological impacts are incorporated into the final design and approved by the City prior to construction. Any necessary data recovery excavation, conducted to exhaust the data potential of significant archaeological sites, shall be carried out by a qualified archaeologist meeting the SOI's PQS for archeology. Data recovery shall be conducted in accordance with a research design reviewed and approved by the City, prepared in advance of fieldwork, and using the appropriate archaeological field and laboratory methods consistent with the California Office of Historic* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| *Preservation Planning Bulletin 5, Guidelines for Archaeological Research Design, or the latest edition thereof. If the archaeological resource(s) of concern are Native American in origin, the qualified archaeologist shall confer with the City and local California Native American tribe(s). As applicable, the final Data Recovery reports shall be submitted to the City prior to issuance of any grading or construction permit. Recommendations contained therein shall be implemented throughout all ground disturbance activities. Recommendations may include, but would not be limited to, Cultural Resources Monitoring, and/or measures for unanticipated discoveries. The final report shall be submitted to the SSJVIC upon completion.*<br>*e. Disposition of Cultural Resources. Upon coordination with the City of Kerman, any pre-historic archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded applicable cultural resources laws and guidelines.*<br>*f. Cultural Resources Monitoring. If mitigation measures are recommended by reports written under item c. or d., the Project applicant shall retain a qualified archaeologist to monitor Project-related, ground-disturbing activities which may include the following but not limited to: grubbing, vegetation removal, trenching, grading, and/or excavations. The archaeological monitor shall coordinate with any Native American monitor as required. Monitoring logs must be completed by the archaeologist daily. Cultural resources monitoring may be reduced for the Project if the qualified archaeologist finds it appropriate to reduce the monitoring efforts. Upon completion of ground disturbance for the Project, a final report must be submitted to the City for review and approval documenting the monitoring efforts, cultural resources find, and resource disposition. The final report shall be submitted to the SSJVIC.* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Geology and Soils** | | | | | |
| ***Mitigation Measure GEO-1:*** *If any paleontological resources are encountered during ground-disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or another appropriate facility regarding any discoveries of paleontological resources.*<br>*If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations, and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects or such effects must be mitigated. Construction in that area shall not resume until the resource-appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the City of Kerman, Community Development Department.* | Project Applicant | During ground disturbance activities | City of Kerman Building Division | | |
| **Hazards and Hazardous Material** | | | | | |
| ***Mitigation Measure HAZ-1:*** *Asbestos Survey. Prior to the demolition or renovation of any existing structure on site, an Asbestos Survey shall be* | Project Applicant | Prior to demolition or renovation of | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *conducted to determine the quantity of asbestos-containing construction material to be removed in the Project. As regulated by National Emission Standards for Hazardous Air Pollutants (NESHAP), the inspection must be conducted by a Cal-OSHA Certified Asbestos Consultant (CAC). The Asbestos Survey report shall be submitted to the City of Kerman Community Development Department for review and approval. Alternatively, if the developer is opting to treat all of the material as RACM and will notify as such, the survey may be bypassed.*<br>*A completed and signed Asbestos Notification Form must be submitted to the San Joaquin Valley Air Pollution Control District (SJVAPCD) 10 working days prior to the commencement of any regulated asbestos (RACM) abatement. If it is determined that there are asbestos-containing materials or soils on site, the developer shall utilize specialists/professionals for asbestos removal/abatement to reduce potential health risks to construction workers. Demolition activities that would expose construction workers and/or the public to asbestos-containing materials shall be conducted in accordance with the applicable regulations, including, but not limited to:*<br>• *San Joaquin Valley Air Pollution Control District*<br>• *California Health and Safety Code (Section 39650 et seq.)*<br>• *California Code of Regulations (Title 8, Section 1529)*<br>• *California Occupational Safety and Health Administration regulations (California Code of Regulations, Title 8, Section 1529 [Asbestos] and Section 1532.1 [Lead])*<br>• *Code of Federal Regulations (Title 40, Part 61 [asbestos], Title 40, Part 763 [asbestos], and Title 29, Part 1926 [asbestos and lead])* | | structures on site | | | |
| ***Mitigation Measure HAZ-2:** Lead-Based Paint Inspection. Prior to the demolition of any existing structure on site, a lead-based paint* | Project Applicant | Prior to demolition of structures on site | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *inspection is required to determine whether the lead-based paint is present in or on the original building materials. The inspection shall be conducted on-site by a state-certified Lead Inspector or Assessor in accordance with the California Code of Regulations, Title 8, Section 1532.1. The investigation report shall be submitted to the City of Kerman Community Development Department for review and approval.*<br>*If it is determined that lead-based paint exists on site, the developer shall utilize professionals for lead-based paint removal to reduce potential health risks to construction workers and/or the public. Pursuant Section 1532.1, construction workers must establish and implement a compliance program, and provide a written Pre-Job Notification to the nearest Division of Occupational Safety and Health Cal/OSHA office 24 hours before the start of a project.* | | | | | |
| ***Mitigation Measure HAZ-3:*** *Test for Agricultural Pesticides. Prior to construction activities onsite, a limited Phase II investigation shall be conducted to assess the surface soil of the project site for residual organochlorine and lead arsenate pesticides. The Phase II investigation shall be conducted in accordance with guidelines developed by the Department of Toxic Substances Control (DTSC) and Environmental Protection Agency (EPA) for site assessments. The Phase II investigation shall estimate the potential threat to public health and the environment if concentrations of pesticides are encountered using methods outlined in DTSC's Preliminary Endangerment Assessment Guidance Manual and DTSC's Screening Level Human Health Risk Assessment guidance for implementing screening level risk analysis. The Phase II investigation shall be submitted to the City of Kerman Community Development Department for review and approval by an independent third-party reviewer. If the Phase II testing reveals concentrations of organochlorine pesticides and lead arsenic above* | Project Applicant | Prior to ground disturbing activities | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *health-based screening levels for residential exposure, remediation of the site shall be required to address residual organochlorine and lead arsenate pesticides above health-based level of concern. Remediation may include excavation and disposal of impacted soil or capping elevated areas beneath paved areas. The Construction Contractor shall implement the recommendations outlined in the Phase II.* | | | | | |
| **Noise** | | | | | |
| ***Mitigation Measure NOI-1:*** *A soundwall with a minimum height of seven (7) feet shall be constructed along the southern property line adjacent to the San Joaquin Valley Railroad rail line. The wall shall be constructed of concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall. Compliance shall be verified during the Final Map review and approval process by the City of Kerman Public Works Department.* | Project Applicant | Final Map review | City of Kerman Planning Division | | |
| ***Mitigation Measure NOI-2:*** *Noise sensitive land uses (e.g., residential uses, schools, churches) within 500 feet of the exterior boundaries of the Project site shall be notified about the estimated duration and hours of construction activity at least 30 days before the start of construction, with the exception of construction activities related to emergency work. The notice shall be an informational document containing the estimated duration and hours of construction activity, a primary contact for complaints, and reference to compliance with Kerman Municipal Code Chapter 9.26 Prohibition of Unreasonably Loud and Unnecessary Noise. The notice shall be mailed by first class mail to every owner whose name and address appears on the last equalized County Assessment Roll for any property within 500 feet of the exterior boundaries of the Project site. Proof of mailing shall be provided to the City of Kerman, Community Development Department. Separate notices and proof of mailings shall be sent and submitted for* | Project Applicant | At least 30-days before construction | City of Kerman Building Division | | |

| | | | | | |
|---|---|---|---|---|---|
| *all phases of construction.* | | | | | |
| ***Mitigation Measure NOI-3:*** *Temporary sound barriers shall be erected between the construction area/site and existing residential structures. Sound barriers shall be of sufficient height and length to block the line of sight between the construction site and residential structures and shall be continuous with no gaps or holes between panels or the ground. Sound barriers shall be constructed of material with a weight of two (2) pounds per square foot and shall have a minimum Sound Transmission Class (STC) rating of 28. Sound blankets may be used in place of temporary sound barriers; however, it must be demonstrated the sound blankets meet a STC rating of 28 and shall be of sufficient length to overlap each other and the ground surface. Implementation of temporary sound barriers shall be indicated in the General Construction Notes for the project and verified by the City of Kerman Building Division during the building permit process.* | Project Applicant | Prior to issuance of building permit | City of Kerman Building Division | | |
| **Tribal Cultural Resources** | | | | | |
| See Cultural Resources | | | | | |

# 6 REPORT PREPARATION

Names of Persons Who Prepared or Participated in the Initial Study:

| | | |
|---|---|---|
| **Lead Agency** | | |
| Lead Agency | City of Kerman<br>Community Development Department<br>(559) 846-9386 | Jesus R. Orozco, Community Development Director |
| **Initial Study Consultant** | | |
| Initial Study | Precision Civil Engineering<br>1234 O Street<br>Fresno, CA 93721<br>(559) 449-4500 | Bonique Emerson, AICP, VP of Planning<br>Jenna Chilingerian, AICP, Senior Planner<br>Shin Tu, AICP Candidate, Associate Planner |
| **Technical Studies** | | |
| Air Quality, Health Risk, Greenhouse Gas Emissions, and Energy Analysis Technical Report | Johnson Johnson & Miller Air Quality Consulting Services | (559) 392-3665 |
| Biological Resource Assessment | Argonaut Ecological Consulting, Inc. | 2377 Gold Meadow Way, Ste 100<br>Gold River, CA 95670<br>(916) 803-1454 |
| Noise Assessment | WJV Acoustics, Inc. | 133 N. Church Street, Suite 203<br>Visalia, CA 93291<br>(559) 627-4923 |
| Traffic Impact Study/VMT Analysis | VRPA Technologies, Inc. | 4630 W. Jennifer, Suite 105<br>Fresno, CA 93722<br>(559) 271-1200 |

# 7 APPENDICES

## 7.1 Appendix A: Air Quality, Health Risk, Greenhouse Gas Emissions, and Energy Analysis Technical Report

Prepared by Johnson Johnson & Miller Air Quality Consulting Services dated August 9, 2023.

To:
Jenna Chilingerian, AICP Senior Associate Planner Inc.
Precision Civil Engineering, Inc.
1234 O Street
Fresno, CA 93721
jchilingerian@precisioneng.net

From:
Johnson Johnson and Miller Air Quality Consulting Services
Richard Miller, Air Quality and Climate Change Specialist
rmiller.jjm.environmental@gmail.com

**Whispering Falls Project in Kerman, CA**

**Date: August 9, 2023**

## Subject: Air Quality, Health Risk Analysis, Greenhouse Gas, and Energy Technical Memorandum

This Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report was prepared to evaluate whether the estimated criteria air pollutant, ozone precursor, toxic air contaminant (TAC), and/or greenhouse gas (GHG) emissions generated from construction and/or operation of the proposed Whispering Falls Project in Kerman, California would cause significant impacts to air resources in the project area. The respective analyses were conducted within the context of the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] § 21000, et seq.). The methodology follows the Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) prepared by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the quantification of emissions and evaluation of potential impacts to air resources[1] and the SJVAPCD's Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under the California Environmental Quality Act.[2]

## Project Location and Description

The Whispering Falls Project (project or proposed project) consists of the construction and development of four parcels totaling approximately 80 acres located on the east side of South Modoc Avenue between West Kearney Boulevard and West California Avenue. The project site is located within the City of Kerman Sphere of Influence but is currently outside the city limits. Development of the project site would occur in three (3) phases. Phase I pertains to the 20-acre parcel identified as APN 200-160-36S; Phase II pertains to the 20-acre parcel identified as APN 200-160-18S; and Phase III pertains to the 20-acre parcel identified as APN 200-160-19S. The parcel identified as APN 020-160-02S is not proposed for development at this time. Approvals being sought would facilitate a 174-unit residential development ("Whispering Falls Phase I" or "Phase I") to occupy the 20-acre parcel (8.7 units per acre) identified as APN 200-160-36S.

---

[1] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023.

[2] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2009. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. December 17. Website: https://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf. Accessed July 29, 2023.

Whispering Falls Phase I would consist of 118 single-family residential units including 64 alley-loaded single-family homes, 46 single-family cluster homes, and eight (8) wide-shallow single-family homes in addition to 236 parking spaces (two (2) spaces per unit); 56 two-bedroom multi-family residential units and 56 parking spaces (one (1) space per unit) are also proposed. Phase I would also include a community center and 138 additional on-street parking spaces. Access to the site would be provided by three (3) points of ingress/egress from North California Avenue (proposed). Internal circulation within the site would be provided by private streets and alleys. TSM 2023-01 would subdivide the 20-acre parcel into 119 lots to account for 118 single-family lots and one (1) lot reserved for the multi-family residential units and community center.

No development is currently proposed for Phase 2 or Phase 3. Consistent with the traffic impact report, this analysis evaluates the potential impacts from development associated with Phase 1.

East and northeast of the project is an existing residential subdivision. North, west, and south of the project is farmland with a few scattered residences. Southeast of the project is a packing house and farm supply store approximately one (1) mile away.

An aerial view of the project site and the project site plan are included as part of Attachment A.

## Modeling Parameters and Assumptions

The following modeling parameters and assumptions were used to generate criteria air pollutant (including precursors), Toxic Air Contaminants (TACs), and greenhouse gas (GHG) emissions for the proposed project.

## Air Pollutants and GHGs Assessed

### *Criteria Pollutants Assessed*

The following criteria air pollutants were assessed in this analysis: reactive organic gases (ROG), oxides of nitrogen ($NO_X$), carbon monoxide (CO), sulfur oxides ($SO_X$), particulate matter less than 10 microns in diameter ($PM_{10}$), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

Note that the proposed project would emit ozone precursors ROG and $NO_X$. However, the proposed project would not directly emit ozone since it is formed in the atmosphere during the photochemical reaction of ozone precursors.

The project does not contain sources that would produce substantial quantities of $SO_X$ emissions during construction or operation. Modeling conducted for the project is provided in Attachment A and includes $SO_2$ emission estimates.  No further analysis of $SO_2$ is required.

### *GHGs Assessed*

This analysis was restricted to GHGs identified by AB 32, which include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride ($SF_6$), and nitrogen trifluoride ($NF_3$). The proposed project would generate a variety of GHGs, including several defined by AB 32 such as $CO_2$, $CH_4$, and $N_2O$.

Certain GHGs defined by AB 32 would not be emitted by the project. HFCs, PFCs, $SF_6$, and $NF_3$ are typically used in industrial applications, none of which would be used for typical residential operations. Therefore, it is not anticipated that the proposed project would emit those GHGs.

GHG emissions associated with the proposed project construction, as well as future operations were estimated using $CO_2$ equivalent ($CO_2e$) emissions as a proxy for all GHG emissions. Construction GHG emissions were amortized over the lifetime of the proposed project. In order to obtain the $CO_2e$, an individual GHG is multiplied by its Global Warming Potential (GWP). The GWP designates on a pound for pound basis the potency of the GHG compared to $CO_2$.

### *Toxic Air Containments Assessed*

### ***Diesel particulate matter (DPM)***

Studies indicate that diesel particulate matter (DPM) poses the greatest health risk among airborne TACs.  The California Air Resources Board (CARB) conducted a 10-year research program that demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic long-term health risk.

DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases: gas and particle. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those that are in the categories of fine and ultra-fine particles. The composition of these fine and ultra-fine particles may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals, and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines, such as the on-road diesel engines of trucks, buses, and cars, and off-road diesel engines that include locomotives, marine vessels, and heavy-duty equipment.[3]

For purposes of this analysis, DPM exhaust emissions are represented as particulate matter that is 10 micrometers in diameter and smaller ($PM_{10}$).

### *Asbestos*

Asbestos is a fibrous mineral that both naturally occurs in ultramafic rock (a rock type commonly found in California) and is used as a processed component of building materials. Because asbestos has been proven to cause a number of disabling and fatal diseases, such as asbestosis and lung cancer, it is strictly regulated either based on its natural widespread occurrence or in its use as a building material. In the initial Asbestos National Emission Standards for Hazardous Air Pollutants rule promulgated in 1973, a distinction was made between building materials that would readily release asbestos fibers when damaged or disturbed (friable) and those materials that were unlikely to result in significant fiber release (non-friable). The U.S. Environmental Protection Agency (EPA) has since determined that, when severely damaged, otherwise non-friable materials can release significant amounts of asbestos fibers. Asbestos has been banned from many building materials under the Toxic Substances Control Act, the Clean Air Act, and the Consumer Product Safety Act. Naturally occurring asbestos (NOA) is known to occur in many parts of California and is commonly associated with ultramafic or serpentinite rock.

## Model Selection

### *Criteria Pollutants and GHG Emissions—Model Selection*

The California Emissions Estimator Model (CalEEMod) is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. CalEEMod quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water

---

[3] California Air Resources Board (CARB). 2019. Overview: Diesel Exhaust and Health. Website: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health. Accessed July 29, 2023.

use. Further, CalEEMod identifies mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from measures chosen by the user.

CalEEMod was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California Air Districts. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California Air Districts to account for local requirements and conditions.

CalEEMod is a comprehensive tool for quantifying air quality impacts from land use projects located throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as preparing CEQA or National Environmental Policy Act documents, conducting pre-project planning, and, verifying compliance with local air quality rules and regulations, etc.

The project is located in the City of Kerman, within Fresno County and within the San Joaquin Valley Air Basin. The modeling follows SJVAPCD guidance, where applicable, from its GAMAQI. The models used in this analysis are summarized as follows:

- Construction emissions: CalEEMod, version 2022.1 (specifically, 2022.1.1.16)
- Operational emissions: CalEEMod, version 2022.1 (specifically, 2022.1.1.16)
- Operational TAC emissions: EMission FACtor (EMFAC) 2021
- Dispersion Model: American Meteorological Society/ Environmental Protection Agency Regulatory Model (AERMOD), version 22112
- Health Risk Metric Calculations: Hot Spots Analysis & Reporting Program 2 (HARP2)

Construction DPM emissions (represented as $PM_{10}$ exhaust) were estimated using CalEEMod version 2022.1. Emissions were estimated for the unmitigated scenario and two mitigated scenarios.  The mitigated scenario included the following: clean construction equipment engines (Tier 4 mitigated) and level 3 filters. Equipment tiers refer to a generation of emission standards established by the EPA and CARB that apply to diesel engines in off-road equipment. The “tier” of an engine depends on the model year and horsepower rating; generally, the newer a piece of equipment is, the higher the tier level the equipment is likely to have. Excluding engines greater than 750 horsepower, Tier 1 engines were manufactured generally between 1996 and 2003. Since Tier 1 emission standards were established by the EPA in 1994, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the EPA, as well as CARB.

### *Toxic Air Containments—Model Selection and Parameters*

An air dispersion model is a mathematical formulation used to estimate the air quality impacts at specific locations (receptors) surrounding a source of emissions given the rate of emissions and prevailing meteorological conditions. The air dispersion model applied in this assessment was the U.S. EPA AERMOD (version 22112) air dispersion model. Specifically, AERMOD was used to estimate levels of air emissions at sensitive receptor locations from potential sources of project-generated TACs during the construction period. The use of AERMOD provides a refined methodology for estimating construction impacts by utilizing long-term, measured representative meteorological data for the project site and a representative construction schedule.

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. Direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. Terrain elevations were obtained for the project site using the AERMAP model, the AERMOD terrain data pre-processor. The air dispersion model assessment used meteorological data from the Mendota station. The meteorological data used was preprocessed for use with AERMOD by SJVAPCD and included data for the years 2007 to 2011; all years were used in the assessment. To evaluate the proposed project's localized impacts at the point of maximum impact, all receptors were placed within the breathing zone at 1.2 meters above ground level.

For the construction period, construction emissions were assumed to be distributed over the project site with a working schedule of eight hours per day and five days per week. Emissions were adjusted by a factor of 4.2 to convert for use with a 24-hour-per-day, 365 day-per-year averaging period. To assess impacts during construction, project operations were assessed assuming a 24-hour-per-day, and seven day-per-week schedule. Detailed parameters and complete calculations are contained in Attachment B.

## Assumptions

### *Construction Modeling Assumptions*

### ***Schedule***

The proposed project would require various tasks including site preparation, grading, building construction, paving, and architectural coating (painting). Table 1 shows the construction schedule used to estimate emissions for the purposes of assessing air quality impacts. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario since emission factors for construction equipment decrease as the analysis year increases, due to improvements in technology and more stringent regulatory requirements. Therefore, construction emissions would decrease if the construction schedule moved to later years or is phased over multiple years. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required per CEQA guidelines. The site-specific construction fleet may vary due to specific project needs at the time of construction.

**Table 1: Project Construction Schedule**

| Construction Task | Start Date | End Date | Number of Days per Week | Number of Workdays per Phase |
|---|---|---|---|---|
| Site Preparation | 1/12/2024 | 2/22/2024 | 5 | 30 |
| Grading | 2/23/2024 | 6/6/2024 | 5 | 75 |
| Building Construction | 6/7/2024 | 12/24/2026 | 5 | 665 |
| Paving | 6/7/2024 | 8/22/2024 | 5 | 55 |
| Architectural Coating | 10/16/2026 | 12/31/2026 | 5 | 55 |
| Source: Modeling Assumptions and CalEEMod Output Files (Attachment A). | | | | |

### *Equipment*

The off-road equipment fleet for construction were generated using default values from CalEEMod. CalEEMod generates construction fleets for construction activities based on the size of the construction areas. Construction equipment for each construction activity is shown in Table 2.

**Table 2: Project Construction Equipment**

| Construction Task | Equipment Type | Pieces of Equipment | Usage (hours/day) | Horsepower | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8 | 367 | 0.40 | Diesel |
| | Tractors/Loaders/Backhoes | 4 | 8 | 84 | 0.37 | Diesel |
| Grading | Excavators | 2 | 8 | 36 | 0.38 | Diesel |
| | Graders | 1 | 8 | 148 | 0.41 | Diesel |
| | Rubber Tired Dozers | 1 | 8 | 367 | 0.40 | Diesel |
| | Scrapers | 2 | 8 | 423 | 0.48 | Diesel |
| | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 | Diesel |
| Building Construction | Cranes | 1 | 7.79 | 367 | 0.29 | Diesel |
| | Forklifts | 3 | 8.9 | 82 | 0.20 | Diesel |
| | Generator Sets | 1 | 8.9 | 14 | 0.74 | Diesel |
| | Tractors/Loaders/Backhoes | 3 | 7.79 | 84 | 0.37 | Diesel |
| | Welders | 1 | 8.9 | 46 | 0.45 | Diesel |
| Paving | Pavers | 2 | 8 | 81 | 0.42 | Diesel |
| | Paving Equipment | 2 | 8 | 89 | 0.36 | Diesel |
| | Rollers | 2 | 8 | 36 | 0.38 | Diesel |
| Architectural Coating | Air Compressors | 1 | 6 | 78 | 0.48 | Diesel |
| Source: Modeling Assumptions and CalEEMod Output Files (Attachment A). | | | | | | |

### *Vehicles Trips*

Table 3 provides a summary of the construction-related vehicle trips. CalEEMod default values were used to estimate the number of construction-related vehicle trips and were supplemented with additional purpose-based trips to avoid underestimating emissions from on-road vehicles anticipated during the construction period.

The default values for hauling trips are based on the assumption that a truck can haul 20 tons (or 16 cubic yards) of material per load. If one load of material is delivered, CalEEMod assumes that one haul truck importing material will also have a return trip with an empty truck (e.g., 2 one-way trips).

The fleet mix for worker trips is light-duty passenger vehicles to light-duty trucks. The vendor trips fleet mix is composed of a mixture of medium and heavy-duty diesel trucks. The hauling trips were assumed to be 100 percent heavy-duty diesel truck trips. CalEEMod default trip lengths for a project in Fresno County and a rural setting were used for the worker (7.7 miles), vendor (4 miles), and hauling (20 miles) trips.

**Table 3: Construction Vehicle Trips**

| Construction Task | Worker Trips per Day | Vendor Trips per Day | Haul Trips per Day |
|---|---|---|---|
| Site Preparation | 17.5 | 2 | 0 |
| Grading | 20 | 2 | 116.7 |
| Building Construction | 131.9 | 37.7 | 0 |
| Paving | 15 | 2 | 0 |
| Architectural Coating | 26.4 | 2 | 0 |

Notes:
Additional vendor trips were added to account for delivery of materials.
Cut and fill estimates: 70,000 cubic yards of fill estimated to be imported during the grading phase based on applicant-provided information.
CalEEMod default trips account for miscellaneous trips in the building construction phases, which were retained in the modeling.
Source: Modeling Assumptions and CalEEMod Output Files (Attachment A).

## Operational Modeling Assumptions

Operational emissions are those emissions that occur during operation of the proposed project. The sources are summarized below.

### *Motor Vehicles*

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the proposed project site. Assumptions were based on the accompanying traffic study completed for the project. Modeling was completing using the reported number of average daily trips (1,609 average daily trips).[4] Pass-by trips are assumed to already be on the local roads; however, unlike internal capture, vehicles making pass-by trips are not necessarily making a single trip to visit multiple land uses within the project site. For the purposes of estimating air pollutant emissions, it is appropriate to account for the project-generated trips that would travel to and from the project site. The gross number of project-generated trips provided in the project-specific traffic study and the CalEEMod default trip types were applied in the analysis. Please see Attachment A for detailed assumptions.

#### *Trip Lengths*

The CalEEMod default round trip lengths for a rural setting in Fresno County were used in this analysis. Trip lengths are for primary trips. Trip purposes are primary, diverted, and pass-by trips. Diverted trips take a slightly different path than a primary trip. The CalEEMod defaults for percentages of primary, diverted, and pass-by trips were used in the analysis.

#### *Vehicle Fleet Mix*

---

[4] Precision Civil Engineering, Inc. 2023. Whispering Falls Residential Development Trip Generation.

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the proposed project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline- and diesel-powered vehicles). The vehicle fleet mix was revised to reflect the residential fleet mix approved by SJVAPCD for each year analyzed.

### *Area Sources*

#### *Consumer Products*

Consumer products are various solvents used in non-industrial applications, which emit VOCs during their product use. “Consumer Product” means a chemically formulated product used by household and institutional consumers, including but not limited to: detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. It does not include other paint products, furniture coatings, or architectural coatings. CalEEMod includes default consumer product use rates based on building square footage. The default emission factors developed for CalEEMod were used for consumer products were used.

#### *Architectural Coatings (Painting)*

Paints release VOC emissions. The single-family homes and apartment buildings included as part of the proposed project would be repainted on occasion. CalEEMod defaults were used for this purpose.

#### *Landscaping Emissions*

CalEEMod estimates a total of 180 days for which landscaping equipment would be used to estimate potential emissions for the proposed project.

### *Indirect Emissions*

For GHG emissions, CalEEMod contains calculations to estimate indirect GHG emissions. Indirect emissions are emissions where the location of consumption or activity is different from where actual emissions are generated. For example, electricity would be consumed at the proposed project site; however, emissions associated with producing that electricity are generated off-site at a power plant. Since the electricity can vary greatly based on locations, the user should override these values if they have more specific information regarding their specific water supply and treatment.

#### *Energy Use*

The emissions associated with the building electricity and natural gas usage (non-hearth) were estimated based on the land use type and size.

The Renewables Portfolio Standard (RPS) took effect in 2020. The Renewable Electricity Standard requires that electricity providers include a minimum of 33 percent renewable energy in their portfolios by the year 2020. The utilities in California will be required to increase the use of renewable energy sources to 60 percent by 2030.

### *Other Indirect Emissions (Water Use, Wastewater Use, and Solid Waste)*

CalEEMod includes calculations for indirect GHG emissions for electricity consumption, water consumption, and solid waste disposal. For water consumption, CalEEMod calculates embedded energy (e.g., treatment, conveyance, distribution) associated with providing each gallon of potable water to the project. For solid waste disposal, GHG emissions are associated with the disposal of solid waste generated by the proposed project into landfills. CalEEMod default data were used for inputs associated with solid waste.

# AIR QUALITY

## Environmental Setting

Air quality impacts are both local and regional. Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The project is located in Kerman, within Fresno County. The project site and Fresno County are in the San Joaquin Valley Air Basin (Air Basin or SJV Air Basin), which experiences some of the most challenging environmental conditions for air quality in the nation. The following section describes these conditions as they pertain to the Air Basin. The information in this section is primarily from the SJVAPCD's GAMAQI.[5]

### *Topography*

The topography of a region is important for air quality because mountains can block airflow that would help disperse pollutants and can channel air from upwind areas that transports pollutants to downwind areas. The SJVAPCD covers the entirety of the SJV Air Basin. The Air Basin is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation).

### *Climate*

The climate is important for air quality because of differences in the atmosphere's ability to trap pollutants close to the ground, which creates adverse air quality; inversely, the atmosphere's ability to rapidly disperse pollutants over a wide area prevents high concentrations from accumulating under different climatic conditions. The SJV Air Basin has an "inland Mediterranean" climate and is characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the SJV Air Basin averages over 260 sunny days per year.

Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually encountered 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor.

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the SJV Air Basin form natural horizontal barriers to the dispersion of air contaminants. The wind generally flows south-southeast through the valley, through the Tehachapi Pass and into the Mojave Desert Air Basin portion of Kern County. As the wind moves through the SJV Air Basin, it mixes with the air pollution generated locally, generally transporting air pollutants from the north to the south in the summer and in a reverse flow in the winter.

---

[5] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023.

The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong, low-level temperature inversions and very stable air conditions, which can lead to Tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of $PM_{2.5}$ and $PM_{10}$.

### *Criteria Air Pollutants*

The Federal Clean Air Act (FCAA) establishes the framework for modern air pollution control. The FCAA, enacted in 1970 and amended in 1990, directs the U.S. EPA to establish ambient air quality standards. These standards are divided into primary and secondary standards. The primary standards are set to protect human health, and the secondary standards are set to protect environmental values, such as plant and animal life. The FCAA requires the EPA to set National Ambient Air Quality Standards for the six criteria air pollutants. These pollutants include particulate matter (PM), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides, and lead.

### *Toxic Air Contaminants*

A toxic air contaminant (TAC) is an air pollutant not included in the California Ambient Air Quality Standards, but TACs are considered hazardous to human health. Toxic air contaminants are defined by the California Air Resources Board (CARB) as those pollutants that, “may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health.”

The health effects associated with TACs are generally assessed locally rather than regionally. Toxic air contaminants can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; TACs can also cause short-term acute effects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. For evaluation purposes, TACs are separated into carcinogens and noncarcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and the cancer risk is expressed as excess cancer cases per one million exposed individuals (typically over a lifetime of exposure).

TACs of concern assessed in this analysis include asbestos, DPM, and benzene.

### *Sensitive Receptors*

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics.

### *Air Quality Standards*

The Clean Air Act requires states to develop a general plan to attain and maintain the standards in all areas of the country and a specific plan to attain the standards for each area designated nonattainment. These plans, known as State Implementation Plans or SIPs, are developed by state and local air quality management agencies and submitted to EPA for approval.

The SIP for the State of California is administered by the CARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for each regional air district. SIPs are prepared by the regional air district and sent to CARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

The CARB also administers the California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants include the six federal criteria pollutant standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The federal and state ambient air quality standards are summarized in Table 4.

**Table 4: California and National Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards | National Standards | |
|---|---|---|---|---|
| | | Concentration | Primary | Secondary |
| Ozone | 1 Hour | 0.09 ppm (180 µg/m$^3$) | — | Same as Primary Standard |
| | 8 Hour | 0.070 ppm (137 µg/m$^3$) | 0.070ppm (137 µg/m$^3$) | |
| Respirable Particulate Matter | 24 Hour | 50 µg/m$^3$ | 150 µg/m3 | Same as Primary Standard |
| | Annual Arithmetic Mean | 20 µg/m$^3$ | — | |
| Fine Particulate Matter | 24 Hour | — | 35 µg/m$^3$ | Same as Primary Standard |
| | Annual Arithmetic Mean | 12 µg/m$^3$ | 12 µg/m$^3$ | |
| Carbon Monoxide | 1 Hour | 20 ppm (23 mg/m$^3$) | 35 ppm (40 mg/m$^3$) | — |
| | 8 Hour | 9.0 ppm (10 mg/m$^3$) | 9 ppm (10 mg/m$^3$) | — |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m$^3$) | — | — |
| Nitrogen Dioxide | 1 Hour | 0.18 ppm (339 µg/m$^3$) | 100 ppb (188 µg/m$^3$) | — |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m$^3$) | 0.053 ppm (100 µg/m$^3$) | Same as Primary Standard |
| Sulfur Dioxide | 1 Hour | 0.25 ppm (655 µg/m$^3$) | 75 ppb (196 µg/m$^3$) | — |
| | 3 Hour | — | — | 0.5 ppm (1300 µg/m$^3$) |

| Pollutant | Averaging Time | California Standards | National Standards | |
|---|---|---|---|---|
| | | **Concentration** | **Primary** | **Secondary** |
| | 24 Hour | 0.04 ppm (105 $\mu g/m^3$) | 0.14 ppm (for certain areas) | — |
| | Annual Arithmetic Mean | — | 0.030 ppm (for certain areas) | — |
| Lead | 30-Day Average | 1.5 $\mu g/m^3$ | — | — |
| | Calendar Quarter | — | 1.5 $\mu g/m^3$ | Same as Primary Standard |
| | Rolling 3-Month Average | — | 0.15 $\mu g/m^3$ | |
| Visibility-Reducing Particles | 8 Hour | See Footnote 1 | No National Standards | |
| Sulfates | 24 Hour | 25 $\mu g/m^3$ | | |
| Hydrogen Sulfide | 1 Hour | 0.03 ppm (42 $\mu g/m^3$) | | |
| Vinyl Chloride | 24 Hour | 0.01 ppm (26 $\mu g/m^3$) | | |

Notes:
1 - In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.
μg/m3 =micrograms per cubic meter
CARB = California Air Resources Board
mg/m3 = milligrams per cubic meter
ppm = parts per million
Source: California Air Resources Board (CARB). 2017. Air Quality Standards. Website: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed July 29, 2023.

Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards. The SJV Air Basin is designated nonattainment for ozone, $PM_{10}$, and $PM_{2.5}$.[6]

### *Thresholds of Significance*

### ***Project-level Thresholds***

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the proposed project must be evaluated.

---

[6] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2017. Ambient Air Quality Standards & Valley Attainment Status. Website: https://www.valleyair.org/aqinfo/attainment.htm. Accessed July 29, 2023.

This analysis uses the air quality significance thresholds contained in Appendix G of the CEQA Guidelines, effective December 28, 2018. A significant impact would occur if the proposed project would:

a) Conflict with or obstruct implementation of the applicable air quality 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) Create objectionable odors affecting a substantial number of people.

The City of Kerman has not established specific CEQA significance thresholds. Where available guidance provided by the applicable air district can be used to make significance determinations for the CEQA questions listed above. While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the SJVAPCD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions in accordance with the Appendix G requirements. If a Lead Agency finds that a project has the potential to exceed these air pollution thresholds, according to the SJVAPCD, the project should be considered to have significant air quality impacts.

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the project. Localized emissions from project construction and operation are also assessed using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during project construction and operation are ROG, $NO_X$, $PM_{10}$, and $PM_{2.5}$. The SJVAPCD GAMAQI adopted in 2015 contains thresholds for ROG and $NO_X$; $SO_X$, CO, $PM_{10}$, and $PM_{2.5}$.

Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and $NO_X$ emissions in the presence of sunlight. Therefore, ROG and $NO_x$ are termed ozone precursors. The SJVAB often exceeds the state and national ozone standards. Therefore, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. The SJVAB also exceeds air quality standards for $PM_{10}$, and $PM_{2.5}$; therefore, substantial project emissions may contribute to an exceedance for these pollutants.

The SJVAPCD has adopted significance thresholds for construction-related and operational emissions. These thresholds will be identified and addressed in the appropriate section of this document.

Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. Once operational, some diesel-fueled vehicles would access the project site. The following project-specific health risk significance thresholds are applied in this analysis:

- Maximum Incremental Cancer Risk: >=20 in 1 million.
- Hazard Index (project increment) >=1.0.

### Fugitive Dust

*Construction*

Fugitive dust would be generated from site grading and other earth-moving activities. Most of this fugitive dust would remain localized and would be deposited near the project site. However, the potential for impacts from fugitive dust exists unless control measures are implemented to reduce the emissions from the project site. Therefore, adherence to Regulation VIII would be required during construction of the proposed project. Regulation VIII would require fugitive dust control measures that are consistent with best management practices (BMPs) established by the SJVAPCD to reduce the proposed project's construction-generated fugitive dust impacts to a less than significant level.

The SJVAPCD (SJVAPCD or District) adopted Regulation VIII in 1993 and its most recent amendments became effective on October 1, 2004. This is a basic summary of the regulation's requirements as they apply to construction sites. These regulations affect all workers at a regulated construction site, including everyone from the landowner to the subcontractors. Violations of Regulation VIII are subject to enforcement action including fines.[7]

**Visible Dust Emissions** may not exceed 20 percent opacity during periods when soil is being disturbed by equipment or by wind at any time. Visible Dust Emissions opacity of 20 percent means dust that would obstruct an observer's view of an object by 20 percent. District inspectors are state certified to evaluate visible emissions. Dust control may be achieved by applying water before/during earthwork and onto unpaved traffic areas, phasing work to limit dust, and setting up wind fences to limit windblown dust.

**Soil Stabilization** is required at regulated construction sites after normal working hours and on weekends and holidays. This requirement also applies to inactive construction areas such as phased projects where disturbed land is left unattended. Applying water to form a visible crust on the soil and restricting vehicle access are often effective for short-term stabilization of disturbed surface areas. Long-term methods including applying dust suppressants and establishing vegetative cover.

**Carryout and Trackout** occur when materials from emptied or loaded vehicles falls onto a paved surface or shoulder of a public road or when materials adhere to vehicle tires and are deposited onto a paved surface or shoulder of a public road. Should either occur, the material must be cleaned up at least daily, and immediately if it extends more than 50 feet from the exit

---

[7] San Joaquin Valley Air Pollution Control District (SJVAPCD). 2007. Compliance Assistance Bulletin. Website: http://www.valleyair.org/busind/comply/pm10/forms/RegVIIICAB.pdf. Accessed July 29, 2023.

point onto a paved road. The appropriate clean-up methods require the complete removal and cleanup of mud and dirt from the paved surface and shoulder. Using a blower device or dry sweeping with any mechanical device other than a PM10-efficient street sweeper is a violation. Larger construction sites, or sites with a high amount of traffic on one or more days, must prevent carryout and trackout from occurring by installing gravel pads, grizzlies, wheel washers, paved interior roads, or a combination thereof at each exit point from the site. In many cases, cleaning up trackout with water is also prohibited as it may lead to plugged storm drains. Prevention is the best method.

**Unpaved Access and Haul Roads**, as well as unpaved vehicle and equipment traffic areas at construction sites must have dust control. Speed limit signs limiting vehicle speed to 15 mph or less at construction sites must be posted every 500 feet on uncontrolled and unpaved roads.

**Storage Piles and Bulk Materials** have handling, storage, and transportation requirements that include applying water when handling materials, wetting or covering stored materials, and installing wind barriers to limit visible dust emissions. Also, limiting vehicle speeds, loading haul trucks with a freeboard of six inches or greater along with applying water to the top of the load, and covering the cargo compartments are effective measures for reducing visible dust emissions and carryout from vehicles transporting bulk materials.

**Dust Control Plans** identify the dust sources and describe the dust control measures that will be implemented before, during, and after any dust generating activity for the duration of the project. Owners or operators are required to submit plans to the SJVAPCD at least 30 days prior to commencing the work for the following:

- Residential developments of ten or more acres of disturbed surface area.
- Non-residential developments of five or more acres of disturbed surface area.
- The relocation of more than 2,500 cubic yards per day of materials on at least three days.

Operations may not commence until the SJAVPCD has approved the Dust Control Plan. A copy of the plan must be on site and available to workers and District employees. All work on the site is subject to the requirements of the approved dust control plan. A failure to abide by the plan by anyone on site may be subject to enforcement action.

**Record Keeping** is required to document compliance with the rules and must be kept for each day any dust control measure is used. The SJVAPCD has developed record forms for water application, street sweeping, and “permanent” controls such as applying long term dust palliatives, vegetation, ground cover materials, paving, or other durable materials. Records must be kept for one year after the end of dust generating activities (Title V sources must keep records for five years).

**Exemptions** exist for several activities. Those occurring above 3,000 feet in elevation are exempt from all Regulation VIII requirements. Further, Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities exempts the following construction and earthmoving activities:

- Blasting activities permitted by California Division of Industrial Safety.

- Maintenance or remodeling of existing buildings provided the addition is less than 50% of the size of the existing building or less than 10,000 square feet (due to asbestos concerns, contact the SJVAPCD at least two weeks ahead of time).
- Additions to single family dwellings.
- The disking of weeds and vegetation for fire prevention on sites smaller than ½ acre.
- Spreading of daily landfill cover to preserve public health and safety and to comply with California Integrated Waste Management Board requirements.

**Nuisances** are prohibited at all times because District Rule 4102 – Nuisance applies to all construction sources of fugitive dust, whether or not they are exempt from Regulation VIII. It is important to monitor dust-generating activities and implement appropriate dust control measures to limit the public’s exposure to fugitive dust.

## Environmental Impact Analysis

This section discusses potential impacts related to air quality associated with the proposed project and provides mitigation measures where necessary.

### Impact AIR-1 Conflict with or obstruct implementation of the applicable air quality plan?

### Impact Analysis

The CEQA Guidelines indicate that a significant impact would occur if the project would conflict with or obstruct implementation of the applicable air quality plan. The GAMAQI indicates that projects that do not exceed SJVAPCD regional criteria pollutant emissions quantitative thresholds would not conflict with or obstruct the applicable air quality plan (AQP). An additional criterion regarding the project's implementation of control measures was assessed to provide further evidence of the project's consistency with current AQPs. This document proposes the following criteria for determining project consistency with the current AQPs:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional thresholds identified by the District for Regional Air Pollutants.

2. Will the project comply with applicable control measures in the AQPs? The primary control measures applicable to development projects include Regulation VIII—Fugitive $PM_{10}$ Prohibitions and Rule 9510 Indirect Source Review.

*Contribution to Air Quality Violations*

A measure for determining if the project is consistent with the air quality plans is if the project would not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the air quality plans. Regional air quality impacts and attainment of standards are the result of the cumulative impacts of all emission sources within the air basin. Individual projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the project is based on its cumulative contribution. Because of the region's nonattainment status for ozone, $PM_{2.5}$, and $PM_{10}$—if project-generated emissions of either of the ozone precursor pollutants (ROG and $NO_X$), $PM_{10}$, or $PM_{2.5}$ would exceed the SJVAPCD's significance thresholds—then the project would be considered to contribute to violations of the applicable standards and conflict with the attainment plans.

As shown in Table 5 and Table 6 under Impact AIR-2 below, the project's construction and operational regional emissions would not exceed SJVAPCD's regional criteria pollutant emissions quantitative thresholds. Therefore, the proposed project would not be considered in conflict with or obstruct implementation of the applicable air quality plan based on this criterion.

*Compliance with Applicable Control Measures*

SJVAPCD's AQPs contain a number of control measures, which are enforceable requirements through the adoption of rules and regulations. A description of rules and regulations that apply to this project is provided below.

> **SJVAPCD Rule 9510—Indirect Source Review (ISR)** is a control measure in the 2006 $PM_{10}$ Plan that requires $NO_X$ and $PM_{10}$ emission reductions from development projects in the San Joaquin Valley. The $NO_X$ emission reductions help reduce the secondary formation of $PM_{10}$ in the atmosphere (primarily ammonium nitrate and ammonium sulfate) and also reduce the formation of ozone. Reductions in directly emitted $PM_{10}$ reduce particles such as dust, soot, and aerosols. Rule 9510 is also a control measure in the 2016 Plan for the 2008 8-Hour Ozone Standard. Developers of projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases through on-site measures or pay off-site mitigation fees. The proposed project would be subject to Rule 9510.
>
> **Regulation VIII—Fugitive** $PM_{10}$ **Prohibitions** is a control measure that is one main strategies from the 2006 $PM_{10}$ for reducing the $PM_{10}$ emissions that are part of fugitive dust. Residential projects over 10 acres and non-residential projects over 5 acres are required to file a Dust Control Plan (DCP) containing dust control practices sufficient to comply with Regulation VIII. The project will be required to comply with Regulation VIII and would implement dust control measures during the construction period.
>
> **Rule 2201—New and Modified Stationary Source Review Rule** requires the review of new and modified Stationary Sources of air pollution and to provide mechanisms including emission trade-offs by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards. Components of the project may be required to obtain permits and abide by associated regulations set forth by Rule 2201.

Other control measures that apply to the project are Rule 4641—Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operation that requires reductions in VOC emissions during paving and Rule 4601—Architectural Coatings that limits the VOC content of all types of paints and coatings sold in the San Joaquin Valley. These measures apply at the point of sale of the asphalt and the coatings, so project compliance is ensured without additional mitigation measures.

The project would comply with all applicable SJVAPCD rules and regulations. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality attainment plan under this criterion.

*Conclusion*

As described above, the proposed project's construction and operational regional emissions would not exceed SJVAPCD's regional criteria pollutant emissions quantitative thresholds. Furthermore, the proposed project would comply with all applicable SJVAPCD rules and regulations. Accordingly, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans, and, therefore, this impact would be less than significant.

### *Level of Significance Before Mitigation*

Less than significant.

### *Mitigation Measures*

No mitigation measures are necessary.

---

## Impact AIR-2 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?

---

### Impact Analysis

To result in a less than significant impact, the following criteria must be true:

1. Regional analysis: emissions of nonattainment pollutants must be below the SJVAPCD's regional significance thresholds. This is an approach recommended by the District in its GAMAQI.
2. Summary of projections: the project must be consistent with current air quality attainment plans including control measures and regulations. This is an approach consistent with Section 15130(b) of the CEQA Guidelines.
3. Cumulative health impacts: the project must result in less than significant cumulative health effects from the nonattainment pollutants. This approach correlates the significance of the regional analysis with health effects, consistent with the court decision, *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1219-20.

#### *Regional Emissions*

Air pollutant emissions have both regional and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the project. Localized emissions from project construction and operation are assessed under Impact AIR-3—Sensitive Receptors using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during project construction and operation are ROG, $NO_X$, $PM_{10}$, and $PM_{2.5}$. The SJVAPCD GAMAQI adopted in 2015 contains thresholds for CO, $NO_X$, ROG, $SO_X$, $PM_{10}$, and $PM_{2.5}$.

Ozone is a secondary pollutant that can be formed miles from the source of emissions, through reactions of ROG and $NO_X$ emissions in the presence of sunlight. Therefore, ROG and $NO_X$ are termed ozone precursors. The Air Basin often exceeds the state and national ozone standards.

Therefore, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. The Air Basin also exceeds air quality standards for $PM_{10}$, and $PM_{2.5}$; therefore, substantial project emissions may contribute to an exceedance for these pollutants. The SJVAPCD's annual emission significance thresholds used for the project define the substantial contribution for both operational and construction emissions as follows:

- 100 tons per year CO
- 10 tons per year $NO_X$
- 10 tons per year ROG
- 27 tons per year $SO_X$
- 15 tons per year $PM_{10}$
- 15 tons per year $PM_{2.5}$

The project does not contain sources that would produce substantial quantities of $SO_2$ emissions during construction and operation. Modeling conducted for the project show that $SO_2$ emissions are well below the SJVAPCD GAMAQI thresholds, as shown in the modeling results contained in Attachment A. No further discussion of $SO_2$ is required.

#### ***Construction Emissions***

Construction activities associated with development of the proposed project would include site preparation, grading, building construction, paving, and architectural coatings. Emissions from construction-related activities are generally short-term in duration but may still cause adverse air quality impacts. During construction, fugitive dust would be generated from earth-moving activities. Exhaust emissions would also be generated from off-road construction equipment and construction-related vehicle trips. Emissions associated with construction of the proposed project are discussed below.

Table 5 provides the construction emissions estimate for the proposed project. Please refer to the Modeling Parameters and Assumptions section of this technical memorandum for details regarding assumptions used to estimate construction emissions. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required pursuant to CEQA guidelines.

### Table 5: Construction Regional Air Pollutant Annual Emissions (Unmitigated)

| Parameter | Air Pollutants (ton/year) | | | | |
|---|---|---|---|---|---|
| | **ROG** | **$NO_X$** | **CO** | **$PM_{10}$** | **$PM_{2.5}$** |
| Project Construction (2024) | 0.371 | 3.466 | 3.483 | 0.564 | 0.280 |
| Project Construction (2025) | 0.233 | 1.670 | 2.469 | 0.195 | 0.087 |
| Project Construction (2026) | 1.167 | 1.574 | 2.421 | 0.193 | 0.080 |
| ***Total Project Construction Emissions (tons/year)*** | ***1.771*** | ***6.710*** | ***8.373*** | ***0.952*** | ***0.447*** |
| **Significance Threshold (tons/year)** | **10** | **10** | **100** | **15** | **15** |
| **Exceeds Significance Threshold?** | **No** | **No** | **No** | **No** | **No** |

Notes:
$PM_{10}$ and $PM_{2.5}$ emissions are from the mitigated output to reflect compliance with Regulation VIII—Fugitive $PM_{10}$ Prohibitions.
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

As shown in Table 5, estimated emissions from construction of project are below the SJVAPCD significance thresholds. Therefore, the regional construction emissions would be less than significant on a project basis.

#### *Operational Emissions*

As previously discussed, the pollutants of concern include ROG, $NO_X$, CO, $PM_{10}$, and $PM_{2.5}$. Emissions were assessed for full buildout operations in the 2025 operational year. The 2025 operational year was chosen as it would be the best representation of the project as it is year earliest year the project is anticipated to become operational. Emissions were estimated for full project buildout in the earliest operational year, thus generating the full amount of expected operational activity. The SJVAPCD Criteria Air Pollutant Significance thresholds were used to determine impacts. Operational annual emissions are shown in Table 6 below.

### Table 6: Operational Annual Emissions for Full Buildout (Unmitigated)

| | Tons per Year | | | | |
|---|---|---|---|---|---|
| **Emissions Source** | **ROG** | **$NO_X$** | **CO** | **$PM_{10}$** | **$PM_{2.5}$** |
| Area | 1.387 | 0.072 | 1.369 | 0.006 | 0.006 |
| Energy Consumption | 0.017 | 0.283 | 0.120 | 0.023 | 0.023 |
| Mobile (On-road Vehicles) | 0.921 | 0.945 | 8.091 | 1.752 | 0.452 |
| **Total Project Annual Emissions** | **2.325** | **1.300** | **9.580** | **1.781** | **0.481** |
| **Thresholds of Significance** | **10** | **10** | **100** | **15** | **15** |
| **Exceeds Significance Threshold?** | **No** | **No** | **No** | **No** | **No** |

Notes:
$NO_X$ = oxides of nitrogen
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
$PM_{10}$ = particulate matter 10 microns or less in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

As shown in Table 6, the proposed project would not result in net operational-related air pollutants or precursors that would exceed the applicable thresholds of significance. Therefore, project operations would not be considered to have the potential to generate a significant quantity of air pollutants; long-term operational impacts associated with the project’s criteria pollutant emissions would be less than significant.

#### *Level of Significance Before Mitigation*

Less than significant.

#### *Mitigation Measures*

No mitigation measures are necessary.

## Impact AIR-3 Expose sensitive receptors to substantial pollutant concentrations?

### Impact Analysis

Emissions occurring at or near the project have the potential to create a localized impact that could expose sensitive receptors to substantial pollutant concentrations. Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. The SJVAPCD considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools.

The closest existing sensitive receptors (to the site area) are residences. One residence is a farmhouse currently located within the jobsite and there is also an existing subdivision of homes on the entire east side of the jobsite with 25 homes approximately 50 feet from the eastern project boundary. There is a Daycare facility (Over the Rainbow Daycare) 0.14 of a mile to the east in the existing residential subdivision. There is also an Elementary School (Liberty Elementary) 0.18 of a mile away from the east side of the project boundary. There are no hospitals or convalescent facilities within ¼ mile of the project boundary.

### *Localized Impacts*

Emissions occurring at or near the project have the potential to create a localized impact also referred to as an air pollutant hotspot. Localized emissions are considered significant if when combined with background emissions, they would result in exceedance of any health-based air quality standard. In locations that already exceed standards for these pollutants, significance is based on a significant impact level (SIL) that represents the amount that is considered a cumulatively considerable contribution to an existing violation of an air quality standard. The pollutants of concern for localized impact in the SJVAB are $NO_2$, $SO_X$, and CO.

The SJVAPCD has provided guidance for screening localized impacts in the GAMAQI that establishes a screening threshold of 100 pounds per day of any criteria pollutant. If a project exceeds 100 pounds per day of any criteria pollutant, then ambient air quality modeling would be necessary. If the project does not exceed 100 pounds per day of any criteria pollutant, then it can be assumed that it would not cause a violation of an ambient air quality standard.

#### Construction: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$

Local construction impacts would be short-term in nature lasting only during the duration of construction. As shown in Table 7 below, on-site construction emissions would be less than 100 pounds per day for each of the criteria pollutants. To present a conservative estimate, on-site emissions for on-road construction vehicles were included in the localized analysis. Based on the SJVAPCD's guidance, the construction emissions would not cause an ambient air quality standard violation.

### Table 7: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$ for Construction

| Source | On-site Emissions (pounds per day) | | | | |
|---|---|---|---|---|---|
| | **ROG** | **$NO_X$** | **CO** | **$PM_{10}$** | **$PM_{2.5}$** |
| Construction (2024) | 3.71 | 36.50 | 33.23 | 9.46 | 5.43 |
| Construction (2025) | 1.80 | 12.26 | 16.66 | 0.73 | 0.48 |
| Construction (2026) | 36.18 | 12.53 | 17.94 | 0.89 | 0.46 |
| **Entire Project Construction Duration (2024-2026)** | | | | | |
| **Maximum Daily On-site Emissions** | **36.18** | **36.50** | **33.23** | **9.46** | **5.43** |
| Significance Thresholds | — | 100 | 100 | 100 | 100 |
| Exceed Significance Thresholds? | — | No | No | No | No |
| Note: Overlap of construction activities is based on the construction schedule shown in Table 1 and Attachment A.<br>Source of Emissions: CalEEMod Output and Additional Supporting Information (Attachment A).<br>Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023. | | | | | |

#### Operation: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$

Localized impacts could occur in areas with a single large source of emissions—such as a power plant—or at locations with multiple sources concentrated in a small area, such as a distribution center. Although residential development projects are typically less likely to cause a localized air quality impact compared to land uses with large sources of emissions or multiple concentrated sources of emissions, the proposed project would emit air pollutants that have the potential to create a localized impact. The maximum daily operational emissions would occur at project buildout, which was assumed to occur in 2025 for the purposes of providing a conservative estimate of emissions. Operational emissions include those generated on-site by area sources such as consumer products, and landscape maintenance, energy use from natural gas combustion, and motor vehicles operation at the project site. To assess localized air impacts, motor vehicle emissions were estimated for on-site and localized operations using an adjusted trip length of 0.5 mile.

As shown in Table 8 below, operational modeling of on-site emissions for the project indicate that the project would not exceed 100 pounds per day for each of the criteria pollutants. Therefore, based on the SJVAPCD's guidance, the operational emissions would not cause an ambient air quality standard violation. As such, impacts would be less than significant.

### Table 8: Localized Concentrations of $PM_{10}$, $PM_{2.5}$, CO, and $NO_X$ for Operations

| Source | On-site Emissions (pounds per day) | | | | |
|---|---|---|---|---|---|
| | **ROG** | **$NO_X$** | **CO** | **$PM_{10}$** | **$PM_{2.5}$** |
| Area | 8.53 | 1.44 | 15.54 | 0.13 | 0.13 |
| Energy Consumption | 0.09 | 1.55 | 0.66 | 0.13 | 0.13 |
| Mobile (On-road Vehicles) | 5.23 | 2.01 | 13.56 | 0.58 | 0.15 |
| **Daily Total** | **13.86** | **5.00** | **29.77** | **0.83** | **0.41** |
| **Significance Thresholds** | **—** | **100** | **100** | **100** | **100** |
| **Exceed Significance Thresholds?** | **—** | **No** | **No** | **No** | **No** |

Source of Emissions: CalEEMod Output (Attachment A).

Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023.

*Toxic Air Contaminants*

***Construction***

Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. The SJVAPCD's current threshold of significance for TAC emissions is an increase in cancer risk for the maximally exposed individual of 20 in a million (formerly 10 in a million).

A project-level assessment was conducted of the potential community health risk and health hazard impacts on surrounding sensitive receptors resulting from the emissions of TACs during construction. A summary of the assessment is provided below, while the detailed assessment is provided in Attachment B.

Construction activity using diesel-powered equipment emits DPM, a known carcinogen. Diesel particulate matter includes exhaust $PM_{10}$ and exhaust $PM_{2.5}$. A 10-year research program demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.[8] Health risks from TACs are a function of both concentration and duration of exposure. Construction diesel emissions are temporary, affecting an area for a period of weeks or months. Additionally, construction-related sources are mobile and transient in nature.

The health risk assessment evaluated DPM (represented as exhaust $PM_{10}$) emissions generated during construction of the proposed project and the related health risk impacts for sensitive receptors located within approximately 1,000 feet of the project boundary.

---

[8] California Air Resources Board (CARB). 2015. The Report on Diesel Exhaust. Website: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/de-fnds.htm. Accessed July 29, 2023.

The project site is located within 1,000 feet of existing sensitive receptors that could be exposed to diesel emission exhaust during the construction period. To estimate the potential cancer risk associated with construction of the proposed project from equipment exhaust (including DPM), a dispersion model was used to translate an emission rate from the source location to concentrations at the receptor locations of interest (i.e., receptors at nearby residences). A maximally exposed receptor (MER) was determined for construction and through the use of the dispersion modeling. A graphical representation of the inputs used in the dispersion modeling, including the locations of modeled receptor locations, is included as part of Attachment B.

Table 9 presents a summary of the proposed project's construction cancer risk and chronic non-cancer hazard impacts at the MER from project construction prior to the application of any equipment mitigation.

### Table 9: Health Risks from Unmitigated Project Construction

| Scenario | Health Impact Metric | Carcinogenic Inhalation Health Risk in One Million | Chronic Inhalation Hazard Index |
|---|---|---|---|
| **Risks and Hazards from Project Construction to the Off-site MER[1]** | | | |
| Unmitigated Project Construction | Risks and Hazards at the MER | 29.03 | 0.015 |
| | **Applicable Threshold of Significance** | **20** | **1** |
| | Exceeds Individual Source Threshold? | Yes | No |

Notes:

MER = Maximally Exposed Receptor

[1] The MER was determined to be an existing residence located east of the project site 36°43'13.6"N 120°04'58.3"W (Receptor #6).

Source: Attachment B.

As shown in Table 9, estimated health risks from elevated DPM concentrations during construction of the proposed project would exceed the applicable cancer risk significance threshold in at least one scenario. This represents a potentially significant construction TAC exposure impact. Therefore, mitigation is required to reduce the impact during the construction period.

MM AIR-3a requires the project applicant, project sponsor, or construction contractor to provide documentation to the City of Kerman that the construction fleet meet one of the following two requirements (1) all off-road diesel-powered construction equipment greater than 75 horsepower meet EPA or CARB Tier 4 Interim off-road emissions standards, or (2) off-road diesel-powered construction equipment greater than 75 horsepower be equipped with Level 3 diesel particulate filters or meet Tier 4 Interim emissions standards. Table 10 shows the health risks and non-cancer hazard index for construction with implementation MM AIR-3a.

## Table 10: Mitigated Health Risks from Project Construction

| Scenario | Health Impact Metric | Carcinogenic Inhalation Health Risk in One Million | Chronic Inhalation Hazard Index |
|---|---|---|---|
| **Risks and Hazards from Mitigated Project Construction at the MER[1]—Tier 4 Scenario** | | | |
| Construction with Tier 4 Equipment | Risks and Hazards at the MER | 6.27 | 0.003 |
| **Risks and Hazards from Mitigated Project Construction at the MER[1]—Level 3 Filters Scenario** | | | |
| Construction with Level 3 Filters | Risks and Hazards at the MER | 8.75 | 0.005 |
| **Maximum Risks and Hazards at the MER[1] After the Incorporation of Mitigation Measure AIR-3a** | | | |
| Mitigated Construction | Risks and Hazards at the MER | 8.75 | 0.005 |
| | **Applicable Threshold of Significance** | **20** | **1** |
| | Exceeds Individual Source Threshold? | No | No |

Notes:

MER = Maximally Exposed Receptor

[1] The MER was determined to be an existing residence located east of the project site 36°43'13.6"N 120°04'58.3"W (Receptor #6).

Source: Attachment B.

As noted in Table 10, calculated health metrics from the proposed project's construction DPM emissions would not exceed the cancer risk significance threshold or non-cancer hazard index significance threshold at the MER with incorporation of MM AIR-3a. Therefore, the proposed project would not result in a significant impact on nearby sensitive receptors from TACs during construction with incorporation of mitigation.

### *Operations*

#### *Operational DPM*

As described in the traffic study prepared for the proposed project, the project is expected to generate 1,608 average daily trips.[9] The proposed project would primarily generate trips associated with residents and visitors traveling to and from the project site.

Unlike warehouses or distribution centers, the daily vehicle trips generated by the proposed residential project would be primarily generated by passenger vehicles. Passenger vehicles typically use gasoline engines rather than the diesel engines that are found in heavy-duty trucks. Gasoline-powered vehicles do emit TACs in the form of toxic organic gases, some of which are carcinogenic. Compared to the combustion of diesel, the combustion of gasoline has relatively low emissions of TACs. Thus, residential projects typically produce limited amounts of TAC emissions during operation from passenger vehicle trips. DPM emissions were estimated for the project-generated truck trips using EMFAC2021 to assess the project's potential to generate elevated levels of TACs from project trips. Health risk impacts were compared to the prioritization screening threshold to determine if a more refined health risk assessment conducted using dispersion modeling would be required. Detailed assumptions are provided in

---

[9] Precision Civil Engineering, Inc. 2023. Whispering Falls Residential Development Trip Generation.

Attachment B. The results of the operational HRA from project-generated sources of DPM during operations are summarized below, while the complete assessment is included as part of Attachment B.

**Table 11: Summary of the Health Impacts Risk Impacts (Operational DPM Emissions)**

| Exposure Scenario | Maximum Cancer Risk (Risk per Million) | Chronic Non-Cancer Hazard Index |
|---|---|---|
| 70-Year Exposure | 1.85 | 0.0054 |
| **Applicable Prioritization Screening Threshold** | **10** | **1** |
| **Exceeds Prioritization Screening Threshold?** | **No** | **No** |

Notes:
MER = Maximally Exposed Receptor
Operational DPM MER UTM: (332324.72, 3896137.38)
Source: Attachment B.

As shown in Table 11, the project would not exceed the applicable cancer risk or chronic risk prioritization screening threshold levels. The primary source of the DPM emissions responsible for chronic risk are from diesel trucks. DPM does not have an acute risk factor. Since the project does not exceed the applicable SJVAPCD screening thresholds for cancer risk, acute risk, or chronic risk, the impact related to the project's potential to expose sensitive receptors to substantial pollutant concentrations from non-permitted sources would be less than significant. Therefore, the proposed project would not result in a significant impact on nearby sensitive receptors from project-generated TACs during operations.

### *Valley Fever*

Valley fever, or coccidioidomycosis, is an infection caused by inhalation of the spores of the fungus, *Coccidioides immitis* (*C. immitis*). The spores live in soil and can live for an extended time in harsh environmental conditions. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities.

The San Joaquin Valley is considered an endemic area for Valley fever. The San Joaquin Valley is considered an endemic area for Valley fever. During 2000–2018, a total of 65,438 coccidioidomycosis cases were reported in California; median statewide annual incidence was 7.9 per 100,000 population and varied by region from 1.1 in Northern and Eastern California to 90.6 in the Southern San Joaquin Valley, with the largest increase (15-fold) occurring in the Northern San Joaquin Valley. Incidence has been consistently high in six counties in the Southern San Joaquin Valley (Fresno, Kern, Kings, Madera, Tulare, and Merced counties) and Central Coast (San Luis Obispo County) regions.[10] California experienced 7,392 new probable

---

[10] Centers for Disease Control and Prevention (CDC). 2020. Regional Analysis of Coccidioidomycosis Incidence—California, 2000–2018. Website: https://www.cdc.gov/mmwr/volumes/69/wr/mm6948a4.htm?s_cid=mm6948a4_e. Accessed July 29, 2023.

or confirmed cases of Valley fever in 2020. A total of 466 Valley fever cases were reported in Fresno County in 2020.[11]

The distribution of *C. immitis* within endemic areas is not uniform and growth sites are commonly small (a few tens of meters) and widely scattered. Known sites appear to have some ecological factors in common suggesting that certain physical, chemical, and biological conditions are more favorable for *C. immitis* growth. Avoidance, when possible, of sites favorable for the occurrence of *C. immitis* is a prudent risk management strategy. Listed below are ecologic factors and sites favorable for the occurrence of *C. immitis*:

1) Rodent burrows (often a favorable site for *C. immitis*, perhaps because temperatures are more moderate and humidity higher than on the ground surface)
2) Old (prehistoric) Indian campsites near fire pits
3) Areas with sparse vegetation and alkaline soils
4) Areas with high salinity soils
5) Areas adjacent to arroyos (where residual moisture may be available)
6) Packrat middens
7) Upper 30 centimeters of the soil horizon, especially in virgin undisturbed soils
8) Sandy, well-aerated soil with relatively high water-holding capacities

Sites within endemic areas less favorable for the occurrence of *C. immitis* include:

1) Cultivated fields
2) Heavily vegetated areas (e.g., grassy lawns)
3) Higher elevations (above 7,000 feet)
4) Areas where commercial fertilizers (e.g., ammonium sulfate) have been applied
5) Areas that are continually wet
6) Paved (asphalt or concrete) or oiled areas
7) Soils containing abundant microorganisms
8) Heavily urbanized areas where there is little undisturbed virgin soil.[12]

The project is situated on a site previously disturbed that does not provide a suitable habitat for spores. Specifically, the project site has been previously disturbed and has previously been

---

[11] California Department of Public Health (CDPH). 2021. Coccidioidomycosis in California Provisional Monthly Report January 2021. Website: https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciinCA ProvisionalMonthlyReport.pdf. Accessed July 29, 2023.

[12] United States Geological Survey (USGS). 2000. Operational Guidelines (Version 1.0) for Geological Fieldwork in Areas Endemic for Coccidioidomycosis (Valley Fever), 2000, Open-File Report 2000-348. Website: https://pubs.usgs.gov/of/2000/0348/pdf/of00-348.pdf. Accessed July 29, 2023.

tilled. Therefore, development of the proposed project would have a lower probability of the site having *C. immitis* growth sites than if the site had been previously undisturbed.

Although conditions are not favorable, construction activities could generate fugitive dust that contain *C. immitis* spores. The project will minimize the generation of fugitive dust during construction activities by complying with SJVAPCD's Regulation VIII. Therefore, this regulation, combined with the relatively low probability of the presence of *C. immitis* spores would reduce Valley fever impacts to less than significant.

During operations, dust emissions are anticipated to be relatively small because most of the project area where operational activities would occur would be occupied by the proposed buildings, landscaping, and pavement associated with the proposed residential development; it is anticipated that all internal travel areas would be paved. This condition would lessen the possibility of the project from providing habitat suitable for *C. immitis* spores and for generating fugitive dust that may contribute to Valley fever exposure. Impacts would be less than significant.

*Naturally Occurring Asbestos*

Review of the map of areas where naturally occurring asbestos in California are likely to occur found no such areas in the immediate project area. Therefore, development of the project is not anticipated to expose receptors to naturally occurring asbestos.[13] Impacts would be less than significant.

*Impact Analysis Summary*

In summary, the project would not exceed SJVAPCD localized emission daily screening levels for any criteria pollutant. The project is not a significant source of TAC emissions during operations. The project would be significant source of TAC emissions during construction after incorporation of MM AIR-3a. The project is not in an area with suitable habitat for Valley fever spores and is not in area known to have naturally occurring asbestos. Therefore, the project would not result in significant impacts to sensitive receptors after incorporation of mitigation.

### Level of Significance Before Mitigation

Potentially significant.

### Mitigation Measures

**MM AIR-3a** Before a construction permit is issued for the proposed project, the project applicant, project sponsor, or construction contractor shall submit provide reasonably detailed compliance with one of the following requirements to the City of Kerman:

(1) **Option 1)** Where portable diesel engines are used during construction, all off-road equipment with engines greater than 75 horsepower shall have engines

---

[13] U.S. Geological Survey. 2011. Van Gosen, B.S., and Clinkenbeard, J.P. California Geological Survey Map Sheet 59. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Open-File Report 2011-1188 Website: https://pubs.usgs.gov/of/2011/1188/. Accessed July 29, 2023.

that meet either United States Environmental Protection Agency (EPA) or California Air Resources Board (CARB) Tier 4 Interim off-road emission standards except as otherwise specified herein. If engines that comply with Tier 4 Interim or Tier 4 Final off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier 3) that is commercially available. For purposes of this project design feature, “commercially available” shall mean the equipment at issue is available taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic proximity to the project site of equipment. If the relevant equipment is determined by the project applicant to not be commercially available, the contractor can confirm this conclusion by providing letters from at least two rental companies for each piece of off-road equipment that is at issue.

(2) **Option 2)** Prior to the issuance of any demolition, grading, or building permits (whichever occurs earliest), the project applicant and/or construction contractor shall prepare a construction operations plan that, during construction activities, requires all off-road equipment with engines greater than 75 horsepower to meet either the particulate matter emissions standards for Tier 4 Interim engines or be equipped with Level 3 diesel particulate filters. Tier 4 Interim engines shall, at a minimum, meet EPA or CARB particulate matter emissions standards for Tier 4 Interim engines. Alternatively, use of CARB-certified Level 3 diesel particulate filters on off-road equipment with engines greater than 75 horsepower can be used in lieu of Tier 4 Interim engines or in combination with Tier 4 Interim engines. The construction contractor shall maintain records documenting its efforts to comply with this requirement, including equipment lists. Off-road equipment descriptions and information shall include, but are not limited to, equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, and engine serial number. The project applicant and/or construction contractor shall submit the construction operations plan and records of compliance to the City of Kerman.

### *Level of Significance After Mitigation*

Less than significant impact with MM AIR-3a incorporated.

## Impact AIR-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

### Impact Analysis

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. According to the *CBIA v. BAAQMD* ruling, impacts of existing sources of odors on the project are not subject to CEQA review. Therefore, the analysis to determine if the project would locate new sensitive receptors near an existing source of odor is not used to determine significance for this impact.

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc. warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Although the project is less than 50' from the nearest sensitive receptor, the project is not expected to be a significant source of odors. The screening levels for these land use types are shown in Table 12.

**Table 12: Screening Levels for Potential Odor Sources**

| Odor Generator | Screening Distance |
|---|---|
| Wastewater Treatment Facilities | 2 miles |
| Sanitary Landfill | 1 mile |
| Transfer Station | 1 mile |
| Composting Facility | 1 mile |
| Petroleum Refinery | 2 miles |
| Asphalt Batch Plant | 1 mile |
| Chemical Manufacturing | 1 mile |
| Fiberglass Manufacturing | 1 mile |
| Painting/Coating Operations (e.g., auto body shop) | 1 mile |
| Food Processing Facility | 1 mile |
| Feed Lot/Dairy | 1 mile |
| Rendering Plant | 1 mile |
| Wastewater Treatment Facilities | 2 miles |
| Source of Thresholds: San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 29, 2023. | |

*Project Construction and Project Operation*

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. Project operations would not be anticipated to produce odorous emissions, as the project would not be considered an odor generator based on the land uses shown in Table 12. Construction activities associated with the proposed project could result in short-term odorous emissions from diesel exhaust associated with construction equipment. However, these emissions would be intermittent and would dissipate rapidly from the source. In addition, this diesel-powered equipment would only be present onsite temporarily during construction activities. The temporary and intermittent nature of construction activities would decrease the likelihood of the odors concentrating in a single area or lingering for any notable period of time.  As such, these odors would likely not be noticeable for extended periods of time beyond the project's site boundaries.  Therefore, construction would not create objectionable odors affecting a substantial number of people from use of diesel-powered equipment. As there would not be conditions under which the project would have the potential to expose a substantial number of people to odors emitted from construction or operations of the project, and the impact would be less than significant.

### *Level of Significance Before Mitigation*

Less than significant.

### *Mitigation Measures*

No mitigation measures are necessary.

# GREENHOUSE GASES

## Environmental Setting

### *Greenhouse Gases*

Greenhouse gases and climate change are cumulative global issues. The CARB and EPA regulate GHG emissions within the State of California and the U.S., respectively. Meanwhile, the CARB has the primary regulatory responsibility within California for GHG emissions. Local agencies can also adopt policies for GHG emission reduction.

Many chemical compounds in the Earth's atmosphere act as GHGs as they absorb and emit radiation within the thermal infrared range. When radiation from the sun reaches the Earth's surface, some of it is reflected into the atmosphere as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy from the sun to the Earth's surface should be approximately equal to the amount of energy radiated back into space, leaving the temperature of the earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide [$CO_2$], methane [$CH_4$], and nitrous oxide [$N_2O$]), while others are exclusively human made (like gases used for aerosols).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below.

#### *Carbon Dioxide*

Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

#### *Methane*

Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

#### *Nitrous Oxide*

Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

#### *Fluorinated Gases*

Hydrofluorocarbons, perfluorinated chemicals, and sulfur hexafluoride are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high global warming potential gases.

### *Emissions Inventories and Trends*

According to the CARB's recent GHG inventory for the State, released 2021, California produced 418.2 million metric tons of carbon dioxide equivalent (MMTCO$_2$e) in 2019. The major source of GHGs in California is transportation, contributing approximately 39.7 percent of the state's total GHG emissions in 2019.[14] This puts total emissions at 12.8 MMTCO$_2$e below the 2020 target of 431 million metric tons. California statewide GHG emissions dropped below the 2020 GHG limit in 2016 and have remained below the 2020 GHG limit since then.

### *Potential Environmental Impacts*

For California, climate change in the form of warming has the potential to incur and exacerbate environmental impacts, including but not limited to changes to precipitation and runoff patterns, increased agricultural demand for water, inundation of low-lying coastal areas by sea-level rise, and increased incidents and severity of wildfire events.[15] Cooling of the climate may have the opposite effects. Although certain environmental effects are widely accepted to be a potential hazard to certain locations, such as rising sea level for low-lying coastal areas, it is currently infeasible to predict all environmental effects of climate change on any one location.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial and manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

### *Regulatory Requirements*

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The governor has also issued several executive orders (EOs) related to the state's evolving climate change policy. Of particular importance are AB 32 and SB 32, which outline the state's GHG reduction goals of achieving 1990 emissions levels by 2020 and a 40 percent reduction below 1990 emissions levels by 2030.

In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

---

[14] California Air Resources Board (CARB). 2021. California Greenhouse Gas Emissions for 2000 to 2019. Website: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed. July 29, 2023.

[15] Moser et al. 2009. Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. Website: http://www.susannemoser.com/documents/CEC-500-2008-071_Moseretal_FutureisNow.pdf. Accessed July 29, 2023.

### *CEQA Guidelines*

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

### *Thresholds of Significance*

#### ***San Joaquin Valley Air Pollution Control District***

The SJVAPCD’s Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA presents a tiered approach to analyzing project significance with respect to GHG emissions. Project GHG emissions are considered less than significant if they can meet any of the following conditions, evaluated in the order presented:

- Project is exempt from CEQA requirements;
- Project complies with an approved GHG emission reduction plan or GHG mitigation program;
- Project implements Best Performance Standards (BPS); or
- Project demonstrates that specific GHG emissions would be reduced or mitigated by at least 29 percent compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period.

#### ***Project-level Thresholds***

Section 15064.4(b) of the CEQA Guidelines’ amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- Consideration #1: The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Consideration #2: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- Consideration #3: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by

> the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an Environmental Impact Report (EIR) must be prepared for the project.

### *Newhall Ranch*

In the California Supreme Court decision in the *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (62 Cal.4th 204 [2015], and known as the Newhall Ranch decision), the Supreme Court was concerned that new development may need to reduce GHG emissions more than existing development to demonstrate it is meeting its fair share of reductions. New development does do more than its fair share through compliance with enhanced regulations, particularly with respect to motor vehicles, energy efficiency, and electricity generation. If no additional reductions are required from an individual project beyond that achieved by regulations, then the amount needed to reach the 2020 target is the amount of GHG emissions a project must reduce to comply with Statewide goals.

The State's regulatory program implementing the 2008 Scoping Plan is now fully mature. All regulations envisioned in the Scoping Plan have been adopted by the responsible agencies and the effectiveness of those regulations have been estimated by the agencies during the adoption process and then are tracked to verify their effectiveness after implementation. The Governor Brown, in the introduction to Executive Order B-30-15, states "California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32)." The progress was evident in emission inventories prepared by CARB, which showed that the State inventory dropped below 1990 levels for the first time in 2016.[16] The State projects that it will meet the 2020 target and achieve continued progress towards meeting the 2017 Scoping Plan target for 2030.[17] CARB adopted the 2022 Scoping Plan on December 16, 2022 that addresses long-term GHG goals set forth by AB 1279.[18] The 2022 Scoping Plan outlines the State's pathway to achieve carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045. In the 2022 Scoping Plan, CARB advocates for compliance with a local GHG reduction strategy consistent with CEQA Guidelines section 15183.5.

### *GHG Threshold Applied in the Analysis*

The City of Kerman has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA

---

[16] California Air Resources Board (CARB). 2018. Climate Pollutants Fall Below 1990 Levels for the First Time. Website: https://ww2.arb.ca.gov/news/climate-pollutants-fall-below-1990-levelsfirst-time. Accessed July 29, 2023.

[17] California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update, the Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. January 17, 2017. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed July 29, 2023.

[18] The Final 2022 Scoping Plan was released on November 16, 2022 and adopted by CARB in December 2022.

Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines amendments adopted on December 28, 2018. In the absence of an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the project's GHG emissions impact determination is based on the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The project's GHG emissions are provided for informational purposes only.

## Environmental Impact Analysis

This section discusses potential impacts related to GHGs associated with the proposed project and provides mitigation measures where necessary.

**Impact GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

### Impact Analysis

The proposed project may contribute to climate change impacts through its contribution of GHGs. The proposed project would generate a variety of GHGs during construction and operations, including several defined by AB 32, such as $CO_2$, $CH_4$, and $N_2O$ from the exhaust of equipment during construction and on-road vehicle trips during construction and operations.

In the absence of an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the project's GHG emissions impact determination is based on the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The project's GHG emissions are provided for informational purposes only.

*Quantification of Greenhouse Gas Emissions for Informational Purposes*

### *Construction Emissions*

Construction emissions would be generated from the exhaust of construction equipment, material delivery trips, haul truck trips, and worker commuter trips. Detailed construction assumptions are provided in Modeling Parameters and Assumptions section of this technical memorandum. Construction-generated GHGs were quantified and are disclosed in Attachment A. $MTCO_2e$ emissions during construction of the project are summarized below in Table 13.

### Table 13: Construction Greenhouse Gas Emissions

| **Project Construction (2024-2026)** | **$MTCO_2e$ per Year** |
|---|---|
| Site Preparation (2024) | 72 |
| Grading (2024) | 225 |
| Paving (2024) | 38 |
| Building Construction (2024) | 180 |
| Building Construction (2025) | 317 |
| Building Construction (2026) | 311 |
| Architectural Coating (2026) | 3 |
| **Total Construction $MTCO_2e$** | **1,146** |
| **Emissions Amortized Over 30 Years[1]** | **38.2** |

Notes:

$MTCO_2e$ = metric tons of carbon dioxide equivalent

[1] Construction GHG emissions are amortized over the 30-year lifetime of the project.

Source: CalEEMod Output (Attachment A).

During the construction of the proposed project, approximately 1,146 $MTCO_2e$ would be emitted. Neither the City of Kerman nor the SJVAPCD have an adopted threshold of significance for construction related GHG emissions. Because impacts from construction activities occur over a relatively short-term period, they contribute a relatively small portion of the overall lifetime project GHG emissions. In addition, GHG emission reduction measures for construction equipment are relatively limited. Therefore, a standard practice is to amortize construction emissions over the anticipated lifetime of a project so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. However, emissions were quantified for informational purposes only. The total emissions generated during construction were amortized based on the life of the development (30 years) and added to the operational emissions to determine the total emissions from the project, as shown below.

### *Operational Emissions*

Operational or long-term emissions occur over the life of the project. The operational emissions for the proposed project are shown in Table 14. Sources for operational emissions include the following:

- Motor Vehicles: These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the project site. As described in the traffic study prepared for the proposed project, the project is expected to generate 1,609 average daily trips.[19]
- Natural Gas: These emissions refer to the GHG emissions that occur when natural gas is burned on the project site. Natural gas uses could include heating water, space heating, dryers, stoves, or other uses. As the project would be built all-electric as a project design feature, no natural gas would be used.

---

[19] Precision Civil Engineering, Inc. 2023. Whispering Falls Residential Development Trip Generation.

- Indirect Electricity: These emissions refer to those generated by offsite power plants to supply electricity required for the project.
- Water Transport: These emissions refer to those generated by the electricity required to transport and treat the water to be used on the project site.
- Waste: These emissions refer to the GHG emissions produced by decomposing waste generated by the project.

Detailed modeling results and more information regarding assumptions used to estimate emissions are provided in Attachment A. Operational emissions are shown in Table 14.

**Table 14: Operational Greenhouse Gas Emissions for Project Buildout**

| **Source Category** | **Project Total Buildout Year ($MTCO_2e$/year)** |
|---|---|
| Area | 72 |
| Energy Consumption | 494 |
| Mobile (On-road Vehicles) | 1,801 |
| Water Usage | 18 |
| Solid Waste Generation | 46 |
| Refrigerants | 0.34 |
| Amortized Construction Emissions | 38.2 |
| **Total** | **2,470** |

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalent
Source: CalEEMod Output (Attachment A).

As previously noted, the project's estimated emissions were estimated for disclosure purposes. However, significance for GHG emissions is analyzed by assessing the project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed in detail below, the project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of GHGs. As such, the project's generation of GHG emissions would not result in a significant impact on the environment.

### *Impact Analysis (Project's Compliance with Consideration No. 3 Regarding Consistency with Adopted Plans to Reduce GHG Emissions)*

The following analysis assesses the project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed above, the City of Kerman has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines. The SJVAPCD has adopted a Climate Action Plan, but it does not contain measures that are applicable to the project. Therefore, the SJVAPCD Climate Action Plan cannot be applied to the project. Since no other local or regional Climate Action Plan is in place, the project is assessed for its consistency with CARB's adopted 2008, 2017, and 2022 Scoping Plans. This would be achieved with an assessment of the proposed project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update and addressing the project's consistency with the 2022 Scoping Plan.

## Greenhouse Gas Emissions Estimation Summary and Greenhouse Gas Impact Analysis

### *Greenhouse Gas Impact Analysis*

The following analysis assesses the proposed project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. The proposed project is assessed for its consistency with CARB's adopted Scoping Plans. This would be achieved with an assessment of the proposed project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update and addressing the project's consistency with the 2022 Scoping Plan.

### *Consistency with SB 32*

The 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) includes the strategy that the State intends to pursue to achieve the 2030 targets of Executive Order S-3-05 and SB 32. The 2017 Scoping Plan includes the following summary of its overall strategy for reaching the 2030 target:

- SB 350
    - Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030.
    - Doubling of energy efficiency savings by 2030.
- Low Carbon Fuel Standard (LCFS)
    - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
- Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
    - Maintaining existing GHG standards for light- and heavy-duty vehicles.
    - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
    - Increase ZEV buses, delivery and other trucks.
- Sustainable Freight Action Plan
    - Improve freight system efficiency.
    - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
    - Deploy over 100,000 zero-emission trucks and equipment by 2030.

- Short-Lived Climate Pollutant (SLCP) Reduction Strategy
    - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
    - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
- SB 375 Sustainable Communities Strategies
    - Increased stringency of 2035 targets.
- Post-2020 Cap-and-Trade Program
    - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
    - CARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, CARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
- By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Table 15 provides an analysis of the project's consistency with the 2017 Scoping Plan Update measures.

### Table 15: Consistency with SB 32 2017 Scoping Plan Update

| Scoping Plan Measure | Project Consistency |
|---|---|
| **SB 350 50% Renewable Mandate.** Utilities subject to the legislation will be required to increase their renewable energy mix from 33% in 2020 to 50% in 2030. This has been increased to 60%. | **Consistent**: The project will purchase electricity from a utility subject to the SB 350 Renewable Mandate SB 100 Renewable Mandate. SB 100 revised the Renewable Portfolio Standard goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The specific provider for the City of Kerman and the proposed project is Pacific Gas and Electric (PG&E). |
| **SB 350 Double Building Energy Efficiency by 2030.** This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels. | **Not Applicable**. This measure applies to existing buildings. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency over time. |
| **Low Carbon Fuel Standard.** This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030. | **Consistent**. Vehicles accessing the project site will use fuel containing lower carbon content as the fuel standard is implemented. |
| **Mobile Source Strategy (Cleaner Technology and Fuels Scenario).** Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs | **Consistent**. The project consists of residential development and would not engage in vehicle manufacturing; however, vehicles would access the project site during project operations. Future project residents and other visitors can be expected to purchase |

| Scoping Plan Measure | Project Consistency |
|---|---|
| on the road by 2030 and increasing numbers of ZEV trucks and buses. | increasing numbers of more fuel efficient and zero emission cars and trucks each year. Residential deliveries will be made by increasing numbers of ZEV delivery trucks. |
| **Sustainable Freight Action Plan.** The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030. | **Not Applicable**. The measure applies to owners and operators of trucks and freight operations. However, deliveries that would be made to the future residential development are expected to be made by increasing number of ZEV delivery trucks. |
| **Short-Lived Climate Pollutant (SLCP) Reduction Strategy.** The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030. | **Consistent.** Sources of black carbon are already regulated by the CARB and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion source. The project residences would not include wood burning hearths. Natural gas hearths produce very little black carbon compared to woodburning fireplaces and heaters. The project would be built all-electric as a project design feature and would not include natural gas. |
| **SB 375 Sustainable Communities Strategies.** Requires Regional Transportation Plans to include a sustainable communities strategy for reduction of per capita vehicle miles traveled. | **Not Applicable**. The project does not consist of a proposed regional transportation plan; therefore, this measure is not applicable to the proposed project. |
| **Post-2020 Cap-and-Trade Program.** The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers. | **Consistent.** The post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period. |
| **Natural and Working Lands Action Plan.** The CARB is working in coordination with several other agencies at the federal, state, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to | **Not Applicable**. The project consists of residential development and will not be considered natural or working lands. |

| Scoping Plan Measure | Project Consistency |
|---|---|
| reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land. | |
| Source: California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update. January 20. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed August 2023. | |

### *Consistency Regarding GHG Reduction Goals for 2050 under Executive Order S-3-05 and GHG Reduction Goals for 2045 under the 2022 Scoping Plan*

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures with any level of certainty, as they have not yet been developed; nevertheless, it can be anticipated that operation of the project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80 percent reduction below 1990 levels by 2050. In its 2008 Scoping Plan, CARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update; however, CARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; large scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately." The 2017 Scoping Plan provides an intermediate target that is intended to achieve reasonable progress toward the 2050 target. In addition, the 2022 Scoping Plan outlines objectives, regulations, planning efforts, and investments in clean technologies and infrastructure that outlines how the State can achieve carbon-neutrality by 2045.

Accordingly, taking into account the proposed project's emissions, project design features, and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the project would be consistent with State GHG Plans and would further the State's goals of reducing GHG emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, carbon neutral by 2045, and 80 percent below 1990 levels by 2050, and does not obstruct their attainment. Impacts would be less than significant.

## Conclusion

Taking into account the proposed project's design features and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the proposed project would be consistent with State and local GHG Plans would not obstruct their attainment.  The proposed project's GHG impacts would be less than significant.

### *Level of Significance Before Mitigation*

Less than significant.

### *Mitigation Measures*

No mitigation measures are necessary.

### Impact GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

### Impact Analysis

The analysis contained above under Impact GHG-1 evaluates whether the project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of GHGs. As discussed under Impact GHG-1 above, the project would not conflict with any applicable plan, policy, or regulation of agency to reduce. As such, project impacts in this regard would be less than significant.

#### *Level of Significance Before Mitigation*

Less than significant.

#### *Mitigation Measures*

No mitigation measures are necessary.

# Energy

## Environmental Setting

The proposed project would be served with electricity provided by Pacific Gas and Electric Company (PG&E). In 2020, approximately 85 percent of the electricity PG&E supplied was from GHG-free sources including nuclear, large hydroelectric, and eligible renewable sources of energy.[20]

## Methodology

The energy requirements for the proposed project were determined using the construction and operational estimates generated from the Air Quality Analysis (refer to Attachment A for related CalEEMod output files). The calculation worksheets for diesel fuel consumption rates for off-road construction equipment, gasoline and diesel fuel consumption rates for on-road vehicles during construction and operations are provided in Attachment C. Short-term construction energy consumption and long-term operational consumption are discussed separately below.

### *Short-Term Construction*

### ***Off-Road Equipment***

The proposed project is anticipated to begin construction as early as January 2024 and last approximately three years. Table 16 provides estimates of the project's construction fuel consumption from off-road construction equipment for the entire project, categorized by construction activity.

---

[20] Pacific Gas & Electric (PG&E). 2021. Corporate Sustainability Report 2021. Website: https://www.pgecorp.com/corp_responsibility/reports/2021/pf04_renewable_energy.html. Accessed July 29, 2023.

### Table 16: Construction Off-Road Fuel Consumption

| **Project Component** | **Construction Activity** | **Fuel Consumption (gallons)** |
|---|---|---|
| Whispering Falls Residential Development Construction | Site Preparation | 2,728 |
| | Grading | 9,663 |
| | Building Construction | 29,247 |
| | Paving | 1,395 |
| | Architectural Coating | 162 |
| | **Total from Project Construction** | **43,195** |
| Source: Energy Consumption Calculations (Attachment C). | | |

As shown in Table 16, off-road construction equipment usage associated with the proposed project would be estimated to consume approximately 43,195 gallons of diesel fuel over the entire construction period. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

#### ***On-Road Vehicles***

On-road vehicles for construction workers, vendors, and haulers would require fuel for travel to and from the site during construction. Table 17 provides an estimate of the total on-road vehicle fuel usage during construction.

### Table 17: Construction On-Road Fuel Consumption

| Project Component | Construction Activity | Total Annual Fuel Consumption (gallons) |
|---|---|---|
| Whispering Falls Residential Development Construction | Site Preparation | 185 |
| | Grading | 29,648 |
| | Building Construction | 38,334 |
| | Paving | 299 |
| | Architectural Coating | 485 |
| **Total from Project Construction** | | **68,951** |
| Source: Energy Consumption Calculations (Attachment C). | | |

As shown in Table 17, construction trips are estimated to consume approximately 68,951 gallons of gasoline and diesel fuel combined. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the City of Kerman or the larger Fresno County area. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

*Long-Term Operations*

#### ***Transportation Energy Demand***

Table 18 provides an estimate of the daily and annual fuel consumed by vehicles traveling to and from the proposed project. These estimates were derived using the same assumptions used in the operational air quality analysis for the proposed project.

### Table 18: Long-Term Operational Vehicle Fuel Consumption

| Vehicle Type | Percent of Vehicle Trips | Daily VMT | Annual VMT | Average Fuel Economy (miles/ gallon)[1] | Total Daily Fuel Consumption (gallons) | Total Annual Fuel Consumption (gallons) |
|---|---|---|---|---|---|---|
| Passenger Cars (LDA) | 52.44 | 7,226 | 2,637,572 | 30.21 | 239.2 | 87,307 |
| Light Trucks and Medium Duty Vehicles (LDT1, LDT2, MDV) | 43.60 | 6,008 | 2,192,947 | 22.62 | 265.6 | 96,957 |
| Light-Heavy to Medium-Heavy Diesel Trucks (LHD1, LHD2, and MHDT) | 0.93 | 128 | 46,776 | 11.16 | 11.5 | 4,192 |
| Heavy-Heavy Diesel Trucks (HHDT) | 2.12 | 292 | 106,630 | 6.11 | 47.8 | 17,461 |
| Motorcycles (MCY) | 0.25 | 34 | 12,574 | 41.37 | 0.8 | 304 |
| Other (OBUS, UBUS, SBUS, MH) | 0.66 | 91 | 33,196 | 7.59 | 12.0 | 4,375 |
| **Total** | **100.0** | **13,779** | **5,029,695** | **—** | **577** | **210,596** |

Notes:

Percent of Vehicle Trips and VMT based on values in the project-specific CalEEMod output files.

“Other” consists of buses and motor homes.

VMT = vehicle miles traveled

Source: Energy Consumption Calculations (Attachment C).

As shown above, daily vehicular fuel consumption is estimated to be 577 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 210,596 gallons (see Attachment C).

In terms of land use planning decisions, the proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. In addition, the vehicle fleet mix would be typical of other residential development in the region. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region.

### *Building Energy Demand*

As shown in Table 19 the proposed project is estimated to demand 1,787,098 kilowatt-hours (kWh) of electricity on an annual basis. The proposed project would be built according to code and would meet or exceed the latest building standards in effect at the time that building permits are issued. The project would be built all-electric as a project design feature and would not use natural gas.

## Table 19: Long-Term Electricity Usage

| Land Use | Total Electricity Demand (kWh/year) |
|---|---|
| Single Family Housing | 1,102,897 |
| Apartments Low Rise | 275,234 |
| Parking | 408,967 |
| Other Asphalt Surfaces | 0 |
| **Total Project** | **1,787,098** |

Notes:

DU = Dwelling Units

kWh = kilowatt hour

The estimates above represent total estimated electricity consumption on an annual basis from operations of the proposed project.

Source: Energy Consumption Calculations (Attachment C).

## Environmental Impact Analysis

This section discusses potential energy impacts associated with the proposed project and provides mitigation measures where necessary.

---

**Impact EN-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

---

### Impact Analysis

This impact addresses the energy consumption from both the short-term construction and long-term operations are discussed separately below.

*Construction Energy Demand*

As summarized in Table 16 and Table 17, the proposed project would require 43,195 gallons of diesel fuel for construction off-road equipment and 68,951 gallons of gasoline and diesel for on-road vehicles during construction. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region, and as such, impacts would be less than significant.

*Long-Term Energy Demand*

***Building Energy Demand***

Buildings and infrastructure constructed pursuant to the proposed project would comply with the versions of CCR Titles 20 and 24, including California Green Building Standards (CALGreen), that are applicable at the time that building permits are issued. In addition, the project is being built as all-electric and would not use natural gas. The proposed project is estimated to demand 1,787,098 kWh of electricity per year and would not utilize natural gas (see Table 19). This would represent an increase in demand for electricity. It should be noted that the electricity consumption estimate was prepared assuming compliance with existing rules and regulations and may not reflect project design features that could further reduce the proposed project energy demand.

It would be expected that building energy consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar buildings in the region. Current state regulatory requirements for new building construction contained in the CALGreen and Title 24 standards would increase energy efficiency and reduce energy demand in comparison to existing commercial and residential structures, and therefore would reduce actual environmental effects associated with energy use from the proposed project. Additionally, the CALGreen and Title 24 standards have increased efficiency standards through each update. The proposed project would be built in accordance with regulations in effect at the time building permits are issues and would generate on-site renewable energy from inclusion of solar panels.

Therefore, while the proposed project would result in increased electricity demand, the electricity would be consumed more efficiently and would be typical of other residential projects. If buildout of the project is delayed, compliance with future building code standards would result in increased energy efficiency.

Based on the above information, the proposed project would not result in the inefficient or wasteful consumption of electricity or natural gas, and impacts would be less than significant.

#### ***Transportation Energy Demands***

The daily vehicular fuel consumption is estimated to be 577 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 210,596 gallons (see Table 18 and Attachment C). The proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. The proposed project would be well-positioned to accommodate an existing population and anticipated growth in the City of Kerman. The residential project is located adjacent to existing residential development to the east. In addition, vehicles accessing the project site would be typical of other residential uses in the region. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region, and impacts would be less than significant.

#### ***Level of Significance Before Mitigation***

Less than significant.

#### ***Mitigation Measures***

No mitigation measures are necessary.

---

## Impact EN-2 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

---

### Impact Analysis

The City's General Plan includes strategies to promote energy efficiency in development in the City of Kerman. These General Plan policies require City action and are not applicable at the individual project level. However, the proposed project would not impede or conflict with any of the energy strategies outlined in the General Plan due to compliance with all local rules and regulations. The proposed project would comply with the versions of CCR Titles 20 and 24, including CALGreen, that are applicable at the time that building permits are issued and with all applicable City measures. Part 11, Chapter 4 and 5, of the State's Title 24 energy efficiency standards establishes mandatory measures for residential and nonresidential buildings. Examples of these mandatory measure include solar, electric vehicle (EV) charging infrastructure, bicycle parking, energy efficiency, water efficiency and conservation, and material conservation and resource efficiency. The proposed project would be required to comply with mandatory measures; specifically, the project would comply with mandatory measures for residential development. Where applicable, the project would comply with more stringent local regulations. In addition, the proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips, or substantially lengthen existing trips. The proposed project would be well positioned to accommodate existing population. The area to the east and northeast of the project site are primarily residences. The rest of the project is surrounded by farmland with a few rural residences. Approximately one (1) mile southeast of the project are a packing house and a Farm Supply Store. In addition, the project would provide connectivity within the project site and to adjacent uses. Compliance with these aforementioned mandatory measures and project design features would ensure that the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, operational energy efficiency and renewable energy standards consistency impacts would be less than significant.

For the above reasons, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

#### *Level of Significance Before Mitigation*

Less than significant.

#### *Mitigation Measures*

No mitigation measures are necessary.

## Attachments:

Attachment A – Modeling Assumptions and CalEEMod Output Files

Attachment B – Construction Health Risk Assessment and Operational Health Risk Screening

Attachment C – Energy Consumption Calculations

# ATTACHMENT A

# Modeling Assumptions and CalEEMod Output Files

# Modeling Assumptions and CalEEMod Output Files

## Table of Contents

**Modeling Assumptions/Additional Supporting Information**

- **Whispering Falls Residential Development Project Construction Assumptions**
- **Project Site Vicinity Map**
- **Project Site (Area to be Developed)**
- **Project Site Plan**
- **Project Trip Generation Assumptions**

**CalEEMod Output Files**

- **Unmitigated Project Construction & Buildout Operations in the Earliest Year (2025)**
- **Mitigated Construction (Tier 4 Equipment Scenario)**
- **Mitigated Construction (Level 3 Filters Scenario)**
- **Maximum Daily On-site/Localized Construction and Operational Emissions**

## Whispering Falls Residential Development Project Construction Assumptions

Construction Phase

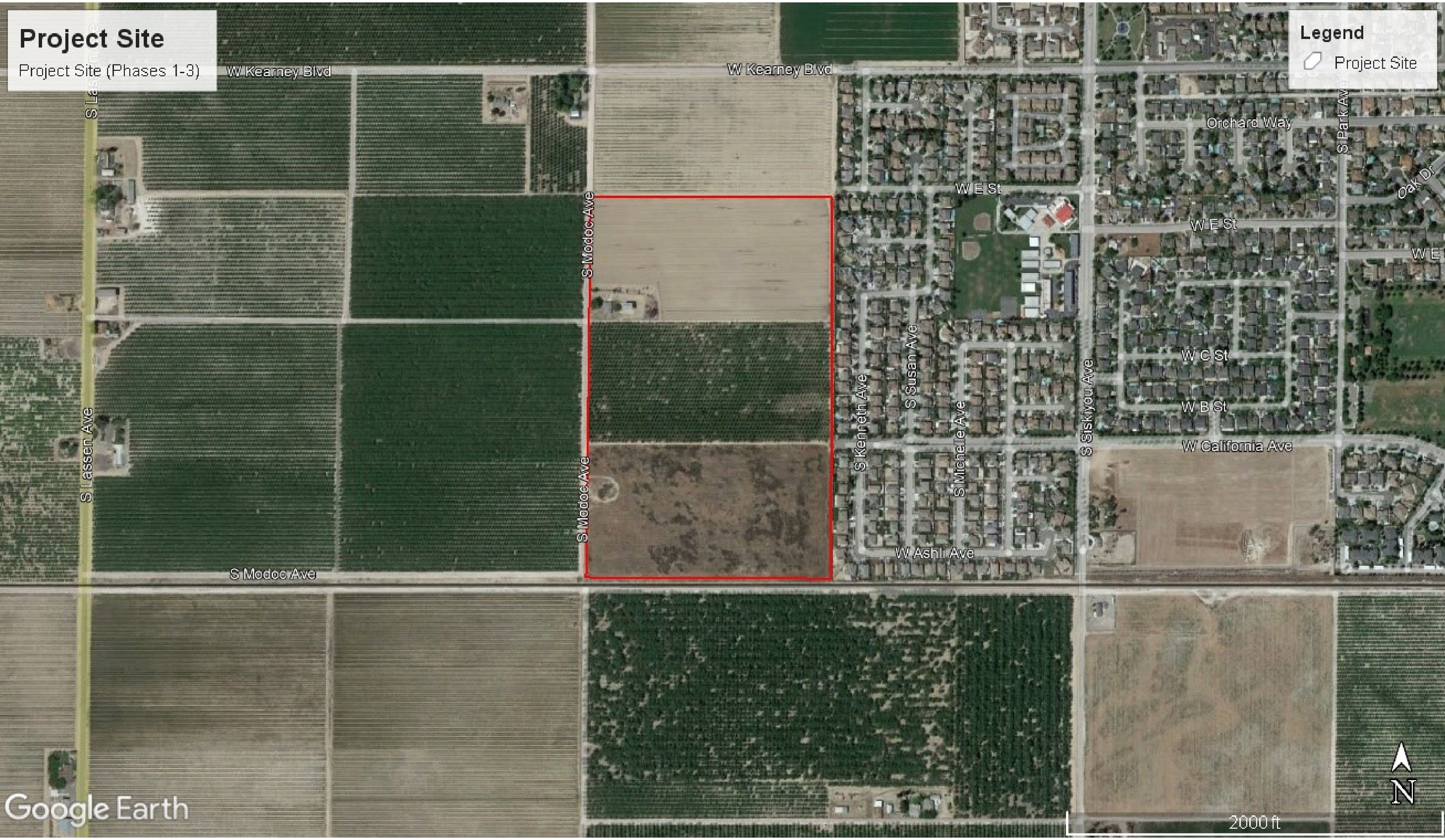
| Phase Name | Start Date | End Date | Num Days Week | Num Days |
|---|---|---|---|---|
| Site Preparation | 1/12/2024 | 2/22/2024 | 5 | 30 |
| Grading | 2/23/2024 | 6/6/2024 | 5 | 75 |
| Building Construction | 6/7/2024 | 12/24/2026 | 5 | 665 |
| Paving | 6/7/2024 | 8/22/2024 | 5 | 55 |
| Architectural Coating | 10/16/2026 | 12/31/2026 | 5 | 55 |

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8 | 367 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8 | 84 | 0.37 |
| Grading | Excavators | 2 | 8 | 36 | 0.38 |
| Grading | Graders | 1 | 8 | 148 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8 | 367 | 0.40 |
| Grading | Scrapers | 2 | 8 | 423 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 |
| Building Construction | Cranes | 1 | 7.79 | 367 | 0.29 |
| Building Construction | Forklifts | 3 | 8.9 | 82 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.9 | 14 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.79 | 84 | 0.37 |
| Building Construction | Welders | 1 | 8.9 | 46 | 0.45 |
| Paving | Pavers | 2 | 8 | 81 | 0.42 |
| Paving | Paving Equipment | 2 | 8 | 89 | 0.36 |
| Paving | Rollers | 2 | 8 | 36 | 0.38 |
| Architectural Coating | Air Compressors | 1 | 6 | 37 | 0.48 |

Trips and VMT

| Phase Name | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length |
|---|---|---|---|---|---|---|
| Site Preparation | 17.5 | 2 | 0 | 7.7 | 4.0 | 20 |
| Grading | 20 | 2 | 116.7 | 7.7 | 4.0 | 20 |
| Building Construction | 131.9 | 37.7 | 0 | 7.7 | 4.0 | 20 |
| Paving | 15 | 2 | 0 | 7.7 | 4.0 | 20 |
| Architectural Coating | 26.4 | 2 | 0 | 7.7 | 4.0 | 20 |


Project Site
Project Site (Phases 1-3)
Legend
Project Site
W Kearney Blvd
W Kearney Blvd
S Lassen Ave
S Lassen Ave
S Modoc Ave
S Modoc Ave
S Modoc Ave
W E St
W E St
W E St
Orchard Way
S Park Ave
Oak Dr
S Kenneth Ave
S Susan Ave
S Michele Ave
S Siskiyou Ave
W C St
W B St
W California Ave
W Ashli Ave
N
2000 ft
Google Earth

**Project Site Area to be Developed**

Project Site (Phase 1)

| LEGEND | |
|---|---|
| 🟨 | SINGLE FAMILY HOMES |
| 🟥 | MULTI FAMILY HOMES |
| 🟩 | OPEN SPACE |
| 🟦 | GARAGE FOR MULTI FAMILY HOMES |
| 🟪 | GARAGE/STORAGE AREA FOR HOA |
| 🟫 | TRASH ENCLOSURE FOR CLUBHOUSE |
| — — — — | 6' WOOD FENCE |
| ▬ | PROPOSED SIGN (SEE SHEET A.90) |
| ▼ | PROPOSED LIGHT (SEE SHEET EP1.0) |
| FH | PROPOSED HYDRANT |
| ↙ | DIRECTION OF DRAINAGE |

## DEVELOPMENT SUMMARY

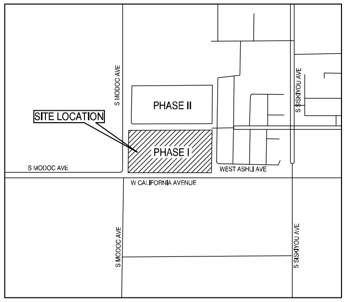
Site (+/-) : 20 AC
Total Units: 174
Density: 8.7 du/ac

RESIDENTIAL DEVELOPMENT BREAKDOWN
Total Residential Units: 174

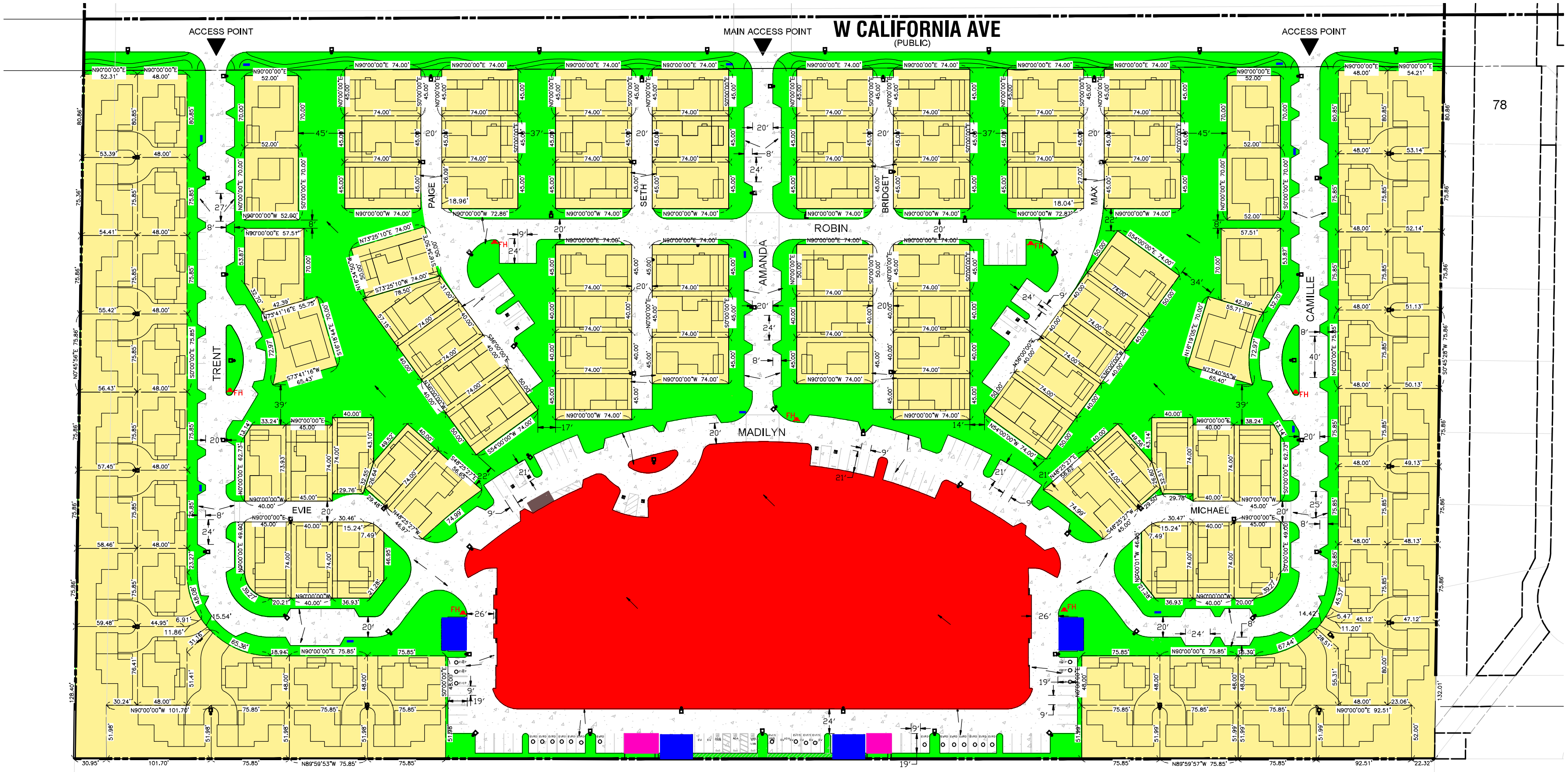
| SINGLE FAMILY UNITS | |
|---|---|
| Alley Loaded Single Family Homes: | 64 |
| Single Family Cluster Homes: | 46 |
| Wide Shallow Single Family Homes: | 8 |
| Sub Total: | 118 |

| MULTI-FAMILY UNITS | |
|---|---|
| One Bedroom Units: | 0 |
| Two Bedroom Units: | 56 |
| Sub Total: | 56 |

| PARKING DISTRIBUTION | |
|---|---|
| Total Parking: | 430 @ 2.5 spaces per unit |
| SINGLE FAMILY UNITS | |
| Alley Loaded/Cluster/Wide Shallow: | 236 @ 2 enclosed sp. /unit |
| MULTI-FAMILY UNITS | |
| Two Bedroom Units: | 56 @ 1 enclosed sp. /unit |
| Unassigned/ On-street Spaces: | 138 |



VICINITY MAP
N.T.S.



SAMC
SCOTT A. MOMMER CONSULTING

DAHLIN

# WHISPERING FALLS

PLANNED DEVELOPMENT AND
TENTATIVE TRACT MAP IN CITY
OF KERMAN/FRESNO COUNTY

# PHASE I SITE PLAN
C3.1

SM325.21

03.02.2023

IN THE CITY OF KERMAN, COUNTY OF FRESNO, STATE OF CALIFORNIA

# PLANNED UNIT DEVELOPMENT FOR WHISPERING FALLS & TENTATIVE SUBDIVISION MAP

# TSM 2023-01

## LEGAL DESCRIPTION

PARCEL 1:

LOT 17 IN SECTION 11, TOWNSHIP 14 SOUTH, RANGE 17 EAST, MOUNT DIABLO BASE AND MERIDIAN OF FRESNO IRRIGATED FARMS CO TRACT, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 1 OF RECORDS OF SURVEYS, FRESNO COUNTY RECORDS.

EXCEPTING THEREFROM ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES AND MINERALS OF ANY KIND OR CHARACTER, IN, ON, OR THEREUNDER. AS RESERVED IN DEEDS OF RECORD.

PARCEL 2:

LOT 16 IN SECTION 11. TOWNSHIP 14 SOUTH, RANGE 17 EAST. MOUNT DIABLO BASE AND MERIDIAN, OF FRESNO IRRIGATED FARMS CO. TRACT, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 1 OF RECORD OF SURVEYS, FRESNO COUNTY RECORDS.

EXCEPTING THEREFROM THE SOUTH 75 FEET OF THE WEST 100 FEET THEREOF.

EXCEPTING THEREFROM ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES AND MINERALS OF ANY KIND OR CHARACTER, IN, ON, OR THEREUNDER, AS RESERVED IN DEEDS OF RECORD.

PARCEL 3:
THE SOUTH 76 FEET OF THE WEST 100 FEET OF LOT 16 IN SECTION 11, TOWNSHIP 14 SOUTH, RANGE 17 EAST, MOUNT DIABLO BASE AND MERIDIAN, OF FRESNO IRRIGATED FARMS CO. TRACT. ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 1 OF RECORD OF SURVEYS.

EXCEPTING THEREFROM ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES AND MINERALS OF ANY KIND OR CHARACTER, IN, ON, OR THEREUNDER, AS RESERVED IN DEEDS OF RECORD.

## ZONING/ LAND USE

APN: 020-160-36S
EXISTING ZONING: AE20
PROPOSED ZONING: PUD
PROPOSED LAND USE: RESIDENTIAL / MULTI-FAMILY
EXISTING LAND USE: VACANT
SURROUNDING ZONING: AE20
SURROUNDING LAND USE: VACANT/ RESIDENTIAL

## OWNER/ SUBDIVIDER

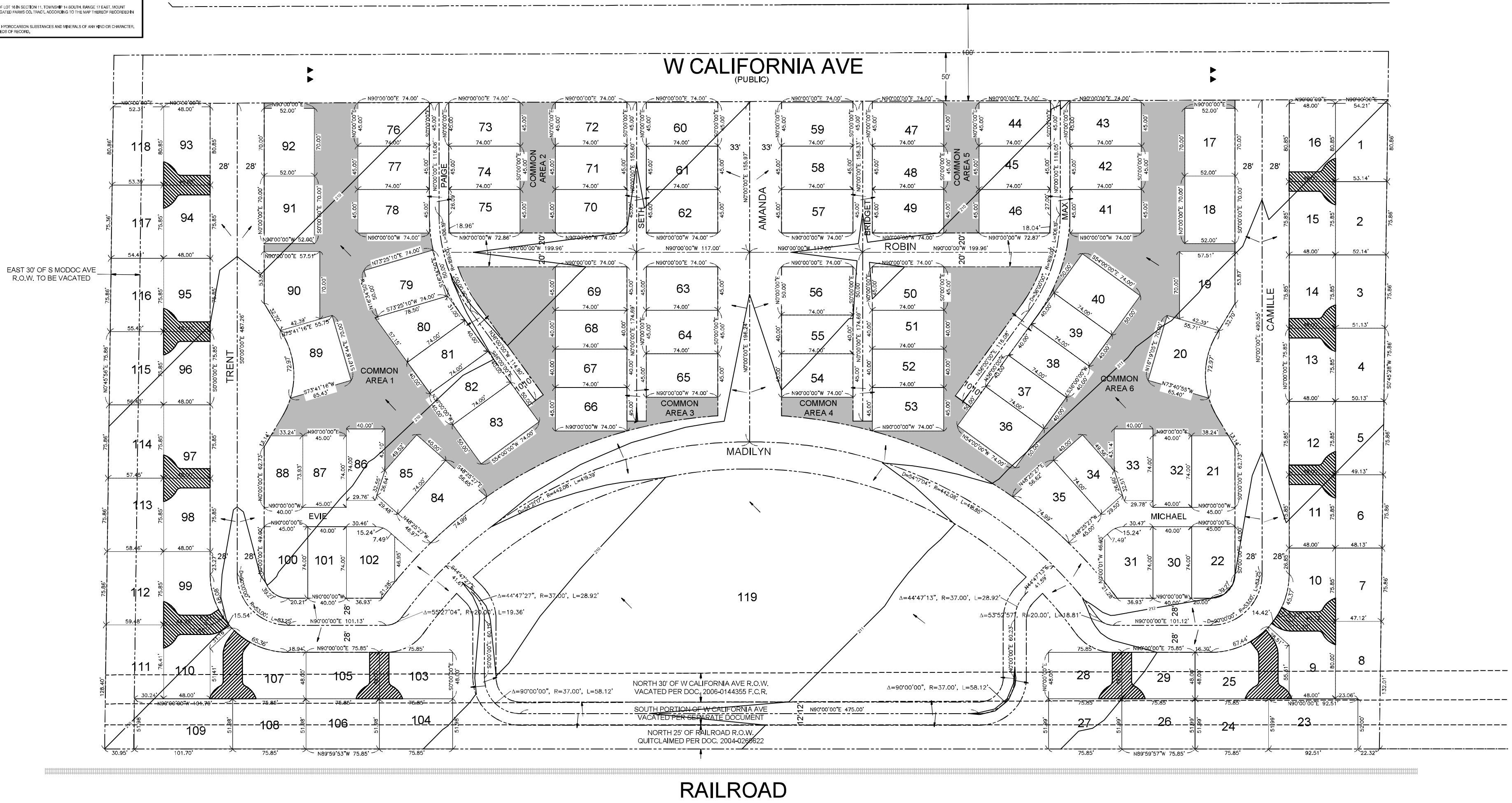
BOYD COMPANIES
275 S. MADERA AVE., #100
KERMAN, CA 93630

## NOTES

1. THE SOURCE OF WATER SUPPLY SHALL BE THE CITY OF KERMAN.

## HATCHING LEGEND

| | |
|---|---|
| ▭ | COMMON AREA |
| ▨ | PROPOSED CROSS ACCESS |
| ▲ | RIGHT-OF-WAY DEDICATED FOR STREET PURPOSES PER THIS MAP |



LARS ANDERSEN & ASSOCIATES, INC.
CIVIL ENGINEERS - LAND SURVEYORS - PLANNERS
4694 WEST JACQUELYN AVENUE - FRESNO CALIFORNIA 93722
TEL: 559 276-2790 FAX: 559 276-0850 WWW.LARSANDERSEN.COM

SAMC
SCOTT A. MOMMER CONSULTING

DAHLIN

TRUE NORTH

SCALE: 1"=50'-0"
0 25 50 100 150 200

**WHISPERING FALLS**
PLANNED DEVELOPMENT AND
TENTATIVE TRACT MAP IN CITY
OF KERMAN/FRESNO COUNTY

**TENTATIVE MAP**
**C4.0**

SM325.21

03.02.2023

# EXHIBIT 1

## Whispering Falls Residential Development

### Trip generation

| LAND USE (ITE LAND USE CODE) | QUANTITY (DWELLING UNITS OR 1,000 SQUARE FEET) | DAILY TRIP ENDS | (ADT) | WEEKDAY AM PEAK HOUR | | | | | WEEKDAY PM PEAK HOUR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RATE | VOLUME | RATE | IN:OUT SPLIT | VOLUME | | | RATE | IN:OUT SPLIT | VOLUME | | |
| | | | | | | IN | OUT | TOTAL | | | IN | OUT | TOTAL |
| Single Family Residential Residential (210) | 118 | 9.96 | 1,175 | 0.74 | 25:75 | 22 | 65 | 87 | 0.98 | 63:37 | 73 | 43 | 116 |
| Multi Family Residential (221) | 56.0 | 7.75 | 434 | 0.71 | 24:76 | 10 | 30 | 40 | 0.8 | 63:37 | 28 | 17 | 45 |
| **SUBTOTAL TRIP GENERATION** | | | **1,608** | | | **31** | **97** | **128** | | | **101** | **59** | **159** |

# Whispering Falls Custom Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | Whispering Falls |
| Construction Start Date | 1/1/2024 |
| Operational Year | 2025 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.90 |
| Precipitation (days) | 21.2 |
| Location | 36.722858, -120.085278 |
| County | Fresno |
| City | Unincorporated |
| Air District | San Joaquin Valley APCD |
| Air Basin | San Joaquin Valley |
| TAZ | 2524 |
| EDFZ | 5 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.16 |

## 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 |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Single Family Housing | 118 | Dwelling Unit | 38.3 | 230,100 | 1,382,117 | — | 378 | — |
| Apartments Low Rise | 56.0 | Dwelling Unit | 3.50 | 59,360 | 22,869 | — | 179 | — |
| Enclosed Parking Structure | 292 | Space | 2.63 | 116,800 | 17,171 | — | — | — |
| Other Asphalt Surfaces | 4.00 | Acre | 2.63 | 0.00 | 26,136 | — | — | Includes 2 additional acres for offsite |

## 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

# 2. Emissions Summary

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.67 | 3.81 | 44.5 | 33.4 | 0.12 | 1.60 | 6.08 | 7.68 | 1.49 | 2.07 | 3.55 | — | 15,074 | 15,074 | 0.46 | 1.38 | 20.6 | 15,518 |
| 2025 | 2.14 | 1.85 | 12.8 | 19.8 | 0.03 | 0.49 | 1.03 | 1.52 | 0.45 | 0.22 | 0.67 | — | 3,969 | 3,969 | 0.14 | 0.13 | 4.29 | 4,016 |
| 2026 | 2.02 | 1.74 | 12.0 | 19.3 | 0.03 | 0.43 | 1.03 | 1.46 | 0.39 | 0.22 | 0.62 | — | 3,943 | 3,943 | 0.14 | 0.13 | 3.86 | 3,989 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.65 | 3.78 | 45.2 | 33.5 | 0.12 | 1.60 | 7.95 | 9.55 | 1.49 | 3.98 | 5.45 | — | 15,065 | 15,065 | 0.45 | 1.39 | 0.53 | 15,490 |
| 2025 | 2.07 | 1.77 | 12.9 | 18.9 | 0.03 | 0.49 | 1.03 | 1.52 | 0.45 | 0.22 | 0.67 | — | 3,880 | 3,880 | 0.15 | 0.13 | 0.11 | 3,923 |
| 2026 | 2.19 | 36.2 | 13.2 | 20.4 | 0.03 | 0.45 | 1.37 | 1.82 | 0.42 | 0.28 | 0.69 | — | 4,159 | 4,159 | 0.16 | 0.14 | 0.12 | 4,206 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2.39 | 2.03 | 19.0 | 19.1 | 0.04 | 0.75 | 2.34 | 3.09 | 0.69 | 0.84 | 1.54 | — | 5,387 | 5,387 | 0.19 | 0.34 | 2.67 | 5,497 |
| 2025 | 1.48 | 1.27 | 9.15 | 13.5 | 0.02 | 0.35 | 0.72 | 1.07 | 0.32 | 0.16 | 0.48 | — | 2,789 | 2,789 | 0.11 | 0.09 | 1.32 | 2,821 |
| 2026 | 1.42 | 6.39 | 8.63 | 13.3 | 0.02 | 0.30 | 0.75 | 1.06 | 0.28 | 0.16 | 0.44 | — | 2,765 | 2,765 | 0.10 | 0.09 | 1.20 | 2,796 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.44 | 0.37 | 3.47 | 3.48 | 0.01 | 0.14 | 0.43 | 0.56 | 0.13 | 0.15 | 0.28 | — | 892 | 892 | 0.03 | 0.06 | 0.44 | 910 |
| 2025 | 0.27 | 0.23 | 1.67 | 2.47 | < 0.005 | 0.06 | 0.13 | 0.19 | 0.06 | 0.03 | 0.09 | — | 462 | 462 | 0.02 | 0.02 | 0.22 | 467 |
| 2026 | 0.26 | 1.17 | 1.57 | 2.42 | < 0.005 | 0.06 | 0.14 | 0.19 | 0.05 | 0.03 | 0.08 | — | 458 | 458 | 0.02 | 0.02 | 0.20 | 463 |

## 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 | 6.27 | 5.73 | 4.78 | 53.4 | 0.11 | 0.07 | 9.66 | 9.73 | 0.07 | 2.44 | 2.51 | — | 11,490 | 11,490 | 0.58 | 0.52 | 41.2 | 11,700 |
| Area | 2.01 | 8.53 | 1.58 | 15.5 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | 0.00 | 1,879 | 1,879 | 0.04 | < 0.005 | — | 1,881 |
| Energy | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,967 | 2,967 | 0.34 | 0.02 | — | 2,982 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Total | 8.46 | 14.4 | 7.91 | 69.6 | 0.13 | 0.33 | 9.66 | 9.99 | 0.32 | 2.44 | 2.76 | 92.3 | 16,384 | 16,476 | 10.2 | 0.58 | 43.3 | 16,947 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 5.50 | 4.93 | 5.58 | 43.5 | 0.10 | 0.07 | 9.66 | 9.73 | 0.07 | 2.44 | 2.51 | — | 10,368 | 10,368 | 0.65 | 0.56 | 1.07 | 10,553 |
| Area | 0.17 | 6.81 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |
| Energy | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,967 | 2,967 | 0.34 | 0.02 | — | 2,982 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Total | 5.85 | 11.8 | 8.57 | 44.7 | 0.12 | 0.31 | 9.66 | 9.97 | 0.31 | 2.44 | 2.75 | 92.3 | 15,215 | 15,307 | 10.3 | 0.62 | 3.14 | 15,753 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 5.60 | 5.05 | 5.18 | 44.3 | 0.10 | 0.07 | 9.53 | 9.60 | 0.07 | 2.41 | 2.48 | — | 10,686 | 10,686 | 0.61 | 0.54 | 17.8 | 10,879 |
| Area | 0.94 | 7.60 | 0.39 | 7.50 | < 0.005 | 0.03 | — | 0.03 | 0.03 | — | 0.03 | 0.00 | 435 | 435 | 0.01 | < 0.005 | — | 435 |
| Energy | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,967 | 2,967 | 0.34 | 0.02 | — | 2,982 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Total | 6.73 | 12.7 | 7.12 | 52.5 | 0.12 | 0.23 | 9.53 | 9.76 | 0.22 | 2.41 | 2.63 | 92.3 | 14,135 | 14,227 | 10.2 | 0.60 | 19.9 | 14,681 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 1.02 | 0.92 | 0.94 | 8.09 | 0.02 | 0.01 | 1.74 | 1.75 | 0.01 | 0.44 | 0.45 | — | 1,769 | 1,769 | 0.10 | 0.09 | 2.95 | 1,801 |
| Area | 0.17 | 1.39 | 0.07 | 1.37 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | 0.00 | 72.0 | 72.0 | < 0.005 | < 0.005 | — | 72.1 |
| Energy | 0.03 | 0.02 | 0.28 | 0.12 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 491 | 491 | 0.06 | < 0.005 | — | 494 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 2.22 | 7.97 | 10.2 | 0.23 | 0.01 | — | 17.6 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 13.1 | 0.00 | 13.1 | 1.30 | 0.00 | — | 45.7 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.34 | 0.34 |
| Total | 1.23 | 2.32 | 1.30 | 9.58 | 0.02 | 0.04 | 1.74 | 1.78 | 0.04 | 0.44 | 0.48 | 15.3 | 2,340 | 2,356 | 1.69 | 0.10 | 3.29 | 2,431 |

# 3. Construction Emissions Details

## 3.1. Site Preparation (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 | 4.34 | 3.65 | 36.0 | 32.9 | 0.05 | 1.60 | — | 1.60 | 1.47 | — | 1.47 | — | 5,296 | 5,296 | 0.21 | 0.04 | — | 5,314 |
| Dust From Material Movement | — | — | — | — | — | — | 7.67 | 7.67 | — | 3.94 | 3.94 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.36 | 0.30 | 2.96 | 2.71 | < 0.005 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 435 | 435 | 0.02 | < 0.005 | — | 437 |
| Dust From Material Movement | — | — | — | — | — | — | 0.63 | 0.63 | — | 0.32 | 0.32 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.45 | 0.45 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.07 | 0.05 | 0.54 | 0.49 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 72.1 | 72.1 | < 0.005 | < 0.005 | — | 72.3 |
| Dust From Material Movement | — | — | — | — | — | — | 0.11 | 0.11 | — | 0.06 | 0.06 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.07 | 0.07 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.06 | 0.57 | 0.00 | 0.00 | 0.10 | 0.10 | 0.00 | 0.02 | 0.02 | — | 96.2 | 96.2 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | < 0.005 | 0.05 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.19 | 8.19 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 2.20 | 2.20 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.36 | 1.36 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.36 | 0.36 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.3. Grading (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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.86 | 0.72 | 7.05 | 6.20 | 0.01 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,356 | 1,356 | 0.05 | 0.01 | — | 1,360 |
| Dust From Material Movement | — | — | — | — | — | — | 0.74 | 0.74 | — | 0.29 | 0.29 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | < 0.005 | < 0.005 | — | 1.12 | 1.12 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.16 | 0.13 | 1.29 | 1.13 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 224 | 224 | 0.01 | < 0.005 | — | 225 |
| Dust From Material Movement | — | — | — | — | — | — | 0.14 | 0.14 | — | 0.05 | 0.05 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.18 | 0.18 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.05 | 0.81 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 124 | 124 | 0.01 | 0.01 | 0.50 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| Hauling | 0.39 | 0.20 | 10.1 | 2.40 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,320 | 8,320 | 0.18 | 1.32 | 20.0 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.08 | 0.06 | 0.66 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 110 | 110 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.37 | 0.19 | 10.8 | 2.45 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,325 | 8,325 | 0.18 | 1.32 | 0.52 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | 0.01 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | — | 23.4 | 23.4 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.51 | 5.51 | < 0.005 | < 0.005 | 0.01 | — |
| Hauling | 0.08 | 0.04 | 2.16 | 0.50 | 0.01 | 0.03 | 0.44 | 0.47 | 0.03 | 0.12 | 0.15 | — | 1,710 | 1,710 | 0.04 | 0.27 | 1.77 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.87 | 3.87 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.91 | 0.91 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.01 | 0.01 | 0.40 | 0.09 | < 0.005 | 0.01 | 0.08 | 0.09 | 0.01 | 0.02 | 0.03 | — | 283 | 283 | 0.01 | 0.04 | 0.29 | — |

## 3.5. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.65 | 0.54 | 5.08 | 5.94 | 0.01 | 0.23 | — | 0.23 | 0.21 | — | 0.21 | — | 1,086 | 1,086 | 0.04 | 0.01 | — | 1,090 |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | 0.07 | 0.07 | < 0.005 | 0.01 | 0.01 | — | 2.21 | 2.21 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.12 | 0.10 | 0.93 | 1.08 | < 0.005 | 0.04 | — | 0.04 | 0.04 | — | 0.04 | — | 180 | 180 | 0.01 | < 0.005 | — | 180 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.37 | 0.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.64 | 0.60 | 0.33 | 5.35 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 817 | 817 | 0.05 | 0.03 | 3.26 | — |
| Vendor | 0.04 | 0.03 | 0.83 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.42 | 4.33 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 725 | 725 | 0.03 | 0.03 | 0.08 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.04 | 0.02 | 0.88 | 0.39 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.23 | 0.22 | 0.15 | 1.79 | 0.00 | 0.00 | 0.29 | 0.29 | 0.00 | 0.07 | 0.07 | — | 306 | 306 | 0.02 | 0.01 | 0.58 | — |
| Vendor | 0.02 | 0.01 | 0.35 | 0.15 | < 0.005 | < 0.005 | 0.05 | 0.05 | < 0.005 | 0.01 | 0.02 | — | 206 | 206 | 0.01 | 0.03 | 0.23 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.04 | 0.04 | 0.03 | 0.33 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 50.6 | 50.6 | < 0.005 | < 0.005 | 0.10 | — |
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.03 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 34.1 | 34.1 | < 0.005 | < 0.005 | 0.04 | — |
| 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 | — |

## 3.7. Building Construction (2025) - 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 | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.29 | 5.29 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.38 | 5.38 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.07 | 0.90 | 8.30 | 10.4 | 0.02 | 0.34 | — | 0.34 | 0.32 | — | 0.32 | — | 1,906 | 1,906 | 0.08 | 0.02 | — | 1,912 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.20 | 0.16 | 1.51 | 1.89 | < 0.005 | 0.06 | — | 0.06 | 0.06 | — | 0.06 | — | 316 | 316 | 0.01 | < 0.005 | — | 317 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.63 | 0.63 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.60 | 0.57 | 0.30 | 4.91 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 799 | 799 | 0.02 | 0.03 | 2.99 | — |
| Vendor | 0.04 | 0.03 | 0.80 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.54 | 0.50 | 0.36 | 3.98 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 709 | 709 | 0.03 | 0.03 | 0.08 | — |
| Vendor | 0.04 | 0.02 | 0.85 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.38 | 0.36 | 0.23 | 2.89 | 0.00 | 0.00 | 0.51 | 0.51 | 0.00 | 0.12 | 0.12 | — | 525 | 525 | 0.02 | 0.02 | 0.92 | — |
| Vendor | 0.03 | 0.02 | 0.59 | 0.26 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 355 | 355 | 0.01 | 0.05 | 0.40 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.53 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 86.9 | 86.9 | < 0.005 | < 0.005 | 0.15 | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.01 | < 0.005 | 0.11 | 0.05 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 58.8 | 58.8 | < 0.005 | 0.01 | 0.07 | — |
| 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 | — |

## 3.9. Building Construction (2026) - 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 | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.18 | 5.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.00 | 0.83 | 7.68 | 10.1 | 0.02 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,869 | 1,869 | 0.08 | 0.02 | — | 1,875 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.66 | 3.66 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.18 | 0.15 | 1.40 | 1.84 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 309 | 309 | 0.01 | < 0.005 | — | 310 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.61 | 0.61 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.27 | 4.52 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 783 | 783 | 0.02 | 0.03 | 2.72 | — |
| Vendor | 0.04 | 0.03 | 0.77 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 487 | 487 | 0.01 | 0.07 | 1.14 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.48 | 0.47 | 0.33 | 3.65 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 695 | 695 | 0.03 | 0.03 | 0.07 | — |
| Vendor | 0.04 | 0.02 | 0.82 | 0.36 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 488 | 488 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.36 | 0.33 | 0.21 | 2.61 | 0.00 | 0.00 | 0.50 | 0.50 | 0.00 | 0.12 | 0.12 | — | 504 | 504 | 0.02 | 0.02 | 0.82 | — |
| Vendor | 0.03 | 0.02 | 0.56 | 0.25 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 342 | 342 | 0.01 | 0.05 | 0.34 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.04 | 0.48 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 83.5 | 83.5 | < 0.005 | < 0.005 | 0.14 | — |
| Vendor | < 0.005 | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 56.5 | 56.5 | < 0.005 | 0.01 | 0.06 | — |
| 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 | — |

## 3.11. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipment | 1.01 | 0.85 | 7.81 | 10.0 | 0.01 | 0.39 | — | 0.39 | 0.36 | — | 0.36 | — | 1,512 | 1,512 | 0.06 | 0.01 | — | 1,517 |
| Paving | — | 0.25 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.15 | 0.13 | 1.18 | 1.51 | < 0.005 | 0.06 | — | 0.06 | 0.05 | — | 0.05 | — | 228 | 228 | 0.01 | < 0.005 | — | 229 |
| Paving | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.82 | 0.82 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.02 | 0.21 | 0.28 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 37.7 | 37.7 | < 0.005 | < 0.005 | — | 37.8 |
| Paving | — | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.14 | 0.14 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.61 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.02 | 0.02 | — | 92.9 | 92.9 | 0.01 | < 0.005 | 0.37 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Worker | 0.01 | 0.01 | 0.01 | 0.08 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 12.9 | 12.9 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 4.04 | 4.04 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.13 | 2.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.67 | 0.67 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.13. Architectural Coating (2026) - 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 | 0.15 | 0.12 | 0.86 | 1.13 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 134 | 134 | 0.01 | < 0.005 | — | 134 |
| Architectural Coatings | — | 34.3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.02 | 0.13 | 0.17 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 20.1 | 20.1 | < 0.005 | < 0.005 | — | 20.2 |
| Architectural Coatings | — | 5.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.79 | 0.79 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | < 0.005 | 0.02 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.33 | 3.33 | < 0.005 | < 0.005 | — | 3.34 |
| Architectural Coatings | — | 0.94 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.07 | 0.73 | 0.00 | 0.00 | 0.14 | 0.14 | 0.00 | 0.03 | 0.03 | — | 139 | 139 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 25.9 | 25.9 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.01 | 0.01 | 0.11 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 21.7 | 21.7 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.89 | 3.89 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.59 | 3.59 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.64 | 0.64 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

# 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 4.58 | 4.18 | 3.49 | 39.0 | 0.08 | 0.05 | 7.06 | 7.11 | 0.05 | 1.78 | 1.83 | — | 8,392 | 8,392 | 0.42 | 0.38 | 30.1 | 8,545 |
| Apartments Low Rise | 1.69 | 1.54 | 1.29 | 14.4 | 0.03 | 0.02 | 2.61 | 2.62 | 0.02 | 0.66 | 0.68 | — | 3,099 | 3,099 | 0.16 | 0.14 | 11.1 | 3,155 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 6.27 | 5.73 | 4.78 | 53.4 | 0.11 | 0.07 | 9.66 | 9.73 | 0.07 | 2.44 | 2.51 | — | 11,490 | 11,490 | 0.58 | 0.52 | 41.2 | 11,700 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 4.01 | 3.60 | 4.07 | 31.7 | 0.07 | 0.05 | 7.06 | 7.11 | 0.05 | 1.78 | 1.83 | — | 7,572 | 7,572 | 0.48 | 0.41 | 0.78 | 7,707 |
| Apartments Low Rise | 1.48 | 1.33 | 1.50 | 11.7 | 0.03 | 0.02 | 2.61 | 2.62 | 0.02 | 0.66 | 0.68 | — | 2,796 | 2,796 | 0.18 | 0.15 | 0.29 | 2,846 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 5.50 | 4.93 | 5.58 | 43.5 | 0.10 | 0.07 | 9.66 | 9.73 | 0.07 | 2.44 | 2.51 | — | 10,368 | 10,368 | 0.65 | 0.56 | 1.07 | 10,553 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.75 | 0.67 | 0.69 | 5.91 | 0.01 | 0.01 | 1.27 | 1.28 | 0.01 | 0.32 | 0.33 | — | 1,292 | 1,292 | 0.07 | 0.07 | 2.15 | 1,315 |
| Apartments Low Rise | 0.28 | 0.25 | 0.25 | 2.18 | 0.01 | < 0.005 | 0.47 | 0.47 | < 0.005 | 0.12 | 0.12 | — | 477 | 477 | 0.03 | 0.02 | 0.80 | 486 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 1.02 | 0.92 | 0.94 | 8.09 | 0.02 | 0.01 | 1.74 | 1.75 | 0.01 | 0.44 | 0.45 | — | 1,769 | 1,769 | 0.10 | 0.09 | 2.95 | 1,801 |

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | 616 | 616 | 0.10 | 0.01 | — | 622 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartme Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | 154 | 154 | 0.02 | < 0.005 | — | 155 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | — | 229 | 229 | 0.04 | < 0.005 | — | 231 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 999 | 999 | 0.16 | 0.02 | — | 1,009 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | 616 | 616 | 0.10 | 0.01 | — | 622 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | 154 | 154 | 0.02 | < 0.005 | — | 155 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | — | 229 | 229 | 0.04 | < 0.005 | — | 231 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 999 | 999 | 0.16 | 0.02 | — | 1,009 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | 102 | 102 | 0.02 | < 0.005 | — | 103 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | 25.5 | 25.5 | < 0.005 | < 0.005 | — | 25.7 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | — | 37.8 | 37.8 | 0.01 | < 0.005 | — | 38.2 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 165 | 165 | 0.03 | < 0.005 | — | 167 |

### 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.14 | 0.07 | 1.16 | 0.49 | 0.01 | 0.09 | — | 0.09 | 0.09 | — | 0.09 | — | 1,472 | 1,472 | 0.13 | < 0.005 | — | 1,476 |
| Apartments Low Rise | 0.05 | 0.02 | 0.39 | 0.17 | < 0.005 | 0.03 | — | 0.03 | 0.03 | — | 0.03 | — | 496 | 496 | 0.04 | < 0.005 | — | 498 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 1,968 | 1,968 | 0.17 | < 0.005 | — | 1,973 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.14 | 0.07 | 1.16 | 0.49 | 0.01 | 0.09 | — | 0.09 | 0.09 | — | 0.09 | — | 1,472 | 1,472 | 0.13 | < 0.005 | — | 1,476 |
| Apartments Low Rise | 0.05 | 0.02 | 0.39 | 0.17 | < 0.005 | 0.03 | — | 0.03 | 0.03 | — | 0.03 | — | 496 | 496 | 0.04 | < 0.005 | — | 498 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 1,968 | 1,968 | 0.17 | < 0.005 | — | 1,973 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.02 | 0.01 | 0.21 | 0.09 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 244 | 244 | 0.02 | < 0.005 | — | 244 |
| Apartments Low Rise | 0.01 | < 0.005 | 0.07 | 0.03 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 82.2 | 82.2 | 0.01 | < 0.005 | — | 82.4 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.03 | 0.02 | 0.28 | 0.12 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 326 | 326 | 0.03 | < 0.005 | — | 327 |

## 4.3. Area Emissions by Source

### 4.3.1. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Hearths | 0.17 | 0.08 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Consumer Products | — | 6.21 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.52 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Landscape Equipment | 1.84 | 1.72 | 0.14 | 14.9 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 47.3 | 47.3 | < 0.005 | < 0.005 | — | 47.5 |
| Total | 2.01 | 8.53 | 1.58 | 15.5 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | 0.00 | 1,879 | 1,879 | 0.04 | < 0.005 | — | 1,881 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Hearths | 0.17 | 0.08 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |
| Consumer Products | — | 6.21 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.52 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | 0.17 | 6.81 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Hearths | 0.01 | < 0.005 | 0.06 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | 0.00 | 68.1 | 68.1 | < 0.005 | < 0.005 | — | 68.2 |
| Consumer Products | — | 1.13 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.09 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Landscape Equipment | 0.17 | 0.15 | 0.01 | 1.34 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.86 | 3.86 | < 0.005 | < 0.005 | — | 3.87 |
| Total | 0.17 | 1.39 | 0.07 | 1.37 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | 0.00 | 72.0 | 72.0 | < 0.005 | < 0.005 | — | 72.1 |

## 4.4. Water Emissions by Land Use

### 4.4.1. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 9.11 | 41.8 | 50.9 | 0.94 | 0.02 | — | 81.3 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 4.32 | 5.49 | 9.81 | 0.44 | 0.01 | — | 24.1 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.32 | 0.32 | < 0.005 | < 0.005 | — | 0.32 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.49 | 0.49 | < 0.005 | < 0.005 | — | 0.49 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 9.11 | 41.8 | 50.9 | 0.94 | 0.02 | — | 81.3 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 4.32 | 5.49 | 9.81 | 0.44 | 0.01 | — | 24.1 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.32 | 0.32 | < 0.005 | < 0.005 | — | 0.32 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.49 | 0.49 | < 0.005 | < 0.005 | — | 0.49 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 1.51 | 6.92 | 8.43 | 0.16 | < 0.005 | — | 13.5 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 0.72 | 0.91 | 1.62 | 0.07 | < 0.005 | — | 3.99 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.05 | 0.05 | < 0.005 | < 0.005 | — | 0.05 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.08 | 0.08 | < 0.005 | < 0.005 | — | 0.08 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 2.22 | 7.97 | 10.2 | 0.23 | 0.01 | — | 17.6 |

## 4.5. Waste Emissions by Land Use

### 4.5.1. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 56.6 | 0.00 | 56.6 | 5.65 | 0.00 | — | 198 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 22.3 | 0.00 | 22.3 | 2.23 | 0.00 | — | 78.0 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 56.6 | 0.00 | 56.6 | 5.65 | 0.00 | — | 198 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 22.3 | 0.00 | 22.3 | 2.23 | 0.00 | — | 78.0 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 9.36 | 0.00 | 9.36 | 0.94 | 0.00 | — | 32.8 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 3.69 | 0.00 | 3.69 | 0.37 | 0.00 | — | 12.9 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | — | — | — | — | — | — | — | — | — | — | — | 13.1 | 0.00 | 13.1 | 1.30 | 0.00 | — | 45.7 |

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.65 | 1.65 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.43 | 0.43 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.65 | 1.65 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.43 | 0.43 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.27 | 0.27 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.07 | 0.07 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.34 | 0.34 |

## 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.8. 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.9. 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.10. 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)

| Vegetatio | 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

# 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 | 1/12/2024 | 2/22/2024 | 5.00 | 30.0 | — |
| Grading | Grading | 2/23/2024 | 6/6/2024 | 5.00 | 75.0 | — |
| Building Construction | Building Construction | 6/7/2024 | 12/24/2026 | 5.00 | 665 | Phase length adjusted to match schedule |
| Paving | Paving | 6/7/2024 | 8/22/2024 | 5.00 | 55.0 | — |
| Architectural Coating | Architectural Coating | 10/16/2026 | 12/31/2026 | 5.00 | 55.0 | — |

## 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 | 2.00 | 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 | Scrapers | Diesel | Average | 2.00 | 8.00 | 423 | 0.48 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Grading | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 8.00 | 84.0 | 0.37 |
| Building Construction | Cranes | Diesel | Average | 1.00 | 7.79 | 367 | 0.29 |
| Building Construction | Forklifts | Diesel | Average | 3.00 | 8.90 | 82.0 | 0.20 |
| Building Construction | Generator Sets | Diesel | Average | 1.00 | 8.90 | 14.0 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | Diesel | Average | 3.00 | 7.79 | 84.0 | 0.37 |
| Building Construction | Welders | Diesel | Average | 1.00 | 8.90 | 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 |
| 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 | 17.5 | 7.70 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 20.0 | HHDT |
| Site Preparation | Onsite truck | 2.00 | 0.25 | HHDT |
| Grading | — | — | — | — |
| Grading | Worker | 20.0 | 7.70 | LDA,LDT1,LDT2 |
| Grading | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Grading | Hauling | 117 | 20.0 | HHDT |
| Grading | Onsite truck | 2.00 | 0.25 | HHDT |
| Building Construction | — | — | — | — |

| | | | | |
|---|---|---|---|---|
| Building Construction | Worker | 132 | 7.70 | LDA,LDT1,LDT2 |
| Building Construction | Vendor | 37.7 | 4.00 | HHDT,MHDT |
| Building Construction | Hauling | 0.00 | 20.0 | HHDT |
| Building Construction | Onsite truck | 2.00 | 0.25 | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 15.0 | 7.70 | LDA,LDT1,LDT2 |
| Paving | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Paving | Hauling | 0.00 | 20.0 | HHDT |
| Paving | Onsite truck | 2.00 | 0.25 | HHDT |
| Architectural Coating | — | — | — | — |
| Architectural Coating | Worker | 26.4 | 7.70 | LDA,LDT1,LDT2 |
| Architectural Coating | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Architectural Coating | Hauling | 0.00 | 20.0 | HHDT |
| Architectural Coating | Onsite truck | 2.00 | 0.25 | HHDT |

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

| Control Strategies Applied | PM10 Reduction | PM2.5 Reduction |
|---|---|---|
| Water unpaved roads twice daily | 55% | 55% |
| Limit vehicle speeds on unpaved roads to 25 mph | 44% | 44% |

## 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 | 586,157 | 195,386 | 5,151 | 572 | 13,737 |

## 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 | — | — | 45.0 | 0.00 | — |
| Grading | 70,000 | — | 225 | 0.00 | — |
| Paving | 0.00 | 0.00 | 0.00 | 0.00 | 6.56 |

### 5.6.2. Construction Earthmoving Control Strategies

| Control Strategies Applied | Frequency (per day) | PM10 Reduction | PM2.5 Reduction |
|---|---|---|---|
| Water Exposed Area | 2 | 61% | 61% |

## 5.7. Construction Paving

| Land Use | Area Paved (acres) | % Asphalt |
|---|---|---|
| Single Family Housing | 1.30 | 0% |
| Apartments Low Rise | — | 0% |
| Enclosed Parking Structure | 2.63 | 100% |
| Other Asphalt Surfaces | 2.63 | 100% |

## 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 | N2O |
|---|---|---|---|---|
| 2024 | 0.00 | 204 | 0.03 | < 0.005 |
| 2025 | 0.00 | 204 | 0.03 | < 0.005 |
| 2026 | 0.00 | 204 | 0.03 | < 0.005 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| Single Family Housing | 1,175 | 1,175 | 1,175 | 428,977 | 10,064 | 10,064 | 10,064 | 3,673,257 |
| Apartments Low Rise | 434 | 434 | 434 | 158,410 | 3,716 | 3,716 | 3,716 | 1,356,437 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 5.10. Operational Area Sources

### 5.10.1. Hearths

### 5.10.1.1. Unmitigated

| Hearth Type | Unmitigated (number) |
|---|---|
| Single Family Housing | — |
| Wood Fireplaces | 0 |
| Gas Fireplaces | 59 |
| Propane Fireplaces | 0 |
| Electric Fireplaces | 0 |
| No Fireplaces | 59 |
| Conventional Wood Stoves | 0 |
| Catalytic Wood Stoves | 6 |
| Non-Catalytic Wood Stoves | 6 |
| Pellet Wood Stoves | 0 |

| | |
|---|---|
| Apartments Low Rise | — |
| Wood Fireplaces | 0 |
| Gas Fireplaces | 28 |
| Propane Fireplaces | 0 |
| Electric Fireplaces | 0 |
| No Fireplaces | 28 |
| Conventional Wood Stoves | 0 |
| Catalytic Wood Stoves | 3 |
| Non-Catalytic Wood Stoves | 3 |
| Pellet Wood Stoves | 0 |

### 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) |
|---|---|---|---|---|
| 586156.5 | 195,386 | 5,151 | 572 | 13,737 |

### 5.10.3. Landscape Equipment

| 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) |
|---|---|---|---|---|---|
| Single Family Housing | 1,102,897 | 204 | 0.0330 | 0.0040 | 4,591,654 |

| | | | | | |
|---|---|---|---|---|---|
| Apartments Low Rise | 275,234 | 204 | 0.0330 | 0.0040 | 1,548,371 |
| Enclosed Parking Structure | 408,967 | 204 | 0.0330 | 0.0040 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 204 | 0.0330 | 0.0040 | 0.00 |

## 5.12. Operational Water and Wastewater Consumption

### 5.12.1. Unmitigated

| Land Use | Indoor Water (gal/year) | Outdoor Water (gal/year) |
|---|---|---|
| Single Family Housing | 4,754,928 | 23,188,748 |
| Apartments Low Rise | 2,256,576 | 383,689 |
| Enclosed Parking Structure | 0.00 | 235,710 |
| Other Asphalt Surfaces | 0.00 | 358,774 |

## 5.13. Operational Waste Generation

### 5.13.1. Unmitigated

| Land Use | Waste (ton/year) | Cogeneration (kWh/year) |
|---|---|---|
| Single Family Housing | 105 | — |
| Apartments Low Rise | 41.4 | — |
| Enclosed Parking Structure | 0.00 | — |
| Other Asphalt Surfaces | 0.00 | — |

## 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 |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Single Family Housing | Average room A/C & Other residential A/C and heat pumps | R-410A | 2,088 | < 0.005 | 2.50 | 2.50 | 10.0 |
| Single Family Housing | Household refrigerators and/or freezers | R-134a | 1,430 | 0.12 | 0.60 | 0.00 | 1.00 |
| Apartments Low Rise | Average room A/C & Other residential A/C and heat pumps | R-410A | 2,088 | < 0.005 | 2.50 | 2.50 | 10.0 |
| Apartments Low Rise | Household refrigerators and/or freezers | R-134a | 1,430 | 0.12 | 0.60 | 0.00 | 1.00 |

## 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 |
|---|---|---|---|---|---|---|

## 5.16. 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. Biomass Cover Type

#### 5.18.1.1. Unmitigated

| 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) |
|---|---|---|---|

## 8. User Changes to Default Data

| Screen | Justification |
|---|---|
| Land Use | Land development based on project description.<br>174 dwelling units on 20 acres. Includes 2 additional acres of paved area to account for offsite improvements. |
| Construction: Construction Phases | Anticipated construction schedule based on applicant-provided information.<br>Earliest construction dates used to provide a conservative estimate of emissions. |
| Construction: Off-Road Equipment | Adjusted construction equipment usage to match CalEEMod default total building construction HP hours. |
| Operations: Vehicle Data | Project-specific trip generation, consistent with the traffic analysis prepared for the Whispering Falls Residential Development Project. |
| Operations: Fleet Mix | SJVAPCD-approved residential fleet mix for the 2025 operational year applied to residential land uses. Full buildout in earliest operational year modeled to provide a conservative estimate of emissions. |

| | |
|---|---|
| Operations: Hearths | SJVAPCD Rule 4901 Woodburning No woodburning fireplaces or wood stoves |

# Whispering Falls – Mitigated Construction (Tier 4 Equipment) Custom Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | Whispering Falls – Mitigated Construction (Tier 4 Equipment) |
| Construction Start Date | 1/1/2024 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.90 |
| Precipitation (days) | 21.2 |
| Location | 36.722858, -120.085278 |
| County | Fresno |
| City | Unincorporated |
| Air District | San Joaquin Valley APCD |
| Air Basin | San Joaquin Valley |
| TAZ | 2524 |
| EDFZ | 5 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.16 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| Single Family Housing | 118 | Dwelling Unit | 38.3 | 230,100 | 1,382,117 | — | 378 | — |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 56.0 | Dwelling Unit | 3.50 | 59,360 | 22,869 | — | 179 | — |
| Enclosed Parking Structure | 292 | Space | 2.63 | 116,800 | 17,171 | — | — | — |
| Other Asphalt Surfaces | 4.00 | Acre | 2.63 | 0.00 | 26,136 | — | — | Includes 2 additional acres for offsite |

## 1.3. User-Selected Emission Reduction Measures by Emissions Sector

| Sector | # | Measure Title |
|---|---|---|
| Construction | C-5 | Use Advanced Engine Tiers |

# 2. Emissions Summary

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.67 | 3.81 | 44.5 | 33.4 | 0.12 | 1.60 | 6.08 | 7.68 | 1.49 | 2.07 | 3.55 | — | 15,074 | 15,074 | 0.46 | 1.38 | 20.6 | 15,518 |
| 2025 | 2.14 | 1.85 | 12.8 | 19.8 | 0.03 | 0.49 | 1.03 | 1.52 | 0.45 | 0.22 | 0.67 | — | 3,969 | 3,969 | 0.14 | 0.13 | 4.29 | 4,016 |
| 2026 | 2.02 | 1.74 | 12.0 | 19.3 | 0.03 | 0.43 | 1.03 | 1.46 | 0.39 | 0.22 | 0.62 | — | 3,943 | 3,943 | 0.14 | 0.13 | 3.86 | 3,989 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.65 | 3.78 | 45.2 | 33.5 | 0.12 | 1.60 | 7.95 | 9.55 | 1.49 | 3.98 | 5.45 | — | 15,065 | 15,065 | 0.45 | 1.39 | 0.53 | 15,490 |
| 2025 | 2.07 | 1.77 | 12.9 | 18.9 | 0.03 | 0.49 | 1.03 | 1.52 | 0.45 | 0.22 | 0.67 | — | 3,880 | 3,880 | 0.15 | 0.13 | 0.11 | 3,923 |
| 2026 | 2.19 | 36.2 | 13.2 | 20.4 | 0.03 | 0.45 | 1.37 | 1.82 | 0.42 | 0.28 | 0.69 | — | 4,159 | 4,159 | 0.16 | 0.14 | 0.12 | 4,206 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 2.39 | 2.03 | 19.0 | 19.1 | 0.04 | 0.75 | 2.34 | 3.09 | 0.69 | 0.84 | 1.54 | — | 5,387 | 5,387 | 0.19 | 0.34 | 2.67 | 5,497 |
| 2025 | 1.48 | 1.27 | 9.15 | 13.5 | 0.02 | 0.35 | 0.72 | 1.07 | 0.32 | 0.16 | 0.48 | — | 2,789 | 2,789 | 0.11 | 0.09 | 1.32 | 2,821 |
| 2026 | 1.42 | 6.39 | 8.63 | 13.3 | 0.02 | 0.30 | 0.75 | 1.06 | 0.28 | 0.16 | 0.44 | — | 2,765 | 2,765 | 0.10 | 0.09 | 1.20 | 2,796 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.44 | 0.37 | 3.47 | 3.48 | 0.01 | 0.14 | 0.43 | 0.56 | 0.13 | 0.15 | 0.28 | — | 892 | 892 | 0.03 | 0.06 | 0.44 | 910 |
| 2025 | 0.27 | 0.23 | 1.67 | 2.47 | < 0.005 | 0.06 | 0.13 | 0.19 | 0.06 | 0.03 | 0.09 | — | 462 | 462 | 0.02 | 0.02 | 0.22 | 467 |
| 2026 | 0.26 | 1.17 | 1.57 | 2.42 | < 0.005 | 0.06 | 0.14 | 0.19 | 0.05 | 0.03 | 0.08 | — | 458 | 458 | 0.02 | 0.02 | 0.20 | 463 |

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 2.01 | 2.08 | 29.1 | 38.6 | 0.12 | 0.33 | 6.08 | 6.41 | 0.33 | 2.07 | 2.39 | — | 15,074 | 15,074 | 0.46 | 1.38 | 20.6 | 15,518 |
| 2025 | 1.33 | 1.22 | 11.4 | 22.0 | 0.03 | 0.13 | 1.03 | 1.16 | 0.13 | 0.22 | 0.35 | — | 3,969 | 3,969 | 0.14 | 0.13 | 4.29 | 4,016 |
| 2026 | 1.28 | 1.17 | 11.3 | 21.5 | 0.03 | 0.12 | 1.03 | 1.15 | 0.12 | 0.22 | 0.34 | — | 3,943 | 3,943 | 0.14 | 0.13 | 3.86 | 3,989 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 1.46 | 1.23 | 29.8 | 38.5 | 0.12 | 0.33 | 7.95 | 8.05 | 0.33 | 3.98 | 4.08 | — | 15,065 | 15,065 | 0.45 | 1.39 | 0.53 | 15,490 |
| 2025 | 1.27 | 1.15 | 11.5 | 21.0 | 0.03 | 0.13 | 1.03 | 1.16 | 0.13 | 0.22 | 0.35 | — | 3,880 | 3,880 | 0.15 | 0.13 | 0.11 | 3,923 |
| 2026 | 1.44 | 35.7 | 12.4 | 22.6 | 0.03 | 0.15 | 1.37 | 1.51 | 0.14 | 0.28 | 0.42 | — | 4,159 | 4,159 | 0.16 | 0.14 | 0.12 | 4,206 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.99 | 0.92 | 13.1 | 20.7 | 0.04 | 0.15 | 2.34 | 2.49 | 0.15 | 0.84 | 0.99 | — | 5,387 | 5,387 | 0.19 | 0.34 | 2.67 | 5,497 |
| 2025 | 0.91 | 0.83 | 8.17 | 15.1 | 0.02 | 0.09 | 0.72 | 0.81 | 0.09 | 0.16 | 0.25 | — | 2,789 | 2,789 | 0.11 | 0.09 | 1.32 | 2,821 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 0.90 | 5.99 | 8.09 | 14.8 | 0.02 | 0.09 | 0.75 | 0.85 | 0.09 | 0.16 | 0.25 | — | 2,765 | 2,765 | 0.10 | 0.09 | 1.20 | 2,796 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.18 | 0.17 | 2.38 | 3.78 | 0.01 | 0.03 | 0.43 | 0.46 | 0.03 | 0.15 | 0.18 | — | 892 | 892 | 0.03 | 0.06 | 0.44 | 910 |
| 2025 | 0.17 | 0.15 | 1.49 | 2.75 | < 0.005 | 0.02 | 0.13 | 0.15 | 0.02 | 0.03 | 0.04 | — | 462 | 462 | 0.02 | 0.02 | 0.22 | 467 |
| 2026 | 0.16 | 1.09 | 1.48 | 2.71 | < 0.005 | 0.02 | 0.14 | 0.15 | 0.02 | 0.03 | 0.05 | — | 458 | 458 | 0.02 | 0.02 | 0.20 | 463 |

# 3. Construction Emissions Details

## 3.1. Site Preparation (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 | 4.34 | 3.65 | 36.0 | 32.9 | 0.05 | 1.60 | — | 1.60 | 1.47 | — | 1.47 | — | 5,296 | 5,296 | 0.21 | 0.04 | — | 5,314 |
| Dust From Material Movemen | — | — | — | — | — | — | 7.67 | 7.67 | — | 3.94 | 3.94 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.36 | 0.30 | 2.96 | 2.71 | < 0.005 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 435 | 435 | 0.02 | < 0.005 | — | 437 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 0.63 | 0.63 | — | 0.32 | 0.32 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.45 | 0.45 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.07 | 0.05 | 0.54 | 0.49 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 72.1 | 72.1 | < 0.005 | < 0.005 | — | 72.3 |
| Dust From Material Movement | — | — | — | — | — | — | 0.11 | 0.11 | — | 0.06 | 0.06 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.07 | 0.07 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.06 | 0.57 | 0.00 | 0.00 | 0.10 | 0.10 | 0.00 | 0.02 | 0.02 | — | 96.2 | 96.2 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | < 0.005 | 0.05 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.19 | 8.19 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 2.20 | 2.20 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.36 | 1.36 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.36 | 0.36 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | — |

## 3.2. Site Preparation (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 | 0.64 | 0.64 | 14.7 | 28.3 | 0.05 | 0.10 | — | 0.10 | 0.10 | — | 0.10 | — | 5,296 | 5,296 | 0.21 | 0.04 | — | 5,314 |
| Dust From Material Movemen | — | — | — | — | — | — | 7.67 | 7.67 | — | 3.94 | 3.94 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.05 | 0.05 | 1.21 | 2.33 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 435 | 435 | 0.02 | < 0.005 | — | 437 |
| Dust From Material Movemen | — | — | — | — | — | — | 0.63 | 0.63 | — | 0.32 | 0.32 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.45 | 0.45 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.01 | 0.01 | 0.22 | 0.42 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 72.1 | 72.1 | < 0.005 | < 0.005 | — | 72.3 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 0.11 | 0.11 | — | 0.06 | 0.06 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.07 | 0.07 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.06 | 0.57 | 0.00 | 0.00 | 0.10 | 0.10 | 0.00 | 0.02 | 0.02 | — | 96.2 | 96.2 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | < 0.005 | 0.05 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.19 | 8.19 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 2.20 | 2.20 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.36 | 1.36 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.36 | 0.36 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.3. Grading (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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.86 | 0.72 | 7.05 | 6.20 | 0.01 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,356 | 1,356 | 0.05 | 0.01 | — | 1,360 |
| Dust From Material Movement | — | — | — | — | — | — | 0.74 | 0.74 | — | 0.29 | 0.29 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | < 0.005 | < 0.005 | — | 1.12 | 1.12 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.16 | 0.13 | 1.29 | 1.13 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 224 | 224 | 0.01 | < 0.005 | — | 225 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 0.14 | 0.14 | — | 0.05 | 0.05 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.18 | 0.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.05 | 0.81 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 124 | 124 | 0.01 | 0.01 | 0.50 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| Hauling | 0.39 | 0.20 | 10.1 | 2.40 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,320 | 8,320 | 0.18 | 1.32 | 20.0 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.08 | 0.06 | 0.66 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 110 | 110 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.37 | 0.19 | 10.8 | 2.45 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,325 | 8,325 | 0.18 | 1.32 | 0.52 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | 0.01 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | — | 23.4 | 23.4 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.51 | 5.51 | < 0.005 | < 0.005 | 0.01 | — |
| Hauling | 0.08 | 0.04 | 2.16 | 0.50 | 0.01 | 0.03 | 0.44 | 0.47 | 0.03 | 0.12 | 0.15 | — | 1,710 | 1,710 | 0.04 | 0.27 | 1.77 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.87 | 3.87 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.91 | 0.91 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.01 | 0.01 | 0.40 | 0.09 | < 0.005 | 0.01 | 0.08 | 0.09 | 0.01 | 0.02 | 0.03 | — | 283 | 283 | 0.01 | 0.04 | 0.29 | — |

## 3.4. Grading (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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.00 | 0.96 | 18.9 | 35.4 | 0.06 | 0.18 | — | 0.18 | 0.17 | — | 0.17 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movemen | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.00 | 0.96 | 18.9 | 35.4 | 0.06 | 0.18 | — | 0.18 | 0.17 | — | 0.17 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movemen | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.20 | 0.20 | 3.89 | 7.27 | 0.01 | 0.04 | — | 0.04 | 0.04 | — | 0.04 | — | 1,356 | 1,356 | 0.05 | 0.01 | — | 1,360 |
| Dust From Material Movemen | — | — | — | — | — | — | 0.74 | 0.74 | — | 0.29 | 0.29 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | < 0.005 | < 0.005 | — | 1.12 | 1.12 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.04 | 0.04 | 0.71 | 1.33 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 224 | 224 | 0.01 | < 0.005 | — | 225 |
| Dust From Material Movement | — | — | — | — | — | — | 0.14 | 0.14 | — | 0.05 | 0.05 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.18 | 0.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.05 | 0.81 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 124 | 124 | 0.01 | 0.01 | 0.50 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| Hauling | 0.39 | 0.20 | 10.1 | 2.40 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,320 | 8,320 | 0.18 | 1.32 | 20.0 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.08 | 0.06 | 0.66 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 110 | 110 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.37 | 0.19 | 10.8 | 2.45 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,325 | 8,325 | 0.18 | 1.32 | 0.52 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | 0.01 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | — | 23.4 | 23.4 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.51 | 5.51 | < 0.005 | < 0.005 | 0.01 | — |
| Hauling | 0.08 | 0.04 | 2.16 | 0.50 | 0.01 | 0.03 | 0.44 | 0.47 | 0.03 | 0.12 | 0.15 | — | 1,710 | 1,710 | 0.04 | 0.27 | 1.77 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.87 | 3.87 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.91 | 0.91 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.01 | 0.01 | 0.40 | 0.09 | < 0.005 | 0.01 | 0.08 | 0.09 | 0.01 | 0.02 | 0.03 | — | 283 | 283 | 0.01 | 0.04 | 0.29 | — |

## 3.5. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.65 | 0.54 | 5.08 | 5.94 | 0.01 | 0.23 | — | 0.23 | 0.21 | — | 0.21 | — | 1,086 | 1,086 | 0.04 | 0.01 | — | 1,090 |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | 0.07 | 0.07 | < 0.005 | 0.01 | 0.01 | — | 2.21 | 2.21 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.12 | 0.10 | 0.93 | 1.08 | < 0.005 | 0.04 | — | 0.04 | 0.04 | — | 0.04 | — | 180 | 180 | 0.01 | < 0.005 | — | 180 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.37 | 0.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.64 | 0.60 | 0.33 | 5.35 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 817 | 817 | 0.05 | 0.03 | 3.26 | — |
| Vendor | 0.04 | 0.03 | 0.83 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.42 | 4.33 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 725 | 725 | 0.03 | 0.03 | 0.08 | — |
| Vendor | 0.04 | 0.02 | 0.88 | 0.39 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.23 | 0.22 | 0.15 | 1.79 | 0.00 | 0.00 | 0.29 | 0.29 | 0.00 | 0.07 | 0.07 | — | 306 | 306 | 0.02 | 0.01 | 0.58 | — |
| Vendor | 0.02 | 0.01 | 0.35 | 0.15 | < 0.005 | < 0.005 | 0.05 | 0.05 | < 0.005 | 0.01 | 0.02 | — | 206 | 206 | 0.01 | 0.03 | 0.23 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.04 | 0.04 | 0.03 | 0.33 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 50.6 | 50.6 | < 0.005 | < 0.005 | 0.10 | — |
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.03 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 34.1 | 34.1 | < 0.005 | < 0.005 | 0.04 | — |
| 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 | — |

## 3.6. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipment | 0.71 | 0.64 | 10.3 | 16.7 | 0.03 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.71 | 0.64 | 10.3 | 16.7 | 0.03 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.29 | 0.26 | 4.19 | 6.79 | 0.01 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 1,086 | 1,086 | 0.04 | 0.01 | — | 1,090 |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | 0.07 | 0.07 | < 0.005 | 0.01 | 0.01 | — | 2.21 | 2.21 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.05 | 0.05 | 0.77 | 1.24 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 180 | 180 | 0.01 | < 0.005 | — | 180 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.37 | 0.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.64 | 0.60 | 0.33 | 5.35 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 817 | 817 | 0.05 | 0.03 | 3.26 | — |
| Vendor | 0.04 | 0.03 | 0.83 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.42 | 4.33 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 725 | 725 | 0.03 | 0.03 | 0.08 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.04 | 0.02 | 0.88 | 0.39 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.23 | 0.22 | 0.15 | 1.79 | 0.00 | 0.00 | 0.29 | 0.29 | 0.00 | 0.07 | 0.07 | — | 306 | 306 | 0.02 | 0.01 | 0.58 | — |
| Vendor | 0.02 | 0.01 | 0.35 | 0.15 | < 0.005 | < 0.005 | 0.05 | 0.05 | < 0.005 | 0.01 | 0.02 | — | 206 | 206 | 0.01 | 0.03 | 0.23 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.04 | 0.04 | 0.03 | 0.33 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 50.6 | 50.6 | < 0.005 | < 0.005 | 0.10 | — |
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.03 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 34.1 | 34.1 | < 0.005 | < 0.005 | 0.04 | — |
| 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 | — |

## 3.7. Building Construction (2025) - 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 | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.29 | 5.29 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.38 | 5.38 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.07 | 0.90 | 8.30 | 10.4 | 0.02 | 0.34 | — | 0.34 | 0.32 | — | 0.32 | — | 1,906 | 1,906 | 0.08 | 0.02 | — | 1,912 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.20 | 0.16 | 1.51 | 1.89 | < 0.005 | 0.06 | — | 0.06 | 0.06 | — | 0.06 | — | 316 | 316 | 0.01 | < 0.005 | — | 317 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.63 | 0.63 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.60 | 0.57 | 0.30 | 4.91 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 799 | 799 | 0.02 | 0.03 | 2.99 | — |
| Vendor | 0.04 | 0.03 | 0.80 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.54 | 0.50 | 0.36 | 3.98 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 709 | 709 | 0.03 | 0.03 | 0.08 | — |
| Vendor | 0.04 | 0.02 | 0.85 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.38 | 0.36 | 0.23 | 2.89 | 0.00 | 0.00 | 0.51 | 0.51 | 0.00 | 0.12 | 0.12 | — | 525 | 525 | 0.02 | 0.02 | 0.92 | — |
| Vendor | 0.03 | 0.02 | 0.59 | 0.26 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 355 | 355 | 0.01 | 0.05 | 0.40 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.53 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 86.9 | 86.9 | < 0.005 | < 0.005 | 0.15 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.01 | < 0.005 | 0.11 | 0.05 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 58.8 | 58.8 | < 0.005 | 0.01 | 0.07 | — |
| 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 | — |

## 3.8. Building Construction (2025) - 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 | 0.69 | 0.63 | 10.3 | 16.7 | 0.03 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.29 | 5.29 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.69 | 0.63 | 10.3 | 16.7 | 0.03 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.38 | 5.38 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.49 | 0.45 | 7.32 | 11.9 | 0.02 | 0.09 | — | 0.09 | 0.09 | — | 0.09 | — | 1,906 | 1,906 | 0.08 | 0.02 | — | 1,912 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.09 | 0.08 | 1.34 | 2.17 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 316 | 316 | 0.01 | < 0.005 | — | 317 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.63 | 0.63 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.60 | 0.57 | 0.30 | 4.91 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 799 | 799 | 0.02 | 0.03 | 2.99 | — |
| Vendor | 0.04 | 0.03 | 0.80 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.54 | 0.50 | 0.36 | 3.98 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 709 | 709 | 0.03 | 0.03 | 0.08 | — |
| Vendor | 0.04 | 0.02 | 0.85 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.38 | 0.36 | 0.23 | 2.89 | 0.00 | 0.00 | 0.51 | 0.51 | 0.00 | 0.12 | 0.12 | — | 525 | 525 | 0.02 | 0.02 | 0.92 | — |
| Vendor | 0.03 | 0.02 | 0.59 | 0.26 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 355 | 355 | 0.01 | 0.05 | 0.40 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.53 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 86.9 | 86.9 | < 0.005 | < 0.005 | 0.15 | — |
| Vendor | 0.01 | < 0.005 | 0.11 | 0.05 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 58.8 | 58.8 | < 0.005 | 0.01 | 0.07 | — |
| 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 | — |

## 3.9. Building Construction (2026) - 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 | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.18 | 5.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.00 | 0.83 | 7.68 | 10.1 | 0.02 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,869 | 1,869 | 0.08 | 0.02 | — | 1,875 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.66 | 3.66 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.18 | 0.15 | 1.40 | 1.84 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 309 | 309 | 0.01 | < 0.005 | — | 310 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.61 | 0.61 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.27 | 4.52 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 783 | 783 | 0.02 | 0.03 | 2.72 | — |
| Vendor | 0.04 | 0.03 | 0.77 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 487 | 487 | 0.01 | 0.07 | 1.14 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.48 | 0.47 | 0.33 | 3.65 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 695 | 695 | 0.03 | 0.03 | 0.07 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.04 | 0.02 | 0.82 | 0.36 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 488 | 488 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.36 | 0.33 | 0.21 | 2.61 | 0.00 | 0.00 | 0.50 | 0.50 | 0.00 | 0.12 | 0.12 | — | 504 | 504 | 0.02 | 0.02 | 0.82 | — |
| Vendor | 0.03 | 0.02 | 0.56 | 0.25 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 342 | 342 | 0.01 | 0.05 | 0.34 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.04 | 0.48 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 83.5 | 83.5 | < 0.005 | < 0.005 | 0.14 | — |
| Vendor | < 0.005 | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 56.5 | 56.5 | < 0.005 | 0.01 | 0.06 | — |
| 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 | — |

## 3.10. Building Construction (2026) - 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 | 0.68 | 0.61 | 10.2 | 16.7 | 0.03 | 0.12 | — | 0.12 | 0.11 | — | 0.11 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.18 | 5.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.68 | 0.61 | 10.2 | 16.7 | 0.03 | 0.12 | — | 0.12 | 0.11 | — | 0.11 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.47 | 0.43 | 7.15 | 11.7 | 0.02 | 0.08 | — | 0.08 | 0.08 | — | 0.08 | — | 1,869 | 1,869 | 0.08 | 0.02 | — | 1,875 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.66 | 3.66 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.09 | 0.08 | 1.30 | 2.13 | < 0.005 | 0.02 | — | 0.02 | 0.01 | — | 0.01 | — | 309 | 309 | 0.01 | < 0.005 | — | 310 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.61 | 0.61 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.27 | 4.52 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 783 | 783 | 0.02 | 0.03 | 2.72 | — |
| Vendor | 0.04 | 0.03 | 0.77 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 487 | 487 | 0.01 | 0.07 | 1.14 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.48 | 0.47 | 0.33 | 3.65 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 695 | 695 | 0.03 | 0.03 | 0.07 | — |
| Vendor | 0.04 | 0.02 | 0.82 | 0.36 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 488 | 488 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.36 | 0.33 | 0.21 | 2.61 | 0.00 | 0.00 | 0.50 | 0.50 | 0.00 | 0.12 | 0.12 | — | 504 | 504 | 0.02 | 0.02 | 0.82 | — |
| Vendor | 0.03 | 0.02 | 0.56 | 0.25 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 342 | 342 | 0.01 | 0.05 | 0.34 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.04 | 0.48 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 83.5 | 83.5 | < 0.005 | < 0.005 | 0.14 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | < 0.005 | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 56.5 | 56.5 | < 0.005 | 0.01 | 0.06 | — |
| 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 | — |

## 3.11. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.01 | 0.85 | 7.81 | 10.0 | 0.01 | 0.39 | — | 0.39 | 0.36 | — | 0.36 | — | 1,512 | 1,512 | 0.06 | 0.01 | — | 1,517 |
| Paving | — | 0.25 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.15 | 0.13 | 1.18 | 1.51 | < 0.005 | 0.06 | — | 0.06 | 0.05 | — | 0.05 | — | 228 | 228 | 0.01 | < 0.005 | — | 229 |
| Paving | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.82 | 0.82 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.02 | 0.21 | 0.28 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 37.7 | 37.7 | < 0.005 | < 0.005 | — | 37.8 |
| Paving | — | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.14 | 0.14 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.61 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.02 | 0.02 | — | 92.9 | 92.9 | 0.01 | < 0.005 | 0.37 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.01 | 0.08 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 12.9 | 12.9 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 4.04 | 4.04 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.13 | 2.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.67 | 0.67 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.12. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.54 | 0.48 | 6.85 | 10.6 | 0.01 | 0.12 | — | 0.12 | 0.11 | — | 0.11 | — | 1,512 | 1,512 | 0.06 | 0.01 | — | 1,517 |
| Paving | — | 0.25 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.08 | 0.07 | 1.03 | 1.60 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 228 | 228 | 0.01 | < 0.005 | — | 229 |
| Paving | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.82 | 0.82 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.01 | 0.01 | 0.19 | 0.29 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 37.7 | 37.7 | < 0.005 | < 0.005 | — | 37.8 |
| Paving | — | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.14 | 0.14 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.61 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.02 | 0.02 | — | 92.9 | 92.9 | 0.01 | < 0.005 | 0.37 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.01 | 0.08 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 12.9 | 12.9 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 4.04 | 4.04 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.13 | 2.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.67 | 0.67 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.13. Architectural Coating (2026) - 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 | 0.15 | 0.12 | 0.86 | 1.13 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 134 | 134 | 0.01 | < 0.005 | — | 134 |
| Architectural Coatings | — | 34.3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.02 | 0.13 | 0.17 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 20.1 | 20.1 | < 0.005 | < 0.005 | — | 20.2 |
| Architectural Coatings | — | 5.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.79 | 0.79 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | < 0.005 | 0.02 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.33 | 3.33 | < 0.005 | < 0.005 | — | 3.34 |
| Architectural Coatings | — | 0.94 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.07 | 0.73 | 0.00 | 0.00 | 0.14 | 0.14 | 0.00 | 0.03 | 0.03 | — | 139 | 139 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 25.9 | 25.9 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.01 | 0.01 | 0.11 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 21.7 | 21.7 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.89 | 3.89 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.59 | 3.59 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.64 | 0.64 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.14. Architectural Coating (2026) - 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 | 0.15 | 0.12 | 0.86 | 1.13 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 134 | 134 | 0.01 | < 0.005 | — | 134 |
| Architectural Coatings | — | 34.3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.02 | 0.13 | 0.17 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 20.1 | 20.1 | < 0.005 | < 0.005 | — | 20.2 |
| Architectural Coatings | — | 5.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.79 | 0.79 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | < 0.005 | 0.02 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.33 | 3.33 | < 0.005 | < 0.005 | — | 3.34 |
| Architectural Coatings | — | 0.94 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.07 | 0.73 | 0.00 | 0.00 | 0.14 | 0.14 | 0.00 | 0.03 | 0.03 | — | 139 | 139 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 25.9 | 25.9 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.01 | 0.01 | 0.11 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 21.7 | 21.7 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.89 | 3.89 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.59 | 3.59 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.64 | 0.64 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

# 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 | 1/12/2024 | 2/22/2024 | 5.00 | 30.0 | — |
| Grading | Grading | 2/23/2024 | 6/6/2024 | 5.00 | 75.0 | — |
| Building Construction | Building Construction | 6/7/2024 | 12/24/2026 | 5.00 | 665 | Phase length adjusted to match schedule |
| Paving | Paving | 6/7/2024 | 8/22/2024 | 5.00 | 55.0 | — |
| Architectural Coating | Architectural Coating | 10/16/2026 | 12/31/2026 | 5.00 | 55.0 | — |

## 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 | 2.00 | 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 | Scrapers | Diesel | Average | 2.00 | 8.00 | 423 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 8.00 | 84.0 | 0.37 |
| Building Construction | Cranes | Diesel | Average | 1.00 | 7.79 | 367 | 0.29 |
| Building Construction | Forklifts | Diesel | Average | 3.00 | 8.90 | 82.0 | 0.20 |
| Building Construction | Generator Sets | Diesel | Average | 1.00 | 8.90 | 14.0 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | Diesel | Average | 3.00 | 7.79 | 84.0 | 0.37 |
| Building Construction | Welders | Diesel | Average | 1.00 | 8.90 | 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 |
| 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 | Rubber Tired Dozers | Diesel | Tier 4 Interim | 3.00 | 8.00 | 367 | 0.40 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Site Preparation | Tractors/Loaders/Backhoes | Diesel | Tier 4 Interim | 4.00 | 8.00 | 84.0 | 0.37 |
| Grading | Excavators | Diesel | Average | 2.00 | 8.00 | 36.0 | 0.38 |
| Grading | Graders | Diesel | Tier 4 Interim | 1.00 | 8.00 | 148 | 0.41 |
| Grading | Rubber Tired Dozers | Diesel | Tier 4 Interim | 1.00 | 8.00 | 367 | 0.40 |
| Grading | Scrapers | Diesel | Tier 4 Interim | 2.00 | 8.00 | 423 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | Diesel | Tier 4 Interim | 2.00 | 8.00 | 84.0 | 0.37 |
| Building Construction | Cranes | Diesel | Tier 4 Interim | 1.00 | 7.79 | 367 | 0.29 |
| Building Construction | Forklifts | Diesel | Tier 4 Interim | 3.00 | 8.90 | 82.0 | 0.20 |
| Building Construction | Generator Sets | Diesel | Average | 1.00 | 8.90 | 14.0 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | Diesel | Tier 4 Interim | 3.00 | 7.79 | 84.0 | 0.37 |
| Building Construction | Welders | Diesel | Average | 1.00 | 8.90 | 46.0 | 0.45 |
| Paving | Pavers | Diesel | Tier 4 Interim | 2.00 | 8.00 | 81.0 | 0.42 |
| Paving | Paving Equipment | Diesel | Tier 4 Interim | 2.00 | 8.00 | 89.0 | 0.36 |
| Paving | Rollers | Diesel | Average | 2.00 | 8.00 | 36.0 | 0.38 |
| 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 | 17.5 | 7.70 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 20.0 | HHDT |
| Site Preparation | Onsite truck | 2.00 | 0.25 | HHDT |

| | | | | |
|---|---|---|---|---|
| Grading | — | — | — | — |
| Grading | Worker | 20.0 | 7.70 | LDA,LDT1,LDT2 |
| Grading | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Grading | Hauling | 117 | 20.0 | HHDT |
| Grading | Onsite truck | 2.00 | 0.25 | HHDT |
| Building Construction | — | — | — | — |
| Building Construction | Worker | 132 | 7.70 | LDA,LDT1,LDT2 |
| Building Construction | Vendor | 37.7 | 4.00 | HHDT,MHDT |
| Building Construction | Hauling | 0.00 | 20.0 | HHDT |
| Building Construction | Onsite truck | 2.00 | 0.25 | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 15.0 | 7.70 | LDA,LDT1,LDT2 |
| Paving | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Paving | Hauling | 0.00 | 20.0 | HHDT |
| Paving | Onsite truck | 2.00 | 0.25 | HHDT |
| Architectural Coating | — | — | — | — |
| Architectural Coating | Worker | 26.4 | 7.70 | LDA,LDT1,LDT2 |
| Architectural Coating | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Architectural Coating | Hauling | 0.00 | 20.0 | HHDT |
| Architectural Coating | Onsite truck | 2.00 | 0.25 | 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 | 7.70 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 20.0 | HHDT |

| | | | | |
|---|---|---|---|---|
| Site Preparation | Onsite truck | 2.00 | 0.25 | HHDT |
| Grading | — | — | — | — |
| Grading | Worker | 20.0 | 7.70 | LDA,LDT1,LDT2 |
| Grading | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Grading | Hauling | 117 | 20.0 | HHDT |
| Grading | Onsite truck | 2.00 | 0.25 | HHDT |
| Building Construction | — | — | — | — |
| Building Construction | Worker | 132 | 7.70 | LDA,LDT1,LDT2 |
| Building Construction | Vendor | 37.7 | 4.00 | HHDT,MHDT |
| Building Construction | Hauling | 0.00 | 20.0 | HHDT |
| Building Construction | Onsite truck | 2.00 | 0.25 | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 15.0 | 7.70 | LDA,LDT1,LDT2 |
| Paving | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Paving | Hauling | 0.00 | 20.0 | HHDT |
| Paving | Onsite truck | 2.00 | 0.25 | HHDT |
| Architectural Coating | — | — | — | — |
| Architectural Coating | Worker | 26.4 | 7.70 | LDA,LDT1,LDT2 |
| Architectural Coating | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Architectural Coating | Hauling | 0.00 | 20.0 | HHDT |
| Architectural Coating | Onsite truck | 2.00 | 0.25 | HHDT |

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

| Control Strategies Applied | PM10 Reduction | PM2.5 Reduction |
|---|---|---|
| Water unpaved roads twice daily | 55% | 55% |

| | | |
|---|---|---|
| Limit vehicle speeds on unpaved roads to 25 mph | 44% | 44% |

## 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 | 586,157 | 195,386 | 5,151 | 572 | 13,737 |

## 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 | — | — | 45.0 | 0.00 | — |
| Grading | 70,000 | — | 225 | 0.00 | — |
| Paving | 0.00 | 0.00 | 0.00 | 0.00 | 6.56 |

### 5.6.2. Construction Earthmoving Control Strategies

| Control Strategies Applied | Frequency (per day) | PM10 Reduction | PM2.5 Reduction |
|---|---|---|---|
| Water Exposed Area | 2 | 61% | 61% |

## 5.7. Construction Paving

| Land Use | Area Paved (acres) | % Asphalt |
|---|---|---|
| Single Family Housing | 1.30 | 0% |
| Apartments Low Rise | — | 0% |
| Enclosed Parking Structure | 2.63 | 100% |
| Other Asphalt Surfaces | 2.63 | 100% |

## 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 | N2O |
|---|---|---|---|---|
| 2024 | 0.00 | 204 | 0.03 | < 0.005 |
| 2025 | 0.00 | 204 | 0.03 | < 0.005 |
| 2026 | 0.00 | 204 | 0.03 | < 0.005 |

# 8. User Changes to Default Data

| Screen | Justification |
|---|---|
| Land Use | Land development based on project description.<br>174 dwelling units on 20 acres. Includes 2 additional acres of paved area to account for offsite improvements. |
| Construction: Construction Phases | Anticipated construction schedule based on applicant-provided information.<br>Earliest construction dates used to provide a conservative estimate of emissions. |
| Construction: Off-Road Equipment | Adjusted construction equipment usage to match CalEEMod default total building construction HP hours. |
| Operations: Vehicle Data | Project-specific trip generation, consistent with the traffic analysis prepared for the Whispering Falls Residential Development Project. |
| Operations: Fleet Mix | SJVAPCD-approved residential fleet mix for the 2025 operational year applied to residential land uses. Full buildout in earliest operational year modeled to provide a conservative estimate of emissions. |
| Operations: Hearths | SJVAPCD Rule 4901 Woodburning<br>No woodburning fireplaces or wood stoves |

# Whispering Falls – Mitigated Construction (Level 3 Filters) Custom Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | Whispering Falls – Mitigated Construction (Level 3 Filters) |
| Construction Start Date | 1/1/2024 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.90 |
| Precipitation (days) | 21.2 |
| Location | 36.722858, -120.085278 |
| County | Fresno |
| City | Unincorporated |
| Air District | San Joaquin Valley APCD |
| Air Basin | San Joaquin Valley |
| TAZ | 2524 |
| EDFZ | 5 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.16 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| Single Family Housing | 118 | Dwelling Unit | 38.3 | 230,100 | 1,382,117 | — | 378 | — |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 56.0 | Dwelling Unit | 3.50 | 59,360 | 22,869 | — | 179 | — |
| Enclosed Parking Structure | 292 | Space | 2.63 | 116,800 | 17,171 | — | — | — |
| Other Asphalt Surfaces | 4.00 | Acre | 2.63 | 0.00 | 26,136 | — | — | Includes 2 additional acres for offsite |

## 1.3. User-Selected Emission Reduction Measures by Emissions Sector

| Sector | # | Measure Title |
|---|---|---|
| Construction | C-6 | Use Diesel Particulate Filters |

# 2. Emissions Summary

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.67 | 3.81 | 44.5 | 33.4 | 0.12 | 1.60 | 6.08 | 7.68 | 1.49 | 2.07 | 3.55 | — | 15,074 | 15,074 | 0.46 | 1.38 | 20.6 | 15,518 |
| 2025 | 2.14 | 1.85 | 12.8 | 19.8 | 0.03 | 0.49 | 1.03 | 1.52 | 0.45 | 0.22 | 0.67 | — | 3,969 | 3,969 | 0.14 | 0.13 | 4.29 | 4,016 |
| 2026 | 2.02 | 1.74 | 12.0 | 19.3 | 0.03 | 0.43 | 1.03 | 1.46 | 0.39 | 0.22 | 0.62 | — | 3,943 | 3,943 | 0.14 | 0.13 | 3.86 | 3,989 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.65 | 3.78 | 45.2 | 33.5 | 0.12 | 1.60 | 7.95 | 9.55 | 1.49 | 3.98 | 5.45 | — | 15,065 | 15,065 | 0.45 | 1.39 | 0.53 | 15,490 |
| 2025 | 2.07 | 1.77 | 12.9 | 18.9 | 0.03 | 0.49 | 1.03 | 1.52 | 0.45 | 0.22 | 0.67 | — | 3,880 | 3,880 | 0.15 | 0.13 | 0.11 | 3,923 |
| 2026 | 2.19 | 36.2 | 13.2 | 20.4 | 0.03 | 0.45 | 1.37 | 1.82 | 0.42 | 0.28 | 0.69 | — | 4,159 | 4,159 | 0.16 | 0.14 | 0.12 | 4,206 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 2.39 | 2.03 | 19.0 | 19.1 | 0.04 | 0.75 | 2.34 | 3.09 | 0.69 | 0.84 | 1.54 | — | 5,387 | 5,387 | 0.19 | 0.34 | 2.67 | 5,497 |
| 2025 | 1.48 | 1.27 | 9.15 | 13.5 | 0.02 | 0.35 | 0.72 | 1.07 | 0.32 | 0.16 | 0.48 | — | 2,789 | 2,789 | 0.11 | 0.09 | 1.32 | 2,821 |
| 2026 | 1.42 | 6.39 | 8.63 | 13.3 | 0.02 | 0.30 | 0.75 | 1.06 | 0.28 | 0.16 | 0.44 | — | 2,765 | 2,765 | 0.10 | 0.09 | 1.20 | 2,796 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.44 | 0.37 | 3.47 | 3.48 | 0.01 | 0.14 | 0.43 | 0.56 | 0.13 | 0.15 | 0.28 | — | 892 | 892 | 0.03 | 0.06 | 0.44 | 910 |
| 2025 | 0.27 | 0.23 | 1.67 | 2.47 | < 0.005 | 0.06 | 0.13 | 0.19 | 0.06 | 0.03 | 0.09 | — | 462 | 462 | 0.02 | 0.02 | 0.22 | 467 |
| 2026 | 0.26 | 1.17 | 1.57 | 2.42 | < 0.005 | 0.06 | 0.14 | 0.19 | 0.05 | 0.03 | 0.08 | — | 458 | 458 | 0.02 | 0.02 | 0.20 | 463 |

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.67 | 3.81 | 44.5 | 33.4 | 0.12 | 0.69 | 6.08 | 6.77 | 0.65 | 2.07 | 2.71 | — | 15,074 | 15,074 | 0.46 | 1.38 | 20.6 | 15,518 |
| 2025 | 2.14 | 1.85 | 12.8 | 19.8 | 0.03 | 0.15 | 1.03 | 1.18 | 0.14 | 0.22 | 0.36 | — | 3,969 | 3,969 | 0.14 | 0.13 | 4.29 | 4,016 |
| 2026 | 2.02 | 1.74 | 12.0 | 19.3 | 0.03 | 0.13 | 1.03 | 1.16 | 0.12 | 0.22 | 0.34 | — | 3,943 | 3,943 | 0.14 | 0.13 | 3.86 | 3,989 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.65 | 3.78 | 45.2 | 33.5 | 0.12 | 0.69 | 7.95 | 8.19 | 0.65 | 3.98 | 4.20 | — | 15,065 | 15,065 | 0.45 | 1.39 | 0.53 | 15,490 |
| 2025 | 2.07 | 1.77 | 12.9 | 18.9 | 0.03 | 0.15 | 1.03 | 1.18 | 0.14 | 0.22 | 0.36 | — | 3,880 | 3,880 | 0.15 | 0.13 | 0.11 | 3,923 |
| 2026 | 2.19 | 36.2 | 13.2 | 20.4 | 0.03 | 0.16 | 1.37 | 1.52 | 0.14 | 0.28 | 0.42 | — | 4,159 | 4,159 | 0.16 | 0.14 | 0.12 | 4,206 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 2.39 | 2.03 | 19.0 | 19.1 | 0.04 | 0.25 | 2.34 | 2.59 | 0.23 | 0.84 | 1.08 | — | 5,387 | 5,387 | 0.19 | 0.34 | 2.67 | 5,497 |
| 2025 | 1.48 | 1.27 | 9.15 | 13.5 | 0.02 | 0.11 | 0.72 | 0.83 | 0.10 | 0.16 | 0.25 | — | 2,789 | 2,789 | 0.11 | 0.09 | 1.32 | 2,821 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 1.42 | 6.39 | 8.63 | 13.3 | 0.02 | 0.10 | 0.75 | 0.85 | 0.09 | 0.16 | 0.25 | — | 2,765 | 2,765 | 0.10 | 0.09 | 1.20 | 2,796 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.44 | 0.37 | 3.47 | 3.48 | 0.01 | 0.05 | 0.43 | 0.47 | 0.04 | 0.15 | 0.20 | — | 892 | 892 | 0.03 | 0.06 | 0.44 | 910 |
| 2025 | 0.27 | 0.23 | 1.67 | 2.47 | < 0.005 | 0.02 | 0.13 | 0.15 | 0.02 | 0.03 | 0.05 | — | 462 | 462 | 0.02 | 0.02 | 0.22 | 467 |
| 2026 | 0.26 | 1.17 | 1.57 | 2.42 | < 0.005 | 0.02 | 0.14 | 0.16 | 0.02 | 0.03 | 0.05 | — | 458 | 458 | 0.02 | 0.02 | 0.20 | 463 |

# 3. Construction Emissions Details

## 3.1. Site Preparation (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 | 4.34 | 3.65 | 36.0 | 32.9 | 0.05 | 1.60 | — | 1.60 | 1.47 | — | 1.47 | — | 5,296 | 5,296 | 0.21 | 0.04 | — | 5,314 |
| Dust From Material Movement | — | — | — | — | — | — | 7.67 | 7.67 | — | 3.94 | 3.94 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.36 | 0.30 | 2.96 | 2.71 | < 0.005 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 435 | 435 | 0.02 | < 0.005 | — | 437 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 0.63 | 0.63 | — | 0.32 | 0.32 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.45 | 0.45 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.07 | 0.05 | 0.54 | 0.49 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 72.1 | 72.1 | < 0.005 | < 0.005 | — | 72.3 |
| Dust From Material Movement | — | — | — | — | — | — | 0.11 | 0.11 | — | 0.06 | 0.06 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.07 | 0.07 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.06 | 0.57 | 0.00 | 0.00 | 0.10 | 0.10 | 0.00 | 0.02 | 0.02 | — | 96.2 | 96.2 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | < 0.005 | 0.05 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.19 | 8.19 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 2.20 | 2.20 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.36 | 1.36 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.36 | 0.36 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | — |

## 3.2. Site Preparation (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 | 4.34 | 3.65 | 36.0 | 32.9 | 0.05 | 0.24 | — | 0.24 | 0.22 | — | 0.22 | — | 5,296 | 5,296 | 0.21 | 0.04 | — | 5,314 |
| Dust From Material Movement | — | — | — | — | — | — | 7.67 | 7.67 | — | 3.94 | 3.94 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.36 | 0.30 | 2.96 | 2.71 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 435 | 435 | 0.02 | < 0.005 | — | 437 |
| Dust From Material Movement | — | — | — | — | — | — | 0.63 | 0.63 | — | 0.32 | 0.32 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.45 | 0.45 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.07 | 0.05 | 0.54 | 0.49 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 72.1 | 72.1 | < 0.005 | < 0.005 | — | 72.3 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 0.11 | 0.11 | — | 0.06 | 0.06 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.07 | 0.07 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.06 | 0.57 | 0.00 | 0.00 | 0.10 | 0.10 | 0.00 | 0.02 | 0.02 | — | 96.2 | 96.2 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | < 0.005 | 0.05 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.19 | 8.19 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 2.20 | 2.20 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.36 | 1.36 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.36 | 0.36 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.3. Grading (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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.86 | 0.72 | 7.05 | 6.20 | 0.01 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,356 | 1,356 | 0.05 | 0.01 | — | 1,360 |
| Dust From Material Movement | — | — | — | — | — | — | 0.74 | 0.74 | — | 0.29 | 0.29 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | < 0.005 | < 0.005 | — | 1.12 | 1.12 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.16 | 0.13 | 1.29 | 1.13 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 224 | 224 | 0.01 | < 0.005 | — | 225 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 0.14 | 0.14 | — | 0.05 | 0.05 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.18 | 0.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.05 | 0.81 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 124 | 124 | 0.01 | 0.01 | 0.50 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| Hauling | 0.39 | 0.20 | 10.1 | 2.40 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,320 | 8,320 | 0.18 | 1.32 | 20.0 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.08 | 0.06 | 0.66 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 110 | 110 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.37 | 0.19 | 10.8 | 2.45 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,325 | 8,325 | 0.18 | 1.32 | 0.52 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | 0.01 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | — | 23.4 | 23.4 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.51 | 5.51 | < 0.005 | < 0.005 | 0.01 | — |
| Hauling | 0.08 | 0.04 | 2.16 | 0.50 | 0.01 | 0.03 | 0.44 | 0.47 | 0.03 | 0.12 | 0.15 | — | 1,710 | 1,710 | 0.04 | 0.27 | 1.77 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.87 | 3.87 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.91 | 0.91 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.01 | 0.01 | 0.40 | 0.09 | < 0.005 | 0.01 | 0.08 | 0.09 | 0.01 | 0.02 | 0.03 | — | 283 | 283 | 0.01 | 0.04 | 0.29 | — |

## 3.4. Grading (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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 0.54 | — | 0.54 | 0.49 | — | 0.49 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movemen: | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 0.54 | — | 0.54 | 0.49 | — | 0.49 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movemen: | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.86 | 0.72 | 7.05 | 6.20 | 0.01 | 0.11 | — | 0.11 | 0.10 | — | 0.10 | — | 1,356 | 1,356 | 0.05 | 0.01 | — | 1,360 |
| Dust From Material Movemen: | — | — | — | — | — | — | 0.74 | 0.74 | — | 0.29 | 0.29 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | < 0.005 | < 0.005 | — | 1.12 | 1.12 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.16 | 0.13 | 1.29 | 1.13 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 224 | 224 | 0.01 | < 0.005 | — | 225 |
| Dust From Material Movement | — | — | — | — | — | — | 0.14 | 0.14 | — | 0.05 | 0.05 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.18 | 0.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.05 | 0.81 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 124 | 124 | 0.01 | 0.01 | 0.50 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| Hauling | 0.39 | 0.20 | 10.1 | 2.40 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,320 | 8,320 | 0.18 | 1.32 | 20.0 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.08 | 0.06 | 0.66 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.03 | 0.03 | — | 110 | 110 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.05 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.37 | 0.19 | 10.8 | 2.45 | 0.05 | 0.15 | 2.16 | 2.32 | 0.15 | 0.59 | 0.75 | — | 8,325 | 8,325 | 0.18 | 1.32 | 0.52 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | 0.01 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | — | 23.4 | 23.4 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.51 | 5.51 | < 0.005 | < 0.005 | 0.01 | — |
| Hauling | 0.08 | 0.04 | 2.16 | 0.50 | 0.01 | 0.03 | 0.44 | 0.47 | 0.03 | 0.12 | 0.15 | — | 1,710 | 1,710 | 0.04 | 0.27 | 1.77 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.87 | 3.87 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.91 | 0.91 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.01 | 0.01 | 0.40 | 0.09 | < 0.005 | 0.01 | 0.08 | 0.09 | 0.01 | 0.02 | 0.03 | — | 283 | 283 | 0.01 | 0.04 | 0.29 | — |

## 3.5. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.65 | 0.54 | 5.08 | 5.94 | 0.01 | 0.23 | — | 0.23 | 0.21 | — | 0.21 | — | 1,086 | 1,086 | 0.04 | 0.01 | — | 1,090 |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | 0.07 | 0.07 | < 0.005 | 0.01 | 0.01 | — | 2.21 | 2.21 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.12 | 0.10 | 0.93 | 1.08 | < 0.005 | 0.04 | — | 0.04 | 0.04 | — | 0.04 | — | 180 | 180 | 0.01 | < 0.005 | — | 180 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.37 | 0.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.64 | 0.60 | 0.33 | 5.35 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 817 | 817 | 0.05 | 0.03 | 3.26 | — |
| Vendor | 0.04 | 0.03 | 0.83 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.42 | 4.33 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 725 | 725 | 0.03 | 0.03 | 0.08 | — |
| Vendor | 0.04 | 0.02 | 0.88 | 0.39 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.23 | 0.22 | 0.15 | 1.79 | 0.00 | 0.00 | 0.29 | 0.29 | 0.00 | 0.07 | 0.07 | — | 306 | 306 | 0.02 | 0.01 | 0.58 | — |
| Vendor | 0.02 | 0.01 | 0.35 | 0.15 | < 0.005 | < 0.005 | 0.05 | 0.05 | < 0.005 | 0.01 | 0.02 | — | 206 | 206 | 0.01 | 0.03 | 0.23 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.04 | 0.04 | 0.03 | 0.33 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 50.6 | 50.6 | < 0.005 | < 0.005 | 0.10 | — |
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.03 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 34.1 | 34.1 | < 0.005 | < 0.005 | 0.04 | — |
| 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 | — |

## 3.6. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.16 | — | 0.16 | 0.15 | — | 0.15 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.16 | — | 0.16 | 0.15 | — | 0.15 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.65 | 0.54 | 5.08 | 5.94 | 0.01 | 0.06 | — | 0.06 | 0.06 | — | 0.06 | — | 1,086 | 1,086 | 0.04 | 0.01 | — | 1,090 |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | 0.07 | 0.07 | < 0.005 | 0.01 | 0.01 | — | 2.21 | 2.21 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.12 | 0.10 | 0.93 | 1.08 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 180 | 180 | 0.01 | < 0.005 | — | 180 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.37 | 0.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.64 | 0.60 | 0.33 | 5.35 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 817 | 817 | 0.05 | 0.03 | 3.26 | — |
| Vendor | 0.04 | 0.03 | 0.83 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.42 | 4.33 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 725 | 725 | 0.03 | 0.03 | 0.08 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.04 | 0.02 | 0.88 | 0.39 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 506 | 506 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.23 | 0.22 | 0.15 | 1.79 | 0.00 | 0.00 | 0.29 | 0.29 | 0.00 | 0.07 | 0.07 | — | 306 | 306 | 0.02 | 0.01 | 0.58 | — |
| Vendor | 0.02 | 0.01 | 0.35 | 0.15 | < 0.005 | < 0.005 | 0.05 | 0.05 | < 0.005 | 0.01 | 0.02 | — | 206 | 206 | 0.01 | 0.03 | 0.23 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.04 | 0.04 | 0.03 | 0.33 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 50.6 | 50.6 | < 0.005 | < 0.005 | 0.10 | — |
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.03 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 34.1 | 34.1 | < 0.005 | < 0.005 | 0.04 | — |
| 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 | — |

## 3.7. Building Construction (2025) - 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 | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.29 | 5.29 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.38 | 5.38 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.07 | 0.90 | 8.30 | 10.4 | 0.02 | 0.34 | — | 0.34 | 0.32 | — | 0.32 | — | 1,906 | 1,906 | 0.08 | 0.02 | — | 1,912 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.20 | 0.16 | 1.51 | 1.89 | < 0.005 | 0.06 | — | 0.06 | 0.06 | — | 0.06 | — | 316 | 316 | 0.01 | < 0.005 | — | 317 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.63 | 0.63 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.60 | 0.57 | 0.30 | 4.91 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 799 | 799 | 0.02 | 0.03 | 2.99 | — |
| Vendor | 0.04 | 0.03 | 0.80 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.54 | 0.50 | 0.36 | 3.98 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 709 | 709 | 0.03 | 0.03 | 0.08 | — |
| Vendor | 0.04 | 0.02 | 0.85 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.38 | 0.36 | 0.23 | 2.89 | 0.00 | 0.00 | 0.51 | 0.51 | 0.00 | 0.12 | 0.12 | — | 525 | 525 | 0.02 | 0.02 | 0.92 | — |
| Vendor | 0.03 | 0.02 | 0.59 | 0.26 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 355 | 355 | 0.01 | 0.05 | 0.40 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.53 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 86.9 | 86.9 | < 0.005 | < 0.005 | 0.15 | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.01 | < 0.005 | 0.11 | 0.05 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 58.8 | 58.8 | < 0.005 | 0.01 | 0.07 | — |
| 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 | — |

## 3.8. Building Construction (2025) - 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 | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.14 | — | 0.14 | 0.13 | — | 0.13 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.29 | 5.29 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.14 | — | 0.14 | 0.13 | — | 0.13 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.38 | 5.38 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.07 | 0.90 | 8.30 | 10.4 | 0.02 | 0.10 | — | 0.10 | 0.09 | — | 0.09 | — | 1,906 | 1,906 | 0.08 | 0.02 | — | 1,912 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.20 | 0.16 | 1.51 | 1.89 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 316 | 316 | 0.01 | < 0.005 | — | 317 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.63 | 0.63 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.60 | 0.57 | 0.30 | 4.91 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 799 | 799 | 0.02 | 0.03 | 2.99 | — |
| Vendor | 0.04 | 0.03 | 0.80 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 1.29 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.54 | 0.50 | 0.36 | 3.98 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 709 | 709 | 0.03 | 0.03 | 0.08 | — |
| Vendor | 0.04 | 0.02 | 0.85 | 0.37 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 497 | 497 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.38 | 0.36 | 0.23 | 2.89 | 0.00 | 0.00 | 0.51 | 0.51 | 0.00 | 0.12 | 0.12 | — | 525 | 525 | 0.02 | 0.02 | 0.92 | — |
| Vendor | 0.03 | 0.02 | 0.59 | 0.26 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 355 | 355 | 0.01 | 0.05 | 0.40 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.53 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 86.9 | 86.9 | < 0.005 | < 0.005 | 0.15 | — |
| Vendor | 0.01 | < 0.005 | 0.11 | 0.05 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 58.8 | 58.8 | < 0.005 | 0.01 | 0.07 | — |
| 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 | — |

## 3.9. Building Construction (2026) - 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 | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.18 | 5.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.00 | 0.83 | 7.68 | 10.1 | 0.02 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,869 | 1,869 | 0.08 | 0.02 | — | 1,875 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.66 | 3.66 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.18 | 0.15 | 1.40 | 1.84 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 309 | 309 | 0.01 | < 0.005 | — | 310 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.61 | 0.61 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.27 | 4.52 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 783 | 783 | 0.02 | 0.03 | 2.72 | — |
| Vendor | 0.04 | 0.03 | 0.77 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 487 | 487 | 0.01 | 0.07 | 1.14 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.48 | 0.47 | 0.33 | 3.65 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 695 | 695 | 0.03 | 0.03 | 0.07 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.04 | 0.02 | 0.82 | 0.36 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 488 | 488 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.36 | 0.33 | 0.21 | 2.61 | 0.00 | 0.00 | 0.50 | 0.50 | 0.00 | 0.12 | 0.12 | — | 504 | 504 | 0.02 | 0.02 | 0.82 | — |
| Vendor | 0.03 | 0.02 | 0.56 | 0.25 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 342 | 342 | 0.01 | 0.05 | 0.34 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.04 | 0.48 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 83.5 | 83.5 | < 0.005 | < 0.005 | 0.14 | — |
| Vendor | < 0.005 | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 56.5 | 56.5 | < 0.005 | 0.01 | 0.06 | — |
| 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 | — |

## 3.10. Building Construction (2026) - 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 | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.18 | 5.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.00 | 0.83 | 7.68 | 10.1 | 0.02 | 0.09 | — | 0.09 | 0.08 | — | 0.08 | — | 1,869 | 1,869 | 0.08 | 0.02 | — | 1,875 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.66 | 3.66 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.18 | 0.15 | 1.40 | 1.84 | < 0.005 | 0.02 | — | 0.02 | 0.01 | — | 0.01 | — | 309 | 309 | 0.01 | < 0.005 | — | 310 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.61 | 0.61 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.56 | 0.52 | 0.27 | 4.52 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 783 | 783 | 0.02 | 0.03 | 2.72 | — |
| Vendor | 0.04 | 0.03 | 0.77 | 0.35 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 487 | 487 | 0.01 | 0.07 | 1.14 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.48 | 0.47 | 0.33 | 3.65 | 0.00 | 0.00 | 0.72 | 0.72 | 0.00 | 0.17 | 0.17 | — | 695 | 695 | 0.03 | 0.03 | 0.07 | — |
| Vendor | 0.04 | 0.02 | 0.82 | 0.36 | < 0.005 | 0.01 | 0.13 | 0.13 | 0.01 | 0.03 | 0.04 | — | 488 | 488 | 0.01 | 0.07 | 0.03 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.36 | 0.33 | 0.21 | 2.61 | 0.00 | 0.00 | 0.50 | 0.50 | 0.00 | 0.12 | 0.12 | — | 504 | 504 | 0.02 | 0.02 | 0.82 | — |
| Vendor | 0.03 | 0.02 | 0.56 | 0.25 | < 0.005 | < 0.005 | 0.09 | 0.09 | < 0.005 | 0.02 | 0.03 | — | 342 | 342 | 0.01 | 0.05 | 0.34 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.04 | 0.48 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.02 | 0.02 | — | 83.5 | 83.5 | < 0.005 | < 0.005 | 0.14 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | < 0.005 | < 0.005 | 0.10 | 0.04 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 56.5 | 56.5 | < 0.005 | 0.01 | 0.06 | — |
| 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 | — |

## 3.11. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.01 | 0.85 | 7.81 | 10.0 | 0.01 | 0.39 | — | 0.39 | 0.36 | — | 0.36 | — | 1,512 | 1,512 | 0.06 | 0.01 | — | 1,517 |
| Paving | — | 0.25 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.15 | 0.13 | 1.18 | 1.51 | < 0.005 | 0.06 | — | 0.06 | 0.05 | — | 0.05 | — | 228 | 228 | 0.01 | < 0.005 | — | 229 |
| Paving | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.82 | 0.82 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.02 | 0.21 | 0.28 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 37.7 | 37.7 | < 0.005 | < 0.005 | — | 37.8 |
| Paving | — | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.14 | 0.14 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.61 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.02 | 0.02 | — | 92.9 | 92.9 | 0.01 | < 0.005 | 0.37 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.01 | 0.08 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 12.9 | 12.9 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 4.04 | 4.04 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.13 | 2.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.67 | 0.67 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.12. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.01 | 0.85 | 7.81 | 10.0 | 0.01 | 0.14 | — | 0.14 | 0.13 | — | 0.13 | — | 1,512 | 1,512 | 0.06 | 0.01 | — | 1,517 |
| Paving | — | 0.25 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.15 | 0.13 | 1.18 | 1.51 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 228 | 228 | 0.01 | < 0.005 | — | 229 |
| Paving | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.82 | 0.82 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.02 | 0.21 | 0.28 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 37.7 | 37.7 | < 0.005 | < 0.005 | — | 37.8 |
| Paving | — | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.14 | 0.14 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.07 | 0.04 | 0.61 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.02 | 0.02 | — | 92.9 | 92.9 | 0.01 | < 0.005 | 0.37 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 26.8 | 26.8 | < 0.005 | < 0.005 | 0.07 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.01 | 0.08 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 12.9 | 12.9 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 4.04 | 4.04 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.13 | 2.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.67 | 0.67 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.13. Architectural Coating (2026) - 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 | 0.15 | 0.12 | 0.86 | 1.13 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 134 | 134 | 0.01 | < 0.005 | — | 134 |
| Architectural Coatings | — | 34.3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.02 | 0.13 | 0.17 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 20.1 | 20.1 | < 0.005 | < 0.005 | — | 20.2 |
| Architectural Coatings | — | 5.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.79 | 0.79 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | < 0.005 | 0.02 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.33 | 3.33 | < 0.005 | < 0.005 | — | 3.34 |
| Architectural Coatings | — | 0.94 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.07 | 0.73 | 0.00 | 0.00 | 0.14 | 0.14 | 0.00 | 0.03 | 0.03 | — | 139 | 139 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 25.9 | 25.9 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.01 | 0.01 | 0.11 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 21.7 | 21.7 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.89 | 3.89 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.59 | 3.59 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.64 | 0.64 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.14. Architectural Coating (2026) - 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 | 0.15 | 0.12 | 0.86 | 1.13 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 134 | 134 | 0.01 | < 0.005 | — | 134 |
| Architectural Coatings | — | 34.3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.02 | 0.13 | 0.17 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 20.1 | 20.1 | < 0.005 | < 0.005 | — | 20.2 |
| Architectural Coatings | — | 5.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.79 | 0.79 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | < 0.005 | 0.02 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.33 | 3.33 | < 0.005 | < 0.005 | — | 3.34 |
| Architectural Coatings | — | 0.94 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.07 | 0.73 | 0.00 | 0.00 | 0.14 | 0.14 | 0.00 | 0.03 | 0.03 | — | 139 | 139 | 0.01 | 0.01 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.04 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 25.9 | 25.9 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.01 | 0.01 | 0.11 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 21.7 | 21.7 | < 0.005 | < 0.005 | 0.04 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 3.89 | 3.89 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.59 | 3.59 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.64 | 0.64 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

# 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 | 1/12/2024 | 2/22/2024 | 5.00 | 30.0 | — |
| Grading | Grading | 2/23/2024 | 6/6/2024 | 5.00 | 75.0 | — |
| Building Construction | Building Construction | 6/7/2024 | 12/24/2026 | 5.00 | 665 | Phase length adjusted to match schedule |
| Paving | Paving | 6/7/2024 | 8/22/2024 | 5.00 | 55.0 | — |
| Architectural Coating | Architectural Coating | 10/16/2026 | 12/31/2026 | 5.00 | 55.0 | — |

## 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 | 2.00 | 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 | Scrapers | Diesel | Average | 2.00 | 8.00 | 423 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 8.00 | 84.0 | 0.37 |
| Building Construction | Cranes | Diesel | Average | 1.00 | 7.79 | 367 | 0.29 |
| Building Construction | Forklifts | Diesel | Average | 3.00 | 8.90 | 82.0 | 0.20 |
| Building Construction | Generator Sets | Diesel | Average | 1.00 | 8.90 | 14.0 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | Diesel | Average | 3.00 | 7.79 | 84.0 | 0.37 |
| Building Construction | Welders | Diesel | Average | 1.00 | 8.90 | 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 |
| 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 | 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 | 2.00 | 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 | Scrapers | Diesel | Average | 2.00 | 8.00 | 423 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 8.00 | 84.0 | 0.37 |
| Building Construction | Cranes | Diesel | Average | 1.00 | 7.79 | 367 | 0.29 |
| Building Construction | Forklifts | Diesel | Average | 3.00 | 8.90 | 82.0 | 0.20 |
| Building Construction | Generator Sets | Diesel | Average | 1.00 | 8.90 | 14.0 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | Diesel | Average | 3.00 | 7.79 | 84.0 | 0.37 |
| Building Construction | Welders | Diesel | Average | 1.00 | 8.90 | 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 |
| 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 | 17.5 | 7.70 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 20.0 | HHDT |
| Site Preparation | Onsite truck | 2.00 | 0.25 | HHDT |

| | | | | |
|---|---|---|---|---|
| Grading | — | — | — | — |
| Grading | Worker | 20.0 | 7.70 | LDA,LDT1,LDT2 |
| Grading | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Grading | Hauling | 117 | 20.0 | HHDT |
| Grading | Onsite truck | 2.00 | 0.25 | HHDT |
| Building Construction | — | — | — | — |
| Building Construction | Worker | 132 | 7.70 | LDA,LDT1,LDT2 |
| Building Construction | Vendor | 37.7 | 4.00 | HHDT,MHDT |
| Building Construction | Hauling | 0.00 | 20.0 | HHDT |
| Building Construction | Onsite truck | 2.00 | 0.25 | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 15.0 | 7.70 | LDA,LDT1,LDT2 |
| Paving | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Paving | Hauling | 0.00 | 20.0 | HHDT |
| Paving | Onsite truck | 2.00 | 0.25 | HHDT |
| Architectural Coating | — | — | — | — |
| Architectural Coating | Worker | 26.4 | 7.70 | LDA,LDT1,LDT2 |
| Architectural Coating | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Architectural Coating | Hauling | 0.00 | 20.0 | HHDT |
| Architectural Coating | Onsite truck | 2.00 | 0.25 | 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 | 7.70 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 20.0 | HHDT |

| | | | | |
|---|---|---|---|---|
| Site Preparation | Onsite truck | 2.00 | 0.25 | HHDT |
| Grading | — | — | — | — |
| Grading | Worker | 20.0 | 7.70 | LDA,LDT1,LDT2 |
| Grading | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Grading | Hauling | 117 | 20.0 | HHDT |
| Grading | Onsite truck | 2.00 | 0.25 | HHDT |
| Building Construction | — | — | — | — |
| Building Construction | Worker | 132 | 7.70 | LDA,LDT1,LDT2 |
| Building Construction | Vendor | 37.7 | 4.00 | HHDT,MHDT |
| Building Construction | Hauling | 0.00 | 20.0 | HHDT |
| Building Construction | Onsite truck | 2.00 | 0.25 | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 15.0 | 7.70 | LDA,LDT1,LDT2 |
| Paving | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Paving | Hauling | 0.00 | 20.0 | HHDT |
| Paving | Onsite truck | 2.00 | 0.25 | HHDT |
| Architectural Coating | — | — | — | — |
| Architectural Coating | Worker | 26.4 | 7.70 | LDA,LDT1,LDT2 |
| Architectural Coating | Vendor | 2.00 | 4.00 | HHDT,MHDT |
| Architectural Coating | Hauling | 0.00 | 20.0 | HHDT |
| Architectural Coating | Onsite truck | 2.00 | 0.25 | HHDT |

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

| Control Strategies Applied | PM10 Reduction | PM2.5 Reduction |
|---|---|---|
| Water unpaved roads twice daily | 55% | 55% |

| | | |
|---|---|---|
| Limit vehicle speeds on unpaved roads to 25 mph | 44% | 44% |

## 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 | 586,157 | 195,386 | 5,151 | 572 | 13,737 |

## 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 | — | — | 45.0 | 0.00 | — |
| Grading | 70,000 | — | 225 | 0.00 | — |
| Paving | 0.00 | 0.00 | 0.00 | 0.00 | 6.56 |

### 5.6.2. Construction Earthmoving Control Strategies

| Control Strategies Applied | Frequency (per day) | PM10 Reduction | PM2.5 Reduction |
|---|---|---|---|
| Water Exposed Area | 2 | 61% | 61% |

## 5.7. Construction Paving

| Land Use | Area Paved (acres) | % Asphalt |
|---|---|---|
| Single Family Housing | 1.30 | 0% |
| Apartments Low Rise | — | 0% |
| Enclosed Parking Structure | 2.63 | 100% |
| Other Asphalt Surfaces | 2.63 | 100% |

## 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 | N2O |
|---|---|---|---|---|
| 2024 | 0.00 | 204 | 0.03 | < 0.005 |
| 2025 | 0.00 | 204 | 0.03 | < 0.005 |
| 2026 | 0.00 | 204 | 0.03 | < 0.005 |

# 8. User Changes to Default Data

| Screen | Justification |
|---|---|
| Land Use | Land development based on project description.<br>174 dwelling units on 20 acres. Includes 2 additional acres of paved area to account for offsite improvements. |
| Construction: Construction Phases | Anticipated construction schedule based on applicant-provided information.<br>Earliest construction dates used to provide a conservative estimate of emissions. |
| Construction: Off-Road Equipment | Adjusted construction equipment usage to match CalEEMod default total building construction HP hours. |
| Operations: Vehicle Data | Project-specific trip generation, consistent with the traffic analysis prepared for the Whispering Falls Residential Development Project. |
| Operations: Fleet Mix | SJVAPCD-approved residential fleet mix for the 2025 operational year applied to residential land uses. Full buildout in earliest operational year modeled to provide a conservative estimate of emissions. |
| Operations: Hearths | SJVAPCD Rule 4901 Woodburning<br>No woodburning fireplaces or wood stoves |

# Whispering Falls - Localized Analysis Custom Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | Whispering Falls - Localized Analysis |
| Construction Start Date | 1/1/2024 |
| Operational Year | 2025 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.90 |
| Precipitation (days) | 21.2 |
| Location | 36.722858, -120.085278 |
| County | Fresno |
| City | Unincorporated |
| Air District | San Joaquin Valley APCD |
| Air Basin | San Joaquin Valley |
| TAZ | 2524 |
| EDFZ | 5 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.16 |

## 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 |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Single Family Housing | 118 | Dwelling Unit | 38.3 | 230,100 | 1,382,117 | — | 378 | — |
| Apartments Low Rise | 56.0 | Dwelling Unit | 3.50 | 59,360 | 22,869 | — | 179 | — |
| Enclosed Parking Structure | 292 | Space | 2.63 | 116,800 | 17,171 | — | — | — |
| Other Asphalt Surfaces | 4.00 | Acre | 2.63 | 0.00 | 26,136 | — | — | Includes 2 additional acres for offsite |

## 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

# 2. Emissions Summary

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.41 | 3.70 | 36.4 | 31.8 | 0.06 | 1.45 | 3.86 | 5.31 | 1.34 | 1.46 | 2.80 | — | 7,037 | 7,037 | 0.30 | 0.12 | 0.55 | 7,081 |
| 2025 | 2.07 | 1.80 | 12.2 | 16.2 | 0.03 | 0.48 | 0.25 | 0.73 | 0.44 | 0.03 | 0.48 | — | 2,846 | 2,846 | 0.14 | 0.05 | 0.36 | 2,865 |
| 2026 | 1.95 | 1.70 | 11.5 | 16.0 | 0.03 | 0.42 | 0.25 | 0.67 | 0.39 | 0.03 | 0.42 | — | 2,842 | 2,842 | 0.14 | 0.05 | 0.32 | 2,861 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 4.41 | 3.71 | 36.5 | 33.2 | 0.06 | 1.60 | 7.86 | 9.46 | 1.47 | 3.96 | 5.43 | — | 7,041 | 7,041 | 0.30 | 0.13 | 0.01 | 7,086 |
| 2025 | 2.00 | 1.73 | 12.3 | 16.7 | 0.03 | 0.48 | 0.25 | 0.73 | 0.44 | 0.03 | 0.48 | — | 2,842 | 2,842 | 0.15 | 0.05 | 0.01 | 2,861 |
| 2026 | 2.13 | 36.2 | 12.5 | 17.9 | 0.03 | 0.45 | 0.44 | 0.89 | 0.41 | 0.05 | 0.46 | — | 2,996 | 2,996 | 0.16 | 0.06 | 0.01 | 3,016 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2.30 | 1.99 | 17.0 | 17.6 | 0.03 | 0.71 | 1.56 | 2.27 | 0.66 | 0.64 | 1.30 | — | 3,272 | 3,272 | 0.15 | 0.05 | 0.12 | 3,292 |
| 2025 | 1.43 | 1.24 | 8.73 | 11.7 | 0.02 | 0.34 | 0.17 | 0.51 | 0.32 | 0.02 | 0.34 | — | 2,031 | 2,031 | 0.10 | 0.04 | 0.11 | 2,044 |
| 2026 | 1.37 | 6.36 | 8.24 | 11.5 | 0.02 | 0.30 | 0.19 | 0.49 | 0.28 | 0.03 | 0.30 | — | 2,013 | 2,013 | 0.10 | 0.04 | 0.10 | 2,026 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.42 | 0.36 | 3.10 | 3.20 | 0.01 | 0.13 | 0.28 | 0.41 | 0.12 | 0.12 | 0.24 | — | 542 | 542 | 0.02 | 0.01 | 0.02 | 545 |
| 2025 | 0.26 | 0.23 | 1.59 | 2.13 | < 0.005 | 0.06 | 0.03 | 0.09 | 0.06 | < 0.005 | 0.06 | — | 336 | 336 | 0.02 | 0.01 | 0.02 | 338 |
| 2026 | 0.25 | 1.16 | 1.50 | 2.11 | < 0.005 | 0.05 | 0.04 | 0.09 | 0.05 | < 0.005 | 0.05 | — | 333 | 333 | 0.02 | 0.01 | 0.02 | 335 |

## 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 | 5.37 | 5.23 | 1.76 | 13.6 | 0.01 | 0.01 | 0.56 | 0.58 | 0.01 | 0.14 | 0.15 | — | 977 | 977 | 0.26 | 0.15 | 2.41 | 1,030 |
| Area | 2.01 | 8.53 | 1.58 | 15.5 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | 0.00 | 1,879 | 1,879 | 0.04 | < 0.005 | — | 1,881 |
| Energy | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,967 | 2,967 | 0.34 | 0.02 | — | 2,982 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Total | 7.56 | 13.9 | 4.90 | 29.8 | 0.03 | 0.27 | 0.56 | 0.83 | 0.26 | 0.14 | 0.41 | 92.3 | 5,871 | 5,963 | 9.90 | 0.21 | 4.48 | 6,277 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 4.65 | 4.47 | 2.01 | 17.8 | 0.01 | 0.01 | 0.56 | 0.58 | 0.01 | 0.14 | 0.15 | — | 922 | 922 | 0.35 | 0.16 | 0.06 | 979 |
| Area | 0.17 | 6.81 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |
| Energy | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,967 | 2,967 | 0.34 | 0.02 | — | 2,982 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Total | 5.00 | 11.4 | 5.00 | 19.0 | 0.03 | 0.25 | 0.56 | 0.82 | 0.25 | 0.14 | 0.40 | 92.3 | 5,768 | 5,861 | 9.99 | 0.22 | 2.14 | 6,179 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 4.74 | 4.58 | 1.86 | 15.1 | 0.01 | 0.01 | 0.56 | 0.57 | 0.01 | 0.14 | 0.15 | — | 934 | 934 | 0.31 | 0.15 | 1.04 | 989 |
| Area | 0.94 | 7.60 | 0.39 | 7.50 | < 0.005 | 0.03 | — | 0.03 | 0.03 | — | 0.03 | 0.00 | 435 | 435 | 0.01 | < 0.005 | — | 435 |
| Energy | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 2,967 | 2,967 | 0.34 | 0.02 | — | 2,982 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Total | 5.87 | 12.3 | 3.81 | 23.2 | 0.02 | 0.17 | 0.56 | 0.73 | 0.17 | 0.14 | 0.31 | 92.3 | 4,384 | 4,476 | 9.92 | 0.21 | 3.11 | 4,790 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 0.87 | 0.84 | 0.34 | 2.75 | < 0.005 | < 0.005 | 0.10 | 0.10 | < 0.005 | 0.03 | 0.03 | — | 155 | 155 | 0.05 | 0.03 | 0.17 | 164 |
| Area | 0.17 | 1.39 | 0.07 | 1.37 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | 0.00 | 72.0 | 72.0 | < 0.005 | < 0.005 | — | 72.1 |
| Energy | 0.03 | 0.02 | 0.28 | 0.12 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 491 | 491 | 0.06 | < 0.005 | — | 494 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 2.22 | 7.97 | 10.2 | 0.23 | 0.01 | — | 17.6 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 13.1 | 0.00 | 13.1 | 1.30 | 0.00 | — | 45.7 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.34 | 0.34 |
| Total | 1.07 | 2.24 | 0.69 | 4.24 | < 0.005 | 0.03 | 0.10 | 0.13 | 0.03 | 0.03 | 0.06 | 15.3 | 726 | 741 | 1.64 | 0.03 | 0.52 | 793 |

# 3. Construction Emissions Details

## 3.1. Site Preparation (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 | 4.34 | 3.65 | 36.0 | 32.9 | 0.05 | 1.60 | — | 1.60 | 1.47 | — | 1.47 | — | 5,296 | 5,296 | 0.21 | 0.04 | — | 5,314 |
| Dust From Material Movement | — | — | — | — | — | — | 7.67 | 7.67 | — | 3.94 | 3.94 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.36 | 0.30 | 2.96 | 2.71 | < 0.005 | 0.13 | — | 0.13 | 0.12 | — | 0.12 | — | 435 | 435 | 0.02 | < 0.005 | — | 437 |
| Dust From Material Movement | — | — | — | — | — | — | 0.63 | 0.63 | — | 0.32 | 0.32 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.45 | 0.45 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.07 | 0.05 | 0.54 | 0.49 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 72.1 | 72.1 | < 0.005 | < 0.005 | — | 72.3 |
| Dust From Material Movement | — | — | — | — | — | — | 0.11 | 0.11 | — | 0.06 | 0.06 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.07 | 0.07 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.02 | 0.26 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 9.37 | 9.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.39 | 5.39 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | < 0.005 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.78 | 0.78 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.44 | 0.44 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.07 | 0.07 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.3. Grading (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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 4.19 | 3.52 | 34.3 | 30.2 | 0.06 | 1.45 | — | 1.45 | 1.33 | — | 1.33 | — | 6,598 | 6,598 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movement | — | — | — | — | — | — | 3.61 | 3.61 | — | 1.43 | 1.43 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.86 | 0.72 | 7.05 | 6.20 | 0.01 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,356 | 1,356 | 0.05 | 0.01 | — | 1,360 |
| Dust From Material Movement | — | — | — | — | — | — | 0.74 | 0.74 | — | 0.29 | 0.29 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | < 0.005 | < 0.005 | — | 1.12 | 1.12 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.16 | 0.13 | 1.29 | 1.13 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 224 | 224 | 0.01 | < 0.005 | — | 225 |
| Dust From Material Movement | — | — | — | — | — | — | 0.14 | 0.14 | — | 0.05 | 0.05 | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.18 | 0.18 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.09 | 0.02 | 0.22 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 11.5 | 11.5 | < 0.005 | < 0.005 | 0.03 | — |
| Vendor | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.34 | 5.34 | < 0.005 | < 0.005 | 0.01 | — |
| Hauling | 0.14 | 0.10 | 2.00 | 1.35 | < 0.005 | < 0.005 | 0.05 | 0.06 | < 0.005 | 0.01 | 0.02 | — | 416 | 416 | 0.03 | 0.07 | 0.50 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.08 | 0.07 | 0.02 | 0.30 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 10.7 | 10.7 | 0.01 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.39 | 5.39 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.12 | 0.08 | 2.13 | 1.39 | < 0.005 | < 0.005 | 0.05 | 0.06 | < 0.005 | 0.01 | 0.02 | — | 421 | 421 | 0.03 | 0.07 | 0.01 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.02 | < 0.005 | 0.05 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.23 | 2.23 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 1.10 | 1.10 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | 0.03 | 0.02 | 0.42 | 0.28 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 86.0 | 86.0 | 0.01 | 0.01 | 0.04 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.37 | 0.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.18 | 0.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Hauling | < 0.005 | < 0.005 | 0.08 | 0.05 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 14.2 | 14.2 | < 0.005 | < 0.005 | 0.01 | — |

## 3.5. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.60 | 1.34 | 12.5 | 14.6 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.49 | 5.49 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.65 | 0.54 | 5.08 | 5.94 | 0.01 | 0.23 | — | 0.23 | 0.21 | — | 0.21 | — | 1,086 | 1,086 | 0.04 | 0.01 | — | 1,090 |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | 0.07 | 0.07 | < 0.005 | 0.01 | 0.01 | — | 2.21 | 2.21 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.12 | 0.10 | 0.93 | 1.08 | < 0.005 | 0.04 | — | 0.04 | 0.04 | — | 0.04 | — | 180 | 180 | 0.01 | < 0.005 | — | 180 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 0.37 | 0.37 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.57 | 0.56 | 0.12 | 1.48 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 75.5 | 75.5 | 0.03 | 0.01 | 0.21 | — |
| Vendor | 0.03 | 0.02 | 0.45 | 0.29 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 101 | 101 | 0.01 | 0.01 | 0.16 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.50 | 0.48 | 0.14 | 1.97 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 70.6 | 70.6 | 0.03 | 0.01 | 0.01 | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.03 | 0.02 | 0.48 | 0.31 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 102 | 102 | 0.01 | 0.01 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.21 | 0.20 | 0.05 | 0.67 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 29.2 | 29.2 | 0.01 | 0.01 | 0.04 | — |
| Vendor | 0.01 | 0.01 | 0.19 | 0.12 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 41.2 | 41.2 | < 0.005 | 0.01 | 0.03 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.04 | 0.04 | 0.01 | 0.12 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 4.83 | 4.83 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 6.82 | 6.82 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.7. Building Construction (2025) - 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 | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.29 | 5.29 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.50 | 1.25 | 11.6 | 14.5 | 0.03 | 0.48 | — | 0.48 | 0.44 | — | 0.44 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.38 | 5.38 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.07 | 0.90 | 8.30 | 10.4 | 0.02 | 0.34 | — | 0.34 | 0.32 | — | 0.32 | — | 1,906 | 1,906 | 0.08 | 0.02 | — | 1,912 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.80 | 3.80 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.20 | 0.16 | 1.51 | 1.89 | < 0.005 | 0.06 | — | 0.06 | 0.06 | — | 0.06 | — | 316 | 316 | 0.01 | < 0.005 | — | 317 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.63 | 0.63 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.54 | 0.52 | 0.11 | 1.37 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 73.9 | 73.9 | 0.02 | 0.01 | 0.19 | — |
| Vendor | 0.03 | 0.02 | 0.44 | 0.28 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 99.0 | 99.0 | 0.01 | 0.01 | 0.16 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.47 | 0.45 | 0.13 | 1.82 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 69.0 | 69.0 | 0.03 | 0.01 | 0.01 | — |
| Vendor | 0.03 | 0.02 | 0.47 | 0.30 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 99.9 | 99.9 | 0.01 | 0.01 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.34 | 0.33 | 0.09 | 1.09 | 0.00 | 0.00 | 0.03 | 0.03 | 0.00 | 0.01 | 0.01 | — | 50.1 | 50.1 | 0.02 | 0.01 | 0.06 | — |
| Vendor | 0.02 | 0.01 | 0.33 | 0.21 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 71.0 | 71.0 | < 0.005 | 0.01 | 0.05 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.06 | 0.06 | 0.02 | 0.20 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.29 | 8.29 | < 0.005 | < 0.005 | 0.01 | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.04 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 11.8 | 11.8 | < 0.005 | < 0.005 | 0.01 | — |
| 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 | — |

## 3.9. Building Construction (2026) - 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 | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.18 | 5.18 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.42 | 1.19 | 11.0 | 14.4 | 0.03 | 0.42 | — | 0.42 | 0.39 | — | 0.39 | — | 2,668 | 2,668 | 0.11 | 0.02 | — | 2,677 |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.00 | 0.83 | 7.68 | 10.1 | 0.02 | 0.30 | — | 0.30 | 0.27 | — | 0.27 | — | 1,869 | 1,869 | 0.08 | 0.02 | — | 1,875 |
| Onsite truck | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.12 | 0.12 | < 0.005 | 0.01 | 0.01 | — | 3.66 | 3.66 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.18 | 0.15 | 1.40 | 1.84 | < 0.005 | 0.05 | — | 0.05 | 0.05 | — | 0.05 | — | 309 | 309 | 0.01 | < 0.005 | — | 310 |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | — | 0.61 | 0.61 | < 0.005 | < 0.005 | < 0.005 | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.50 | 0.48 | 0.10 | 1.27 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 72.3 | 72.3 | 0.02 | 0.01 | 0.18 | — |
| Vendor | 0.03 | 0.02 | 0.44 | 0.28 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 97.2 | 97.2 | 0.01 | 0.01 | 0.14 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.44 | 0.42 | 0.12 | 1.69 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.01 | — | 67.5 | 67.5 | 0.03 | 0.01 | < 0.005 | — |
| Vendor | 0.03 | 0.02 | 0.46 | 0.30 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 98.1 | 98.1 | 0.01 | 0.01 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.31 | 0.30 | 0.08 | 0.99 | 0.00 | 0.00 | 0.03 | 0.03 | 0.00 | 0.01 | 0.01 | — | 48.1 | 48.1 | 0.02 | 0.01 | 0.05 | — |
| Vendor | 0.02 | 0.01 | 0.31 | 0.20 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 68.4 | 68.4 | < 0.005 | 0.01 | 0.04 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.06 | 0.06 | 0.01 | 0.18 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 7.96 | 7.96 | < 0.005 | < 0.005 | 0.01 | — |
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.04 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 11.3 | 11.3 | < 0.005 | < 0.005 | 0.01 | — |
| 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 | — |

## 3.11. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipment | 1.01 | 0.85 | 7.81 | 10.0 | 0.01 | 0.39 | — | 0.39 | 0.36 | — | 0.36 | — | 1,512 | 1,512 | 0.06 | 0.01 | — | 1,517 |
| Paving | — | 0.25 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.40 | 5.40 | < 0.005 | < 0.005 | < 0.005 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.15 | 0.13 | 1.18 | 1.51 | < 0.005 | 0.06 | — | 0.06 | 0.05 | — | 0.05 | — | 228 | 228 | 0.01 | < 0.005 | — | 229 |
| Paving | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.82 | 0.82 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.02 | 0.21 | 0.28 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 37.7 | 37.7 | < 0.005 | < 0.005 | — | 37.8 |
| Paving | — | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.14 | 0.14 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.01 | 0.17 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.59 | 8.59 | < 0.005 | < 0.005 | 0.02 | — |
| Vendor | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.34 | 5.34 | < 0.005 | < 0.005 | 0.01 | — |
| 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 | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Worker | 0.01 | 0.01 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.23 | 1.23 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.81 | 0.81 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.20 | 0.20 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

## 3.13. Architectural Coating (2026) - 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 | 0.15 | 0.12 | 0.86 | 1.13 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 134 | 134 | 0.01 | < 0.005 | — | 134 |
| Architectural Coatings | — | 34.3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | 0.03 | 0.02 | < 0.005 | < 0.005 | 0.19 | 0.19 | < 0.005 | 0.02 | 0.02 | — | 5.27 | 5.27 | < 0.005 | < 0.005 | < 0.005 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.02 | 0.13 | 0.17 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 20.1 | 20.1 | < 0.005 | < 0.005 | — | 20.2 |
| Architectural Coatings | — | 5.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | < 0.005 | — | 0.79 | 0.79 | < 0.005 | < 0.005 | < 0.005 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | < 0.005 | 0.02 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.33 | 3.33 | < 0.005 | < 0.005 | — | 3.34 |
| Architectural Coatings | — | 0.94 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.08 | 0.02 | 0.34 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 13.5 | 13.5 | 0.01 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 5.20 | 5.20 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | < 0.005 | 0.04 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.07 | 2.07 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.78 | 0.78 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.34 | 0.34 | < 0.005 | < 0.005 | < 0.005 | — |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 0.13 | 0.13 | < 0.005 | < 0.005 | < 0.005 | — |
| 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 | — |

# 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 3.93 | 3.82 | 1.29 | 9.91 | 0.01 | 0.01 | 0.41 | 0.42 | 0.01 | 0.10 | 0.11 | — | 713 | 713 | 0.19 | 0.11 | 1.76 | 752 |
| Apartments Low Rise | 1.45 | 1.41 | 0.48 | 3.66 | < 0.005 | < 0.005 | 0.15 | 0.16 | < 0.005 | 0.04 | 0.04 | — | 263 | 263 | 0.07 | 0.04 | 0.65 | 278 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 5.37 | 5.23 | 1.76 | 13.6 | 0.01 | 0.01 | 0.56 | 0.58 | 0.01 | 0.14 | 0.15 | — | 977 | 977 | 0.26 | 0.15 | 2.41 | 1,030 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 3.40 | 3.26 | 1.47 | 13.0 | 0.01 | 0.01 | 0.41 | 0.42 | 0.01 | 0.10 | 0.11 | — | 673 | 673 | 0.26 | 0.12 | 0.05 | 715 |
| Apartments Low Rise | 1.25 | 1.20 | 0.54 | 4.79 | < 0.005 | < 0.005 | 0.15 | 0.16 | < 0.005 | 0.04 | 0.04 | — | 249 | 249 | 0.09 | 0.04 | 0.02 | 264 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 4.65 | 4.47 | 2.01 | 17.8 | 0.01 | 0.01 | 0.56 | 0.58 | 0.01 | 0.14 | 0.15 | — | 922 | 922 | 0.35 | 0.16 | 0.06 | 979 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.63 | 0.61 | 0.25 | 2.01 | < 0.005 | < 0.005 | 0.07 | 0.08 | < 0.005 | 0.02 | 0.02 | — | 113 | 113 | 0.04 | 0.02 | 0.13 | 120 |
| Apartments Low Rise | 0.23 | 0.23 | 0.09 | 0.74 | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | 0.01 | 0.01 | — | 41.7 | 41.7 | 0.01 | 0.01 | 0.05 | 44.1 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.87 | 0.84 | 0.34 | 2.75 | < 0.005 | < 0.005 | 0.10 | 0.10 | < 0.005 | 0.03 | 0.03 | — | 155 | 155 | 0.05 | 0.03 | 0.17 | 164 |

## 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | 616 | 616 | 0.10 | 0.01 | — | 622 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartme Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | 154 | 154 | 0.02 | < 0.005 | — | 155 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | — | 229 | 229 | 0.04 | < 0.005 | — | 231 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 999 | 999 | 0.16 | 0.02 | — | 1,009 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | 616 | 616 | 0.10 | 0.01 | — | 622 |
| Apartme nts Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | 154 | 154 | 0.02 | < 0.005 | — | 155 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | — | 229 | 229 | 0.04 | < 0.005 | — | 231 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 999 | 999 | 0.16 | 0.02 | — | 1,009 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | 102 | 102 | 0.02 | < 0.005 | — | 103 |
| Apartme nts Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | 25.5 | 25.5 | < 0.005 | < 0.005 | — | 25.7 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | — | 37.8 | 37.8 | 0.01 | < 0.005 | — | 38.2 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 165 | 165 | 0.03 | < 0.005 | — | 167 |

### 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.14 | 0.07 | 1.16 | 0.49 | 0.01 | 0.09 | — | 0.09 | 0.09 | — | 0.09 | — | 1,472 | 1,472 | 0.13 | < 0.005 | — | 1,476 |
| Apartments Low Rise | 0.05 | 0.02 | 0.39 | 0.17 | < 0.005 | 0.03 | — | 0.03 | 0.03 | — | 0.03 | — | 496 | 496 | 0.04 | < 0.005 | — | 498 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 1,968 | 1,968 | 0.17 | < 0.005 | — | 1,973 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.14 | 0.07 | 1.16 | 0.49 | 0.01 | 0.09 | — | 0.09 | 0.09 | — | 0.09 | — | 1,472 | 1,472 | 0.13 | < 0.005 | — | 1,476 |
| Apartments Low Rise | 0.05 | 0.02 | 0.39 | 0.17 | < 0.005 | 0.03 | — | 0.03 | 0.03 | — | 0.03 | — | 496 | 496 | 0.04 | < 0.005 | — | 498 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.18 | 0.09 | 1.55 | 0.66 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | — | 1,968 | 1,968 | 0.17 | < 0.005 | — | 1,973 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | 0.02 | 0.01 | 0.21 | 0.09 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 244 | 244 | 0.02 | < 0.005 | — | 244 |
| Apartments Low Rise | 0.01 | < 0.005 | 0.07 | 0.03 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 82.2 | 82.2 | 0.01 | < 0.005 | — | 82.4 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.03 | 0.02 | 0.28 | 0.12 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 326 | 326 | 0.03 | < 0.005 | — | 327 |

## 4.3. Area Emissions by Source

### 4.3.1. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Hearths | 0.17 | 0.08 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Consumer Products | — | 6.21 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.52 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Landscape Equipment | 1.84 | 1.72 | 0.14 | 14.9 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 47.3 | 47.3 | < 0.005 | < 0.005 | — | 47.5 |
| Total | 2.01 | 8.53 | 1.58 | 15.5 | 0.01 | 0.13 | — | 0.13 | 0.13 | — | 0.13 | 0.00 | 1,879 | 1,879 | 0.04 | < 0.005 | — | 1,881 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Hearths | 0.17 | 0.08 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |
| Consumer Products | — | 6.21 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.52 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | 0.17 | 6.81 | 1.44 | 0.61 | 0.01 | 0.12 | — | 0.12 | 0.12 | — | 0.12 | 0.00 | 1,832 | 1,832 | 0.03 | < 0.005 | — | 1,834 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Hearths | 0.01 | < 0.005 | 0.06 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | 0.00 | 68.1 | 68.1 | < 0.005 | < 0.005 | — | 68.2 |
| Consumer Products | — | 1.13 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.09 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Landscape Equipment | 0.17 | 0.15 | 0.01 | 1.34 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.86 | 3.86 | < 0.005 | < 0.005 | — | 3.87 |
| Total | 0.17 | 1.39 | 0.07 | 1.37 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | 0.00 | 72.0 | 72.0 | < 0.005 | < 0.005 | — | 72.1 |

## 4.4. Water Emissions by Land Use

### 4.4.1. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 9.11 | 41.8 | 50.9 | 0.94 | 0.02 | — | 81.3 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 4.32 | 5.49 | 9.81 | 0.44 | 0.01 | — | 24.1 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.32 | 0.32 | < 0.005 | < 0.005 | — | 0.32 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.49 | 0.49 | < 0.005 | < 0.005 | — | 0.49 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 9.11 | 41.8 | 50.9 | 0.94 | 0.02 | — | 81.3 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 4.32 | 5.49 | 9.81 | 0.44 | 0.01 | — | 24.1 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.32 | 0.32 | < 0.005 | < 0.005 | — | 0.32 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.49 | 0.49 | < 0.005 | < 0.005 | — | 0.49 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 13.4 | 48.1 | 61.6 | 1.39 | 0.03 | — | 106 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 1.51 | 6.92 | 8.43 | 0.16 | < 0.005 | — | 13.5 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 0.72 | 0.91 | 1.62 | 0.07 | < 0.005 | — | 3.99 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.05 | 0.05 | < 0.005 | < 0.005 | — | 0.05 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.08 | 0.08 | < 0.005 | < 0.005 | — | 0.08 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 2.22 | 7.97 | 10.2 | 0.23 | 0.01 | — | 17.6 |

## 4.5. Waste Emissions by Land Use

### 4.5.1. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 56.6 | 0.00 | 56.6 | 5.65 | 0.00 | — | 198 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 22.3 | 0.00 | 22.3 | 2.23 | 0.00 | — | 78.0 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 56.6 | 0.00 | 56.6 | 5.65 | 0.00 | — | 198 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 22.3 | 0.00 | 22.3 | 2.23 | 0.00 | — | 78.0 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 78.8 | 0.00 | 78.8 | 7.88 | 0.00 | — | 276 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | 9.36 | 0.00 | 9.36 | 0.94 | 0.00 | — | 32.8 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 3.69 | 0.00 | 3.69 | 0.37 | 0.00 | — | 12.9 |
| Enclosed Parking Structure | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | — | — | — | — | — | — | — | — | — | — | — | 13.1 | 0.00 | 13.1 | 1.30 | 0.00 | — | 45.7 |

# 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.65 | 1.65 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.43 | 0.43 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.65 | 1.65 |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.43 | 0.43 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 2.07 | 2.07 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Single Family Housing | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.27 | 0.27 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.07 | 0.07 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.34 | 0.34 |

## 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.8. 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.9. 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

## 4.10. 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)

| Vegetatio | 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

# 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 | 1/12/2024 | 2/22/2024 | 5.00 | 30.0 | — |
| Grading | Grading | 2/23/2024 | 6/6/2024 | 5.00 | 75.0 | — |
| Building Construction | Building Construction | 6/7/2024 | 12/24/2026 | 5.00 | 665 | Phase length adjusted to match schedule |
| Paving | Paving | 6/7/2024 | 8/22/2024 | 5.00 | 55.0 | — |
| Architectural Coating | Architectural Coating | 10/16/2026 | 12/31/2026 | 5.00 | 55.0 | — |

## 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 | 2.00 | 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 | Scrapers | Diesel | Average | 2.00 | 8.00 | 423 | 0.48 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Grading | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 8.00 | 84.0 | 0.37 |
| Building Construction | Cranes | Diesel | Average | 1.00 | 7.79 | 367 | 0.29 |
| Building Construction | Forklifts | Diesel | Average | 3.00 | 8.90 | 82.0 | 0.20 |
| Building Construction | Generator Sets | Diesel | Average | 1.00 | 8.90 | 14.0 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | Diesel | Average | 3.00 | 7.79 | 84.0 | 0.37 |
| Building Construction | Welders | Diesel | Average | 1.00 | 8.90 | 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 |
| 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 | 17.5 | 0.50 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | 2.00 | 0.50 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 0.50 | HHDT |
| Site Preparation | Onsite truck | 2.00 | 0.25 | HHDT |
| Grading | — | — | — | — |
| Grading | Worker | 20.0 | 0.50 | LDA,LDT1,LDT2 |
| Grading | Vendor | 2.00 | 0.50 | HHDT,MHDT |
| Grading | Hauling | 117 | 0.50 | HHDT |
| Grading | Onsite truck | 2.00 | 0.25 | HHDT |
| Building Construction | — | — | — | — |

| | | | | |
|---|---|---|---|---|
| Building Construction | Worker | 132 | 0.50 | LDA,LDT1,LDT2 |
| Building Construction | Vendor | 37.7 | 0.50 | HHDT,MHDT |
| Building Construction | Hauling | 0.00 | 0.50 | HHDT |
| Building Construction | Onsite truck | 2.00 | 0.25 | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 15.0 | 0.50 | LDA,LDT1,LDT2 |
| Paving | Vendor | 2.00 | 0.50 | HHDT,MHDT |
| Paving | Hauling | 0.00 | 0.50 | HHDT |
| Paving | Onsite truck | 2.00 | 0.25 | HHDT |
| Architectural Coating | — | — | — | — |
| Architectural Coating | Worker | 26.4 | 0.50 | LDA,LDT1,LDT2 |
| Architectural Coating | Vendor | 2.00 | 0.50 | HHDT,MHDT |
| Architectural Coating | Hauling | 0.00 | 0.50 | HHDT |
| Architectural Coating | Onsite truck | 2.00 | 0.25 | HHDT |

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

| Control Strategies Applied | PM10 Reduction | PM2.5 Reduction |
|---|---|---|
| Water unpaved roads twice daily | 55% | 55% |
| Limit vehicle speeds on unpaved roads to 25 mph | 44% | 44% |

## 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 | 586,157 | 195,386 | 5,151 | 572 | 13,737 |

## 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 | — | — | 45.0 | 0.00 | — |
| Grading | 70,000 | — | 225 | 0.00 | — |
| Paving | 0.00 | 0.00 | 0.00 | 0.00 | 6.56 |

### 5.6.2. Construction Earthmoving Control Strategies

| Control Strategies Applied | Frequency (per day) | PM10 Reduction | PM2.5 Reduction |
|---|---|---|---|
| Water Exposed Area | 2 | 61% | 61% |

## 5.7. Construction Paving

| Land Use | Area Paved (acres) | % Asphalt |
|---|---|---|
| Single Family Housing | 1.30 | 0% |
| Apartments Low Rise | — | 0% |
| Enclosed Parking Structure | 2.63 | 100% |
| Other Asphalt Surfaces | 2.63 | 100% |

## 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 | N2O |
|---|---|---|---|---|
| 2024 | 0.00 | 204 | 0.03 | < 0.005 |
| 2025 | 0.00 | 204 | 0.03 | < 0.005 |
| 2026 | 0.00 | 204 | 0.03 | < 0.005 |

## 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 |
|---|---|---|---|---|---|---|---|---|
| Single Family Housing | 1,175 | 1,175 | 1,175 | 428,977 | 588 | 588 | 588 | 214,489 |
| Apartments Low Rise | 434 | 434 | 434 | 158,410 | 217 | 217 | 217 | 79,205 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 5.10. Operational Area Sources

### 5.10.1. Hearths

#### 5.10.1.1. Unmitigated

| Hearth Type | Unmitigated (number) |
|---|---|
| Single Family Housing | — |
| Wood Fireplaces | 0 |
| Gas Fireplaces | 59 |
| Propane Fireplaces | 0 |
| Electric Fireplaces | 0 |
| No Fireplaces | 59 |
| Conventional Wood Stoves | 0 |
| Catalytic Wood Stoves | 6 |
| Non-Catalytic Wood Stoves | 6 |
| Pellet Wood Stoves | 0 |

| | |
|---|---|
| Apartments Low Rise | — |
| Wood Fireplaces | 0 |
| Gas Fireplaces | 28 |
| Propane Fireplaces | 0 |
| Electric Fireplaces | 0 |
| No Fireplaces | 28 |
| Conventional Wood Stoves | 0 |
| Catalytic Wood Stoves | 3 |
| Non-Catalytic Wood Stoves | 3 |
| Pellet Wood Stoves | 0 |

### 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) |
|---|---|---|---|---|
| 586156.5 | 195,386 | 5,151 | 572 | 13,737 |

### 5.10.3. Landscape Equipment

| 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) |
|---|---|---|---|---|---|
| Single Family Housing | 1,102,897 | 204 | 0.0330 | 0.0040 | 4,591,654 |

| | | | | | |
|---|---|---|---|---|---|
| Apartments Low Rise | 275,234 | 204 | 0.0330 | 0.0040 | 1,548,371 |
| Enclosed Parking Structure | 408,967 | 204 | 0.0330 | 0.0040 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 204 | 0.0330 | 0.0040 | 0.00 |

## 5.12. Operational Water and Wastewater Consumption

### 5.12.1. Unmitigated

| Land Use | Indoor Water (gal/year) | Outdoor Water (gal/year) |
|---|---|---|
| Single Family Housing | 4,754,928 | 23,188,748 |
| Apartments Low Rise | 2,256,576 | 383,689 |
| Enclosed Parking Structure | 0.00 | 235,710 |
| Other Asphalt Surfaces | 0.00 | 358,774 |

## 5.13. Operational Waste Generation

### 5.13.1. Unmitigated

| Land Use | Waste (ton/year) | Cogeneration (kWh/year) |
|---|---|---|
| Single Family Housing | 105 | — |
| Apartments Low Rise | 41.4 | — |
| Enclosed Parking Structure | 0.00 | — |
| Other Asphalt Surfaces | 0.00 | — |

## 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 |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Single Family Housing | Average room A/C & Other residential A/C and heat pumps | R-410A | 2,088 | < 0.005 | 2.50 | 2.50 | 10.0 |
| Single Family Housing | Household refrigerators and/or freezers | R-134a | 1,430 | 0.12 | 0.60 | 0.00 | 1.00 |
| Apartments Low Rise | Average room A/C & Other residential A/C and heat pumps | R-410A | 2,088 | < 0.005 | 2.50 | 2.50 | 10.0 |
| Apartments Low Rise | Household refrigerators and/or freezers | R-134a | 1,430 | 0.12 | 0.60 | 0.00 | 1.00 |

## 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 |
|---|---|---|---|---|---|---|

## 5.16. 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. Biomass Cover Type

#### 5.18.1.1. Unmitigated

| 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) |
|---|---|---|---|

## 8. User Changes to Default Data

| Screen | Justification |
|---|---|
| Land Use | Land development based on project description.<br>174 dwelling units on 20 acres. Includes 2 additional acres of paved area to account for offsite improvements. |
| Construction: Construction Phases | Anticipated construction schedule based on applicant-provided information.<br>Earliest construction dates used to provide a conservative estimate of emissions. |
| Construction: Off-Road Equipment | Adjusted construction equipment usage to match CalEEMod default total building construction HP hours. |
| Operations: Vehicle Data | Project-specific trip generation, consistent with the traffic analysis prepared for the Whispering Falls Residential Development Project.<br>Operational trip lengths updated to 0.5 mile to account for on-site and localized emissions from mobile sources. |

| | |
|---|---|
| Operations: Fleet Mix | SJVAPCD-approved residential fleet mix for the 2025 operational year applied to residential land uses. Full buildout in earliest operational year modeled to provide a conservative estimate of emissions. |
| Operations: Hearths | SJVAPCD Rule 4901 Woodburning<br>No woodburning fireplaces or wood stoves |
| Construction: Trips and VMT | Construction trip lengths updated to 0.5 mile to account for on-site and localized emissions from mobile sources. |

# ATTACHMENT B

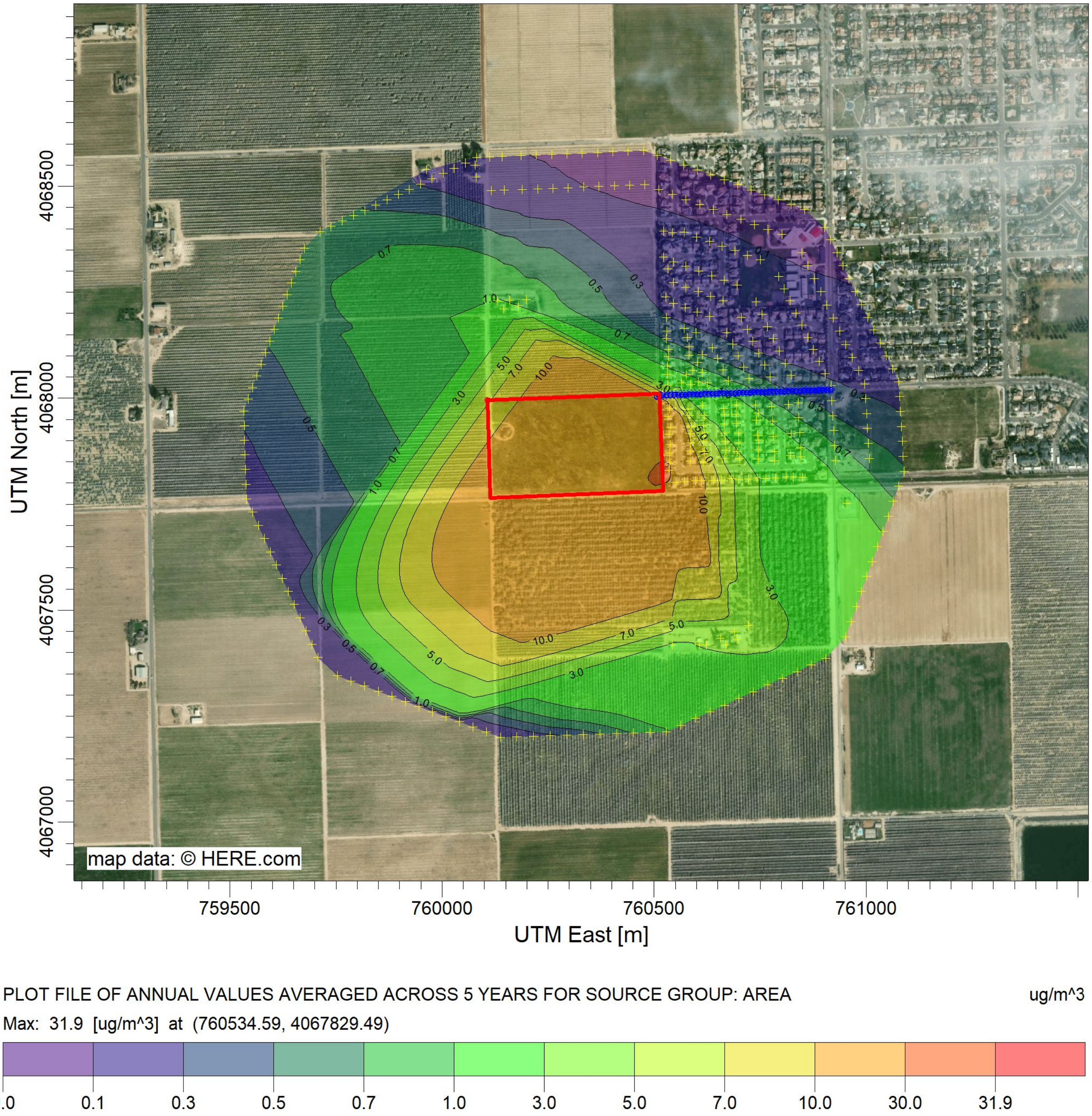
# Construction Health Risk Assessment and Operational Health Risk Screening

# Health Risk Assessment

## General Parameters

PROJECT TITLE:

## Air Dispersion Trend and Graphical Representation of AERMOD Inputs
## Construction – Unit Emissions



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: AREA

Max: 31.9 [ug/m^3] at (760534.59, 4067829.49)

| | | | |
|---|---|---|---|
| COMMENTS: | SOURCES:<br>**2** | COMPANY NAME: | |
| | RECEPTORS:<br>**346** | MODELER: | |
| | OUTPUT TYPE:<br>**Concentration** | SCALE: 1:15,047<br>0 0.5 km | |
| | MAX:<br>**31.9 ug/m^3** | DATE:<br>**8/6/2023** | PROJECT NO.: |

PROJECT TITLE:

## Graphical Representation of AERMOD Inputs (Zoomed In Near Project Site)
## Construction – Unit Emissions

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: AREA ug/m^3

Max: 31.9 [ug/m^3] at (760534.59, 4067829.49)

0.0 0.1 0.3 0.5 0.7 1.0 3.0 5.0 7.0 10.0 30.0 31.9

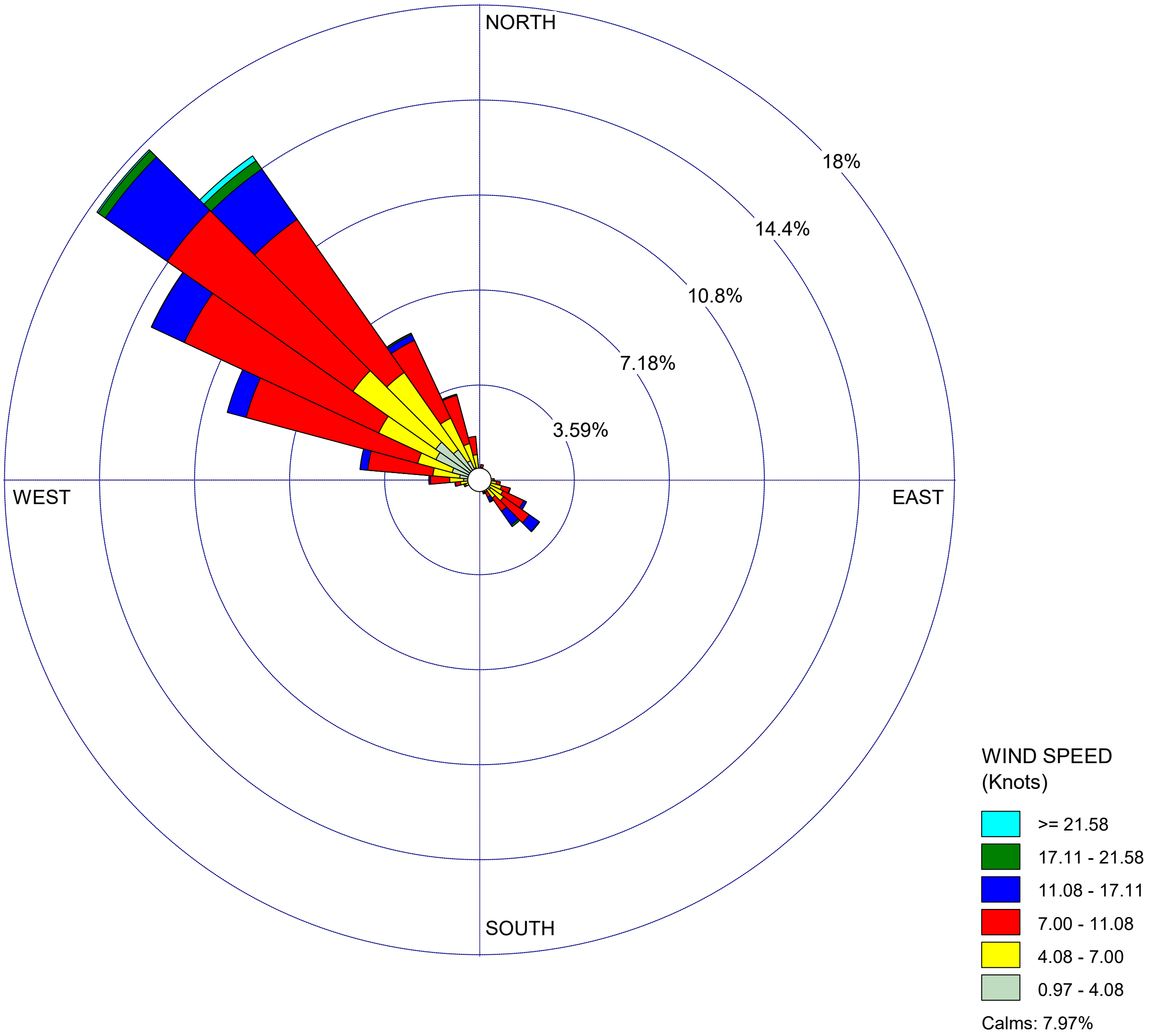
| | | | |
|---|---|---|---|
| COMMENTS: | SOURCES:<br>**2** | COMPANY NAME: | |
| | RECEPTORS:<br>**346** | MODELER: | |
| | OUTPUT TYPE:<br>**Concentration** | SCALE: 1:4,824<br>0 0.1 km | |
| | MAX:<br>**31.9 ug/m^3** | DATE:<br>**8/6/2023** | PROJECT NO.: |

WIND ROSE PLOT:

**Wind Rose - Mendota Station (#99005) – Blowing From**

DISPLAY:

**Wind Speed**
**Direction (blowing from)**



COMMENTS:

DATA PERIOD:

**Start Date: 1/1/2007 - 00:00**
**End Date: 12/31/2011 - 23:59**

COMPANY NAME:

MODELER:

CALM WINDS:

**7.97%**

TOTAL COUNT:

**43824 hrs.**

AVG. WIND SPEED:

**6.46 Knots**

DATE:

**8/6/2023**

PROJECT NO.:

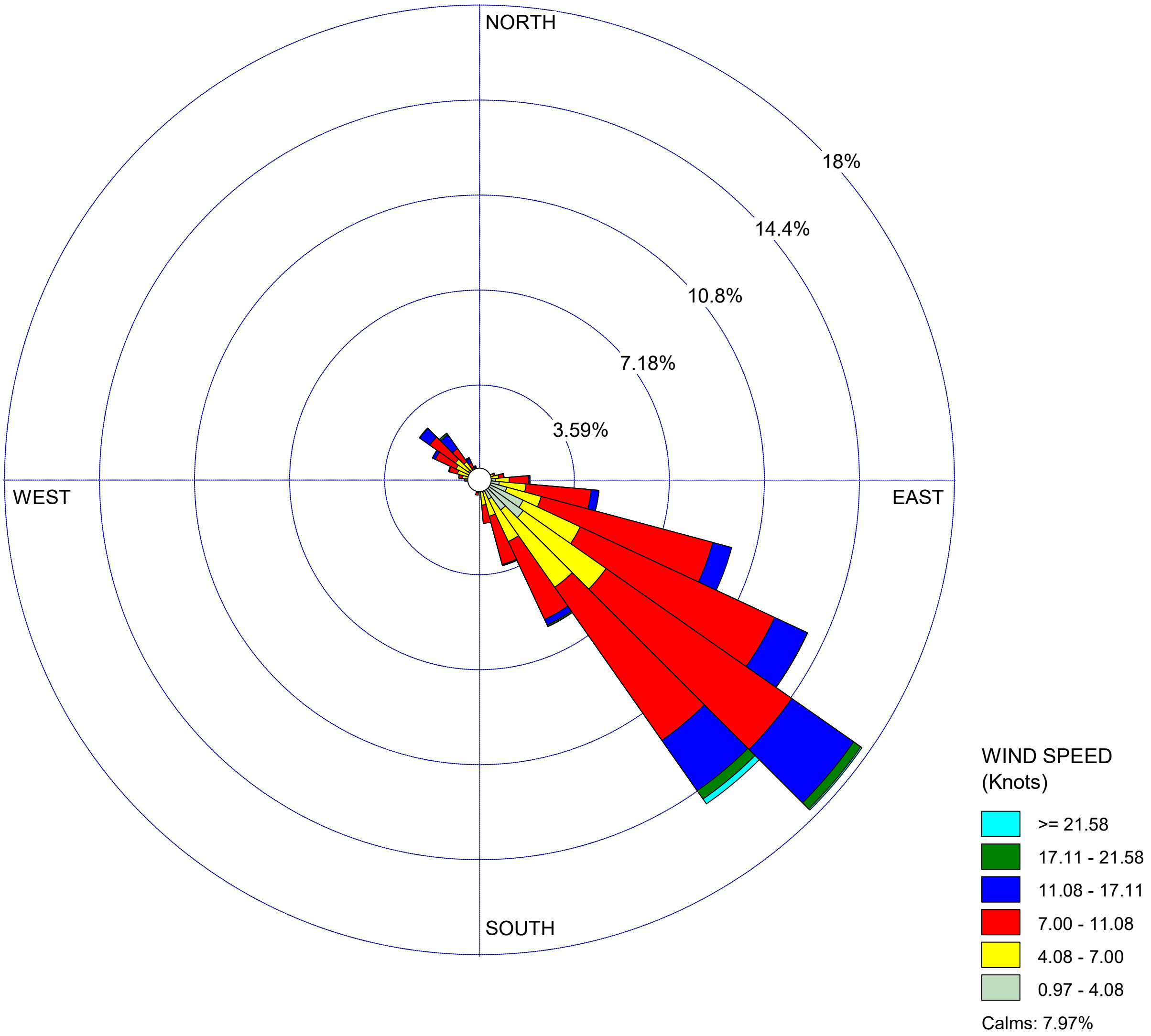
WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:

**Wind Rose - Mendota Station (#99005) – Blowing To**

DISPLAY:

**Wind Speed**
**Flow Vector (blowing to)**



COMMENTS:

DATA PERIOD:

**Start Date: 1/1/2007 - 00:00**
**End Date: 12/31/2011 - 23:59**

COMPANY NAME:

MODELER:

CALM WINDS:

**7.97%**

TOTAL COUNT:

**43824 hrs.**

AVG. WIND SPEED:

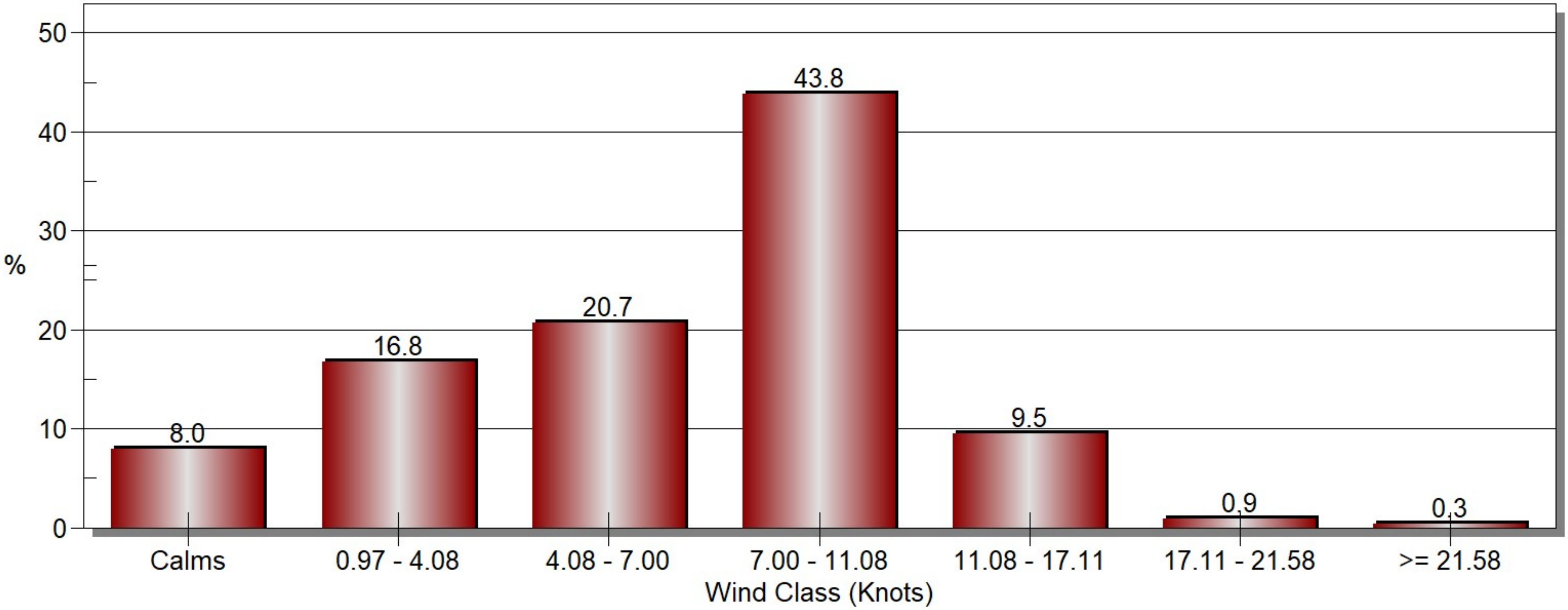
**6.46 Knots**

DATE:

**8/6/2023**

PROJECT NO.:

WRPLOT View - Lakes Environmental Software



Wind Class Frequency Distribution


Maximally Exposed Receptor - Construction
Legend
36°43'13.6"N 120°04'58.3"W
S Susan Ave
S Joseph Ave
S Kenneth Ave
W California Ave
S Modoc Ave
36°43'13.6"N 120°04'58.3"W
California Ave
Google Earth
N
800 ft

# Health Risk Assessment

## Unmitigated Construction

# Whispering Falls Residential Development Project (Unmitigated Construction)

**Estimation of Annual Onsite Construction Emissions**

| | | **Total** |
|---|---|---|
| Start of Construction | 1/12/2024 | |
| End of Construction | 12/31/2026 | |
| Number of Days | 1,084 | 1,084 |
| Number of Hours | 26,016 | 26,016 |

**Size of the construction area source:** **93,405.5** **sq-meters**

| **Run** | **Year** | **On-site Construction Activity** | **Unmitigated On-site DPM (pounds)** |
|---|---|---|---|
| Project Construction | 2024 | Site Preparation | 47.9899 |
| Project Construction | 2024 | Grading | 108.6041 |
| Project Construction | 2024 | Paving | 21.4063 |
| Project Construction | 2024 | Building Construction | 82.2880 |
| Project Construction | 2025 | Building Construction | 125.2755 |
| Project Construction | 2026 | Building Construction | 107.7399 |
| Project Construction | 2026 | Architectural Coating | 1.2734 |

**Total Unmitigated DPM (On-site)** 4.946E+02 pounds

**Factor in AERMOD to Account for 5 days per week/8 hours per day: 4.2**

| | | |
|---|---|---|
| Average Emission for Construction Site | 2.245E+05 | grams |
| | 2.397E-03 | grams/sec |
| | 2.567E-08 | grams/m2-sec |

| | |
|---|---|
| Pounds/Construction Period | 4.946E+02 |
| Pounds/Day | 4.563E-01 |
| Pounds/Hour | 1.901E-02 |
| Pounds/Year | 1.665E+02 |
| Years | 2.96986 |

## Whispering Falls Residential Development Project (Unmitigated Construction)

### Estimation of Annual Offsite Construction DPM Emissions (Unmitigated)

| | | **Total** |
|---|---|---|
| Start of Construction | 1/12/2024 | |
| End of Construction | 12/31/2026 | |
| Number of Days | 1,084 | 1,084 |
| Number of Hours | 26,016 | 26,016 |

| | 2024 | 2024 | 2024 | 2024 | 2025 | 2026 | 2026 | |
|---|---|---|---|---|---|---|---|---|
| **Construction Trip Type** | Site Preparation | Grading | Paving | Building Construction | Building Construction | Building Construction | Architectural Coating | **Total (pounds)** |
| Total (pounds) | 0.01157 | 11.60320 | 0.02122 | 0.99394 | 1.74418 | 1.71073 | 0.02122 | **16.10606** |

| | **Haul Truck** | **Vendor Truck** | **Worker** | **Total** |
|---|---|---|---|---|
| Site Preparation | 525.00 | 60.00 | 0.00 | 585.00 |
| Grading | 1500.00 | 150.00 | 8752.50 | 10402.50 |
| Paving | 825.00 | 110.00 | 0.00 | 935.00 |
| Building Construction (2024) | 19521.20 | 5579.60 | 0.00 | 25100.80 |
| Building Construction (2025) | 34425.90 | 9839.70 | 0.00 | 44265.60 |
| Building Construction (2026) | 33766.40 | 9651.20 | 0.00 | 43417.60 |
| Architectural Coating (2026) | 1452.00 | 110.00 | 0.00 | 1562.00 |
| **Total** | **92,015.50** | **25,500.50** | **8,752.50** | **126,268.50** |

| | **Haul Truck (pounds)** | **Vendor Truck (pounds)** | **Worker (pounds)** | **Total (pounds)** |
|---|---|---|---|---|
| **Total DPM** | 1.174E+01 | 3.253E+00 | 1.116E+00 | 1.611E+01 |
| **Average Emissions** | | | | |
| Grams | 5.329E+03 | 1.477E+03 | 5.069E+02 | |
| Grams/sec | 5.689E-05 | 1.577E-05 | 5.412E-06 | |
| Default Distance | 20 | 4 | 7.7 | Default Vehicle Travel Distance in CalEEMod |
| **Vehicle Travel Distances in the Construction HRA (miles)** | | | | |
| Off-site (mi) | 0.26 | 0.26 | 0.26 | miles |
| **Trip Distribution (percent)** | | | | |
| Off-site Road Segment | 100.0% | 100.0% | 100.0% | off-site |
| **Total Average Offsite Vehicle Emissions Along Travel Distance (g/sec)** | | | | **Total** |
| Off-site Road Segment | 7.346E-07 | 1.018E-06 | 1.815E-07 | 1.934E-06 |

| | Grams/sec | Pounds/Hour | Pounds/Day | Pounds/year | Tons/year |
|---|---|---|---|---|---|
| Off-site Road Segment | 1.934E-06 | 1.535E-05 | 3.684E-04 | 1.345E-01 | 6.723E-05 |

# Health Risk Summary - Unmitigated Construction (Summary of HARP2 Results)

## Whispering Falls Residential Development (Unmitigated Construction)

| | RISK_SUM | Cancer Risk/million | MAXHI NonCancer Chronic | MAXHI Acute |
|---|---|---|---|---|
| Maximum Risk | 2.9032E-05 | 29.03 | 1.5286E-02 | 0.00E+00 |

| | X | Y |
|---|---|---|
| MEI UTM | 760534.59 | 4067829.49 |
| Lat/Long | 36°43'13.6"N | 120°04'58.3"W |

Receptor # 6

*HARP - HRACalc v22118 8/8/2023 8:28:42 AM - Cancer Risk - Input File: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit ConHRAInput.hra
*HARP - HRACalc v22118 8/8/2023 8:28:42 AM - Chronic Risk - Input File: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit ConHRAInput.hra
*HARP - HRACalc v22118 8/8/2023 8:28:42 AM - Acute Risk - Input File: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit ConHRAInput.hra

| REC | GRP | X | Y | RISK_SUM | SCENARIO | MAXHI NonCancerChronic | MAXHI Acute |
|---|---|---|---|---|---|---|---|
| 1 | ALL | 760536.03 | 4067848.13 | 2.71670E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4304E-02 | 0.00E+00 |
| 2 | ALL | 760536.71 | 4067976.01 | 1.02870E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.4162E-03 | 0.00E+00 |
| 3 | ALL | 760538.41 | 4067932.27 | 1.75440E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.2373E-03 | 0.00E+00 |
| 4 | ALL | 760537.58 | 4067891.61 | 2.27810E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1995E-02 | 0.00E+00 |
| 5 | ALL | 760537.10 | 4067870.59 | 2.49330E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3128E-02 | 0.00E+00 |
| 6 | ALL | 760534.59 | 4067829.49 | 2.90320E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5286E-02 | 0.00E+00 |
| 7 | ALL | 760551.59 | 4067802.03 | 2.22970E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1740E-02 | 0.00E+00 |
| 8 | ALL | 760532.74 | 4068030.62 | 2.01230E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0595E-03 | 0.00E+00 |
| 9 | ALL | 760584.79 | 4067852.14 | 1.17990E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.2127E-03 | 0.00E+00 |
| 10 | ALL | 760571.56 | 4067803.23 | 1.64390E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.6556E-03 | 0.00E+00 |
| 11 | ALL | 760564.60 | 4068036.27 | 1.33800E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.0450E-04 | 0.00E+00 |
| 12 | ALL | 760579.79 | 4067973.83 | 3.78960E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9953E-03 | 0.00E+00 |
| 13 | ALL | 760587.06 | 4067933.76 | 6.09720E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.2103E-03 | 0.00E+00 |
| 14 | ALL | 760584.88 | 4067916.89 | 7.60630E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0049E-03 | 0.00E+00 |
| 15 | ALL | 760584.71 | 4067875.39 | 1.04780E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.5169E-03 | 0.00E+00 |
| 16 | ALL | 760597.53 | 4067805.57 | 1.17210E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.1714E-03 | 0.00E+00 |
| 17 | ALL | 760586.74 | 4068032.93 | 1.21430E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.3939E-04 | 0.00E+00 |
| 18 | ALL | 760575.84 | 4068055.64 | 9.13140E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.8079E-04 | 0.00E+00 |
| 19 | ALL | 760531.50 | 4068075.15 | 8.73160E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.5974E-04 | 0.00E+00 |
| 20 | ALL | 760614.36 | 4067982.76 | 2.07180E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0909E-03 | 0.00E+00 |
| 21 | ALL | 760617.62 | 4067917.49 | 4.57550E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.4091E-03 | 0.00E+00 |
| 22 | ALL | 760586.24 | 4067894.32 | 9.02120E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.7499E-03 | 0.00E+00 |
| 23 | ALL | 760615.27 | 4067850.82 | 7.91130E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1655E-03 | 0.00E+00 |
| 24 | ALL | 760611.49 | 4067805.63 | 9.95210E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.2401E-03 | 0.00E+00 |
| 25 | ALL | 760604.52 | 4068038.67 | 9.95790E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.2431E-04 | 0.00E+00 |
| 26 | ALL | 760591.45 | 4068065.92 | 7.37610E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.8837E-04 | 0.00E+00 |
| 27 | ALL | 760533.78 | 4068098.44 | 6.46120E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4020E-04 | 0.00E+00 |
| 28 | ALL | 760534.16 | 4068114.91 | 5.42130E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.8544E-04 | 0.00E+00 |
| 29 | ALL | 760618.00 | 4067959.90 | 2.71990E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4321E-03 | 0.00E+00 |
| 30 | ALL | 760616.11 | 4067935.88 | 3.79750E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9995E-03 | 0.00E+00 |
| 31 | ALL | 760617.37 | 4067896.96 | 5.58640E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9414E-03 | 0.00E+00 |
| 32 | ALL | 760617.77 | 4067874.07 | 6.64240E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4974E-03 | 0.00E+00 |
| 33 | ALL | 760639.31 | 4067806.09 | 7.34030E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.8649E-03 | 0.00E+00 |
| 34 | ALL | 760626.12 | 4068036.47 | 9.10730E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.7953E-04 | 0.00E+00 |
| 35 | ALL | 760614.68 | 4068060.31 | 7.11820E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.7479E-04 | 0.00E+00 |
| 36 | ALL | 760603.23 | 4068084.15 | 5.70230E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.0024E-04 | 0.00E+00 |
| 37 | ALL | 760582.78 | 4068121.22 | 4.29690E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2624E-04 | 0.00E+00 |
| 38 | ALL | 760578.27 | 4068143.06 | 3.64200E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9176E-04 | 0.00E+00 |
| 39 | ALL | 760528.40 | 4068140.68 | 4.35520E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2932E-04 | 0.00E+00 |
| 40 | ALL | 760663.56 | 4067974.85 | 1.46330E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.7049E-04 | 0.00E+00 |
| 41 | ALL | 760665.67 | 4067939.65 | 2.07730E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0938E-03 | 0.00E+00 |
| 42 | ALL | 760667.51 | 4067899.01 | 3.02350E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5920E-03 | 0.00E+00 |
| 43 | ALL | 760669.62 | 4067876.42 | 3.56650E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.8778E-03 | 0.00E+00 |
| 44 | ALL | 760659.27 | 4067807.29 | 5.96420E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.1403E-03 | 0.00E+00 |
| 45 | ALL | 760675.05 | 4068041.51 | 6.76810E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.5636E-04 | 0.00E+00 |
| 46 | ALL | 760662.63 | 4068067.40 | 5.41170E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.8494E-04 | 0.00E+00 |
| 47 | ALL | 760650.20 | 4068093.29 | 4.41240E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.3233E-04 | 0.00E+00 |
| 48 | ALL | 760637.78 | 4068119.17 | 3.67200E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9334E-04 | 0.00E+00 |
| 49 | ALL | 760598.36 | 4068154.86 | 3.14220E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6544E-04 | 0.00E+00 |
| 50 | ALL | 760571.37 | 4068164.67 | 3.16570E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6668E-04 | 0.00E+00 |
| 51 | ALL | 760529.93 | 4068159.08 | 3.72390E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9607E-04 | 0.00E+00 |
| 52 | ALL | 760528.58 | 4068189.87 | 2.98290E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5706E-04 | 0.00E+00 |
| 53 | ALL | 760694.75 | 4067984.15 | 1.08760E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.7265E-04 | 0.00E+00 |
| 54 | ALL | 760694.86 | 4067940.65 | 1.60310E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.4407E-04 | 0.00E+00 |
| 55 | ALL | 760699.84 | 4067918.34 | 1.88390E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.9192E-04 | 0.00E+00 |
| 56 | ALL | 760695.94 | 4067874.84 | 2.78950E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4688E-03 | 0.00E+00 |
| 57 | ALL | 760699.84 | 4067808.15 | 4.05880E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.1371E-03 | 0.00E+00 |
| 58 | ALL | 760724.31 | 4068045.88 | 5.32050E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.8014E-04 | 0.00E+00 |
| 59 | ALL | 760711.23 | 4068073.13 | 4.33040E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2801E-04 | 0.00E+00 |
| 60 | ALL | 760698.15 | 4068100.37 | 3.58210E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.8861E-04 | 0.00E+00 |
| 61 | ALL | 760685.07 | 4068127.62 | 3.01110E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5854E-04 | 0.00E+00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 62 | ALL | 760671.99 | 4068154.87 | 2.57640E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3566E-04 | 0.00E+00 |
| 63 | ALL | 760630.50 | 4068192.44 | 2.26470E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1924E-04 | 0.00E+00 |
| 64 | ALL | 760602.09 | 4068202.76 | 2.28670E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2040E-04 | 0.00E+00 |
| 65 | ALL | 760573.68 | 4068213.08 | 2.30610E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2142E-04 | 0.00E+00 |
| 66 | ALL | 760545.27 | 4068223.40 | 2.31680E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2198E-04 | 0.00E+00 |
| 67 | ALL | 760528.05 | 4068239.31 | 2.19310E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1547E-04 | 0.00E+00 |
| 68 | ALL | 760739.50 | 4067983.43 | 8.57060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.5127E-04 | 0.00E+00 |
| 69 | ALL | 760741.62 | 4067948.23 | 1.09500E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.7654E-04 | 0.00E+00 |
| 70 | ALL | 760743.74 | 4067913.04 | 1.41660E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.4590E-04 | 0.00E+00 |
| 71 | ALL | 760745.85 | 4067877.84 | 1.80610E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.5098E-04 | 0.00E+00 |
| 72 | ALL | 760746.03 | 4067856.19 | 2.08780E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0993E-03 | 0.00E+00 |
| 73 | ALL | 760742.36 | 4067811.74 | 2.79010E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4691E-03 | 0.00E+00 |
| 74 | ALL | 760773.75 | 4068049.85 | 4.33600E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2830E-04 | 0.00E+00 |
| 75 | ALL | 760760.20 | 4068078.07 | 3.56360E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.8763E-04 | 0.00E+00 |
| 76 | ALL | 760746.66 | 4068106.30 | 2.98450E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5714E-04 | 0.00E+00 |
| 77 | ALL | 760733.11 | 4068134.52 | 2.53390E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3342E-04 | 0.00E+00 |
| 78 | ALL | 760719.57 | 4068162.74 | 2.18640E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1512E-04 | 0.00E+00 |
| 79 | ALL | 760706.02 | 4068190.96 | 1.91170E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0065E-04 | 0.00E+00 |
| 80 | ALL | 760663.05 | 4068229.87 | 1.71470E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.0283E-05 | 0.00E+00 |
| 81 | ALL | 760633.63 | 4068240.56 | 1.73830E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.1528E-05 | 0.00E+00 |
| 82 | ALL | 760604.20 | 4068251.25 | 1.75730E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.2525E-05 | 0.00E+00 |
| 83 | ALL | 760574.78 | 4068261.94 | 1.76880E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.3131E-05 | 0.00E+00 |
| 84 | ALL | 760545.35 | 4068272.62 | 1.77380E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.3397E-05 | 0.00E+00 |
| 85 | ALL | 760532.10 | 4068304.53 | 1.55400E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.1822E-05 | 0.00E+00 |
| 86 | ALL | 760777.15 | 4067980.62 | 7.33060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.8598E-04 | 0.00E+00 |
| 87 | ALL | 760779.27 | 4067945.43 | 9.08970E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.7860E-04 | 0.00E+00 |
| 88 | ALL | 760781.39 | 4067910.23 | 1.14180E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.0119E-04 | 0.00E+00 |
| 89 | ALL | 760783.50 | 4067875.03 | 1.42160E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.4851E-04 | 0.00E+00 |
| 90 | ALL | 760783.69 | 4067853.39 | 1.62440E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.5530E-04 | 0.00E+00 |
| 91 | ALL | 760812.02 | 4067814.46 | 1.67850E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.8380E-04 | 0.00E+00 |
| 92 | ALL | 760823.31 | 4068053.58 | 3.65640E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9252E-04 | 0.00E+00 |
| 93 | ALL | 760809.41 | 4068082.53 | 3.02720E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5939E-04 | 0.00E+00 |
| 94 | ALL | 760795.52 | 4068111.49 | 2.55280E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3441E-04 | 0.00E+00 |
| 95 | ALL | 760781.62 | 4068140.44 | 2.17930E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1474E-04 | 0.00E+00 |
| 96 | ALL | 760767.72 | 4068169.39 | 1.88920E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.9470E-05 | 0.00E+00 |
| 97 | ALL | 760753.83 | 4068198.34 | 1.66280E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.7549E-05 | 0.00E+00 |
| 98 | ALL | 760739.93 | 4068227.30 | 1.48270E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.8068E-05 | 0.00E+00 |
| 99 | ALL | 760695.85 | 4068267.21 | 1.35170E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.1173E-05 | 0.00E+00 |
| 100 | ALL | 760665.66 | 4068278.18 | 1.37060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.2168E-05 | 0.00E+00 |
| 101 | ALL | 760635.48 | 4068289.14 | 1.39010E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.3193E-05 | 0.00E+00 |
| 102 | ALL | 760605.29 | 4068300.10 | 1.40250E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.3845E-05 | 0.00E+00 |
| 103 | ALL | 760575.11 | 4068311.07 | 1.40770E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.4118E-05 | 0.00E+00 |
| 104 | ALL | 760544.92 | 4068322.03 | 1.40600E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.4028E-05 | 0.00E+00 |
| 105 | ALL | 760522.15 | 4068333.33 | 1.38320E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.2830E-05 | 0.00E+00 |
| 106 | ALL | 760839.32 | 4067989.43 | 5.54520E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9197E-04 | 0.00E+00 |
| 107 | ALL | 760841.44 | 4067954.24 | 6.48510E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4146E-04 | 0.00E+00 |
| 108 | ALL | 760843.56 | 4067919.04 | 7.85310E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1349E-04 | 0.00E+00 |
| 109 | ALL | 760845.67 | 4067883.84 | 9.51250E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.0086E-04 | 0.00E+00 |
| 110 | ALL | 760845.85 | 4067862.20 | 1.07030E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.6355E-04 | 0.00E+00 |
| 111 | ALL | 760849.91 | 4067813.45 | 1.34540E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.0839E-04 | 0.00E+00 |
| 112 | ALL | 760903.33 | 4068058.04 | 2.86480E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5084E-04 | 0.00E+00 |
| 113 | ALL | 760889.60 | 4068086.66 | 2.44820E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2890E-04 | 0.00E+00 |
| 114 | ALL | 760875.86 | 4068115.27 | 2.11230E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1122E-04 | 0.00E+00 |
| 115 | ALL | 760862.13 | 4068143.88 | 1.83340E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.6535E-05 | 0.00E+00 |
| 116 | ALL | 760848.40 | 4068172.49 | 1.60580E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.4552E-05 | 0.00E+00 |
| 117 | ALL | 760834.66 | 4068201.10 | 1.42270E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.4909E-05 | 0.00E+00 |
| 118 | ALL | 760820.93 | 4068229.71 | 1.27590E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.7181E-05 | 0.00E+00 |
| 119 | ALL | 760807.20 | 4068258.33 | 1.15820E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.0982E-05 | 0.00E+00 |
| 120 | ALL | 760793.46 | 4068286.94 | 1.06270E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.5952E-05 | 0.00E+00 |
| 121 | ALL | 760749.90 | 4068326.38 | 9.89730E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.2112E-05 | 0.00E+00 |
| 122 | ALL | 760720.07 | 4068337.22 | 9.98410E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.2569E-05 | 0.00E+00 |
| 123 | ALL | 760690.24 | 4068348.05 | 1.00830E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.3088E-05 | 0.00E+00 |
| 124 | ALL | 760660.41 | 4068358.89 | 1.01910E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.3661E-05 | 0.00E+00 |
| 125 | ALL | 760630.58 | 4068369.72 | 1.02640E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.4041E-05 | 0.00E+00 |
| 126 | ALL | 760600.75 | 4068380.56 | 1.02800E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.4128E-05 | 0.00E+00 |
| 127 | ALL | 760570.92 | 4068391.39 | 1.02620E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.4033E-05 | 0.00E+00 |
| 128 | ALL | 760542.96 | 4068391.04 | 1.06230E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.5931E-05 | 0.00E+00 |
| 129 | ALL | 760521.99 | 4068393.95 | 1.07590E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.6651E-05 | 0.00E+00 |
| 130 | ALL | 760917.06 | 4068029.43 | 3.39740E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.7888E-04 | 0.00E+00 |
| 131 | ALL | 760919.18 | 4067994.24 | 4.23380E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2292E-04 | 0.00E+00 |
| 132 | ALL | 760921.30 | 4067959.04 | 4.77330E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.5133E-04 | 0.00E+00 |
| 133 | ALL | 760923.41 | 4067923.84 | 5.57430E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9350E-04 | 0.00E+00 |
| 134 | ALL | 760925.53 | 4067888.65 | 6.52230E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4342E-04 | 0.00E+00 |
| 135 | ALL | 760927.65 | 4067853.45 | 7.60930E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0065E-04 | 0.00E+00 |
| 136 | ALL | 760982.06 | 4068065.20 | 2.27980E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2004E-04 | 0.00E+00 |
| 137 | ALL | 760967.19 | 4068096.16 | 1.99240E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0491E-04 | 0.00E+00 |
| 138 | ALL | 760952.33 | 4068127.13 | 1.73500E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.1352E-05 | 0.00E+00 |
| 139 | ALL | 760937.47 | 4068158.09 | 1.51320E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.9675E-05 | 0.00E+00 |
| 140 | ALL | 760922.60 | 4068189.06 | 1.32780E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.9915E-05 | 0.00E+00 |
| 141 | ALL | 760907.74 | 4068220.02 | 1.17720E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.1981E-05 | 0.00E+00 |
| 142 | ALL | 760892.88 | 4068250.99 | 1.05660E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.5634E-05 | 0.00E+00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 143 | ALL | 760878.02 | 4068281.95 | 9.60640E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.0580E-05 | 0.00E+00 |
| 144 | ALL | 760863.15 | 4068312.92 | 8.82740E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.6479E-05 | 0.00E+00 |
| 145 | ALL | 760848.29 | 4068343.88 | 8.18050E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.3073E-05 | 0.00E+00 |
| 146 | ALL | 760801.15 | 4068386.58 | 7.67980E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0436E-05 | 0.00E+00 |
| 147 | ALL | 760768.86 | 4068398.30 | 7.73800E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0743E-05 | 0.00E+00 |
| 148 | ALL | 760736.58 | 4068410.03 | 7.79330E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1034E-05 | 0.00E+00 |
| 149 | ALL | 760704.29 | 4068421.76 | 7.84510E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1307E-05 | 0.00E+00 |
| 150 | ALL | 760672.01 | 4068433.48 | 7.89140E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1550E-05 | 0.00E+00 |
| 151 | ALL | 760639.73 | 4068445.21 | 7.90500E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1622E-05 | 0.00E+00 |
| 152 | ALL | 760607.44 | 4068456.93 | 7.89150E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1551E-05 | 0.00E+00 |
| 153 | ALL | 760575.16 | 4068468.66 | 7.83810E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1270E-05 | 0.00E+00 |
| 154 | ALL | 760542.88 | 4068480.39 | 7.75730E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0844E-05 | 0.00E+00 |
| 155 | ALL | 760510.59 | 4068492.11 | 7.67210E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0396E-05 | 0.00E+00 |
| 156 | ALL | 760996.92 | 4068034.23 | 2.59120E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3644E-04 | 0.00E+00 |
| 157 | ALL | 760999.03 | 4067999.04 | 3.07620E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6197E-04 | 0.00E+00 |
| 158 | ALL | 761001.15 | 4067963.84 | 3.62410E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9082E-04 | 0.00E+00 |
| 159 | ALL | 761003.27 | 4067928.64 | 4.21490E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2193E-04 | 0.00E+00 |
| 160 | ALL | 761005.38 | 4067893.45 | 4.85220E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.5548E-04 | 0.00E+00 |
| 161 | ALL | 761007.50 | 4067858.25 | 5.54430E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9192E-04 | 0.00E+00 |
| 162 | ALL | 761062.19 | 4068069.43 | 1.94110E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0220E-04 | 0.00E+00 |
| 163 | ALL | 761047.60 | 4068099.82 | 1.72370E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.0759E-05 | 0.00E+00 |
| 164 | ALL | 761033.01 | 4068130.22 | 1.52470E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.0281E-05 | 0.00E+00 |
| 165 | ALL | 761018.42 | 4068160.61 | 1.34770E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.0961E-05 | 0.00E+00 |
| 166 | ALL | 761003.83 | 4068191.00 | 1.19450E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.2892E-05 | 0.00E+00 |
| 167 | ALL | 760989.24 | 4068221.40 | 1.06530E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.6091E-05 | 0.00E+00 |
| 168 | ALL | 760974.66 | 4068251.79 | 9.58470E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.0466E-05 | 0.00E+00 |
| 169 | ALL | 760960.07 | 4068282.18 | 8.71810E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.5903E-05 | 0.00E+00 |
| 170 | ALL | 760945.48 | 4068312.58 | 8.01230E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.2187E-05 | 0.00E+00 |
| 171 | ALL | 760930.89 | 4068342.97 | 7.43830E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.9165E-05 | 0.00E+00 |
| 172 | ALL | 760916.30 | 4068373.36 | 6.95690E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.6630E-05 | 0.00E+00 |
| 173 | ALL | 760901.71 | 4068403.76 | 6.53970E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4433E-05 | 0.00E+00 |
| 174 | ALL | 760855.44 | 4068445.66 | 6.20830E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.2688E-05 | 0.00E+00 |
| 175 | ALL | 760823.75 | 4068457.17 | 6.23690E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.2839E-05 | 0.00E+00 |
| 176 | ALL | 760792.06 | 4068468.68 | 6.26810E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3003E-05 | 0.00E+00 |
| 177 | ALL | 760760.38 | 4068480.19 | 6.29280E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3134E-05 | 0.00E+00 |
| 178 | ALL | 760728.69 | 4068491.70 | 6.32210E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3288E-05 | 0.00E+00 |
| 179 | ALL | 760697.00 | 4068503.21 | 6.34330E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3399E-05 | 0.00E+00 |
| 180 | ALL | 760665.31 | 4068514.72 | 6.34440E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3405E-05 | 0.00E+00 |
| 181 | ALL | 760633.63 | 4068526.23 | 6.32290E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3292E-05 | 0.00E+00 |
| 182 | ALL | 760601.94 | 4068537.74 | 6.27410E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3035E-05 | 0.00E+00 |
| 183 | ALL | 760570.25 | 4068549.25 | 6.20370E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.2664E-05 | 0.00E+00 |
| 184 | ALL | 760538.56 | 4068560.76 | 6.12600E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.2255E-05 | 0.00E+00 |
| 185 | ALL | 760506.88 | 4068572.27 | 6.04840E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.1846E-05 | 0.00E+00 |
| 186 | ALL | 761076.77 | 4068039.04 | 2.17260E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1439E-04 | 0.00E+00 |
| 187 | ALL | 761078.89 | 4068003.84 | 2.52250E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3282E-04 | 0.00E+00 |
| 188 | ALL | 761081.01 | 4067968.64 | 2.91140E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5329E-04 | 0.00E+00 |
| 189 | ALL | 761083.12 | 4067933.45 | 3.33610E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.7565E-04 | 0.00E+00 |
| 190 | ALL | 761085.24 | 4067898.25 | 3.79250E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9969E-04 | 0.00E+00 |
| 191 | ALL | 761087.36 | 4067863.05 | 4.27890E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2529E-04 | 0.00E+00 |
| 192 | ALL | 761089.47 | 4067827.86 | 4.79570E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.5251E-04 | 0.00E+00 |
| 193 | ALL | 760623.05 | 4067418.87 | 2.82580E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4879E-03 | 0.00E+00 |
| 194 | ALL | 760656.02 | 4067434.08 | 3.07440E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6187E-03 | 0.00E+00 |
| 195 | ALL | 760689.00 | 4067449.28 | 3.24680E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.7095E-03 | 0.00E+00 |
| 196 | ALL | 760721.98 | 4067464.48 | 3.32170E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.7490E-03 | 0.00E+00 |
| 197 | ALL | 760563.45 | 4067229.09 | 1.05830E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.5722E-04 | 0.00E+00 |
| 198 | ALL | 760597.60 | 4067244.84 | 1.24810E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.5719E-04 | 0.00E+00 |
| 199 | ALL | 760631.76 | 4067260.58 | 1.44530E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.6098E-04 | 0.00E+00 |
| 200 | ALL | 760665.91 | 4067276.33 | 1.63960E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.6329E-04 | 0.00E+00 |
| 201 | ALL | 760700.07 | 4067292.08 | 1.82090E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.5875E-04 | 0.00E+00 |
| 202 | ALL | 760734.22 | 4067307.82 | 1.97830E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0416E-03 | 0.00E+00 |
| 203 | ALL | 760768.38 | 4067323.57 | 2.09910E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1052E-03 | 0.00E+00 |
| 204 | ALL | 760802.53 | 4067339.32 | 2.17180E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1435E-03 | 0.00E+00 |
| 205 | ALL | 760836.69 | 4067355.06 | 2.19020E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1532E-03 | 0.00E+00 |
| 206 | ALL | 760870.84 | 4067370.81 | 2.15350E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1339E-03 | 0.00E+00 |
| 207 | ALL | 760905.00 | 4067386.56 | 2.06620E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0879E-03 | 0.00E+00 |
| 208 | ALL | 760951.68 | 4067437.77 | 1.89850E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.9960E-04 | 0.00E+00 |
| 209 | ALL | 760964.21 | 4067473.23 | 1.81560E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.5597E-04 | 0.00E+00 |
| 210 | ALL | 760976.73 | 4067508.69 | 1.69490E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.9243E-04 | 0.00E+00 |
| 211 | ALL | 760989.26 | 4067544.16 | 1.54590E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.1396E-04 | 0.00E+00 |
| 212 | ALL | 761001.79 | 4067579.62 | 1.38070E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.2700E-04 | 0.00E+00 |
| 213 | ALL | 761014.31 | 4067615.08 | 1.21190E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.3809E-04 | 0.00E+00 |
| 214 | ALL | 761026.84 | 4067650.54 | 1.04940E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.5255E-04 | 0.00E+00 |
| 215 | ALL | 761039.37 | 4067686.01 | 8.99910E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.7383E-04 | 0.00E+00 |
| 216 | ALL | 761051.89 | 4067721.47 | 7.67780E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0426E-04 | 0.00E+00 |
| 217 | ALL | 761064.42 | 4067756.93 | 6.55010E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4488E-04 | 0.00E+00 |
| 218 | ALL | 761076.95 | 4067792.39 | 5.59940E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9482E-04 | 0.00E+00 |
| 219 | ALL | 760529.29 | 4067213.34 | 8.83550E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.6521E-04 | 0.00E+00 |
| 220 | ALL | 760490.07 | 4067212.07 | 7.61340E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0086E-04 | 0.00E+00 |
| 221 | ALL | 760450.86 | 4067210.80 | 6.46950E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4064E-04 | 0.00E+00 |
| 222 | ALL | 760411.64 | 4067209.53 | 5.43610E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.8623E-04 | 0.00E+00 |
| 223 | ALL | 760372.42 | 4067208.26 | 4.53410E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.3873E-04 | 0.00E+00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 224 | ALL | 760333.20 | 4067206.99 | 3.77030E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.9852E-04 | 0.00E+00 |
| 225 | ALL | 760293.98 | 4067205.72 | 3.14090E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6538E-04 | 0.00E+00 |
| 226 | ALL | 760254.77 | 4067204.45 | 2.63410E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3869E-04 | 0.00E+00 |
| 227 | ALL | 760215.55 | 4067203.18 | 2.23390E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1762E-04 | 0.00E+00 |
| 228 | ALL | 760176.33 | 4067201.91 | 1.92320E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0126E-04 | 0.00E+00 |
| 229 | ALL | 760137.11 | 4067200.64 | 1.68500E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.8720E-05 | 0.00E+00 |
| 230 | ALL | 759552.66 | 4067731.48 | 2.08510E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0978E-04 | 0.00E+00 |
| 231 | ALL | 759566.72 | 4067700.32 | 2.04860E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0786E-04 | 0.00E+00 |
| 232 | ALL | 759580.77 | 4067669.15 | 2.02270E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0650E-04 | 0.00E+00 |
| 233 | ALL | 759594.83 | 4067637.99 | 2.00030E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0532E-04 | 0.00E+00 |
| 234 | ALL | 759608.88 | 4067606.83 | 1.97150E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0381E-04 | 0.00E+00 |
| 235 | ALL | 759622.94 | 4067575.67 | 1.92840E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0154E-04 | 0.00E+00 |
| 236 | ALL | 759636.99 | 4067544.50 | 1.86720E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.8311E-05 | 0.00E+00 |
| 237 | ALL | 759651.04 | 4067513.34 | 1.79040E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.4268E-05 | 0.00E+00 |
| 238 | ALL | 759665.10 | 4067482.18 | 1.70330E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.9682E-05 | 0.00E+00 |
| 239 | ALL | 759679.15 | 4067451.01 | 1.61190E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.4872E-05 | 0.00E+00 |
| 240 | ALL | 759693.21 | 4067419.85 | 1.52070E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.0071E-05 | 0.00E+00 |
| 241 | ALL | 759707.26 | 4067388.69 | 1.43230E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.5414E-05 | 0.00E+00 |
| 242 | ALL | 759753.30 | 4067345.46 | 1.33270E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.0168E-05 | 0.00E+00 |
| 243 | ALL | 759785.28 | 4067333.39 | 1.31620E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.9302E-05 | 0.00E+00 |
| 244 | ALL | 759817.27 | 4067321.32 | 1.30050E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.8474E-05 | 0.00E+00 |
| 245 | ALL | 759849.25 | 4067309.25 | 1.28810E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.7823E-05 | 0.00E+00 |
| 246 | ALL | 759881.24 | 4067297.19 | 1.28200E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.7503E-05 | 0.00E+00 |
| 247 | ALL | 759913.22 | 4067285.12 | 1.28490E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.7652E-05 | 0.00E+00 |
| 248 | ALL | 759945.21 | 4067273.05 | 1.29920E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.8405E-05 | 0.00E+00 |
| 249 | ALL | 759977.19 | 4067260.98 | 1.32610E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.9823E-05 | 0.00E+00 |
| 250 | ALL | 760009.17 | 4067248.92 | 1.36620E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.1937E-05 | 0.00E+00 |
| 251 | ALL | 760041.16 | 4067236.85 | 1.42050E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.4792E-05 | 0.00E+00 |
| 252 | ALL | 760073.14 | 4067224.78 | 1.49010E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.8458E-05 | 0.00E+00 |
| 253 | ALL | 760105.13 | 4067212.71 | 1.57740E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.3052E-05 | 0.00E+00 |
| 254 | ALL | 759538.61 | 4067762.64 | 2.13660E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1250E-04 | 0.00E+00 |
| 255 | ALL | 759537.55 | 4067797.31 | 2.27560E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1982E-04 | 0.00E+00 |
| 256 | ALL | 759536.49 | 4067831.97 | 2.43600E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2826E-04 | 0.00E+00 |
| 257 | ALL | 759535.44 | 4067866.64 | 2.61060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3745E-04 | 0.00E+00 |
| 258 | ALL | 759534.38 | 4067901.31 | 2.79060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4693E-04 | 0.00E+00 |
| 259 | ALL | 759533.32 | 4067935.97 | 2.96850E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5630E-04 | 0.00E+00 |
| 260 | ALL | 759532.26 | 4067970.64 | 3.13980E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6532E-04 | 0.00E+00 |
| 261 | ALL | 760129.57 | 4068229.59 | 9.37060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.9339E-04 | 0.00E+00 |
| 262 | ALL | 760159.74 | 4068231.18 | 8.63940E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.5489E-04 | 0.00E+00 |
| 263 | ALL | 760115.93 | 4068489.24 | 1.83010E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.6360E-05 | 0.00E+00 |
| 264 | ALL | 760146.10 | 4068490.82 | 1.62860E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.5750E-05 | 0.00E+00 |
| 265 | ALL | 760055.14 | 4068555.11 | 1.61560E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.5064E-05 | 0.00E+00 |
| 266 | ALL | 760028.71 | 4068542.68 | 1.87080E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.8505E-05 | 0.00E+00 |
| 267 | ALL | 760002.29 | 4068530.25 | 2.15800E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1363E-04 | 0.00E+00 |
| 268 | ALL | 759975.87 | 4068517.82 | 2.47480E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3031E-04 | 0.00E+00 |
| 269 | ALL | 759949.44 | 4068505.39 | 2.81660E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4830E-04 | 0.00E+00 |
| 270 | ALL | 759923.02 | 4068492.96 | 3.17590E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6722E-04 | 0.00E+00 |
| 271 | ALL | 759896.59 | 4068480.53 | 3.54350E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.8658E-04 | 0.00E+00 |
| 272 | ALL | 759870.17 | 4068468.10 | 3.90730E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.0573E-04 | 0.00E+00 |
| 273 | ALL | 759843.75 | 4068455.67 | 4.25370E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2397E-04 | 0.00E+00 |
| 274 | ALL | 759817.32 | 4068443.24 | 4.56870E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.4056E-04 | 0.00E+00 |
| 275 | ALL | 759790.90 | 4068430.81 | 4.83870E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.5477E-04 | 0.00E+00 |
| 276 | ALL | 759764.48 | 4068418.38 | 5.05220E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.6601E-04 | 0.00E+00 |
| 277 | ALL | 759738.05 | 4068405.95 | 5.20060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.7382E-04 | 0.00E+00 |
| 278 | ALL | 759711.63 | 4068393.52 | 5.27900E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.7795E-04 | 0.00E+00 |
| 279 | ALL | 759675.01 | 4068353.73 | 5.49060E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.8910E-04 | 0.00E+00 |
| 280 | ALL | 759664.81 | 4068326.37 | 5.62540E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9619E-04 | 0.00E+00 |
| 281 | ALL | 759654.62 | 4068299.00 | 5.68370E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9926E-04 | 0.00E+00 |
| 282 | ALL | 759644.42 | 4068271.64 | 5.66310E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9818E-04 | 0.00E+00 |
| 283 | ALL | 759634.22 | 4068244.28 | 5.56730E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.9313E-04 | 0.00E+00 |
| 284 | ALL | 759624.03 | 4068216.91 | 5.40550E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.8461E-04 | 0.00E+00 |
| 285 | ALL | 759613.83 | 4068189.55 | 5.19080E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.7331E-04 | 0.00E+00 |
| 286 | ALL | 759603.63 | 4068162.19 | 4.93910E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.6006E-04 | 0.00E+00 |
| 287 | ALL | 759593.44 | 4068134.82 | 4.66610E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.4568E-04 | 0.00E+00 |
| 288 | ALL | 759583.24 | 4068107.46 | 4.38810E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.3105E-04 | 0.00E+00 |
| 289 | ALL | 759573.05 | 4068080.10 | 4.11640E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.1674E-04 | 0.00E+00 |
| 290 | ALL | 759562.85 | 4068052.73 | 3.85460E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.0296E-04 | 0.00E+00 |
| 291 | ALL | 759552.65 | 4068025.37 | 3.60180E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.8964E-04 | 0.00E+00 |
| 292 | ALL | 759542.46 | 4067998.00 | 3.36380E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.7711E-04 | 0.00E+00 |
| 293 | ALL | 760081.56 | 4068567.54 | 1.39340E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.3365E-05 | 0.00E+00 |
| 294 | ALL | 760111.73 | 4068569.13 | 1.24870E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.5745E-05 | 0.00E+00 |
| 295 | ALL | 760141.90 | 4068570.71 | 1.12080E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.9011E-05 | 0.00E+00 |
| 296 | ALL | 760199.13 | 4068232.74 | 7.63360E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0193E-04 | 0.00E+00 |
| 297 | ALL | 760188.99 | 4068492.54 | 1.38690E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.3023E-05 | 0.00E+00 |
| 298 | ALL | 760225.15 | 4068493.95 | 1.22260E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.4374E-05 | 0.00E+00 |
| 299 | ALL | 760261.32 | 4068495.37 | 1.09340E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.7572E-05 | 0.00E+00 |
| 300 | ALL | 760297.48 | 4068496.78 | 9.95480E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.2415E-05 | 0.00E+00 |
| 301 | ALL | 760333.65 | 4068498.19 | 9.22330E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.8563E-05 | 0.00E+00 |
| 302 | ALL | 760369.81 | 4068499.60 | 8.67260E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.5664E-05 | 0.00E+00 |
| 303 | ALL | 760405.98 | 4068501.01 | 8.24080E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.3390E-05 | 0.00E+00 |
| 304 | ALL | 760442.14 | 4068502.43 | 7.89250E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1556E-05 | 0.00E+00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 305 | ALL | 760478.31 | 4068503.84 | 7.59790E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.0005E-05 | 0.00E+00 |
| 306 | ALL | 760185.86 | 4068572.48 | 9.68090E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.0973E-05 | 0.00E+00 |
| 307 | ALL | 760222.03 | 4068573.89 | 8.69880E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.5802E-05 | 0.00E+00 |
| 308 | ALL | 760258.20 | 4068575.30 | 7.94120E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.1813E-05 | 0.00E+00 |
| 309 | ALL | 760294.36 | 4068576.72 | 7.37160E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.8814E-05 | 0.00E+00 |
| 310 | ALL | 760330.53 | 4068578.13 | 6.95020E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.6595E-05 | 0.00E+00 |
| 311 | ALL | 760366.69 | 4068579.54 | 6.63060E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.4912E-05 | 0.00E+00 |
| 312 | ALL | 760402.86 | 4068580.95 | 6.37640E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.3574E-05 | 0.00E+00 |
| 313 | ALL | 760439.02 | 4068582.37 | 6.15760E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.2422E-05 | 0.00E+00 |
| 314 | ALL | 760475.19 | 4068583.78 | 5.97530E-08 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.1462E-05 | 0.00E+00 |
| 315 | ALL | 760145.01 | 4068210.84 | 1.04630E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.5093E-04 | 0.00E+00 |
| 316 | ALL | 760179.50 | 4068218.39 | 9.09790E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.7903E-04 | 0.00E+00 |
| 317 | ALL | 759963.50 | 4068539.32 | 2.30880E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2156E-04 | 0.00E+00 |
| 318 | ALL | 760080.22 | 4068521.93 | 1.74930E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 9.2104E-05 | 0.00E+00 |
| 319 | ALL | 760077.90 | 4068550.15 | 1.53290E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.0710E-05 | 0.00E+00 |
| 320 | ALL | 760542.82 | 4067418.30 | 2.48710E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3095E-03 | 0.00E+00 |
| 321 | ALL | 760606.21 | 4067418.30 | 2.76850E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.4577E-03 | 0.00E+00 |
| 322 | ALL | 760696.15 | 4067432.56 | 3.04920E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.6055E-03 | 0.00E+00 |
| 323 | ALL | 760669.21 | 4067417.90 | 2.89070E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5220E-03 | 0.00E+00 |
| 324 | ALL | 760954.47 | 4067752.73 | 1.02840E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 5.4147E-04 | 0.00E+00 |
| 325 | ALL | 760534.96 | 4067914.76 | 2.14940E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.1317E-02 | 0.00E+00 |
| 326 | ALL | 760533.24 | 4067956.86 | 1.57270E-05 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.2809E-03 | 0.00E+00 |
| 327 | ALL | 760584.21 | 4067959.72 | 4.46160E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.3492E-03 | 0.00E+00 |
| 328 | ALL | 760666.97 | 4067961.44 | 1.63590E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 8.6133E-04 | 0.00E+00 |
| 329 | ALL | 760666.40 | 4067918.20 | 2.55910E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.3474E-03 | 0.00E+00 |
| 330 | ALL | 760666.97 | 4067858.35 | 4.17900E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.2004E-03 | 0.00E+00 |
| 331 | ALL | 760701.62 | 4067857.49 | 2.99870E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.5789E-03 | 0.00E+00 |
| 332 | ALL | 760699.33 | 4067895.29 | 2.30260E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2124E-03 | 0.00E+00 |
| 333 | ALL | 760693.03 | 4067962.30 | 1.33020E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.0038E-04 | 0.00E+00 |
| 334 | ALL | 760683.54 | 4067810.29 | 4.66080E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.4540E-03 | 0.00E+00 |
| 335 | ALL | 760722.82 | 4067809.65 | 3.30500E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.7402E-03 | 0.00E+00 |
| 336 | ALL | 760763.77 | 4067810.22 | 2.38830E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.2575E-03 | 0.00E+00 |
| 337 | ALL | 760786.39 | 4067812.23 | 2.01120E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 1.0590E-03 | 0.00E+00 |
| 338 | ALL | 760828.20 | 4067814.80 | 1.51640E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.9841E-04 | 0.00E+00 |
| 339 | ALL | 760746.27 | 4067901.59 | 1.51710E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 7.9879E-04 | 0.00E+00 |
| 340 | ALL | 760745.62 | 4067965.49 | 9.40620E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.9526E-04 | 0.00E+00 |
| 341 | ALL | 760821.66 | 4067864.93 | 1.20210E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.3296E-04 | 0.00E+00 |
| 342 | ALL | 760823.53 | 4067916.23 | 8.77230E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 4.6189E-04 | 0.00E+00 |
| 343 | ALL | 760817.36 | 4067984.78 | 6.10170E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 3.2127E-04 | 0.00E+00 |
| 344 | ALL | 760530.77 | 4068056.37 | 1.18680E-06 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 6.2489E-04 | 0.00E+00 |
| 345 | ALL | 760582.66 | 4068101.86 | 5.13980E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.7063E-04 | 0.00E+00 |
| 346 | ALL | 760614.67 | 4068102.53 | 4.56360E-07 | 2.97YrCancerHighEnd_InhSoilDermMMilkCrops | 2.4028E-04 | 0.00E+00 |

```
HARP2 - HRACalc (dated 22118) 8/8/2023 8:28:42 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 2.97

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0.97
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining pathways are only used for cancer
and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
```

```
Water: False
Fish: False
Homegrown crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: LongTerm24HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
HOMEGROWN CROP PATHWAY SETTINGS

Household type: HouseholdsthatGarden
Fraction leafy: 0.137
Fraction exposed: 0.137
Fraction protected: 0.137
Fraction root: 0.137
```

```
**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit
ConCancerRisk.csv
Cancer risk total by receptor saved to: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit
ConCancerRiskSumByRec.csv
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit
ConNCChronicRisk.csv
Chronic risk total by receptor saved to: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit
ConNCChronicRiskSumByRec.csv
Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit
ConNCAcuteRisk.csv
Acute risk total by receptor saved to: F:\Move\0004-0015\WF UNMITIGATED CONSTRUCTION\hra\Unmit
ConNCAcuteRiskSumByRec.csv
HRA ran successfully
```

# Health Risk Screening

## Operational Screening Calculations and Prioritization

## Diesel PM Screening Prioritization Calculator

| | | | |
|---|---|---|---|
| **Applicability** | Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in grey areas. | | |
| *Author (Prioritization Calculator)* | Matthew Cegielski | *Last Update* | October 13, 2016 |
| *Date Updated with Project Emissions* | August 8, 2023 | | |
| **Facility:** | **Whispering Falls Residential Development Project (Diesel PM Screening Analysis)** | | |
| **ID#:** | **—** | | |
| **Project #:** | **Truck Run and Idle Emissions** | | |
| **Unit and Process#** | **Mobile Source Diesel (Trucks Visiting the Whispering Falls Residential Project)** | | |

| **Operating Hours hr/yr** | 4,478.05 | **(operating hours assumed based on idle hours)** | | | |
|---|---|---|---|---|---|
| Receptor Proximity and Proximity Factors | | **Cancer Score** | **Chronic Score** | **Acute Score** | **Max Score** |
| **0< R<100** | **1.000** | 1.85E+00 | 5.36E-03 | 0.00E+00 | 1.85E+00 |
| **100≤R<250** | **0.250** | 4.62E-01 | 1.34E-03 | 0.00E+00 | 4.62E-01 |
| **250≤R<500** | **0.040** | 7.39E-02 | 2.14E-04 | 0.00E+00 | 7.39E-02 |
| **500≤R<1000** | **0.011** | 2.03E-02 | 5.90E-05 | 0.00E+00 | 2.03E-02 |
| **1000≤R<1500** | **0.003** | 5.55E-03 | 1.61E-05 | 0.00E+00 | 5.55E-03 |
| **1500≤R<2000** | **0.002** | 3.70E-03 | 1.07E-05 | 0.00E+00 | 3.70E-03 |
| **2000<R** | **0.001** | 1.85E-03 | 5.36E-06 | 0.00E+00 | 1.85E-03 |

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

**sel (Trucks Visiting the Whispering Falls R**

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

| **Substance** | **CAS#** | **Annual Emissions (lbs/yr)** | **Maximum Hourly (lbs/hr)** | **Average Hourly (lbs/hr)** | **Cancer** | **Chronic** | **Acute** |
|---|---|---|---|---|---|---|---|
| **Diesel engine exhaust, particulate matter (Diesel PM)** | **9901** | 8.00E-01 | 7.25E-04 | 1.79E-04 | 1.85E+00 | 5.36E-03 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | **Totals** | **1.85E+00** | **5.36E-03** | **0.00E+00** |

# Whispering Falls Residential Development Project—Health Risk Screening Analysis for Project Operations

**Diesel Truck Trips**

| | Trucks Onsite Daily | Average Daily Truck Trips |
|---|---|---|
| **Heavy Truck Trips** | **24.54** | **49.07** |

**Truck Assumptions**

| | |
|---|---|
| Trucks Onsite per Day | 24.54 |
| Trucks Onsite per Year | 8,956.1 |
| Idling Events per Truck per day | 2 |
| Idling Time per Event (minutes) | 15 |
| Idling Minutes/Year | 268,683 |
| Idling Hours/Year | 4,478 |

| | Truck Entering | Trucks Exiting | Total |
|---|---|---|---|
| Average Travel Distance Onsite (ft) | 660 | 660 | 1,320 |

(0.25 mile on-site and 0.25 mile off-site assumed for this localized assessment - residential project)

| | Miles/Trip | Truck Trips/Year | Miles/Year |
|---|---|---|---|
| Offsite Miles Estimate | 0.50 | 17,912.2 | 8,956.1 |

| | Distance Onsite (ft) in and out | Distance to Receptor Meters | Direction to Receptor | Idling Emissions (lbs/year) | Running Emissions (lbs/yr) | Total Truck Emissions (lbs/year) | Grand Total (lbs/yr) | Average Lbs/Day | Max Lbs/Day* | Max lbs/Hr |
|---|---|---|---|---|---|---|---|---|---|---|
| Emissions | 1,320 | <100 M | All | 0.02 | 0.78 | **0.8003** | 0.80 | 0.00219 | 0.00658 | 0.00055 |

*Max daily assumed to be 3 times the daily average. Max hr based on 12 hrs/day

| **Running Emission Calculations** | **EMFAC2021 Rates** |
|---|---|
| Idling Emission Rate for Diesel g/day | 0.03057 |
| g/lb conversion factor | 0.00220 |
| HDT Onsite Running Emissions 5 mph g/mile | 0.09473 |
| HDT Running Emissions Onroad 5-25 mph | 0.03120 |

**EMFAC2021 PM10 running emissions Aggregated Fleet Age in 2025**

**EMFAC2021 Average Running Emissions**

|  | **PM10_RUNEX 5-25 MPH** | **PM10 RUNEX 5 MPH** |
|---|---|---|
| **Weighted Averages (Based on Project Fleet)** | **0.03120** | **0.09473** |

|  | **Distance (Feet)** | **Distance (Miles)** | **Miles/Year/ Truck** | **Trucks/Day** | **Emission (g/mi)** | **Emissions g/year** | **Emission lbs/year** | **Emissions lbs/hour** |
|---|---|---|---|---|---|---|---|---|
| Onsite Running Emissions | 1,320.00 | 0.25 | 91.3 | 24.5 | 0.09473 | 212.11 | 0.47 | 0.00010676 |

|  | **Distance (Feet)** | **Miles/ Round Trip** | **Miles/Year/ Truck** | **Trucks/Day** | **Emissions Rate (g/mi)** | **Emissions g/year** | **Emission lbs/year** | **Emissions lbs/hour** |
|---|---|---|---|---|---|---|---|---|
| Offsite Running Emissions | 2,640.00 | 0.50 | 182.50 | 24.5 | 0.03120 | 139.73 | 0.31 | 7.0331E-05 |
|  |  |  |  |  |  | **Total Running** | **0.77567** | **0.00018** |

| **Total Emissions** | **Lbs/Year** | **Max Lbs/Hours** |
|---|---|---|
| Onsite Running Emissions | 0.4676 | 0.0001068 |
| Offsite Running Emissions | 0.3080 | 0.0000703 |
| Idling Emissions | 0.0246 | 0.0005481 |
| **Total** | **0.8002737** | **0.0007252** |

**Health Risk Prioritization Results (Receptor 0-100 M)**

|  | **Cancer Score** | **Chronic Score** | **Acute Score** |
|---|---|---|---|
| Prioritization Score Truck Run and Idle | 1.84863 | 0.00536 | 0.00000 |

## Operational Fuel Calculation—Project-generated Operational Trips

**Daily Truck Trips**

Whispering Falls Residential Development Project - Buildout Year Operations

| | Weekday | Saturday | Sunday |
|---|---|---|---|
| Trips per Day | 1,609 | 1,609 | 1,609 |

| | Total Daily Project Trips |
|---|---|
| **Total Average Daily Trips (All Vehicles)** | **1,609** |

**By Vehicle Type (Average Fleet Mix for the 2023 Operational Year for Passenger Vehicles)**

| | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Percentage | 0.524400 | 0.212000 | 0.167700 | 0.056300 | 0.000800 | 0.000900 | 0.007600 | 0.021200 | 0.000000 | 0.004300 | 0.002500 | 0.000100 | 0.002200 |
| Daily Trips | 843.759600 | 341.108000 | 269.829300 | 90.586700 | 1.287200 | 1.448100 | 12.228400 | 34.110800 | 0.000000 | 6.918700 | 4.022500 | 0.160900 | 3.539800 |

| Heavy Trucks Only | Trips |
|---|---|
| LHD1 | 1.287 |
| LHD2 | 1.448 |
| MHD | 12.228 |
| HHD | 34.111 |
| *Heavy Trucks Total* | 49.075 |

## On-site Truck Running and Idling Emissions for the Health Risk Screening Analysis—Whispering Falls Residential Development Project

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Fresno
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

| **Region** | **Calendar Year** | **Vehicle Category** | **Model Year** | **Speed** | **Fuel** | **VMT** | **NOx_RUNEX** | **PM2.5_RUNEX** | **PM10_RUNEX** | **CO2_RUNEX** | **CH4_RUNEX** | **N2O_RUNEX** | **ROG_RUNEX** | **TOG_RUNEX** | **CO_RUNEX** | **SOx_RUNEX** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fresno | 2025 | HHDT | Aggregate | 5 | Diesel | 857.4503495 | 17.51587214 | 0.102468249 | 0.107101408 | 3407.996547 | 0.024967783 | 0.536931244 | 0.537549512 | 0.611959201 | 1.301614027 | 0.032271689 |
| Fresno | 2025 | HHDT | Aggregate | 10 | Diesel | 13969.83279 | 8.65398252 | 0.017641697 | 0.018439376 | 2913.839393 | 0.004938893 | 0.459076583 | 0.106333018 | 0.121052047 | 0.696227094 | 0.027592317 |
| Fresno | 2025 | HHDT | Aggregate | 15 | Diesel | 32029.86622 | 5.437358417 | 0.009268271 | 0.009687342 | 2340.94009 | 0.001920525 | 0.368816064 | 0.041348381 | 0.047071984 | 0.375514473 | 0.022167303 |
| Fresno | 2025 | HHDT | Aggregate | 20 | Diesel | 57194.44454 | 3.649101502 | 0.006152006 | 0.006430173 | 2015.922125 | 0.00102755 | 0.317609352 | 0.022122861 | 0.025185193 | 0.242174401 | 0.019089577 |
| Fresno | 2025 | HHDT | Aggregate | 25 | Diesel | 38307.83276 | 3.233244633 | 0.006760988 | 0.007066689 | 1837.375886 | 0.000896407 | 0.289479319 | 0.019299389 | 0.021970886 | 0.201257942 | 0.017398851 |
| | | | | | | Total | 38.48955921 | 0.142291211 | 0.148724988 | 12516.07404 | 0.033751157 | 1.971912562 | 0.726653162 | 0.827239311 | 2.816787937 | 0.118519737 |
| | | | | | | | | | | | | | | | | |
| Fresno | 2025 | LHDT1 | Aggregate | 5 | Diesel | 6751.530575 | 2.397229884 | 0.097406458 | 0.101810746 | 1197.553449 | 0.02039803 | 0.188675034 | 0.439157572 | 0.499951699 | 1.42410766 | 0.011347428 |
| Fresno | 2025 | LHDT1 | Aggregate | 10 | Diesel | 22451.91635 | 2.218190698 | 0.079550778 | 0.083147711 | 1037.93604 | 0.016705383 | 0.163527246 | 0.359657064 | 0.409445656 | 1.134530715 | 0.009834971 |
| Fresno | 2025 | LHDT1 | Aggregate | 15 | Diesel | 48624.41884 | 2.066767668 | 0.065430581 | 0.068389062 | 872.8093262 | 0.013854448 | 0.137511465 | 0.298278112 | 0.339569799 | 0.910699412 | 0.008270312 |
| Fresno | 2025 | LHDT1 | Aggregate | 20 | Diesel | 53308.06867 | 1.936266316 | 0.053994169 | 0.056435546 | 755.0549701 | 0.011573023 | 0.118959218 | 0.249160363 | 0.283652508 | 0.732359417 | 0.00715453 |
| Fresno | 2025 | LHDT1 | Aggregate | 25 | Diesel | 57053.85517 | 1.836519452 | 0.044648588 | 0.046667399 | 656.5354517 | 0.009707638 | 0.103437428 | 0.20899972 | 0.237932286 | 0.588243728 | 0.006221007 |
| | | | | | | Total | 10.45497402 | 0.341030573 | 0.356450463 | 4519.889237 | 0.072238521 | 0.71211039 | 1.555252831 | 1.770551947 | 4.789940932 | 0.042828248 |
| | | | | | | | | | | | | | | | | |
| Fresno | 2025 | LHDT2 | Aggregate | 5 | Diesel | 2578.872246 | 2.204346482 | 0.087644898 | 0.091607811 | 1416.164313 | 0.018331403 | 0.223117264 | 0.394664315 | 0.449299084 | 1.270634549 | 0.013418877 |
| Fresno | 2025 | LHDT2 | Aggregate | 10 | Diesel | 8575.925608 | 2.00497901 | 0.072325003 | 0.075595219 | 1235.016665 | 0.015266185 | 0.194577378 | 0.328671971 | 0.374171188 | 1.02350789 | 0.011702411 |
| Fresno | 2025 | LHDT2 | Aggregate | 15 | Diesel | 18572.99805 | 1.834120384 | 0.059968561 | 0.062680074 | 1050.998741 | 0.012836735 | 0.16558528 | 0.276367348 | 0.314625851 | 0.826923089 | 0.009958747 |
| Fresno | 2025 | LHDT2 | Aggregate | 20 | Diesel | 20362.00492 | 1.685790151 | 0.04980263 | 0.052054484 | 909.7801851 | 0.010846393 | 0.143336239 | 0.233516464 | 0.265842969 | 0.666547641 | 0.00862063 |
| Fresno | 2025 | LHDT2 | Aggregate | 25 | Diesel | 21792.7775 | 1.568566168 | 0.04139142 | 0.043262957 | 790.8279193 | 0.009184282 | 0.124595261 | 0.19773218 | 0.225104941 | 0.534408719 | 0.007493496 |
| | | | | | | Total | 9.297802194 | 0.311132513 | 0.325200544 | 5402.787823 | 0.066464998 | 0.851211422 | 1.430952279 | 1.629044034 | 4.322021888 | 0.05119416 |
| | | | | | | | | | | | | | | | | |
| Fresno | 2025 | MHDT | Aggregate | 5 | Diesel | 914.5255078 | 8.31258318 | 0.057268373 | 0.059857794 | 2352.7897 | 0.013591775 | 0.370682975 | 0.292627188 | 0.333133779 | 0.503326638 | 0.022279512 |
| Fresno | 2025 | MHDT | Aggregate | 10 | Diesel | 9656.337095 | 3.311432272 | 0.031402369 | 0.032822245 | 1976.654318 | 0.006747503 | 0.311422693 | 0.145271898 | 0.165380998 | 0.366664561 | 0.018717734 |
| Fresno | 2025 | MHDT | Aggregate | 15 | Diesel | 16936.82856 | 2.020978917 | 0.019201516 | 0.020069723 | 1553.280671 | 0.00322682 | 0.244720002 | 0.069472558 | 0.079089219 | 0.229497892 | 0.014708639 |
| Fresno | 2025 | MHDT | Aggregate | 20 | Diesel | 22472.26029 | 1.513133134 | 0.012062961 | 0.012608395 | 1322.621735 | 0.001562347 | 0.208379593 | 0.033636897 | 0.038293047 | 0.162479673 | 0.012524437 |
| Fresno | 2025 | MHDT | Aggregate | 25 | Diesel | 30544.12223 | 1.255039727 | 0.009432078 | 0.009858555 | 1193.191921 | 0.001126752 | 0.187987873 | 0.024258664 | 0.027616643 | 0.130453078 | 0.011298814 |
| | | | | | | Total | 16.41316723 | 0.129367297 | 0.135216712 | 8398.538345 | 0.026255198 | 1.323193137 | 0.565267206 | 0.643513686 | 1.392421843 | 0.079529136 |

Running Emissions 5-25 MPH Averaged

| | **NOx_RUNEX** | **PM2.5_RUNEX** | **PM10_RUNEX** | **CO2_RUNEX** | **CH4_RUNEX** | **N2O_RUNEX** | **ROG_RUNEX** | **TOG_RUNEX** | **CO_RUNEX** | **SOx_RUNEX** |
|---|---|---|---|---|---|---|---|---|---|---|
| **HHDT** | **7.6979** | **0.0285** | **0.0297** | **2503.2148** | **0.0068** | **0.3944** | **0.1453** | **0.1654** | **0.5634** | **0.0237** |
| **LHDT1** | **2.0910** | **0.0682** | **0.0713** | **903.9778** | **0.0144** | **0.1424** | **0.3111** | **0.3541** | **0.9580** | **0.0086** |
| **LHDT2** | **1.8596** | **0.0622** | **0.0650** | **1080.5576** | **0.0133** | **0.1702** | **0.2862** | **0.3258** | **0.8644** | **0.0102** |
| **MHDT** | **3.2826** | **0.0259** | **0.0270** | **1679.7077** | **0.0053** | **0.2646** | **0.1131** | **0.1287** | **0.2785** | **0.0159** |

| **HHDT** | | **LHDT1** | | **LHDT2** | | **MHDT** | |
|---|---|---|---|---|---|---|---|
| Localized Miles per Trip | 0.50 | Miles per Trip | 0.50 | Miles per Trip | 0.50 | Miles per Trip | 0.50 |
| Daily Trucks | 17.06 | Daily Trucks | 0.64 | Daily Trucks | 0.72 | Daily Trucks | 6.11 |
| Daily Trips | 34.11 | Daily Trips | 1.29 | Daily Trips | 1.45 | Daily Trips | 12.23 |

| **Onsite Truck Max Daily Emissions** | **ROG** | **$NO_X$** | **CO** | **SO2** | **PM10** | **PM2.5** |
|---|---|---|---|---|---|---|
| HHDT (g/day) | 2.4787 | 131.2910 | 9.6083 | 0.4043 | 0.5073 | 0.4854 |
| LHDT1 (g/day) | 0.2002 | 1.3458 | 0.6166 | 0.0055 | 0.0459 | 0.0439 |
| LHDT2 (g/day) | 0.2072 | 1.3464 | 0.6259 | 0.0074 | 0.0471 | 0.0451 |
| MHDT (g/day) | 0.6912 | 20.0707 | 1.7027 | 0.0973 | 0.1653 | 0.1582 |
| Total Trucks (g/day) | 3.5773 | 154.0538 | 12.5534 | 0.5145 | 0.7656 | 0.7325 |
| Running Emissions lbs/day | 0.0079 | 0.3396 | 0.0277 | 0.0011 | 0.0017 | 0.0016 |
| Idling Emissions Lbs/Day | 0.254 | 3.109 | 3.787 | 0.006 | 0.000 | 0.000 |
| Total Emissions/Day | **0.262** | **3.449** | **3.815** | **0.0069** | **0.002** | **0.002** |
| | | | | | | |
| g/lb conversion factor | | 0.00220 | | | | |

| | |
|---|---|
| Idling Minutes/Day Per Truck | 15 |
| Max Trucks per Day | 24.54 |
| Number Idling Trucks per Day | 24.54 |
| Max Trucks per Day—HHDT | 17.06 |
| Max Trucks per Day—LHDT1 | 0.64 |
| Max Trucks per Day—LHDT2 | 0.72 |
| Max Trucks per Day—MHDT | 6.11 |

| **Idling Emissions** | **Calendar Year** | **Season** | **Region** | **Vehicle Category** | **Fuel** | **Pollutant** | **g/vehicle/day** | **g/day** | **Max lbs/day** |
|---|---|---|---|---|---|---|---|---|---|
| IDLEX | 2025 | Annual | FRESNO | HHDT | DSL | ROG | 6.6763 | 113.8667 | 0.251033 |
| IDLEX | 2025 | Annual | FRESNO | LHDT1 | DSL | ROG | 0.1098 | 0.0706 | 0.000156 |
| IDLEX | 2025 | Annual | FRESNO | LHDT2 | DSL | ROG | 0.1098 | 0.0795 | 0.000175 |
| IDLEX | 2025 | Annual | FRESNO | MHDT | DSL | ROG | 0.2262 | 1.3828 | 0.003049 |
| IDLEX | 2025 | Annual | FRESNO | HHDT | DSL | NOx | 78.1690 | 1,333.2043 | 2.939213 |
| IDLEX | 2025 | Annual | FRESNO | LHDT1 | DSL | NOx | 2.1244 | 1.3673 | 0.003014 |
| IDLEX | 2025 | Annual | FRESNO | LHDT2 | DSL | NOx | 2.0745 | 1.5021 | 0.003311 |
| IDLEX | 2025 | Annual | FRESNO | MHDT | DSL | NOx | 12.1612 | 74.3562 | 0.163927 |
| IDLEX | 2025 | Annual | FRESNO | HHDT | DSL | CO | 98.0188 | 1,671.7497 | 3.685578 |
| IDLEX | 2025 | Annual | FRESNO | LHDT1 | DSL | CO | 0.9097 | 0.5855 | 0.001291 |
| IDLEX | 2025 | Annual | FRESNO | LHDT2 | DSL | CO | 0.9097 | 0.6587 | 0.001452 |
| IDLEX | 2025 | Annual | FRESNO | MHDT | DSL | CO | 7.3364 | 44.8565 | 0.098892 |
| IDLEX | 2025 | Annual | FRESNO | HHDT | DSL | SO2 | 0.1445 | 2.4648 | 0.005434 |
| IDLEX | 2025 | Annual | FRESNO | LHDT1 | DSL | SO2 | 0.0013 | 0.0008 | 0.000002 |
| IDLEX | 2025 | Annual | FRESNO | LHDT2 | DSL | SO2 | 0.0020 | 0.0015 | 0.000003 |
| IDLEX | 2025 | Annual | FRESNO | MHDT | DSL | SO2 | 0.0206 | 0.1261 | 0.000278 |
| IDLEX | 2025 | Annual | FRESNO | HHDT | DSL | PM10 | 0.0285 | 0.0334 | 0.000074 |
| IDLEX | 2025 | Annual | FRESNO | LHDT1 | DSL | PM10 | 0.0277 | 0.0278 | 0.000061 |
| IDLEX | 2025 | Annual | FRESNO | LHDT2 | DSL | PM10 | 0.0278 | 0.0278 | 0.000061 |
| IDLEX | 2025 | Annual | FRESNO | MHDT | DSL | PM10 | 0.0043 | 0.0233 | 0.000051 |
| IDLEX | 2025 | Annual | FRESNO | HHDT | DSL | PM2.5 | 0.0273 | 0.0320 | 0.000070 |
| IDLEX | 2025 | Annual | FRESNO | LHDT1 | DSL | PM2.5 | 0.0265 | 0.0266 | 0.000059 |
| IDLEX | 2025 | Annual | FRESNO | LHDT2 | DSL | PM2.5 | 0.0266 | 0.0266 | 0.000059 |
| IDLEX | 2025 | Annual | FRESNO | MHDT | DSL | PM2.5 | 0.0041 | 0.0223 | 0.000049 |

For Weighted Average for Project (5-25 MPH)

| | NOx_RUNEX | PM2.5_RUNEX | PM10_RUNEX | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX | ROG_RUNEX | TOG_RUNEX | CO_RUNEX | SOx_RUNEX |
|---|---|---|---|---|---|---|---|---|---|---|
| Weighted Average Using Project Truck Fleet Percentages | | | | | | | | | | |
| HHDT | 7.697911843 | 0.028458242 | 0.029744998 | 2503.214808 | 0.006750231 | 0.394382512 | 0.145330632 | 0.165447862 | 0.563357587 | 0.023703947 |
| LHDT1 | 2.090994804 | 0.068206115 | 0.071290093 | 903.9778474 | 0.014447704 | 0.142422078 | 0.311050566 | 0.354110389 | 0.957988186 | 0.00856565 |
| LHDT2 | 1.859560439 | 0.062226503 | 0.065040109 | 1080.557565 | 0.013293 | 0.170242284 | 0.286190456 | 0.325808807 | 0.864404378 | 0.010238832 |
| MHDT | 3.282633446 | 0.025873459 | 0.027043342 | 1679.707669 | 0.00525104 | 0.264638627 | 0.113053441 | 0.128702737 | 0.278484369 | 0.015905827 |
| | | | | | | | | | | |
| HHDT | 131.2909656 | 0.485366703 | 0.507312831 | 42693.32984 | 0.115127898 | 6.726351503 | 2.478672067 | 2.821779469 | 9.608288996 | 0.404280303 |
| LHDT1 | 1.345764256 | 0.043897455 | 0.045882304 | 581.8001426 | 0.009298542 | 0.091662849 | 0.200192144 | 0.227905447 | 0.616561197 | 0.005512852 |
| LHDT2 | 1.346414736 | 0.045055099 | 0.047092291 | 782.3777046 | 0.009624796 | 0.123263926 | 0.2072162 | 0.235901867 | 0.62587199 | 0.007413426 |
| MHDT | 20.07067741 | 0.158195505 | 0.165348404 | 10270.06863 | 0.032105906 | 1.618053495 | 0.691231351 | 0.786914275 | 1.702709126 | 0.097251409 |
| Total | 154.0538221 | 0.732514762 | 0.765635829 | 54327.57632 | 0.166157142 | 8.559331773 | 3.577311762 | 4.072501057 | 12.55343131 | 0.51445799 |
| Weighted Average | 6.278365426 | 0.029853173 | 0.031203001 | 2214.085781 | 0.006771629 | 0.348830116 | 0.145791063 | 0.165972187 | 0.5116071 | 0.020966408 |

| | |
|---|---|
| Max Trucks per Day—HHDT | 17.06 |
| Max Trucks per Day—LHDT1 | 0.64 |
| Max Trucks per Day—LHDT2 | 0.72 |
| Max Trucks per Day—MHDT | 6.11 |
| Total | 24.54 |

For Weighted Average for Project (5 MPH)

| | NOx_RUNEX | PM2.5_RUNEX | PM10_RUNEX | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX | ROG_RUNEX | TOG_RUNEX | CO_RUNEX | SOx_RUNEX |
|---|---|---|---|---|---|---|---|---|---|---|
| Weighted Average Using Project Truck Fleet Percentages | | | | | | | | | | |
| HHDT | 17.51587214 | 0.102468249 | 0.107101408 | 3407.996547 | 0.024967783 | 0.536931244 | 0.537549512 | 0.611959201 | 1.301614027 | 0.032271689 |
| LHDT1 | 2.397229884 | 0.097406458 | 0.101810746 | 1197.553449 | 0.02039803 | 0.188675034 | 0.439157572 | 0.499951699 | 1.42410766 | 0.011347428 |
| LHDT2 | 2.204346482 | 0.087644898 | 0.091607811 | 1416.164313 | 0.018331403 | 0.223117264 | 0.394664315 | 0.449299084 | 1.270634549 | 0.013418877 |
| MHDT | 8.31258318 | 0.057268373 | 0.059857794 | 2352.7897 | 0.013591775 | 0.370682975 | 0.292627188 | 0.333133779 | 0.503326638 | 0.022279512 |
| | | | | | | | | | | |
| HHDT | 298.7402057 | 1.747636968 | 1.826657357 | 58124.74431 | 0.425835519 | 9.157577136 | 9.168121955 | 10.43720896 | 22.19954787 | 0.550406571 |
| LHDT1 | 1.542857154 | 0.062690796 | 0.065525396 | 770.7454 | 0.013128172 | 0.121431252 | 0.282641813 | 0.321768913 | 0.91655569 | 0.007303204 |
| LHDT2 | 1.59605707 | 0.063459288 | 0.066328636 | 1025.373771 | 0.013272852 | 0.161548055 | 0.285756697 | 0.325315002 | 0.920002945 | 0.009715938 |
| MHDT | 50.82479608 | 0.350150285 | 0.365982527 | 14385.42678 | 0.083102831 | 2.266429848 | 1.789181156 | 2.036846551 | 3.077439728 | 0.136221389 |
| Total | 352.703916 | 2.223937337 | 2.324493915 | 74306.29026 | 0.535339374 | 11.70698629 | 11.52570162 | 13.12113942 | 27.11354623 | 0.703647102 |
| Weighted Average | 14.37422352 | 0.09063515 | 0.094733269 | 3028.305546 | 0.021817415 | 0.477110772 | 0.469722631 | 0.534743682 | 1.104995313 | 0.02867669 |

| | |
|---|---|
| Max Trucks per Day—HHDT | 17.06 |
| Max Trucks per Day—LHDT1 | 0.64 |
| Max Trucks per Day—LHDT2 | 0.72 |
| Max Trucks per Day—MHDT | 6.11 |
| Total | 24.54 |

For Weighted Average for Project (Idle)

| | PM10_IDLEX (g/d) |
|---|---|
| Weighted Average Using Project Truck Fleet Percentages | |
| HHDT | 0.033404105 |
| LHDT1 | 0.027772597 |
| LHDT2 | 0.02777247 |
| MHDT | 0.023309869 |
| | |
| HHDT | 0.569720372 |
| LHDT1 | 0.017874443 |
| LHDT2 | 0.020108657 |
| MHDT | 0.142521199 |
| Total | 0.750224671 |
| Weighted Average | 0.030574929 |

# ATTACHMENT C

# Energy Consumption Calculations

# Whispering Falls—Energy Consumption Summary

Date of Last Revision: August 7, 2023

| **Summary of Energy Use During Construction** | | (Annually) |
|---|---:|---|
| Construction vehicle fuel | 68,951 | gallons (gasoline, diesel) |
| Construction equipment fuel | 43,194 | gallons (diesel) |
| Construction office trailer electricity | 50,134 | kilowatt hours |

| **Summary of Energy Use During Proposed Operations** | | (Annually) |
|---|---:|---|
| Operational vehicle fuel consumption | 210,595 | gallons (gasoline, diesel) |
| Operational natural gas consumption | 0 | (project is all electric) |
| Operational electricity consumption | 1,787,098 | kilowatt hours |

## Construction Vehicle Fuel Calculations  (Page 1 of 2)

California Air Resource Board (CARB). 2021. EMFAC2021 Web Database. Website: https://arb.ca.gov/emfac/emissions-inventory/61eda5042479acf96cb98b97826843b456267d24. Accessed August 2023.

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: County
Region: Fresno
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units:  miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

VMT = Vehicle Miles Traveled
FE = Fuel Economy

| *Given* | | | | | | | | | *Calculations* | |
|---|---|---|---|---|---|---|---|---|---|---|
| Region | Calendar Year | Vehicle Class | Model Year | Speed | Fuel | Population | VMT (mi/day) | Fuel Consumption (1000 gallons/day) | FE (mi/gallon) | VMT*FE |
| Fresno | 2024 | HHDT | Aggregate | Aggregate | Gasoline | 0.917790183 | 69.4454301 | 0.018035207 | 3.85054799 | 267.402962 |
| Fresno | 2024 | HHDT | Aggregate | Aggregate | Diesel | 14420.40105 | 2065363.16 | 343.6885277 | 6.00940385 | 12411601.3 |
| Fresno | 2024 | LDA | Aggregate | Aggregate | Gasoline | 315119.5806 | 12133467.4 | 410.3671735 | 29.5673441 | 358754405 |
| Fresno | 2024 | LDA | Aggregate | Aggregate | Diesel | 708.812072 | 21074.6051 | 0.474386501 | 44.4249678 | 936238.652 |
| Fresno | 2024 | LDT1 | Aggregate | Aggregate | Gasoline | 30596.80393 | 993295.807 | 40.64748998 | 24.4368301 | 24273000.9 |
| Fresno | 2024 | LDT1 | Aggregate | Aggregate | Diesel | 18.8924069 | 217.861606 | 0.00859385 | 25.3508733 | 5522.98198 |
| Fresno | 2024 | LDT2 | Aggregate | Aggregate | Gasoline | 145366.0625 | 5656653.97 | 237.1886608 | 23.8487538 | 134904148 |
| Fresno | 2024 | LDT2 | Aggregate | Aggregate | Diesel | 375.2275066 | 15817.5301 | 0.461913662 | 34.2434776 | 541647.239 |
| Fresno | 2024 | LHDT1 | Aggregate | Aggregate | Gasoline | 12363.75636 | 442604.911 | 46.68025073 | 9.48163097 | 4196616.43 |
| Fresno | 2024 | LHDT1 | Aggregate | Aggregate | Diesel | 11041.74007 | 396666.761 | 25.1163181 | 15.7931891 | 6264633.16 |
| Fresno | 2024 | LHDT2 | Aggregate | Aggregate | Gasoline | 2053.928866 | 70185.2225 | 8.437278009 | 8.31846745 | 583833.488 |
| Fresno | 2024 | LHDT2 | Aggregate | Aggregate | Diesel | 4082.416061 | 149342.534 | 11.38052244 | 13.1226431 | 1959768.77 |
| Fresno | 2024 | MDV | Aggregate | Aggregate | Gasoline | 130595.6269 | 4577942.1 | 237.8965609 | 19.2434144 | 88095236.9 |
| Fresno | 2024 | MDV | Aggregate | Aggregate | Diesel | 1857.31625 | 70493.7845 | 2.818651003 | 25.0097598 | 1763032.61 |
| Fresno | 2024 | MHDT | Aggregate | Aggregate | Gasoline | 939.8774941 | 52454.0336 | 11.171826 | 4.69520682 | 246282.536 |
| Fresno | 2024 | MHDT | Aggregate | Aggregate | Diesel | 7764.571273 | 374754.482 | 43.22629384 | 8.66959549 | 3248969.77 |

| | |
|---|---|
| **Worker** | |
| **Weighted Average Fuel Economy** | **25.9608075** |
| **Vendor** | |
| **Weighted Average Fuel Economy** | **8.14091422** |
| **Haul** | |
| **Weighted Average Fuel Economy** | **6.00933126** |

## Construction Vehicle Fuel Calculations (Page 2 of 2)

### Construction Schedule

Source: CalEEMod Output
Whispering Falls Residential Development

| CalEEMod Run | Phase Name | Start Date | End Date | Num Days Week | Num Days |
|---|---|---|---|---|---|
| Project Construction | Site Preparation | 1/12/2024 | 2/22/2024 | 5 | 30 |
| Project Construction | Grading | 2/23/2024 | 6/6/2024 | 5 | 75 |
| Project Construction | Building Construction | 6/7/2024 | 12/24/2026 | 5 | 665 |
| Project Construction | Paving | 6/7/2024 | 8/22/2024 | 5 | 55 |
| Project Construction | Architectural Coating | 10/16/2026 | 12/31/2026 | 5 | 55 |

### Construction Trips and VMT

| Phase Name | Trips per Day | | | Construction Trip Length in Miles | | | Number of Days per Phase | Trips per Phase | | | VMT per Phase | | | Fuel Consumption (gallons) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trips | Vendor Trips | Hauling Trips | Worker Trips | Vendor Trips | Hauling Trips |
| Site Preparation | 17.50 | 2.00 | 0.00 | 7.70 | 4.00 | 20.00 | 30 | 525 | 60 | 0 | 4,043 | 240 | 0 | 155.72 | 29.48 | 0.00 |
| Grading | 20.00 | 2.00 | 116.70 | 7.70 | 4.00 | 20.00 | 75 | 1,500 | 150 | 8,753 | 11,550 | 600 | 175,050 | 444.90 | 73.70 | 29,129.70 |
| Building Construction | 131.90 | 37.70 | 0.00 | 7.70 | 4.00 | 20.00 | 665 | 87,714 | 25,071 | 0 | 675,394 | 100,282 | 0 | 26,015.91 | 12,318.27 | 0.00 |
| Paving | 15.00 | 2.00 | 0.00 | 7.70 | 4.00 | 20.00 | 55 | 825 | 110 | 0 | 6,353 | 440 | 0 | 244.70 | 54.05 | 0.00 |
| Architectural Coating | 26.40 | 2.00 | 0.00 | 7.70 | 4.00 | 20.00 | 55 | 1,452 | 110 | 0 | 11,180 | 440 | 0 | 430.66 | 54.05 | 0.00 |

Total Project Construction VMT (miles)
**985,571**

Total Project Fuel Consumption (gallons)
**68,951**

## Construction Equipment Fuel Calculation (Page 1 of 2)

Source: CalEEMod Output
Whispering Falls Residential Development
**Construction Schedule**

| Construction Area | Phase Type | Start Date | End Date | Num Days Week | Num Days |
|---|---|---|---|---|---|
| Project Construction | Site Preparation | 1/12/2024 | 2/22/2024 | 5 | 30 |
| Project Construction | Grading | 2/23/2024 | 6/6/2024 | 5 | 75 |
| Project Construction | Building Construction | 6/7/2024 | 12/24/2026 | 5 | 665 |
| Project Construction | Paving | 6/7/2024 | 8/22/2024 | 5 | 55 |
| Project Construction | Architectural Coating | 10/16/2026 | 12/31/2026 | 5 | 55 |

**Construction Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor | Number of Days | HP Hours | Fuel (gallons/HP-hour) | Diesel Fuel Usage |
|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8 | 367 | 0.40 | 30 | 105,696.00 | 0.02046 | 2,162.70 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8 | 84 | 0.37 | 30 | 29,836.80 | 0.01894 | 565.15 |
| Grading | Excavators | 2 | 8 | 36 | 0.38 | 75 | 16,416.00 | 0.01976 | 324.43 |
| Grading | Graders | 1 | 8 | 148 | 0.41 | 75 | 36,408.00 | 0.02120 | 771.80 |
| Grading | Rubber Tired Dozers | 1 | 8 | 367 | 0.40 | 75 | 88,080.00 | 0.02046 | 1,802.25 |
| Grading | Scrapers | 2 | 8 | 423 | 0.48 | 75 | 243,648.00 | 0.02486 | 6,058.01 |
| Grading | Tractors/Loaders/Backhoes | 2 | 8 | 84 | 0.37 | 75 | 37,296.00 | 0.01894 | 706.43 |
| Building Construction | Cranes | 1 | 7.79 | 367 | 0.29 | 665 | 551,344.65 | 0.01500 | 8,267.59 |
| Building Construction | Forklifts | 3 | 8.9 | 82 | 0.20 | 665 | 291,190.20 | 0.02081 | 6,059.40 |
| Building Construction | Generator Sets | 1 | 8.9 | 14 | 0.74 | 665 | 61,315.66 | 0.04240 | 2,599.96 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.79 | 84 | 0.37 | 665 | 483,015.83 | 0.01894 | 9,148.95 |
| Building Construction | Welders | 1 | 8.9 | 46 | 0.45 | 665 | 122,512.95 | 0.02588 | 3,170.95 |
| Paving | Pavers | 2 | 8 | 81 | 0.42 | 55 | 29,937.60 | 0.02151 | 644.05 |
| Paving | Paving Equipment | 2 | 8 | 89 | 0.36 | 55 | 28,195.20 | 0.01833 | 516.81 |
| Paving | Rollers | 2 | 8 | 36 | 0.38 | 55 | 12,038.40 | 0.01942 | 233.75 |
| Architectural Coating | Air Compressors | 1 | 6 | 37 | 0.48 | 55 | 5,860.80 | 0.02766 | 162.10 |

**Total Construction Equipment Fuel Consumption (gallons)** **43,194.31**

Notes:
Equipment assumptions are provided in the CalEEMod output files.
Source of usage estimates: California Air Resource Board (CARB). 2022. OFFROAD2017 (v1.0.1) Emissions Inventory
Website: https://www.arb.ca.gov/orion/. Accessed May 2023.

# Construction Equipment Fuel Calculation (Page 2 of 2)

OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: Fresno
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: Emissions: tons/day, Fuel Consumption: gallons/year, Activity: hours/year, HP-Hours: HP-hours/year

| Region | Vehicle Class | Model Year | HP_Bin | Fuel | Fuel (gallons/year) | Horsepower Hours (HP-hours/year) | Fuel (gallons/HP-hour) |
|---|---|---|---|---|---|---|---|
| Fresno | ConstMin - Cranes | Aggregated | 75 | Diesel | 283.187 | 18885.015 | 0.014995321 |
| Fresno | ConstMin - Excavators | Aggregated | 175 | Diesel | 247434.805 | 12520180.193 | 0.019762879 |
| Fresno | ConstMin - Graders | Aggregated | 175 | Diesel | 151368.953 | 7140536.907 | 0.021198539 |
| Fresno | ConstMin - Pavers | Aggregated | 175 | Diesel | 32732.189 | 1521509.140 | 0.021512976 |
| Fresno | ConstMin - Paving Equipment | Aggregated | 175 | Diesel | 13696.518 | 747231.968 | 0.018329673 |
| Fresno | ConstMin - Rollers | Aggregated | 100 | Diesel | 79011.010 | 4069235.397 | 0.019416672 |
| Fresno | ConstMin - Rough Terrain Forklifts | Aggregated | 100 | Diesel | 200971.731 | 9657888.419 | 0.020809076 |
| Fresno | ConstMin - Rubber Tired Dozers | Aggregated | 300 | Diesel | 10331.179 | 504908.236 | 0.020461498 |
| Fresno | ConstMin - Scrapers | Aggregated | 300 | Diesel | 90981.977 | 3659218.054 | 0.024863776 |
| Fresno | ConstMin - Tractors/Loaders/Backhoes | Aggregated | 175 | Diesel | 211438.622 | 11162834.316 | 0.018941303 |
| Fresno | ConstMin - Tractors/Loaders/Backhoes | Aggregated | 300 | Diesel | 127421.155 | 6692059.770 | 0.019040648 |
| Fresno | ConstMin - Trenchers | Aggregated | 100 | Diesel | 17961.409 | 689768.533 | 0.026039763 |
| Fresno | OFF - ConstMin - Cement and Mortar Mixers | Aggregated | 25 | Diesel | 1766.600 | 55224.500 | 0.031989425 |
| Fresno | OFF - ConstMin - Concrete/Industrial Saws | Aggregated | 50 | Diesel | 901.550 | 21319.650 | 0.04228728 |
| Fresno | OFF - Light Commercial - Generator Sets | Aggregated | 50 | Diesel | 49348.000 | 1163787.900 | 0.042402916 |
| Fresno | OFF - Light Commercial - Welders | Aggregated | 50 | Diesel | 82263.700 | 3178347.000 | 0.025882542 |
| Fresno | OFF - Light Commercial - Air Compressors | Aggregated | 50 | Diesel | 17928.800 | 648240.000 | 0.027657658 |

## Construction Office Electricity Calculation

Energy Appendix: CalEEMod Typical Construction Trailer
Typical Construction Trailer - Fresno County, Annual

### 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 Office Building | 16,881 | 204 | 0.0330 | 0.0040 | 28,756 |

kWh/yr = kilowatt hours per year

**Energy by Land Use - Electricity**

| | | |
|---|---|---|
| Annual | 16,881 | kWh/yr |
| **Total Over Construction** | **50,134** | **kWh** |

| Total Construction Schedule | |
|---|---|
| Start | 1/12/2024 |
| End | 12/31/2026 |
| Total Calendar Days | 1084 |
| Years | 2.97 |

## Operational Fuel Calculation—Project-generated Operational Trips

California Air Resource Board (CARB). 2023. EMFAC2021. Website: https://arb.ca.gov/emfac/emissions-inventory/. Accessed August 2023.

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: County
Region: Fresno
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

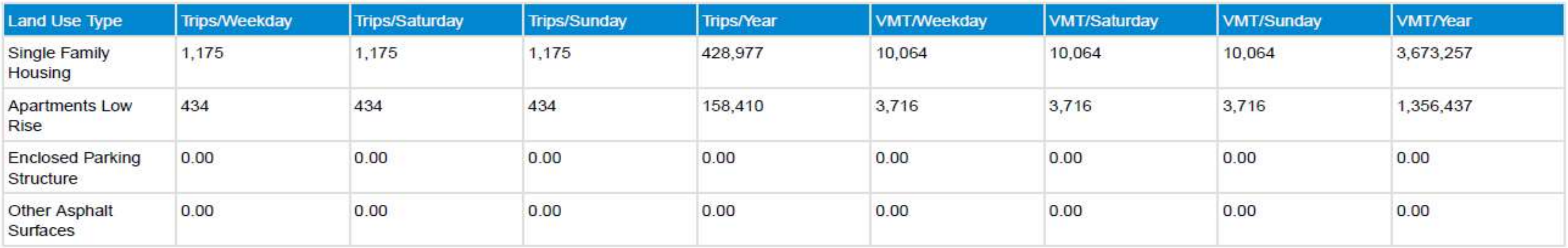
VMT = Vehicle Miles Traveled
FE = Fuel Economy

| | | | | *Given* | | | | | *Calculations* | |
|---|---|---|---|---|---|---|---|---|---|---|
| Region | Calendar Year | Vehicle Class | Model Year | Speed | Fuel | Population | VMT | Fuel Consumption | FE | VMT*FE |
| Fresno | 2025 | LDA | Aggregate | Aggregate | Gasoline | 316061.7189 | 12141533.24 | 402.2140566 | 30.18674519 | 366513370 |
| Fresno | 2025 | LDA | Aggregate | Aggregate | Diesel | 664.1610576 | 19482.6747 | 0.43338164 | 44.95500714 | 875843.7805 |
| | | | | | | | | | **Total VMT** | **12161015.91** |
| | | | | | | | | | **Weighted Average Fuel Economy** | **30.21040483** |
| Fresno | 2025 | LDT1 | Aggregate | Aggregate | Gasoline | 29804.00447 | 969835.576 | 38.94444053 | 24.90305581 | 24151869.47 |
| Fresno | 2025 | LDT1 | Aggregate | Aggregate | Diesel | 16.92722929 | 189.0849739 | 0.007454601 | 25.36486702 | 4796.115218 |
| Fresno | 2025 | LDT2 | Aggregate | Aggregate | Gasoline | 148873.0637 | 5788459.351 | 236.5988227 | 24.46529228 | 141616349.9 |
| Fresno | 2025 | LDT2 | Aggregate | Aggregate | Diesel | 403.4049479 | 16923.85816 | 0.48308615 | 35.03279518 | 592890.0567 |
| Fresno | 2025 | MDV | Aggregate | Aggregate | Gasoline | 128955.2326 | 4501805.71 | 228.9602591 | 19.66195237 | 88514289.47 |
| Fresno | 2025 | MDV | Aggregate | Aggregate | Diesel | 1856.856283 | 68763.29623 | 2.716088295 | 25.31703272 | 1740882.621 |
| | | | | | | | | | **Total VMT** | **11345976.88** |
| | | | | | | | | | **Weighted Average Fuel Economy** | **22.61780368** |
| Fresno | 2025 | LHDT1 | Aggregate | Aggregate | Gasoline | 12157.40146 | 436975.8691 | 45.27577145 | 9.65142846 | 4217441.34 |
| Fresno | 2025 | LHDT1 | Aggregate | Aggregate | Diesel | 10824.69883 | 383946.9386 | 24.24444468 | 15.83649136 | 6080372.374 |
| Fresno | 2025 | LHDT2 | Aggregate | Aggregate | Gasoline | 1993.211327 | 67578.33936 | 8.022756778 | 8.423331435 | 569234.7503 |
| Fresno | 2025 | LHDT2 | Aggregate | Aggregate | Diesel | 4061.658904 | 146655.6498 | 11.10918097 | 13.20130172 | 1936045.482 |
| Fresno | 2025 | MHDT | Aggregate | Aggregate | Gasoline | 910.5276922 | 51143.17052 | 10.76905535 | 4.749086047 | 242883.3175 |
| Fresno | 2025 | MHDT | Aggregate | Aggregate | Diesel | 7969.311158 | 379793.7161 | 43.51031232 | 8.728820728 | 3315151.262 |
| | | | | | | | | | **Total VMT** | **1466093.684** |
| | | | | | | | | | **Weighted Average Fuel Economy** | **11.15967466** |
| Fresno | 2025 | HHDT | Aggregate | Aggregate | Gasoline | 0.792491733 | 73.54576459 | 0.018412582 | 3.994321153 | 293.7654032 |
| Fresno | 2025 | HHDT | Aggregate | Aggregate | Diesel | 14894.83605 | 2098472.212 | 343.6379015 | 6.106637839 | 12814609.82 |
| | | | | | | | | | **Total VMT** | **2098545.758** |
| | | | | | | | | | **Weighted Average Fuel Economy** | **6.106563811** |
| Fresno | 2025 | OBUS | Aggregate | Aggregate | Gasoline | 286.8972081 | 13693.05956 | 2.864799604 | 4.779761748 | 65449.56231 |
| Fresno | 2025 | OBUS | Aggregate | Aggregate | Diesel | 155.5979291 | 12731.97437 | 1.935009664 | 6.579798853 | 83773.83035 |
| Fresno | 2025 | SBUS | Aggregate | Aggregate | Gasoline | 313.8974588 | 18730.3491 | 1.869954486 | 10.01647326 | 187612.0408 |
| Fresno | 2025 | SBUS | Aggregate | Aggregate | Diesel | 852.8364713 | 19141.59945 | 2.294887278 | 8.340975887 | 159659.6194 |
| Fresno | 2025 | UBUS | Aggregate | Aggregate | Gasoline | 90.5416307 | 4240.000315 | 0.879634961 | 4.820181671 | 20437.57181 |
| Fresno | 2025 | UBUS | Aggregate | Aggregate | Diesel | 19.41057964 | 1997.704052 | 0.218517674 | 9.142070803 | 18263.15188 |
| | | | | | | | | | **Total VMT** | **70534.68685** |
| | | | | | | | | | **Weighted Average Fuel Economy** | **7.587696218** |
| Fresno | 2025 | MCY | Aggregate | Aggregate | Gasoline | 15807.73915 | 85788.09591 | 2.073776267 | 41.36805753 | 3548886.887 |
| | | | | | | | | | **Total VMT** | **85788.09591** |
| | | | | | | | | | **Weighted Average Fuel Economy** | **41.36805753** |

## Operational Fuel Calculation—Project-generated Operational Trips

**Total Operational VMT**

Whispering Falls Residential Development - Buildout Year Operations



| Land Use Type | Trips/Weekday | Trips/Saturday | Trips/Sunday | Trips/Year | VMT/Weekday | VMT/Saturday | VMT/Sunday | VMT/Year |
|---|---|---|---|---|---|---|---|---|
| Single Family Housing | 1,175 | 1,175 | 1,175 | 428,977 | 10,064 | 10,064 | 10,064 | 3,673,257 |
| Apartments Low Rise | 434 | 434 | 434 | 158,410 | 3,716 | 3,716 | 3,716 | 1,356,437 |
| Enclosed Parking Structure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | Annual VMT (miles) |
|---|---|
| **Total VMT** | **5,029,694** |

**By Vehicle Type (Average Fleet Mix for the 2025 Operational Year for Project Vehicles - Full Buildout in the Earliest Operational Year)**

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52.440000 | 21.200000 | 16.770000 | 5.630000 | 0.080000 | 0.090000 | 0.760000 | 2.120000 | 0.000000 | 0.430000 | 0.250000 | 0.010000 | 0.220000 |

| | Fraction of 1 | Percent of Vehicle Trips | Annual VMT | Daily VMT | Average Fuel Economy (miles/gallon) | Total Daily Fuel Consumption (gallons) | Total Annual Fuel Consumption (gallons) |
|---|---|---|---|---|---|---|---|
| Passenger Cars (LDA) | 0.5244 | 52.44 | 2,637,572 | 7,226 | 30.21 | 239.2 | 87,307 |
| Light Trucks and Medium Vehicles (LDT1, LDT2, and MDV) | 0.4360 | 43.60 | 2,192,947 | 6,008 | 22.62 | 265.6 | 96,957 |
| LHDT1, LHDT2, and MHDT | 0.0093 | 0.93 | 46,776 | 128 | 11.16 | 11.5 | 4,192 |
| HHDT | 0.0212 | 2.12 | 106,630 | 292 | 6.11 | 47.8 | 17,461 |
| MCY | 0.0025 | 0.25 | 12,574 | 34 | 41.37 | 0.8 | 304 |
| Buses/Other | 0.0066 | 0.66 | 33,196 | 91 | 7.59 | 12.0 | 4,375 |
| Total | — | 100.0 | 5,029,694 | 13,780 | | 577.0 | 210,595 |

## Project Operations Electricity Use

Source: CalEEMod Output

Whispering Falls Residential Development - Buildout Year Operations

kWh/yr = kilowatt hours per year

| CalEEMod Land Use | Electricity Use (kWh/yr) | |
|---|---|---|
| Single Family Housing | 1,102,897 | |
| Apartments Low Rise | 275,234 | |
| Enclosed Parking Structure | 408,967 | |
| Other Asphalt Surfaces | 0 | |
| **Total** | **1,787,098** | **kWh/yr** |

*The estimates above account for total consumption and not demand after incorporation of renewable energy.
Based on applicant-provided information, the project would be built all-electric and would not include natural gas.

# Construction Trailer Custom Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | Construction Trailer |
| Operational Year | 2023 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.70 |
| Precipitation (days) | 25.4 |
| Location | 36.687961, -119.784008 |
| County | Fresno |
| City | Unincorporated |
| Air District | San Joaquin Valley APCD |
| Air Basin | San Joaquin Valley |
| TAZ | 2490 |
| EDFZ | 5 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.13 |

## 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 Office Building | 0.72 | 1000sqft | 0.02 | 720 | 0.00 | — | — | — |

# 4. Operations Emissions Details

## 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 Office Building | — | — | — | — | — | — | — | — | — | — | — | — | 9.43 | 9.43 | < 0.005 | < 0.005 | — | 9.53 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 9.43 | 9.43 | < 0.005 | < 0.005 | — | 9.53 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | 9.43 | 9.43 | < 0.005 | < 0.005 | — | 9.53 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 9.43 | 9.43 | < 0.005 | < 0.005 | — | 9.53 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | 1.56 | 1.56 | < 0.005 | < 0.005 | — | 1.58 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 1.56 | 1.56 | < 0.005 | < 0.005 | — | 1.58 |

# 5. Activity Data

## 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 Office Building | 16,881 | 204 | 0.0330 | 0.0040 | 28,756 |

# 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 | 80.0 |
| AQ-PM | 94.3 |
| AQ-DPM | 35.0 |
| Drinking Water | 98.5 |
| Lead Risk Housing | 72.8 |
| Pesticides | 92.0 |
| Toxic Releases | 76.5 |
| Traffic | 3.39 |
| Effect Indicators | — |
| CleanUp Sites | 85.6 |
| Groundwater | 70.6 |
| Haz Waste Facilities/Generators | 97.9 |
| Impaired Water Bodies | 0.00 |
| Solid Waste | 92.0 |
| Sensitive Population | — |
| Asthma | 93.4 |

| | |
|---|---|
| Cardio-vascular | 75.0 |
| Low Birth Weights | 74.2 |
| Socioeconomic Factor Indicators | — |
| Education | 73.4 |
| Housing | 20.6 |
| Linguistic | 63.0 |
| Poverty | 78.0 |
| Unemployment | 60.6 |

# 8. User Changes to Default Data

## 7.2 Appendix B: Biological Resource Assessment

Prepared by Argonaut Ecological Consulting, Inc., dated June 2023.

# BIOLOGICAL RESOURCE ASSESSMENT
## Whispering Fall Project TSM No. 6430
## Modoc Avenue, Kerman, CA

APNs

020-160-36S (Phase 1)
200-160-18S (Phase II)
020-160-19S (Phase III)

June 2023

Prepared for:

PRECISION
CIVIL ENGINEERING, INC

ARGONAUT
ECOLOGICAL
CONSULTING, INC.

# Table of Contents

## List of Figures

## List of Tables

## Attachments

# 1.0 EXECUTIVE SUMMARY AND INTRODUCTION

## EXECUTIVE SUMMARY

Argonaut Ecological, Inc. conducted a biological evaluation of an approximately 60 acres site near Kerman, Fresno County.

The assessment included assessing the types of habitats present and sensitive species associated with those habitats. The biological evaluation focused on mapping existing habitat types based on a site reconnaissance and reviewing public and commercial databases, aerial photographs (current and historical), and other published information and available data.

The Study Area has been disturbed periodically over the last few decades. The site does not support suitable habitat for any special status species, but avoidance and minimization measures are recommended to prevent any impacts to species that could be impacted during construction. There are also no sensitive habitats within the Study Area, including waters/wetlands or critical habitat for species of concern.

## 1.1 INTRODUCTION

Argonaut conducted a biological resource assessment of three parcels (60 acres). The parcels are located east of S. Modoc Avenue, between West Kearney and West California Avenue near Kerman, California. TSM No. 6430 would facilitate a 174-unit residential development ("Whispering Falls Phase I") to occupy a 20-acre parcel (8.7 units per acre) identified as APN 200-160-36S. TSM No. 6430 would subdivide the 20-acre parcel into 119 lots to account for 118 single-family lots and one (1) lot reserved for the multi-family residential units and community center. For this study, we assume the entire 60-acre parcel would be studied even though there are no current plans for development beyond TSM No 6430.

## 1.2 STUDY OBJECTIVES

This report describes the biological resources present within and adjacent Study Area, describes the area's biological characteristics, and evaluates the Study Area's likelihood to support sensitive biological resources (such as wetlands, creeks/drainages, and special status species). This evaluation used available literature, aerial photography, historic topographic and aerial maps, and a site visit. For this study, wetland habitat includes those areas possibly considered "waters of the U.S." by the U.S. Army Corps of Engineers (Army Corps) or Waters of the State of California. As described in Section 1.2.1, wetlands are a subset of "Waters of the U.S." under the Federal Clean Water Act (CWA).

This report assesses the project's potential effects on biological resources and evaluates whether any associated regulatory approvals or permits are required. This report also evaluates potential impacts site development may have on protected habitat, species protected by the Federal Endangered Species Act (ESA), or those protected under the California Environmental Quality Act (CEQA) or California Endangered Species Act (CESA).

\

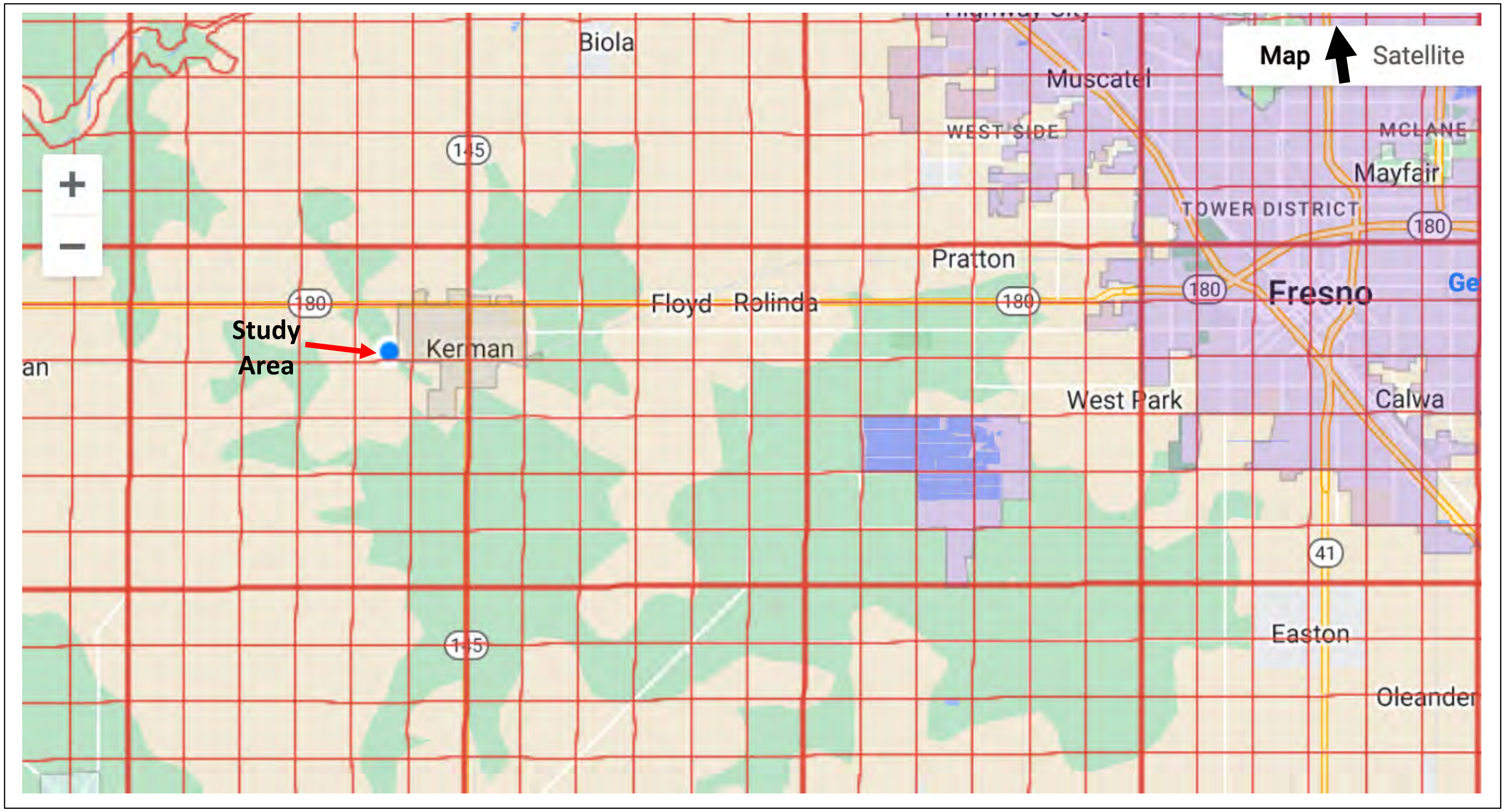


Figure 1

Location Map – Whispering Meadow

S. Modoc Avenue, Kerman, California

ARGONAUT ECOLOGICAL CONSULTING, INC.

## 1.3 REGULATORY JURISDICTION AND BACKGROUND

Several agencies share regulatory jurisdiction over biological resources. The following is a brief description of the primary jurisdiction of each agency.

### Wetland Protection

#### *U.S. Army Corps of Engineers*

Wetlands are a type of Waters of the U.S. The U.S. Army Corps of Engineers (Army Corps) and the U.S. Environmental Protection Agency regulate the placement of fill into the Waters of the U.S. under Section 404 of the Federal Clean Water Act and Section 10 of the Rivers and Harbor Act. For this purpose, the term "Waters of the U.S." is legally defined under Section 404 of the Federal Clean Water Act and includes interstate streams, creeks, and adjacent wetlands. The Army Corps defines wetlands as "*those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" (Environmental Laboratory 1987). In California, seasonally inundated areas that meet the criteria of all three wetland parameters (soils, hydrology, and vegetation), as defined in the recently issued Wetland Delineation Manual for the Arid West (USACE 2006), are also considered jurisdictional wetlands.

Since 2001, several U.S. Supreme Court rulings regarding the regulation of isolated, intrastate waters by the Army Corps have limited the scope of federal jurisdiction under the CWA and excluded many California wetlands from federal regulation.

In December 2019, the U.S. EPA and the U.S. Army published the final rule to repeal the 2015 Clean Water Rule. The "Clean Water Rule" clarified what constitutes waters of the U.S., and presumably, more precisely define and make permitting more predictable, thus less costly, and more straightforward.

After several challenges to the "Clean Water Rule," the U.S. PA and the Department of the Army proposed the pre-2015 (pre-Obama-era rules) definition "of waters of the United States," updated to reflect consideration of Supreme Court decisions. The new rule went into effect on May 23, 2023; however, on May 25, 2023, the U.S. Supreme Court's issued a decision in the case of *Sackett v. Environmental Protection Agency that rolled back the definition of waters of the U.S. to better align with the original definition as included in the Rapanos decision*. The new definition limits "waters" as "limited geographic[al] features that are described in ordinary parlance as 'streams, oceans, rivers, and lakes" and to "adjacent wetlands that are 'indistinguishable' from those bodies of water due to a continuous surface connection." The prior use of a "significant nexus" was set aside by the Court.

Waters typically do not include prior converted cropland (those areas converted prior to December 23, 1985). Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency for the purposes of the CWA, the final authority to determine jurisdiction remains with EPA.

### *California State Water Resources Control Board*

Since 1993, California has had a Wetlands Conservation Policy (a.k.a. Executive Order W-51 59-93). It is commonly referred to as the *No Net Loss policy* for wetlands, establishing a state mandate for developing and adopting a policy framework and strategy to protect the state's wetland ecosystems. The policy was to be implemented voluntarily and was expressly not to be implemented on a "project-by-project" basis (See EO W-59-93, Section III).

In 2020 California adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. The State definition of wetland differs from the Federal definition in that the state definition includes areas with no vegetation, assuming the other criteria are met. Wetlands of the State include 1) natural wetlands, 2) wetlands created by modification of water of the state (at any point in history), and 3) artificial wetlands that meet specific criteria. The State definition only exempts a few types of waters. Examples of water features excluded from the state's definition include industrial or municipal wastewater, certain stormwater treatment facilities, agricultural crop irrigation, industrial processing or cooling, and fields flooded for rice growing.

## Listed Protected Species and Habitat Protection

### *U.S. Fish and Wildlife Service*

The U.S. Fish and Wildlife Service (USFWS) implements the Migratory Bird Treaty Act (16 USC Section 703-711), Bald and Golden Eagle Protection Act (16 United States Code [USC] Section 668), and Federal Endangered Species Act (FESA; 16 USC § 153 *et seq.)*.

The **Migratory Bird Treaty Act (MBTA**) was first enacted in 1918 to protect migratory birds between the United States and Great Britain (acting on behalf of Canada). The MBTA makes it illegal for anyone to take, possess, import, transport, purchase, barter, offer for sale, or purchase any migratory birds, nests, or eggs unless a federal agency has issued a permit. The USFWS has statutory authority and responsibility for enforcing the MBTA. The MBTA was reformed in 2004 to include all species native to the U.S. or its territories due to natural biological or ecological processes (70 FR 12710, March 15, 2005). The Act does not include non-native species whose occurrences in the U.S. are solely the result of intentional or unintentional human introduction. The USFWS maintains a list of bird species not protected under the MBTA.

In January 2021, the USFWS published a new rule in the Federal Register. Under the rule change, the unintentional killing of migratory birds does not violate the MBTA. Only the intentional "pursuing, hunting, taking, capturing, killing, or attempting to do the same ... directed at migratory birds, their nests, or their eggs" would be illegal under the changes.

The **Federal Endangered Species Act (FESA)** prohibits "take" "of any federally listed wildlife species (the destruction of federally listed plants on private property is not prohibited and does not require a permit)**.** "Take" under the federal definition means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. "Incidental take" is harm death that may occur during the implementation of an otherwise lawful activity. "Candidate species" do not have the full protection of FESA. However, the USFWS advises project applicants that it is prudent to address these species since they could be elevated to "listed status" before the completion of projects with long planning or development schedules.

The Projects that would result in "take" "of any federally-listed threatened or endangered species can obtain authorization from the USFWS through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA. The authorization process determines if a project would jeopardize a listed species' continued existence and what mitigation measures would be required to avoid jeopardizing the species.

An Incidental Take Permit or Take Permit is required when an activity would either kill, harm, harass or interrupt a listed species' breeding or nesting. The ESA definition of "harm" is somewhat less definitive since it includes ubiquitous activities. In 1999 the USFWS clarified the term "harm" as it applies to the ESA in the Federal Register. As stated, the final rule defined the term "harm" "to include any act which causes actual <u>harm (</u>kills or injures fish or wildlife) and emphasizes that such actions may have significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife.

### *California Department of Fish and Wildlife*

The California Department of Fish and Wildlife (CDFW) is a Trustee Agency responsible under CEQA to review and evaluate project impacts on plant and wildlife resources. Under the Fish and Game Code Section 1802, the CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations. The California Fish and Game Code also provides authority for the CDFW to regulate projects that could result in the "take" of any species listed by the state as threatened or endangered (Section 2081). CDFW also has authority over all state streams, as described below.

Perennial and intermittent streams also fall under the jurisdiction of CDFW according to Sections 1601-1603 of the Fish and Game Code (Streambed Alteration Agreements). CDFW's jurisdictional extent includes work within the stream zone, including the diversion or obstruction of the natural flow or changes in the channel, bed, or bank of any river, stream, or lake. Before issuing a 1601 or 1603 Streambed Alteration Agreement, the CDFW must demonstrate compliance with CEQA. In most cases, CDFW relies on the CEQA review performed by the local lead agency. However, in cases where no CEQA review was required for the project, CDFW would act as the lead agency under CEQA.

The CDFW also has authority for the protection of state-listed species issues under Section 2081 Incidental Take Permit if a project has the potential to negatively affect state-protected plant or animal species or their habitats, either directly or indirectly. Protected species include those "listed" by the state as endangered or threatened. Besides listed species, other species protection categories include "fully protected" and California Species of Special Concern (CSC). Adverse impacts to species that are "fully protected" are prohibited.

Under the California Fish & Game Code (FGC Section 3503), "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird…." Birds of prey (falcons, hawks, owls, and eagles) get extra protection under the law (FGC Section 3503.5).

As with USFWS, CDFW does not have the authority to require a landowner to apply for an Incidental Take Permit (ITP) authorizing take. Instead, the landowner has the legal obligation to avoid any take of state-listed species if it does not seek an ITP. CDFW (and USFWS) can initiate an enforcement action if they believe that an illegal take has occurred or will occur.

### California Endangered Species Act

The California Endangered Species Act (CESA) protects candidate plants and animal species and those listed under CESA as rare, threatened, or endangered. This Act prohibits the take of any such species unless authorized. Section 2081 authorizes the state to issue ITPs. The state definition of taking applies only to acts that result in death or adverse impacts on protected species. The CESA mirrors the federal regulation as it relates to "take"; however, there is no state equivalent definition of "harm" or "harass." Incidental take is also not defined by the CESA statute or regulation. Unlike the federal ESA, CESA does qualify that incidental take" "is not prohibited "if it is the result of an act that occurs on a farm or ranch during an otherwise lawful routine and ongoing agricultural activity." Where disagreement occurs (and in some cases, this has been the subject of court cases) is in the common understanding of “routine and ongoing agricultural activity."

### California Environmental Quality Act

The CEQA Guidelines require a review of projects to determine their environmental effects and identify mitigation measures to reduce impacts to a less than significant level. The Guidelines state that an effect may be significant if it affects rare and endangered species. Section 15380 of the Guidelines defines *rare* to include listed species and allows agencies to consider rare species other than those designated as State or Federal threatened or endangered but that meet the standards for rare under the Federal or State endangered species acts. On this basis, plants designated as rare by non-regulatory organizations (e.g., California Native Plant Society), species of special concern defined by CDFW, candidate species defined by USFWS, and other designations must be considered in CEQA analyses.

### Land Use Entitlements

#### *City of Kerman*

The Project site is located within the City of Kerman Sphere of Influence but is outside the city limits. Fresno County is responsible for all local land-use decisions within its jurisdiction, the CEQA, but the City would serve as the lead agency under CEQA. As the lead agency under CEQA, the City will consider other responsible agencies' recommendations during the CEQA review.

# 2.0 RESOURCES CONSULTED AND METHODS

The following section describes the methods used to assess the Study Area and includes data review and evaluation, field studies, and aerial photograph interpretations.

## 2.1 DATA AND LITERATURE REVIEW

Documents and sources of information used to prepare this evaluation include the following:

- Aerial photography (Google Earth®, Bing®, and historic aerials).
- California Department of Fish and Wildlife, California Natural Diversity Database (CNDDB/RareFind - Recent version with updates)
- EcoAtles 2023.
- U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey of Fresno County (Soils mapper).
- U.S. Fish and Wildlife Service, National Wetland Inventory Map.
- U.S. Fish and Wildlife Service, Information for Planning and Consultation (IPaC) query, March 3, 2023.
- U.S. Geological Survey, Historical Topographic Map, Kerman Quadrangle, 1924, University of Texas, Austin, Perry-Castañeda Map Collection

Before conducting a site review, the California Natural Diversity Database/ RareFind (CNDDB) and the USFWS IPaC were consulted to determine the species potentially present within the Study Area based on location. The review aimed to assess the likelihood of special status species being present based on the site's distance from documented species occurrences and the presence or absence of habitat types utilized by such species. The CNDDB includes records of reported observations for special status plant and animal species and is queried based on a search radius of USGS quadrangle maps. Before conducting the fieldwork, high-resolution aerial photographs were also reviewed to determine if any areas on the site supported the presence of WOTUS.

## 2.2 AERIAL PHOTOGRAPHY AND WETLAND MAPPING

Historical aerial photographs dating back to the 1980s of the Study Area were reviewed to identify site features and determine land-use changes over time. Also reviewed were wetland mapping and aerial photographs to determine if the Study Area recently supported wetlands.

## 2.3 FIELD INVESTIGATION

A site investigation was performed on April 30, 2023. The entire Study Area was reviewed, and all habitat features were mapped. Soils, vegetation, and drainage patterns within the Study Area were inspected to determine the habitat present and suitability for species of concern. The site was walked using transects to provide full coverage.

# 3.0 PHYSICAL RESOURCES, RESULTS, AND CONCLUSIONS

Section 3.1, below, describes the physical features (i.e., land use, soils, vegetation, hydrology, etc.) and the study area's biological features. The physical components and land use strongly influence the types of plants and animals present. This section also describes the habitats present and the specific biological resources observed during the site review.

Section 3.2 presents our conclusions, and Section 3.3 contains recommended avoidance and minimization measures to avoid potential impacts.

The following is not an exhaustive inventory of plants and animals present. Instead, the discussion provides sufficient information to characterize the habitat and habitat components present on site. This field survey identified the biological resources present. The biological evaluation discusses the habitat present and the potential for that habitat to support any species considered unique, sensitive, or protected by current law. The conclusion section (3.2) summarizes the results of the data review, fieldwork, and evaluation of biological resources and potential impacts. The conclusion sections also include recommendations for measures to minimize any potential impacts.

## 3.1 PHYSICAL RESOURCES

### *Climate*

The Study Area climate is typical of the central San Joaquin Valley, with long, hot, dry summers and cool, mild winters. In the winter, rainfall averages approximately 9.99 inches per year, falling mainly between November and April (Western Regional Climate Center, 2004). During 2021 total rainfall, the Fresno region had a total of 8.22 inches; in 2022, there was a total of 5.43 inches. Since the fall of 2022, the regional rainfall totaled 21 inches (through May 2023) near Fresno.

### *Topography, Drainage, and Soils*

#### Topography and Drainage*:*

The Study Area lies within the Central Valley and is at an elevation of 2l (msl). Historically, no mapped streams, creeks, or other drainage features existed within or near the Study Area, as seen in a 1946 topographic map. There is no defined drainage path within or from the Study Area, but the general direction of drainage is likely toward the northwest.

#### Soils*:*

The site soil types – Hesperia sandy loam, deep (66% of the Study Area), Traver sandy loam (25%), El Peco sandy loam (15%), Hanford coarse sandy loam (8%), and Hesperia sandy loam shallow (2%)

\

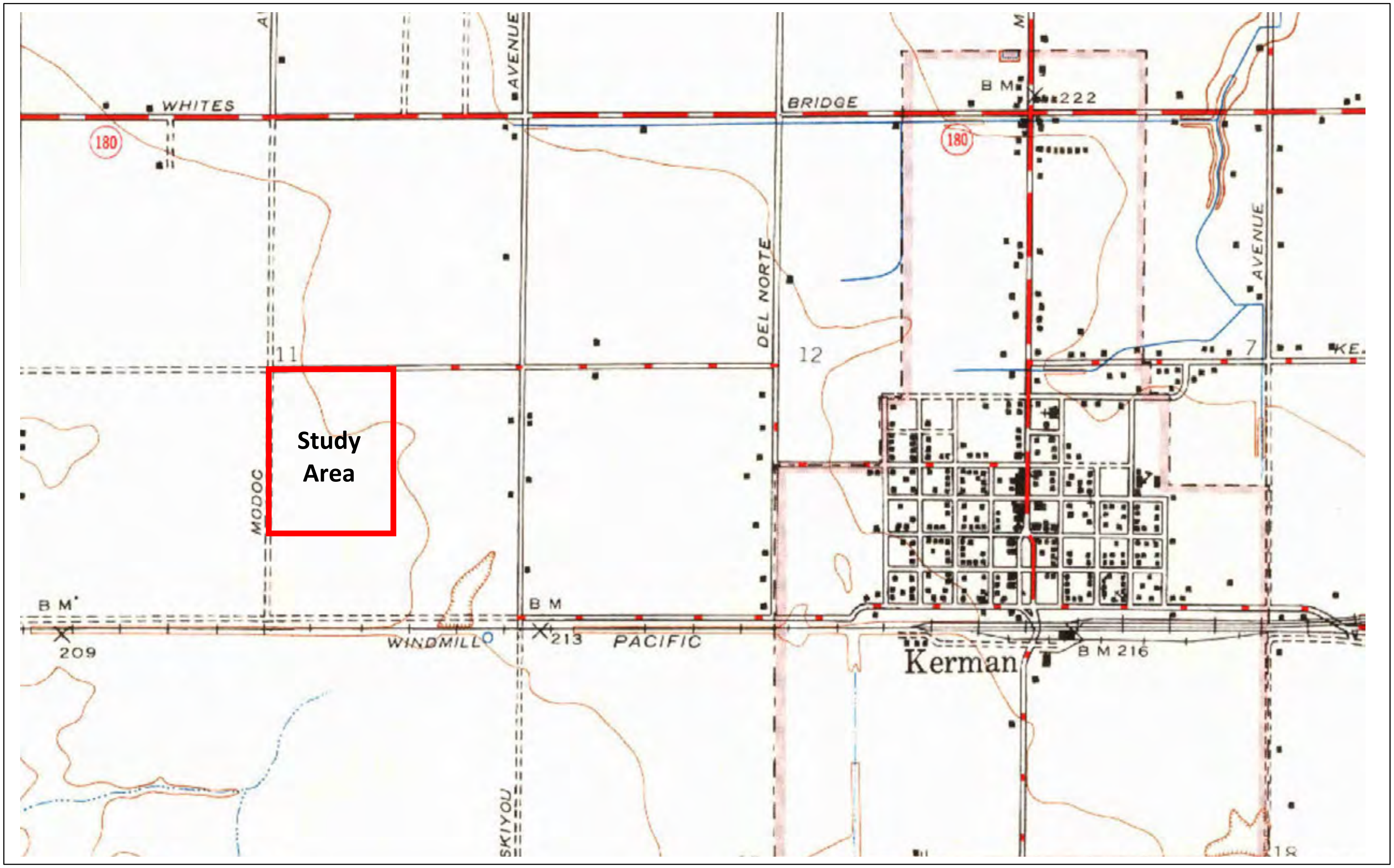


Figure 2

Topographic Map: 1946

ARGONAUT
ECOLOGICAL
CONSULTING, INC.

### *Land Use*

The Study Area is in a historically rural, agricultural area of Fresno County and on the immediate west side of the City of Kerman. Immediately east of the Study Area are single-family homes and an elementary school. A single-family home is located within the 60 acres of the Study Area. The residential home includes our building and is surrounded by orchards. The southern parcel (within TSM 6340) has no development or structures. Immediately south and west of the Study Area are other orchards.

Since 1998, all three parcels within the Study Area (including TSM 6340) have been in agricultural production (orchards or row crops). TSM 6340 was planted in orchards around 1998, then periodically covered to row crops. Around 2018 the parcel was taken out of row crop production and annually disced.

### *Habitat*

There are several California habitat classification systems. Most classification systems describe natural communities without established classifications for developed or agricultural habitats. CALVEG is a USDA Forest Service product providing a comprehensive spatial dataset of existing vegetation cover over California. The data were created using a combination of automated systematic procedures, remote sensing classification, photo editing, and field-based observations. Analyses are based "on a crosswalk of the CALVEG classifications to the California Wildlife Habitat Relationships (CWHR)."

Calveg lists the site as an "agricultural/non-native/ruderal" habitat. Attachment A shows photographs of the Study Area.

TSM 6340 portions of the Study Area are dominated by a non-native herb, rip-gut brome (*Bromus diandrus*). Other forbs present include *Hordeum marinu*m (barley), *Volpais myuros* (rats tail fescue). Alfalfa is present along the edges of the parcel, along with other ruderal species, including *Erodium cicutarum* (stork's bill).

The 20-acre parcel north of TSM 6340 is a peach orchard. North of that parcel (the northernmost 20-acre parcel within the Study Area) is plowed and has no vegetative cover.

Only two non-orchard trees are in the Study Area, and both surround the residential home. No raptor nests were located within the trees. The only wildlife observed within the Study Area is a large population of ground squirrels and jackrabbits.

### *Waters/Wetland*

According to the National Wetland Inventory Map (Figure 3), there are no mapped waters (streams, drainages, wetlands) within or immediately adjacent to the Study Area, either currently or historically.

The entire Study Area was walked to look for any evidence of potential wetlands/waters habitat, and wetland, waters, or any other aquatic habitat (either perennial or seasonal) is present.

## Special Status Species

A query of the California Natural Diversity Database (CNDDB) (Attachment B) and the USFWS IPaC was performed to determine which special status species could be present within the Study Area. No critical habitat exists for any species within or near the Study Area. The CNDDB Bios mapping is shown in Figure 4[1]. This map shows the location of known records of special status species near the Study Area, and Table 1 includes a summary of the CNDDB query results.

The Study Area is not within any Critical Habitat for any listed species.

### *Birds*

The CNDDB and the IPaC include several bird species that have the potential to be present within or near the Study Area, including migratory birds. However, the Study Area has only two large trees (surrounding an existing home). No nests or evidence of nesting in these trees were found. Only one ground-nesting raptor has a potentially suitable habitat within the Study Area – a burrowing owl.

**Burrowing owl**- This is a small ground-nesting owl that depends on ground-burrowing mammals for underground burrows for nesting. Burrowing owl prefers somewhat open grassland that affords better visibility and avoids areas with tall, dense forbs. The only parcel within the Study Area currently has forbs is TM 6340, but the vegetative cover is very dense and tall. For this reason, it is unlikely that burrowing owl would take up residence within the Study Area, but possible occupation cannot be excluded. No evidence of occupation was found at the time of the field study.

### *Mammals*

The CNDDB and IPaC list two species of mammals that occur within the region (Fresno kangaroo rat and San Joaquin kit fox).

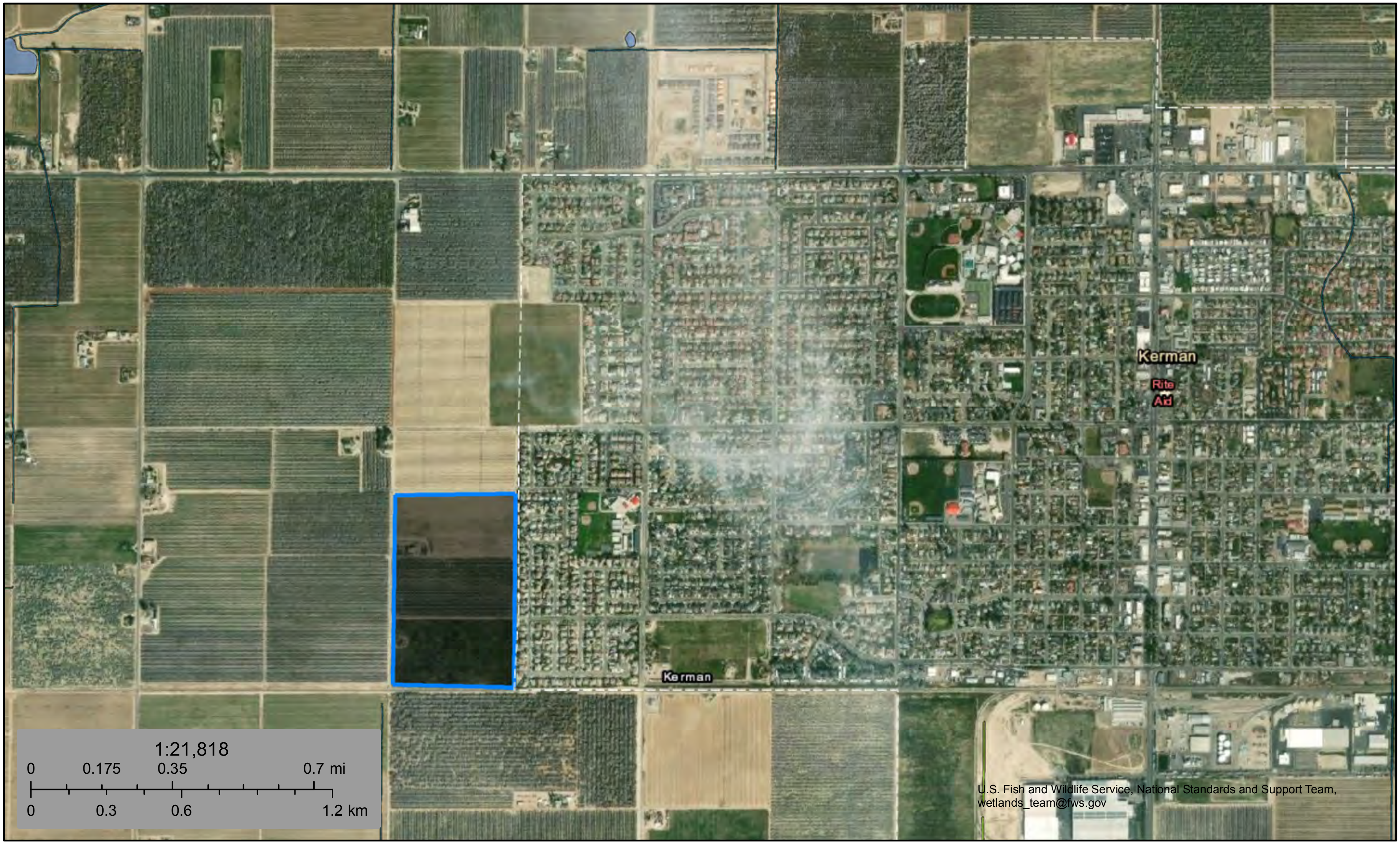
---

[1] It is important to keep in mind that a number of records in the CNDDB database are historic records (beginning around the 1900s) and are not intended to affirm current presence or absence. Potential presence/absence is based on the specific habitat components that occur within a Study Area.

**U.S. Fish and Wildlife Service**

**National Wetlands Inventory**

# Figure 3: NWI Map Whispering Falls



U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov

June 4, 2023

**Wetlands_Alaska**

- 🟦 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

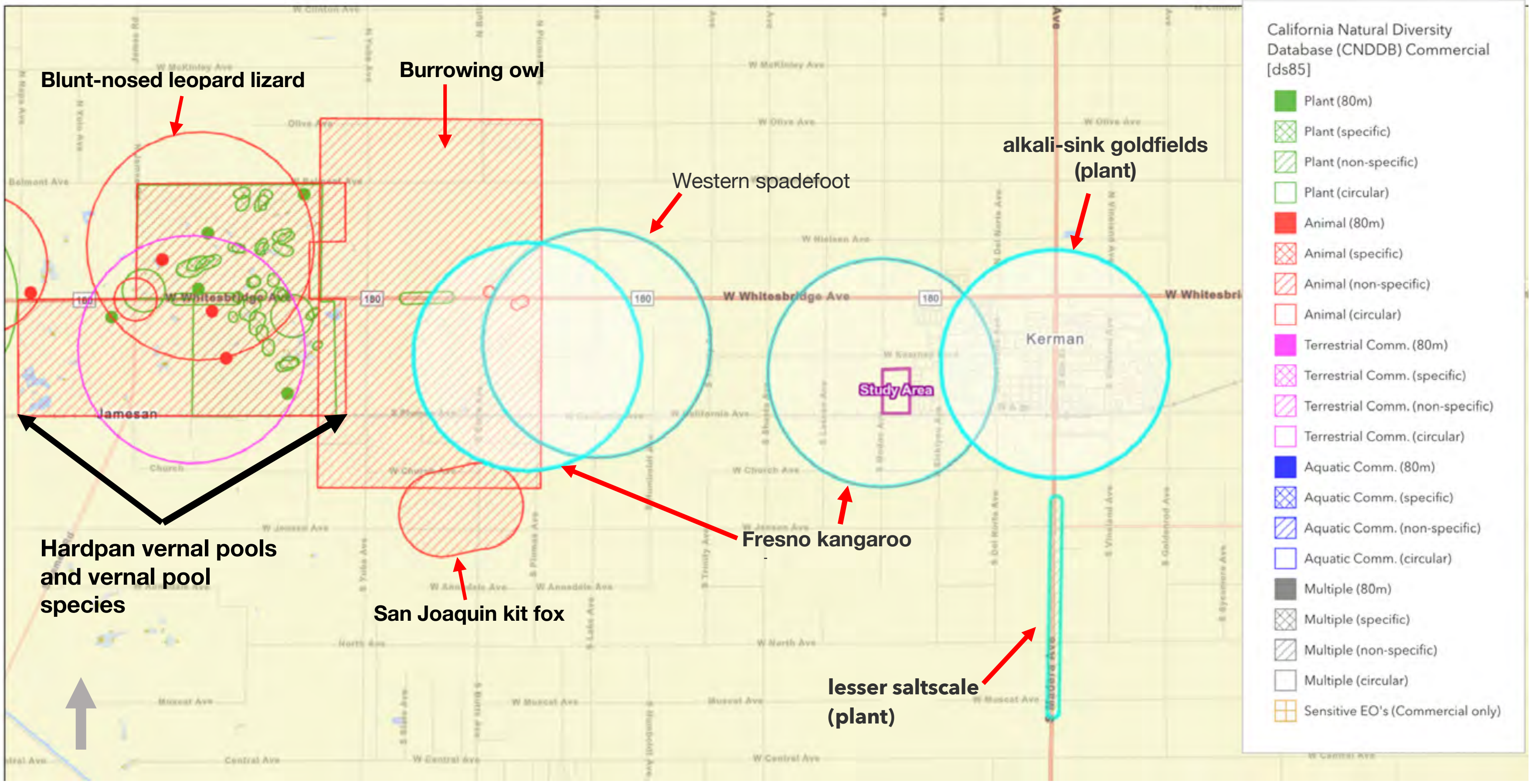


Figure 4

CNDDB Bios Map

ARGONAUT
ECOLOGICAL
CONSULTING, INC.

There is one CNDDB record for the San Joaquin kit fox (SJKF) roughly 3 miles west of the Study Area. The Study Area is also within the SJKF range, and the Study Area is also included in the predicted habitat model developed by the California Wildlife Habitat Relationships (CWHR 2016).

**San Joaquin kit fox** is a small fox with a bushy, black-tipped tail. When fully grown, the fox only weighs about 5 pounds and is well adapted to its desert habitat. The species was listed as endangered in 1967. The species roam throughout much of the valley floor and foothills of the San Joaquin Valley in California, from San Joaquin County in the north to Kern County in the south. The San Joaquin kit fox lives in the desert and grasslands and prefers areas with minimal shrubs and grasses. It unground creates dens for raising pups. The fox is timid and is predominantly nocturnal.

The Study Area does not support suitable habitat for the species, and no potential den sites are present within or near the Study Area. The fox may occasionally forage on or near the site when passing through the area. Based on the literature, the population trends of SJ kit fox may be strongly influenced by food availability, but competition from coyotes may also affect the population dynamics of SJKF, given that their dietary requirements overlap (Cypher and Spencer, 1998). Coyote often hunts for jackrabbits, whereas kit fox tends to prey on small mammals, but there is competition for prey resources depending on resource abundance.

**Fresno kangaroo rats** lived in arid areas and were once abundant across the valley floor, but land transition to agricultural and urban uses reduced that habitat. This species was listed as endangered in 1985 and is one of three San Joaquin kangaroo rat subspecies. The species is about 9 inches long and moves rapidly by hopping on its hind legs. The species was one through extinct. It occurs on land where the dominant plant forms are native grasses and forbs. The last known records surrounding Kerman (including the Study Area) were from 1934.

### *Amphibians, Reptiles, and Invertebrates*

The Study Area does support any aquatic habitat. Therefore, species that depend on aquatic habitats for any part of their life cycle are absent within the Study Area. However, one species that depend on aquatic habitats for breeding also use upland habitats during non-breeding periods - Western spadefoot toad. This species breeds in aquatic habitats, then moves to upland habitats to survive the hot, dry summers and both species. Western spadefoot will burrow about a meter deep in loose soils to avoid the heat. Tree cover is thought to be important in their selection of where to burrow. The nearest potential habitat for Western spadefoot is roughly 2 miles west of the Study Area. The recurring disturbance within the Study Area and the distance from suitable breeding habitat nearby preclude potential occupation within the Study Area for this species.

### *Plants*

The CNDDB and IPaC identify numerous special status plant species. The majority of the plants are species associated with wetlands or aquatic habitats. There is no suitable habitat for any of these species within or immediately adjacent to the Study Area because of the highly disturbed nature of the site, prior row crops production, and the lack of any suitable habitat.

The site review was conducted during the prime bloom period for a majority of plants found within this region. No special status species of plants were encountered.

## Table 1
## Summary of Special Status Species, Potential Occurrence, and Impact

| *Common Name* | *Scientific Name* | *Status*[1] | *Effects*[2] | *Occurrence in the Study Area*[3] |
|---|---|---|---|---|
| **Birds** | | | | |
| Burrowing owl | *Athenea cunicularia* | SSC | ME | **Likely Absent.** Occupies grasslands and some disturbed sites but needs ground burrowing mammal burrows for nesting. Ground burrows are present but no evidence of the current burrowing owl occupation. |
| **Mammals** | | | | |
| Fresno kangaroo rat | *Dipodomys nitratoides exillis* | FE/-- | NE | **Absent.** Grassland and alkali desert scrub habitat. Suitable habitat not present. |
| San Joaquin kit fox | *Vulpes macrotis mutica* | FE/CT | ME | **Likely Absent.** No denning habitat within or near the Study Area. It could occasionally forage in the area if the species is in the area. |
| **Amphibians, Reptiles, and Invertebrates** | | | | |
| Western spadefoot | *Spea hammondii* | --/-- | NE | **Absent.** Requires seasonal wetlands for breeding and no suitable habitat on or near the Study Area. |
| **Plants** | | | | |
| Heartscale | *Atriplex cordulata var. cordulata* | --/-- | NE | **Absent:** Occurs in seasonal wetlands and grasslands**.** Species not encountered during a survey and suitable habitat not present. |
| Lesser salt scale | *Atriplex minuscula* | --/-- | NE | **Absent.** Occurs in alkali sink and shadescale scrub, and sometimes grasslands. Suitable habitat not present. |
| Palmate-bracted bird's-beak | *Chloropyron palmatum* | --/-- | NE | **Absent.** Occurs in seasonal wetlands and shadescale scrub. Suitable habitat not present. |
| Madera leptosiphon | *Leptosiphon serulatus* | FE/CE | NE | **Absent**. Occurs in yellow pine forests and foothill woodlands. Suitable habitat not present. |
| Recurved larkspur | *Delphimium recurvatum* | --/-- | NE | **Absent**. Occurs in shadescale scrub, foothill woodlands, and Valley grasslands. No suitable habitat present within the Study Area. |
| Hoover's eriastrum | *Eriastrum hooveri* | DL/-- | NE | **Absent.** Found in sparsely vegetated but grassy open areas. No individuals were found during the survey, and no suitable habitat was present. |
| California alkali grass | *Puccinellia simplex* | --/-- | NE | **Absent.** Typically found in wetlands within grasslands. Suitable habitat not present within the Study Area. |
| Alkali-sink goldfields | *Lasthenia chrysantha* | --/-- | NE | **Absent.** Occurs in seasonal wetlands and other ephemeral wetlands. |

1 **Status= Listing of special status species, unless otherwise indicated**

CE: California listed as Endangered
CT: California listed as Threatened
SSC: California Species of Special Concern
FE: Federally listed as Endangered
FT: Federally listed as Threatened
1B.1, 1B.2, 2B.2, 2B.3: California Native Plant Society Ranking

2 **Effects = Effect determination**

NE: No Effect
ME: May Effect, not likely to adversely effect

3 **Definition of Occurrence Indicators**: **Present/Potentially**: Species recorded in the area and some habitat elements in the Study Area similar to known occurrences. **Absent/Likely Absent**: Species not recorded in Study Area and/or suitable habitat or critical habitat components not present.

***Source: CNDDB = California Natural Diversity Database provided by CDFG and U.S. Fish and Wildlife Service, Information for Planning and Consultation. (IPaC). Accessed online between March 3, 2023.***

## 3.2 CONCLUSIONS/RECOMMENDATIONS

### CONCLUSIONS

- The Study Area has historically been disturbed in agricultural production. The two northern parcels (orchard and row crops) are currently in production, and TSM 6340 is currently fallow.
- The habitat value of wildlife is limited, and the only wildlife, or signs of wildlife, was a few birds.
- There are no suitable nesting trees for tree-nesting raptors within the Study Area. Only two potential nests in trees surround an existing residence, but no potential nests were found.
- There are no potential waters or wetlands within or near the Study Area.
- The Study Area does not support habitat associated with special status species breeding or nesting. However, TSM 6340 could support ground-nesting burrowing, given the presence of ground-burrowing mammals. The likely hood of occupation is low but not impossible.
- San Joaquin kit fox could pass through the Study Area or attempt to forage within the area. There is no denning habitat within the Study Area or evidence of a suitable prey base.

### Recommendations:

The following measure is recommended to avoid any potential impacts to nesting raptors that could occupy trees immediately adjacent to the Study Area if site disturbance is initiated during the nesting period of February-August 30th.

- Initiate grading/ground disturbance (and any tree removal) from Sept 1 – February 1 during the non-breeding period.
- If construction is initiated during the nesting period (Feb 1 – Aug 30), conduct a pre-construction survey to confirm that no burrowing owl has taken up residence in any parcels with ground burrowing mammals (likely only TSM 6340 and the existing orchard). If burrowing owl occupation is found, consult with the California Department of Fish and Wildlife to determine the appropriate avoidance and minimization measures.
- The following measures are recommended to avoid any potential impact to San Joaquin kit fox during construction. These measures are designed to avoid and minimize any impact on San Joaquin kit fox in the unlikely event an individual is present within the Study Area at any time during construction.

Implement the avoidance and minimization measures recommended by the U.S. Fish and Wildlife Service (2011), as summarized below:

**Prior to Construction:**

1. Prepare and conduct an employee education program prior to the start of construction. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation (as summarized below). A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.

**Avoidance and Minimization Measures During Construction**: The following measures should be included within the worker education program and in any project specification and contract.

1. Project-related vehicles should observe a daytime speed limit of 20 mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. No nighttime construction should occur, given the species is primarily nocturnal.
2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.
3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.
6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.
7. The use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe labels and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.
8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program, and their name and telephone number shall be provided to the Service.

11. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, etc., should be re-contoured if necessary and revegetated, if possible, to promote restoration of the area to pre-project conditions.
12. Any contractor or employee responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured, or entrapped kit fox.
13. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project-related activities. Notification must include the date, time, and location of the incident or the finding of a dead or injured animal and any other pertinent information.
14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

# References

California Natural Diversity Database (CNDDB) Online. Subscription with updates. Available at: URL https://www.wildlife.ca.gov/Data/CNDDB

Brian L Cypher and Kenneth A. Spencer. Competitive Interactions between Coyotes and San Joaquin Kit Foxes. Published in *Journal of Mammalogy*, Volume 79, Issue 1, 20 February 1998, Pages 204–214, https://doi.org/10.2307/1382855

National Resource Conservation Service (NRCS), Web Soils Survey. Available at: URL https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Fish and Wildlife Service. Information for Planning and Consultation (IPaC). Available at URL: https://ipac.ecosphere.fws.gov/

U.S. Fish and Wildlife Service, National Wetland Inventory Maps. Available at URL: https://www.fws.gov/wetlands/data/mapper.html

USFWS. 2011. Standard recommendations for the protection of the San Joaquin kit fox prior to or during ground disturbance. United States Fish and Wildlife Service, January 2011.

U.S. Geologic Survey, Historic topographic Map, Kerman Quadrangle, 1919, University of Texas, Austin, Perry-Castañeda Map Collection. Available at: URL: https://legacy.lib.utexas.edu/maps/

# Attachment A: Photographs of Study Area

ARGONAUT ECOLOGICAL CONSULTING, INC.

## *Photographic Documentation*

**Photographs:** June 2023

**Project: Whispering Falls, Kerman, Ca**

**Photograph 1**

Northern most parcel, looking east. Study Area on the right. Plowed field.

**Photograph 2**

View of northern most parcel within the Study Area, looking south toward the existing home.

**Photograph 3**

Orchard within Study Area, typical view.

**Photograph 4**

Farm road between orchard and southern parcel (TSM 6430) on the right.

**Photograph 5**

TSM 6430 view looking southeast across study area.

**Photograph 6**

View of TSM 6430 looking east toward existing homes.

**Photograph 7**

TSM 6430, view of dense vegetation typical of parcel.

**Photograph 8**

View of southern end of TSM 6430 looking southeast.

## 7.3 Appendix C: CHRIS Search Results

Prepared by Southern San Joaquin Valley Information Center dated March 27, 2023.

California
Historical
Resources
Information
System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

**To:** Shin Tu
Precision Civil Engineering, Inc.
1234 O Street
Fresno, CA 93721

**Record Search 23-098**

**Date:** March 27, 2023

**Re:** Whispering Falls

**County:** Fresno

**Map(s):** Kerman 7.5’

## CULTURAL RESOURCES RECORDS SEARCH

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System’s (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP’s regulatory authority under federal and state law.

The following are the results of a search of the cultural resource files at the Southern San Joaquin Valley Information Center. These files include known and recorded cultural resources sites, inventory and excavation reports filed with this office, and resources listed on the National Register of Historic Places, the OHP Built Environment Resources Directory, California State Historical Landmarks, California Register of Historical Resources, California Inventory of Historic Resources, and California Points of Historical Interest. Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the OHP 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.

## PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there has been no previous cultural resource studies completed within the project area, or within the one-half mile radius.

## KNOWN/RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there are no recorded resource within the project area, and it is not known if any exit there. There is one recorded resource within the one-half mile radius, P-10-003930. This resource is a historic era railroad, respectively.

There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, for the California State Historic Landmarks.

## COMMENTS AND RECOMMENDATIONS

We understand the project proposes to rezone and annex three parcels and amend the City of Kerman General Plan to allow the rezoning. Further, we understand the project proposes to develop a 174-unit residential development and community center. We also understand that the existing land is vacant agricultural land with one parcel containing two structures, please note that agriculture does not constitute previous development, as it does not destroy cultural resources, but merely moves them around within the plow zone. If this project will result in alteration or demolition of any existing structures more than 45 years old, then we recommend the structures first be recorded and evaluated for historical significance. Because this project area has not been previously studied for cultural resources, it is unknown if any are present. As such, prior to ground disturbance activities, we recommend a qualified, professional consultant conduct a field survey to determine if cultural resources are present. A list of qualified consultants can be found at www.chrisinfo.org.

We also recommend that you contact the Native American Heritage Commission in Sacramento. They will provide you with a current list of Native American individuals/organizations that can assist you with information regarding cultural resources that may not be included in the CHRIS Inventory and that may be of concern to the Native groups in the area. The Commission can consult their "Sacred Lands Inventory" file to determine what sacred resources, if any, exist within this project area and the way in which these resources might be managed. Finally, please consult with the lead agency on this project to determine if any other cultural resource investigation is required. If you need any additional information or have any questions or concerns, please contact our office at (661) 654-2289.

By:

Jeremy E David, Assistant Coordinator **Date**: March 27, 2023

Please note that invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

## 7.4 Appendix D: NAHC Letter

Prepared by Native American Heritage Commission dated April 11, 2023.

**STATE OF CALIFORNIA** **Gavin Newsom, *Governor***

# NATIVE AMERICAN HERITAGE COMMISSION

**NAHC HEADQUARTERS**
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

April 11, 2023

Jesus R. Orozco
City of Kerman

***Via Email to:*** ***jorozco@cityofkerman.org***

**Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, TSM 2023-01 - Whispering Falls (Phase 1) Project, Fresno County**

Dear Mr. Orozco:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

*Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.*

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
*Cultural Resources Analyst*

Attachment

## 7.5 Appendix E: Noise Assessment

Prepared by WJV Acoustics, Inc., on October 11, 2023.

# ACOUSTICAL ANALYSIS

## WHISPERING FALLS
KERMAN, CALIFORNIA

### WJVA Project No. 23-11

PREPARED FOR

**PRECISION ENGINEERING**
1234 O STREET
FRESNO, CALIFORNIA 93721

PREPARED BY

**WJV ACOUSTICS, INC.**
VISALIA, CALIFORNIA

OCTOBER 11, 2023

# INTRODUCTION

Annexation (ANX 2023-01), Rezone/Prezone (REZ 2023-01), General Plan Amendment (GPA 2023-01), Conditional Use Permit (CUP 2023-02), and Tentative Subdivision Map (TSM 2023-01) are requested by Whispering Falls, LLC. (Applicant) and pertain to four (4) parcels totaling approximately 80 acres that are located on the east side of south Modoc Avenue between West Kearney Boulevard and West California Avenue (alignment) (APNs 020-160-02S, 020-160-18S, 020-160-19S, and 020-160-36S). Development of the Project site would occur in three (3) phases. Phase I pertains to the 20-acre parcel identified as APN 020-160-36S; Phase II pertains to the 20-acre parcel identified as APN 020-160-18S; and Phase III pertains to the 20-acre parcel identified as APN 020-160-19S. The parcel identified as APN 020-160-02S is not proposed for development at this time.

The Project site is located within the City of Kerman Sphere of Influence but is currently outside city limits. The Project site has a City of Kerman General Plan (General Plan) land use designation of MDR – Medium Density Residential (approximately 55 acres) and HDR – High Density Residential (approximately five (5) acres) and is within the County of Fresno AE-20 (Exclusive Agricultural) zone district. ANX 2023-01 would annex the four (4) parcels (80 acres) from Fresno County to City of Kerman and REZ No. 2023-01 would pre-zone the four (4) parcels (80 acres) to the Smart Development (SD) Combining District – Residential (R) – 2.5 acres. GPA 2023-01 would amend the General Plan to add the SD-R-2.5 zone district as a compatible zone district within the MDR land use designation and set a minimum residential density.

CUP No. 2023-02 and TSM 2023-01 would facilitate a 174-unit residential development (“Whispering Falls Phase I” or “Phase I”) to occupy the 20-acre parcel (8.7 units per acre) identified as APN 020-160-36S. Whispering Falls Phase I would consist of 118 single-family residential units including 64 alley-loaded single-family homes, 46 single-family cluster homes, and eight (8) wide-shallow single-family homes in addition to 236 parking spaces (two (2) spaces per unit); 56 two-bedroom multi-family residential units and 56 parking spaces (one (1) space per unit) are also proposed. Phase I would also include a community center and 138 additional on-street parking spaces. Access to the site would be provided by three (3) points of ingress/egress from North California Avenue (proposed). Internal circulation within the site would be provided by private streets and alleys. TSM 2023-01 would subdivide the 20-acre parcel into 119 lots to account for 118 single-family lots and one (1) lot reserved for the multi-family residential units and community center.

No development is currently proposed for Phase II or Phase III.

Appendix A provides a description of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighting, as it provides a high degree of correlation with human annoyance and health effects. Appendix B provides typical A-weighted sound levels for common noise sources.

# NOISE EXPOSURE CRITERIA

**General Plan-**
The City of Kerman 2040 General Plan (adopted July 2020) sets noise compatibility standards for transportation noise sources in terms of the Day-Night Average Level ($L_{dn}$). Implementing Policy PH-8.2 of the Public Health and Safety Element establishes a land use compatibility criterion as 60 dB $L_{dn}$ for exterior noise exposure within outdoor activity areas of residential land uses. Outdoor activity areas generally include backyards of single-family residences, individual patios or decks of multi-family developments and common outdoor recreation areas of multi-family developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

Additionally, Implementing Policy PH-8.2 of the Public Health and Safety Element requires that interior noise levels attributable to exterior transportation noise sources not exceed 45 dB $L_{dn}$. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

The City of Kerman General Plan also provides exterior noise level standards for non-transportation (stationary) noise sources. The standards become more restrictive during the nighttime hours (10:00 p.m. to 7:00 a.m.). The stationary noise level standards are established in terms of the hourly average equivalent noise level ($L_{eq}$) and the maximum hourly noise level ($L_{max}$). Table I provides the applicable City of Kerman exterior noise level standards for stationary noise sources.

TABLE I

NON-TRANSPORTATION NOISE LEVEL STANDARDS, dBA
CITY OF KERMAN GENERAL PLAN

| Daytime (7 a.m.-10 p.m.) | | Nighttime (10 p.m.-7 a.m.) | |
|---|---|---|---|
| $L_{eq}$ | $L_{max}$ | $L_{eq}$ | $L_{max}$ |
| 50 | 70 | 45 | 65 |

Source: City of Kerman General Plan

**Construction Noise and Vibration -**
Section 9.26 (Prohibition of Unreasonably Loud and Unnecessary Noise) of The City of Kerman Code of Ordinances prohibits construction activities outside of the hours of 7:00 a.m. to 10:00 p.m.

There are no City of Kerman vibration level standards. Some guidance is provided by the Caltrans Transportation and Construction Vibration Guidance Manual. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table III and Table IV, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

**TABLE II**

**GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA**

| Human Response | Maximum PPV (in/sec) | |
|---|---|---|
| | Transient Sources | Continuous/Frequent Intermittent Sources |
| Barely Perceptible | 0.04 | 0.01 |
| Distinctly Perceptible | 0.25 | 0.04 |
| Strongly Perceptible | 0.9 | 0.1 |
| Severe | 2.0 | 0.4 |

Source: Caltrans

**TABLE III**

**GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA**

| Structure and Condition | Maximum PPV (in/sec) | |
|---|---|---|
| | Transient Sources | Continuous/Frequent Intermittent Sources |
| Extremely fragile, historic buildings, ancient monuments | 0.12 | 0.08 |
| Fragile buildings | 0.2 | 0.1 |
| Historic and some old buildings | 0.5 | 0.25 |
| Older residential structures | 0.5 | 0.3 |
| New residential structures | 1.0 | 0.5 |
| Modern industrial/commercial buildings | 2.0 | 0.5 |

Source: Caltrans

## PROJECT SITE NOISE EXPOSURE

The project site is located south of the future alignment of West California Avenue and east of South Siskiyou Avenue. The project site would be exposed to Traffic noise associated with vehicles on the future alignment of West California Avenue as well as train noise associated with railroad operations along the San Joaquin Valley Railroad (SJVR). The closest proposed single-family lots to West California Avenue are located approximately 75 feet south of the future centerline of roadway. The closest proposed single-family lots to the SJVR railroad line are approximately 115 feet north of the centerline of railroad line.

### Background Noise Level Measurements

The project site is not located adjacent to any existing arterial roadway or highways. Existing noise sources in the project vicinity include San Joaquin Valley Railroad (SJVR) operations, noise associated with agricultural activities and noise associated with urban residential land uses (vehicle movements on local roadways, construction and landscaping activities, barking dogs, birds, human voices, etc.).

Measurements of existing ambient noise levels in the project vicinity were conducted on May 17 & 18, 2023. Long-term (24-hour) ambient noise level measurements were conducted at two (2) locations (sites LT-1 and LT-2). Ambient noise levels were measured for a period of 24 continuous hours at each of the three locations. Site LT-1 was located along the eastern project boundary, near the western terminus of W. California Avenue. Site LT-1 was predominantly exposed to noise sources typical of an urban/residential environment, including traffic on local roadways, HVAC units, construction and landscaping activities, barking dogs, birds, human voices, etc. Site LT-2 was located along the southern project boundary, in the vicinity of the SJVR railroad line. Site LT was predominately exposed to noise sources associated with agricultural activities as well as railroad operations along the SJVR line. The locations of the 24-hour ambient noise monitoring sites are provided on Figure 2.

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzers equipped with B&K Type 4176 1/2” microphones. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meters were calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements.

Measured hourly energy average noise levels ($L_{eq}$) at site LT-1 ranged from a low of 33.3 dB between 3:00 a.m. and 4:00 a.m. to a high of 54.4 dBA between 10:00 a.m. and 11:00 a.m. Hourly maximum ($L_{max}$) noise levels at site LT-1 ranged from 48.3 to 83.2 dBA. Residual noise levels at the monitoring site, as defined by the $L_{90}$, ranged from 22.9 to 45.4 dBA. The $L_{90}$ is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The $L_{90}$ is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft, and other local noise sources. The measured $L_{dn}$ value at site LT-1 was 51.6 dB $L_{dn}$. Figure 3 graphically depicts hourly variations in ambient noise levels at site LT-1. Figure 4 provides a photograph of measurement site LT-1.

Measured hourly energy average noise levels ($L_{eq}$) at site LT-2 ranged from a low of 36.4 dB between midnight. and a:00 a.m. to a high of 67.4 dBA between 2:00 p.m. and 3:00 p.m. Hourly maximum ($L_{max}$) noise levels at site LT-2 ranged from 49.4 to 90.6 dBA. Residual noise levels at the monitoring site, as defined by the $L_{90}$, ranged from 32.4 to 42.2 dBA. The measured $L_{dn}$ value at site LT-2 was 62.8 dB $L_{dn}$. Figure 5 graphically depicts hourly variations in ambient noise levels at site LT-2. Figure 6 provides a photograph of measurement site LT-2.

Additionally, short-term (15-minute) ambient noise level measurements were conducted at four (4) locations (Sites ST-1 through ST-4). Two (2) individual measurements were taken at each of the four short-term sites to quantify ambient noise levels in the morning and afternoon hours. The locations of the short-term noise monitoring sites are provided on Figure 2.

Short-term noise measurements were conducted for 15-minute periods at each of the four sites. Site ST-1 was located at the southwest corner of the project site boundary. Site ST-2 was located at the northwest corner of the project site boundary. Site ST-3 was located at the northeast corner of the project site boundary. Site ST-4 was located at the southeast corner of the project site boundary. Sites ST-1 and ST-2 were not located in the immediate vicinity of any roadways or residential land uses. Noise sources observed at sites ST-1 and ST-2 were predominately associated with agricultural land uses, distant traffic noise (ST-2 only) and occasional aircraft overflights. Site ST-3 and ST-4 were located adjacent to residential land uses that border the project site to the east. Noise sources observed at site ST-2 and ST-3 were generally noise sources associated with urban residential land uses (vehicle movements on local roadways, construction and landscaping activities, barking dogs, birds, human voices, etc.).

Table IV summarizes short-term noise measurement results. The noise measurement data included energy average ($L_{eq}$) maximum ($L_{max}$) as well as five (5) individual statistical parameters. Observations were made of the dominant noise sources affecting the measurements. The statistical parameters describe the percent of time a noise level was exceeded during the measurement period. For instance, the $L_{90}$ describes the noise level exceeded 90 percent of the time during the measurement period, and is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft, and other local noise sources.

**TABLE IV**

**SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA**
**WHISPERING PINES RESIDENTIAL DEVELOMENT, KERMAN**
**MAY 17 & 18, 2023**

| Site | Time | A-Weighted Decibels, dBA | | | | | | | Sources |
|---|---|---|---|---|---|---|---|---|---|
| | | $L_{eq}$ | $L_{max}$ | $L_2$ | $L_8$ | $L_{25}$ | $L_{50}$ | $L_{90}$ | |
| ST-1 | 8:30 a.m. | 44.2 | 62.0 | 57.4 | 45.6 | 41.7 | 40.8 | 36.2 | TR, |
| ST-1 | 4:15 p.m. | 45.9 | 58.4 | 56.2 | 43.5 | 42.3 | 39.4 | 35.5 | TR, AC |
| ST-2 | 8:50 a.m. | 50.6 | 59.4 | 51.8 | 49.6 | 44.1 | 42.7 | 40.0 | TR, AG |
| ST-2 | 4:35 p.m. | 51.4 | 64.2 | 53.8 | 50.7 | 44.1 | 41.1 | 39.2 | TR |
| ST-3 | 9:10 p.m. | 51.0 | 66.1 | 53.3 | 51.2 | 46.5 | 44.4 | 42.8 | TR, C, B, D |
| ST-3 | 5:00 p.m. | 52.2 | 67.8 | 54.1 | 52.6 | 48.0 | 45.9 | 42.4 | TR, L |
| ST-4 | 9:30 a.m. | 48.3 | 57.5 | 54.2 | 52.4 | 49.1 | 46.1 | 42.6 | TR, D |
| ST-4 | 5:20 p.m. | 41.5 | 52.9 | 46.8 | 44.4 | 42.0 | 40.1 | 38.2 | TR, D |

TR: Traffic AC: Aircraft AG: Agricultural Activities C: Construction Activities B: Birds D: Barking Dogs V:Voices L: Landscaping Activities
Source: WJV Acoustics, Inc.

## Railroad Noise Exposure:

The San Joaquin Valley Railroad (SJVR) line is located approximately 50 feet south of the closest proposed single-family backyards to the railroad line. The railroad consists of jointed rails with the top of the rails being approximately 2 feet above project site grade. Train engineers are required to sound warning horns when within approximately 0.25 mile of a grade crossing.

According to data obtained from the U.S. Department of Transportation Federal Railroad Administration (FRA), trains along this portion of the railroad line do not exceed 25 mph in speed. Additionally, according to both the FRA and the SJVR trainmaster, typical operations consist of two (2) train movements per day along the line, typically one occurring during daytime hours and one occurring during nighttime hours. There is a grade crossing at S. Siskiyou Avenue where locomotive engineers are required to sound their warning horn.

WJVA did not observe any train movements during the May site visit. However, WJVA staff conducted noise measurements along the same SJVR line, in Fresno, on January 22, 2018. A westbound freight train passby occurred at approximately 2:45 p.m. Noise levels were measured from two locations along the track using automated sound level meters. Both meters were located approximately 50 feet from the tracks. One meter was located approximately 500 feet west of the grade crossing (South Temperance Avenue), and noise levels of the train event were measured to be 102.8 dB (SEL). The second meter was located approximately 1,300 feet from the grade crossing, and noise levels of the train event were measured to be 98.6 dB (SEL). The difference in noise levels is a result of varying distances from the grade crossing, where the engineer is required to sound their warning horn.

The project site frontage with the SJVR line is located at distance of 0.25 mile or greater from the S. Siskiyou Avenue grade crossing. As such, noise levels associated with train warning horns would not be considered an impact at the project site, and applying the above-described 98.6 dB SEL train noise level measurement would be applicable to the project site.

Railroad noise exposure may be quantified in terms of the $L_{dn}$ using the following formula:

$L_{dn} = SEL + 10 \log Neq - 49.4$

*where,*

*SEL is the average SEL for a train pass-by, Neq is the equivalent number of pass-bys in a typical 24-hour period determined by adding 10 times the number of nighttime movements (10 p.m.-7 a.m.) to the actual number of daytime movements (7 a.m.-10 p.m.). 49.4 is a time constant equal to 10 times the log of the number of seconds in a day.*

Using the above-described formula, railroad operations data (assuming one train event during the daytime hours and one train event during the nighttime hours), and noise measurement results, the railroad noise exposure along the project railroad frontage would be approximately of 60 dB $L_{dn}$. These levels equal the City's 60 dB $L_{dn}$ exterior noise level standard. Additionally, based upon the above-described 24-hour noise level measurements at ambient noise measurement site LT-2, project site noise exposure would be in the range of approximately 60-63 dB $L_{dn}$, and mitigation must be considered.

## Exterior Noise Mitigation

### SJVR Railroad Line

The City of Kerman General Plan establishes a 60 dB $L_{dn}$ criterion within outdoor activity areas (backyards) of single-family homes. The project site train noise exposure was calculated and measured to be approximately 60-63 dB $L_{dn}$ within the closest lots to the SJVR railroad line. Such noise exposure levels exceed the City of Kerman exterior noise level standard and mitigation must be considered.

To mitigate exterior train noise exposure along the southern project site boundary it will be necessary to construct a sound wall along the rear of the southernmost lots. The sound wall would provide acoustical shielding of the outdoor activity areas (backyards) of the proposed single-family homes located closest to the SJVR railroad line.

A sound wall insertion loss program based on the FHWA Model was utilized to calculate the minimum required height of a noise barrier along the southern portion of the project site. The model calculates the insertion loss (noise reduction) of a wall of given height based on the effective height of the noise source, height of the receiver, distance from the receiver to the wall, and distance from the noise source to the wall. It was assumed for the sound wall calculations that the effective railroad source height is 10 feet above the tracks.

Based upon the above-described assumptions and method of analysis, the noise level insertion loss values for sound walls of various heights were calculated. The calculations indicated that a sound wall along southern lot project site boundary constructed to a minimum height of seven (7) feet relative to the closest building pad elevations would reduce train noise exposure within individual backyards by approximately 5 dB, resulting in a projected noise exposure of approximately 58 dB $L_{dn.}$ The location of the required sound wall is provided on Figure 7.

It should be noted, the above-described sound wall would be effective at first-floor receiver locations only, and would not provide acoustical shielding to any proposed second-floor receivers. Therefore, noise levels at any second-floor south-facing balconies along the first row of lots facing the SJVR railroad would exceed the 60 dB $L_{dn}$ exterior noise level standard.

## Interior Noise Exposure:

The City of Kerman interior noise level standard is 45 dB $L_{dn}$. The worst-case noise exposure within the proposed residential development would be approximately 58 dB $L_{dn}$ at first-floor receiver locations and approximately 63 dB $L_{dn}$ at second-floor receiver locations, for the first row of lots facing the SJVR railroad line. This means that the proposed residential construction must be capable of providing a minimum outdoor-to-indoor noise level reduction (NLR) of approximately 18 dB (63-45=18).

A specific analysis of interior noise levels was not performed. However, it may be assumed that residential construction methods complying with current building code requirements will reduce exterior noise levels by approximately 25 dB if windows and doors are closed. This will be sufficient for compliance with the City's 45 dB $L_{dn}$ interior standard at all proposed lots. Requiring that it be possible for windows and doors to remain closed for sound insulation means that air conditioning or mechanical ventilation will be required.

## Project-Related Increases In Traffic Noise Exposure:

WJVA utilized the FHWA Traffic Noise Model to quantify expected project-related increases in traffic noise exposure along roadways in the project vicinity. The FHWA Model is a standard analytical method used by state and local agencies for roadway traffic noise prediction. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), 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, and is generally considered to be accurate within ±1.5 dB. To predict $L_{dn}$ values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Traffic noise exposure levels for Existing, Existing Plus Project, 2040 Cumulative and 2040 Cumulative Plus Project traffic conditions were calculated based upon the FHWA Model and traffic volumes provided by the project traffic engineer, VRPA Technologies, Inc. The day/night distribution of traffic and the percentages of used for modeling were estimated based upon previous studies WJVA has conducted along similar roadways as such data was not available from governmental sources. The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix C.

Project-related significant impacts would occur if an increase in traffic noise associated with the project would result in noise levels exceeding the City's applicable noise level standards at the location(s) of sensitive receptors. For the purpose of this analysis a significant impact is also assumed to occur if traffic noise levels were to increase by 3 dB at sensitive receptor locations where noise levels already exceed the City's applicable noise level standards (without the project), as 3 dB generally represents the threshold of perception in change for the human ear. This analysis of project traffic noise focuses on residential land uses, as they represent the most restrictive noise level criteria by land use type provided in the General Plan.

The City's exterior noise level standard for residential land uses is 60 dB $L_{dn}$. Traffic noise was modeled at eighteen (18) receptor locations. The eighteen modeled receptors are located at roadway setback distances representative of the sensitive receptors (residences) along each analyzed roadway segment. The modeled traffic noise receptors are described below and provided graphically as Figure 8.

- R-1: Residence located approximately 150 feet from the centerline of Whitesbridge Ave
- R-2: Residence located approximately 85 feet from the centerline of Whitesbridge Ave.
- R-3: Residence located approximately 70 feet from the centerline of Siskiyou Ave.
- R-4: Residence located approximately 80 feet from the centerline of Whitesbridge Ave
- R-5: Residence located approximately 80 feet from the centerline of Kearney Blvd
- R-6: Residence located approximately 95 feet from the centerline of Siskiyou Ave
- R-7: Residence located approximately 70 feet from the centerline of Siskiyou Ave
- R-8: Residence located approximately 125 feet from the centerline of Kearney Ave
- R-9: Residence located approximately 130 feet from the centerline of Del Norte Ave
- R-10: Residence located approximately 75 feet from the centerline of Del Norte Ave
- R-11: Residence located approximately 95 feet from the centerline of Kearney Ave
- R-12: Residence located approximately 80 feet from the centerline of SR 145
- R-13: Residence located approximately 100 feet from the centerline of Kearney Ave
- R-14: Residence located approximately 70 feet from the centerline of California Ave
- R-15: Residence located approximately 85 feet from the centerline of Siskiyou Ave
- R-16: Residence located approximately 70 feet from the centerline of California Ave
- R-17: Residence located approximately 80 feet from the centerline of Del Norte Ave
- R-18: Residence located approximately 115 feet from the centerline of A St

**Existing Conditions**

Table V provides Existing and Existing Plus Project traffic noise exposure levels at the eighteen analyzed receptor locations. Noise levels described in Table V do not include any acoustic shielding that may be provided by existing buildings, fences, or walls, and therefore represents a worst-case assessment of traffic noise exposure levels.

TABLE V

PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, $L_{dn}$
WHISPERING FALLS, KERMAN
EXISTING CONDITIONS

| Modeled Receptor | Existing | Existing Plus Project | Change (Maximum) | Significant Impact? |
|---|---|---|---|---|
| R-1 | 59 | 59 | 0 | No |
| R-2 | 63 | 64 | +1 | No |
| R-3 | 57 | 59 | +2 | No |
| R-4 | 64 | 65 | +1 | No |
| R-5 | 52 | 54 | +2 | No |
| R-6 | 55 | 56 | +1 | No |
| R-7 | 57 | 59 | +2 | No |
| R-8 | 53 | 54 | +1 | No |
| R-9 | 51 | 51 | 0 | No |
| R-10 | 54 | 54 | 0 | No |
| R-11 | 56 | 57 | +1 | No |
| R-12 | 61 | 61 | 0 | No |
| R-13 | 56 | 56 | 0 | No |
| R-14 | 53 | 56 | +3 | No |
| R-15 | 50 | 51 | +1 | No |
| R-16 | 52 | 54 | +2 | No |
| R-17 | 54 | 55 | +1 | No |
| R-18 | 51 | 52 | +1 | No |

Source: WJV Acoustics, Inc.
VRPA Technologies, Inc.

Reference to Table V indicates that project-related traffic for Existing conditions would not result in noise levels at any sensitive receptors to exceed the City's noise level standard, nor result in an increase of 3 dB in any sensitive receptor locations where noise levels already exceed the City's noise level standard without the implementation of the project.

It is important to note that project buildout would likely occur over several years, and as such project-related noise increases would not be realized for numerous years. While the exact land uses and buildout timelines are uncertain, the increases described in Table V would not occur immediately.

**2040 Cumulative Conditions**

Table VI provides 2040 Cumulative traffic noise exposure levels at the eighteen analyzed representative receptor locations, and provides what the project contribution would be to 2040 Cumulative conditions. Noise levels described in Table VI do not include any acoustic shielding that may be provided by existing buildings, fences, or walls, and therefore represents a worst-case assessment of traffic noise exposure levels.

TABLE VI

PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, $L_{dn}$
WHISPERING FALLS, KERMAN
2040 CUMULATIVE CONDITIONS

| Modeled Receptor | Existing | Existing Plus Project | Change (Maximum) | Significant Impact? |
|---|---|---|---|---|
| R-1 | 61 | 61 | 0 | No |
| R-2 | 65 | 65 | 0 | No |
| R-3 | 58 | 59 | +1 | No |
| R-4 | 66 | 66 | 0 | No |
| R-5 | 54 | 54 | 0 | No |
| R-6 | 56 | 57 | +1 | No |
| R-7 | 59 | 60 | +1 | No |
| R-8 | 53 | 55 | +2 | No |
| R-9 | 52 | 52 | 0 | No |
| R-10 | 55 | 55 | 0 | No |
| R-11 | 57 | 58 | +1 | No |
| R-12 | 62 | 62 | 0 | No |
| R-13 | 57 | 57 | 0 | No |
| R-14 | 54 | 57 | +3 | No |
| R-15 | 51 | 51 | 0 | No |
| R-16 | 54 | 54 | 0 | No |
| R-17 | 56 | 56 | 0 | No |
| R-18 | 53 | 53 | 0 | No |

Source: WJV Acoustics, Inc.
VRPA Technologies, Inc.

Reference to Table VI indicates that project-related traffic for 2040 Cumulative conditions would not result in noise levels at any sensitive receptors to exceed the City's noise level standard, nor result in an increase of 3 dB in any sensitive receptor locations where noise levels already exceed the City's noise level standard without the implementation of the project.

## Construction Noise and Vibration

Construction noise would occur at various locations within and near the project site through the buildout period. Existing sensitive receptors could be located as close as 100 feet from construction activities. Table VII provides typical construction-related noise levels at distances of 50, 100 feet, 200 feet, and 300 feet.

Construction noise is not considered to be a significant impact if construction is limited to the allowed hours and construction equipment is adequately maintained and muffled. Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. The City of Kerman limits hours of construction activities to occur between 7:00 a.m. and 10:00 p.m. A noise impact could occur if construction activities were to occur outside the allowable hours of 7:00 a.m. to 10:00 p.m.

### TABLE VII

### TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA

| Type of Equipment | 50 Ft. | 100 Ft. | 200 Ft. | 300 Ft. |
|---|---|---|---|---|
| Concrete Saw | 90 | 84 | 78 | 74 |
| Crane | 81 | 75 | 69 | 65 |
| Excavator | 81 | 75 | 69 | 65 |
| Front End Loader | 79 | 73 | 67 | 63 |
| Jackhammer | 89 | 83 | 77 | 73 |
| Paver | 77 | 71 | 65 | 61 |
| Pneumatic Tools | 85 | 79 | 73 | 69 |
| Dozer | 81 | 76 | 70 | 66 |
| Rollers | 80 | 74 | 68 | 64 |
| Trucks | 86 | 80 | 72 | 70 |
| Pumps | 80 | 74 | 68 | 64 |
| Scrapers | 87 | 81 | 75 | 71 |
| Portable Generators | 81 | 74 | 68 | 64 |
| Backhoe | 86 | 80 | 74 | 70 |
| Grader | 86 | 80 | 74 | 70 |

Source: FHWA
*Noise Control for Buildings and Manufacturing Plants*, Bolt, Beranek & Newman, 1987

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these activities are anticipated to occur with construction or operation of the proposed project. Vibration from construction activities could be detected at the closest sensitive land uses, especially during movements by heavy equipment or loaded trucks and during some paving activities. Typical vibration levels at distances of 25, 100 feet and 300 feet are summarized by Table VIII. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above in Table II and Table III.

## TABLE VIII

## TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

| | PPV (in/sec) | | |
|---|---|---|---|
| **Equipment** | **@ 25´** | **@ 100´** | **@ 300´** |
| Bulldozer (Large) | 0.089 | 0.019 | 0.006 |
| Bulldozer (Small) | 0.003 | 0.0006 | 0.0002 |
| Loaded Truck | 0.076 | 0.017 | 0.005 |
| Jackhammer | 0.035 | 0.008 | 0.002 |
| Vibratory Roller | 0.210 | 0.046 | 0.013 |
| Caisson Drilling | 0.089 | 0.019 | 0.006 |

Source: *Caltrans*

# CONCLUSIONS AND RECOMMENDATIONS

## Exterior Noise Compliance:

The proposed Whispering Falls development will comply with applicable City of Kerman exterior noise level requirements provided the following mitigation measures are incorporated into final project design.

1. A sound wall with a minimum height of seven (7) feet is constructed along the southern project site property line, adjacent to the SJVR railroad line. The location of the required 7-foot sound wall is provided on Figure 7. Suitable construction materials include concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall.
2. If two-story construction is proposed for the southernmost lots facing the SJVR railroad line, rear of home second story balconies would exceed the City's 60 dB $L_{dn}$ exterior noise level standard.

## Interior Noise Compliance:

The Whispering Falls residential development will comply with applicable City of Kerman interior noise level requirements provided the following mitigation measures are incorporated into final project design.

1. Mechanical ventilation or air conditioning must be provided for all homes so that windows and doors can remain closed for sound insulation purposes.

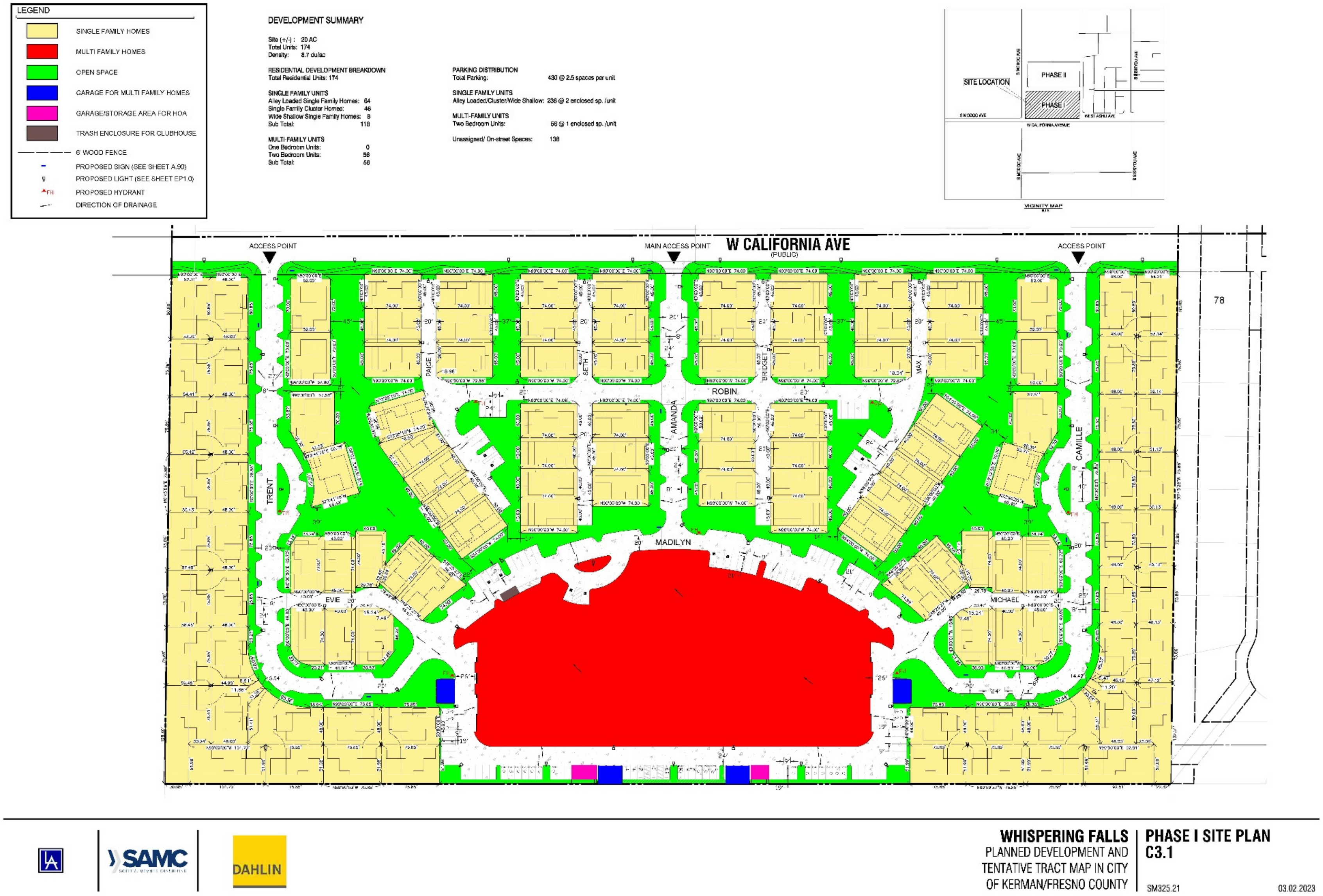
The conclusions and recommendations of this acoustical analysis are based upon the best information known to WJV Acoustics Inc. (WJVA) at the time the analysis was prepared concerning the proposed lot layout plan, project site elevation, traffic volumes, roadway configurations and railroad operations. Any significant changes in these factors will require a reevaluation of the findings of this report. Additionally, any significant future changes in motor vehicle technology, train technology, noise regulations or other factors beyond WJVA's control may result in long-term noise results different from those described by this analysis.

Respectfully submitted,

Walter J. Van Groningen
President

WJV:wjv

# FIGURE 1: SITE PLAN AND SOUND WALL LOCATION



LEGEND

| | |
|---|---|
| 🟨 | SINGLE FAMILY HOMES |
| 🟥 | MULTI FAMILY HOMES |
| 🟩 | OPEN SPACE |
| 🟦 | GARAGE FOR MULTI FAMILY HOMES |
| 🟪 | GARAGE/STORAGE AREA FOR HOA |
| 🟫 | TRASH ENCLOSURE FOR CLUBHOUSE |
| — — — | 6' WOOD FENCE |
| – | PROPOSED SIGN (SEE SHEET A.90) |
| | PROPOSED LIGHT (SEE SHEET EP1.0) |
| FH | PROPOSED HYDRANT |
| | DIRECTION OF DRAINAGE |

DEVELOPMENT SUMMARY

Site (+/-) : 20 AC
Total Units: 174
Density: 8.7 du/ac

RESIDENTIAL DEVELOPMENT BREAKDOWN
Total Residential Units: 174

| SINGLE FAMILY UNITS | |
|---|---|
| Alley Loaded Single Family Homes: | 64 |
| Single Family Cluster Homes: | 46 |
| Wide Shallow Single Family Homes: | 8 |
| Sub Total: | 118 |

| MULTI-FAMILY UNITS | |
|---|---|
| One Bedroom Units: | 0 |
| Two Bedroom Units: | 56 |
| Sub Total: | 56 |

| PARKING DISTRIBUTION | |
|---|---|
| Total Parking: | 430 @ 2.5 spaces per unit |
| SINGLE FAMILY UNITS | |
| Alley Loaded/Cluster/Wide Shallow: | 236 @ 2 enclosed sp. /unit |
| MULTI-FAMILY UNITS | |
| Two Bedroom Units: | 56 @ 1 enclosed sp. /unit |
| Unassigned/ On-street Spaces: | 138 |

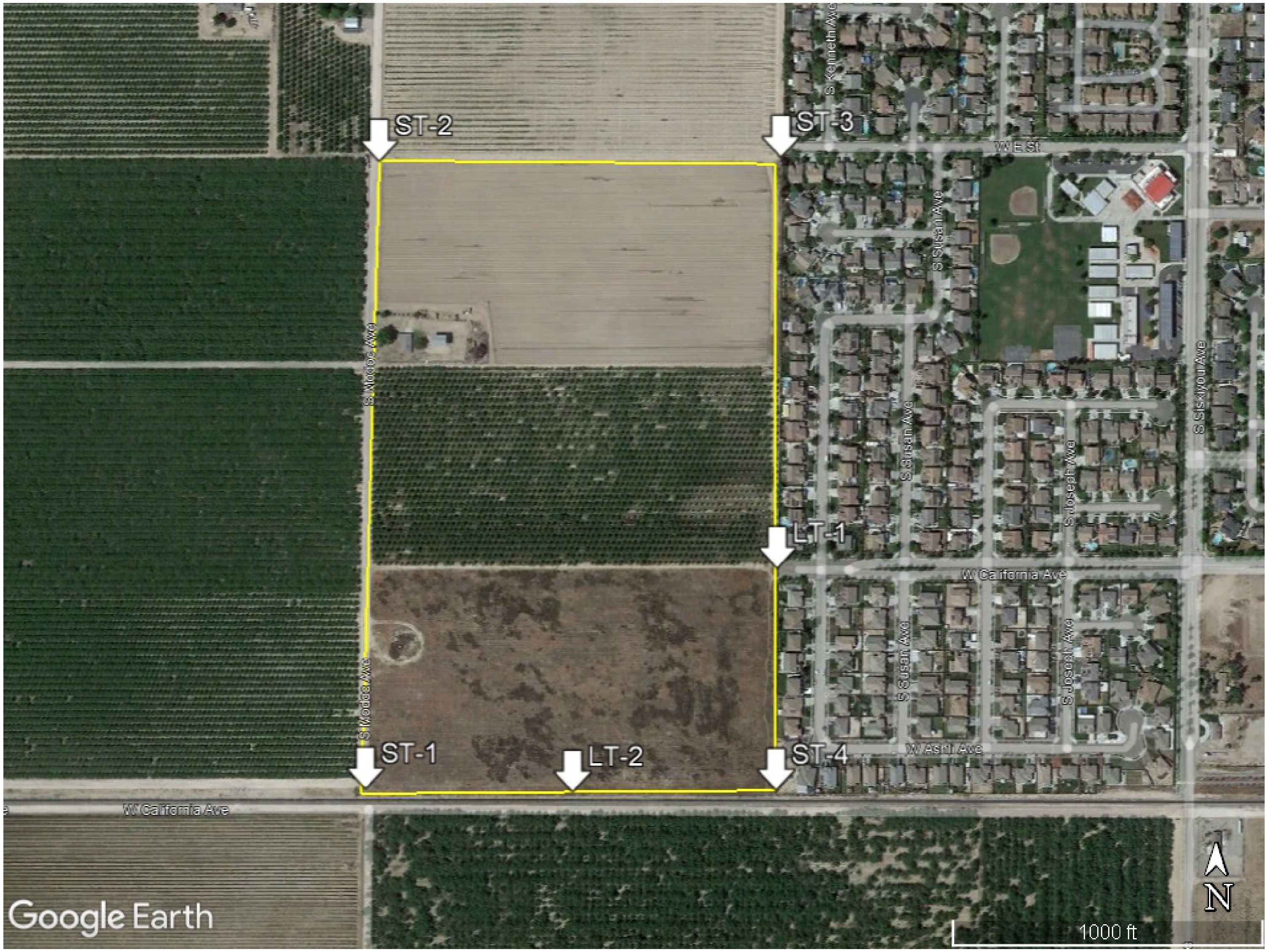
**WHISPERING FALLS**
PLANNED DEVELOPMENT AND
TENTATIVE TRACT MAP IN CITY
OF KERMAN/FRESNO COUNTY

**PHASE I SITE PLAN**
**C3.1**

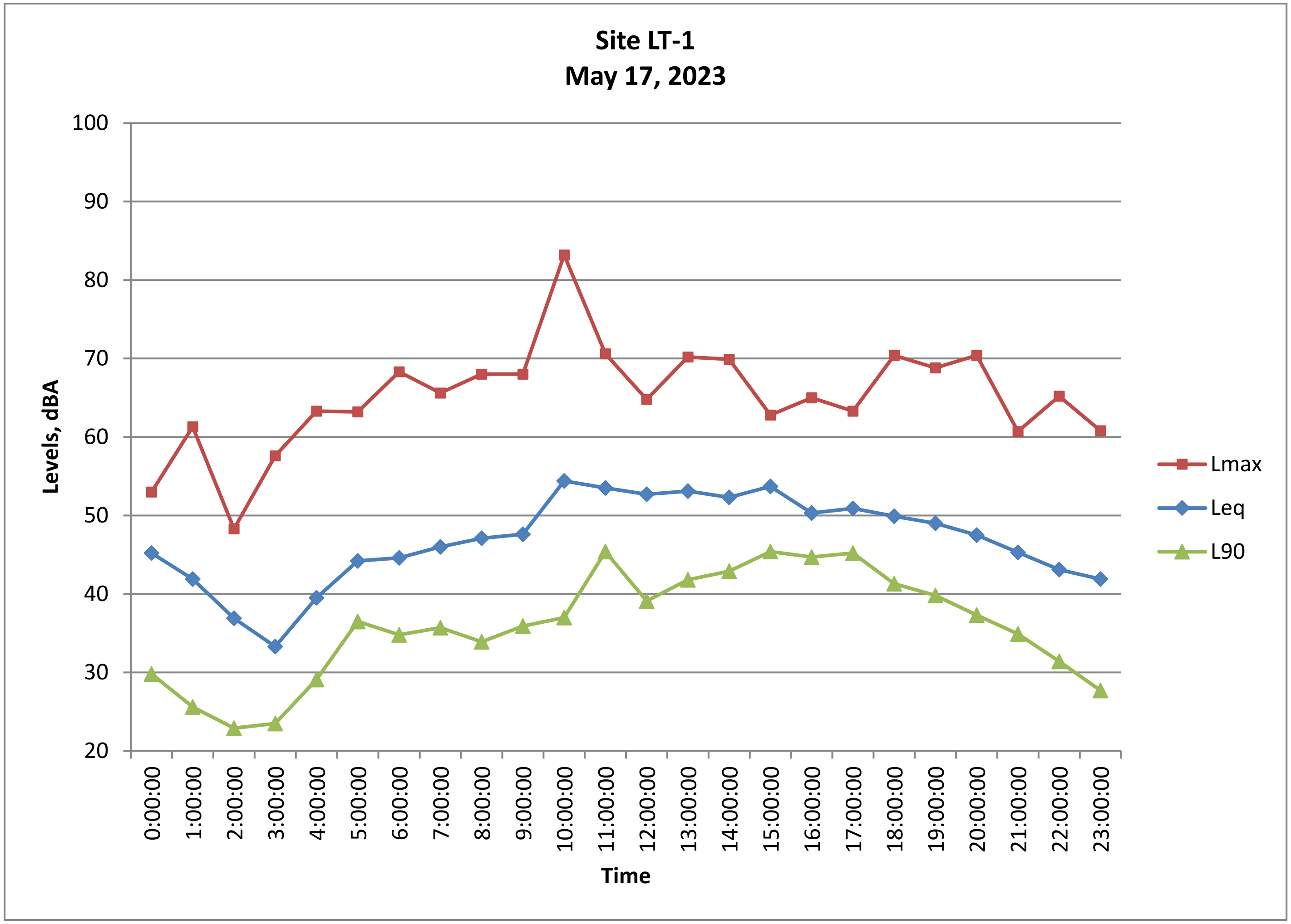
SM325.21

03.02.2023

# FIGURE 2: PROJECT SITE VICINITY AND NOISE MEASUREMENT LOCATION

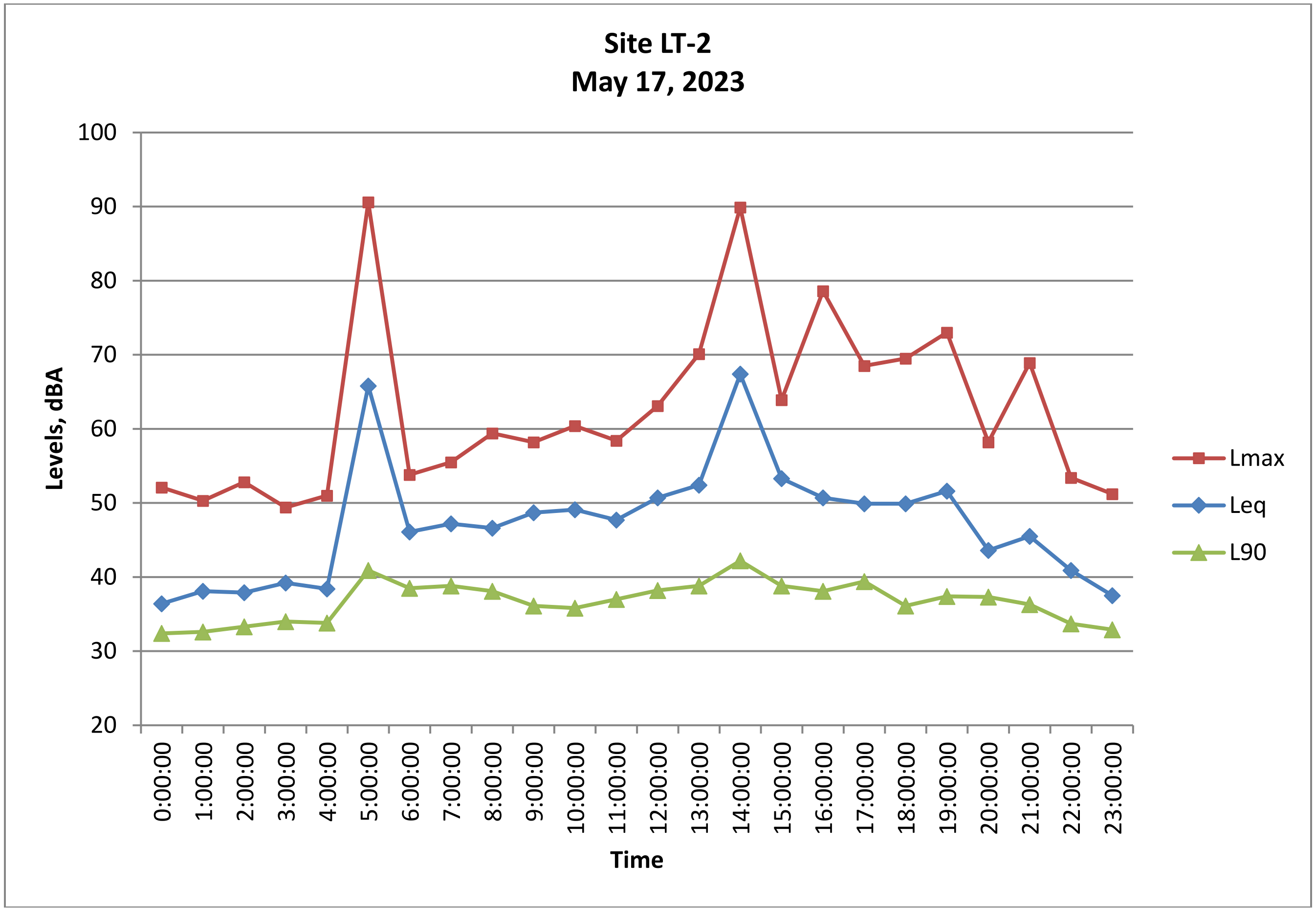


## FIGURE 3: HOURLY NOISE LEVELS AT AMBIENT NOISE MEASUREMENT SITE LT-1



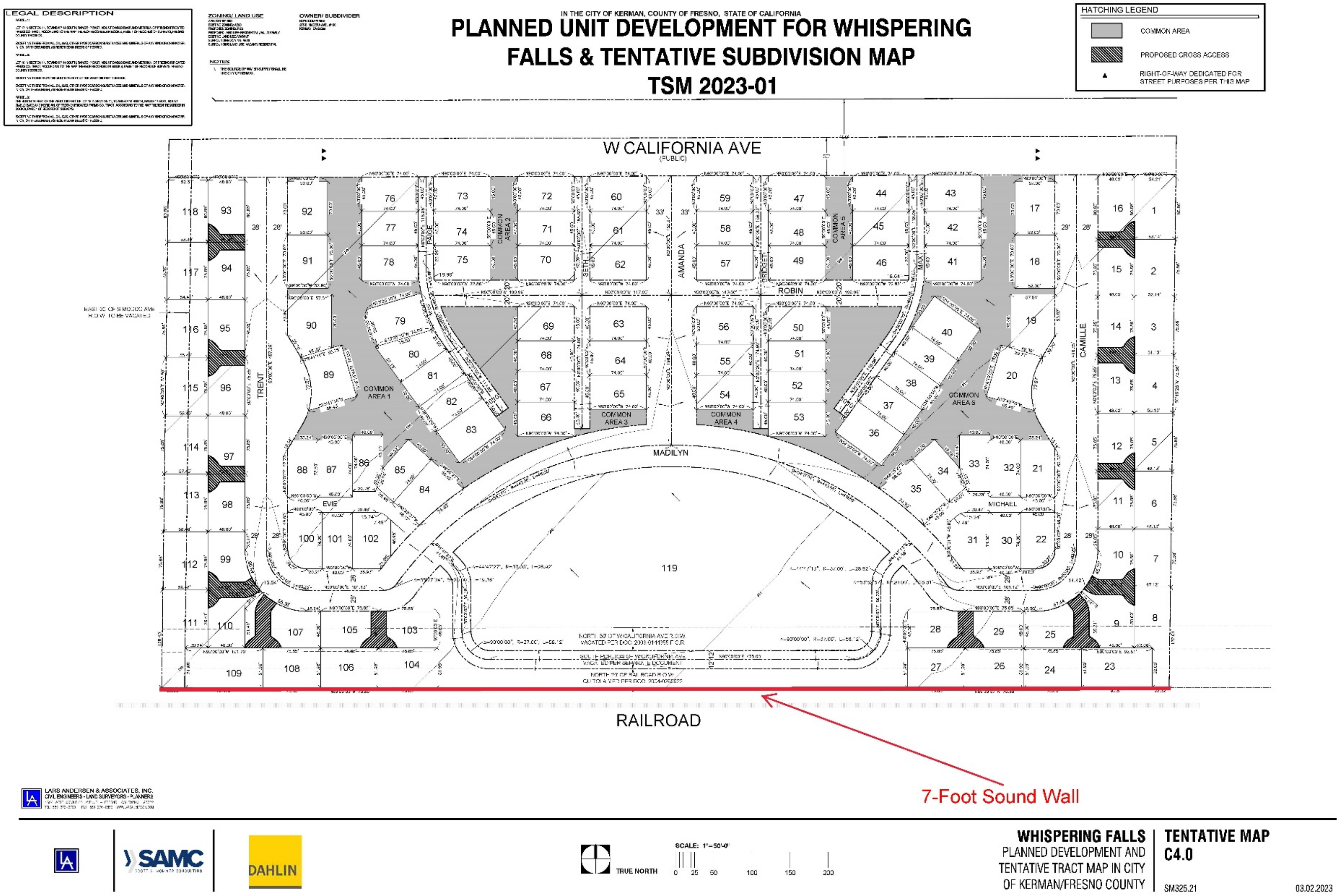
## FIGURE 4:  AMBIENT NOISE MEASUREMENT SITE LT-1

## FIGURE 5: HOURLY NOISE LEVELS AT AMBIENT NOISE MEASUREMENT SITE LT-2

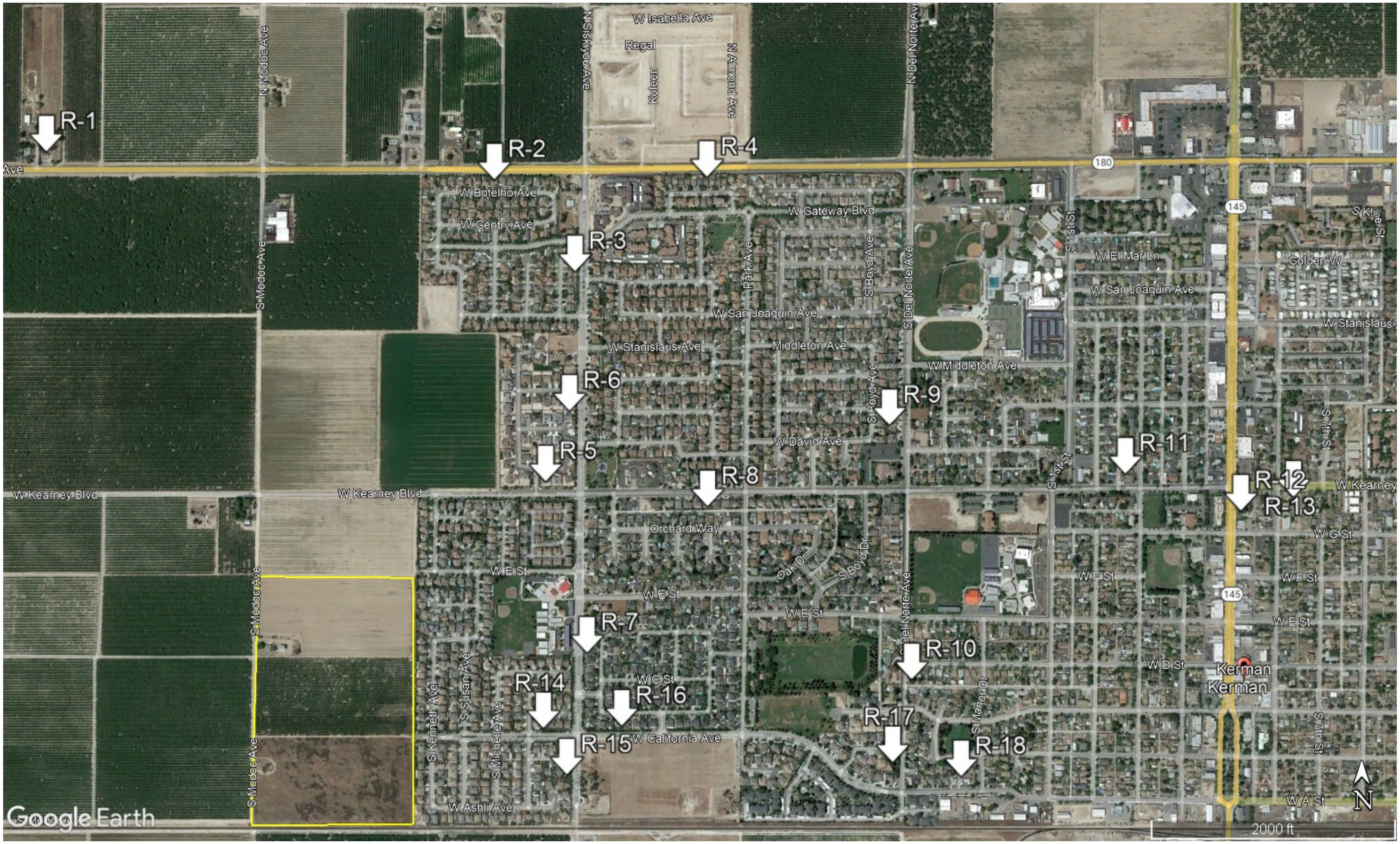


# FIGURE 6:  AMBIENT NOISE MEASUREMENT SITE LT-2

# FIGURE 7:  REQUIRED 7-FOOT SOUND WALL LOCATION



# FIGURE 8:  MODELED TRAFFIC NOISE EXPOSURE RECEPTORS



# APPENDIX A

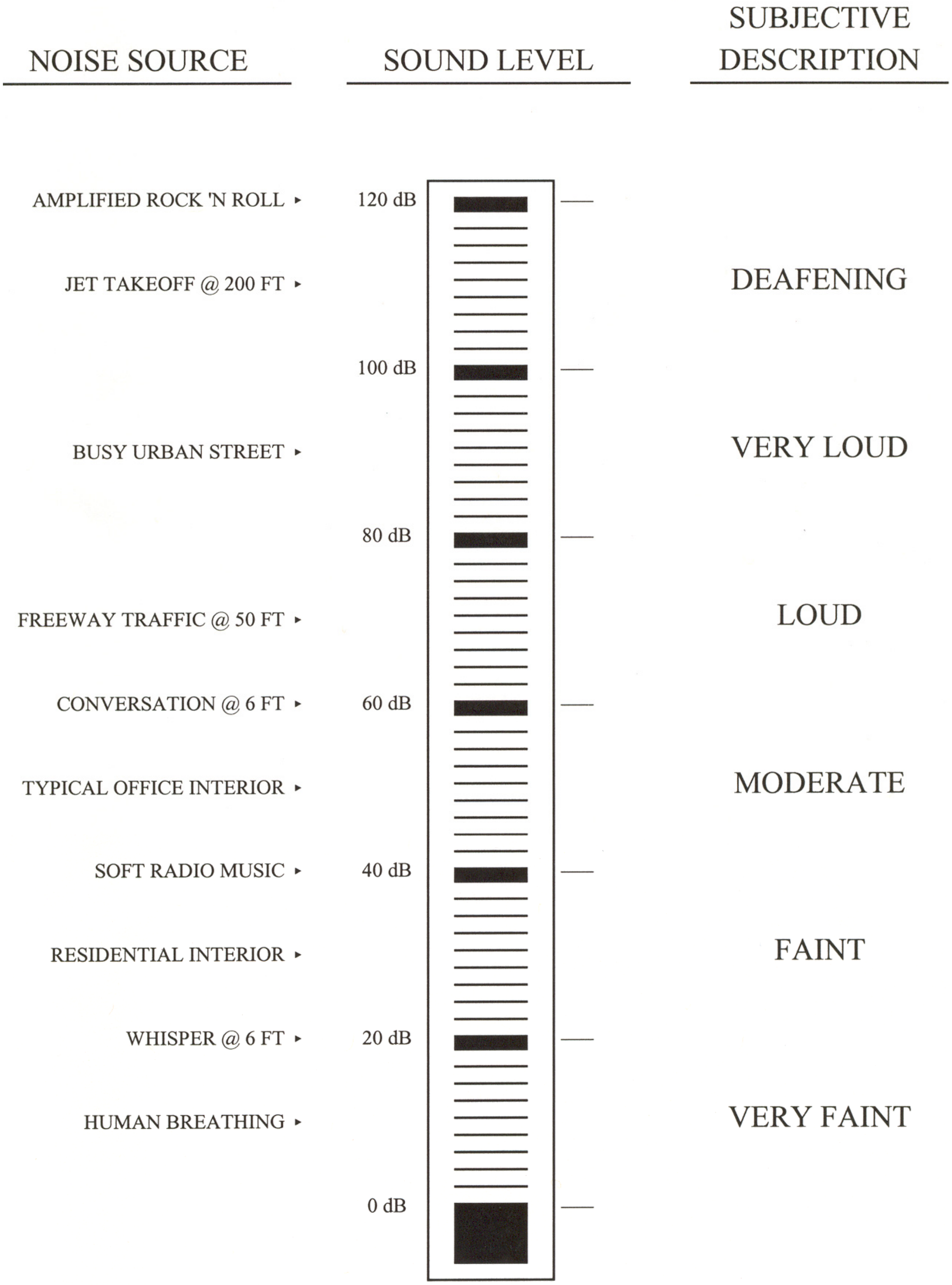
## ACOUSTICAL TERMINOLOGY

| | |
|---|---|
| **AMBIENT NOISE LEVEL:** | The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location. |
| **CNEL:** | Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m. |
| **DECIBEL, dB:** | A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter). |
| **DNL/$L_{dn}$:** | Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m. |
| **$L_{eq}$:** | Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. $L_{eq}$ is typically computed over 1, 8 and 24-hour sample periods. |
| **NOTE:** | The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while $L_{eq}$ represents the average noise exposure for a shorter time period, typically one hour. |
| **$L_{max}$:** | The maximum noise level recorded during a noise event. |
| **$L_n$:** | The sound level exceeded "n" percent of the time during a sample interval ($L_{90}$, $L_{50}$, $L_{10}$, etc.). For example, $L_{10}$ equals the level exceeded 10 percent of the time. |

# ACOUSTICAL TERMINOLOGY

| | |
|---|---|
| **NOISE EXPOSURE CONTOURS:** | Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise. |
| **NOISE LEVEL REDUCTION (NLR)**: | The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of “noise level reduction” combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room. |
| **SEL or SENEL:** | Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second. |
| **SOUND LEVEL:** | The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise. |
| **SOUND TRANSMISSION CLASS (STC):** | The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs. |

# APPENDIX B
## EXAMPLES OF SOUND LEVELS



# APPENDIX C

# TRAFFIC NOISE MODELING CALCULATIONS

**WJV Acoustics, Inc**
**FHWA-RD-77-108**
**Calculation Sheets**
October 8, 2023

Project #: 23-11
Description: Existing
Ldn/Cnel: Ldn
Site Type: Soft

**Contour Levels (dB)** 60 65 70 75

| **Segment** | **Roadway Name** | **Segment Description** | **ADT** | **%Day** | **%Evening** | **%Night** | **%Med** | **%Heavy** | **Speed** | **Distance** | **Offset** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | R-1 | Whitesbridge | 7550 | 90 | | 10 | 2 | 1 | 50 | 150 | |
| 2 | R-2 | Whitesbridge | 8080 | 90 | | 10 | 2 | 1 | 50 | 85 | |
| 3 | R-3 | Siskiyou | 3450 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 4 | R-4 | Whitesbridge | 9330 | 90 | | 10 | 2 | 1 | 50 | 80 | |
| 5 | R-5 | Kearney | 1450 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 6 | R-6 | Siskiyou | 3320 | 90 | | 10 | 2 | 1 | 35 | 95 | |
| 7 | R-7 | Siskiyou | 3850 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 8 | R-8 | Kearney | 3020 | 90 | | 10 | 2 | 1 | 35 | 125 | |
| 9 | R-9 | Del Norte | 2150 | 90 | | 10 | 2 | 1 | 35 | 130 | |
| 10 | R-10 | Del Norte | 1860 | 90 | | 10 | 2 | 1 | 35 | 75 | |
| 11 | R-11 | Kearney | 4300 | 90 | | 10 | 2 | 1 | 35 | 95 | |
| 12 | R-12 | SR 145 | 10500 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 13 | R-13 | Kearney | 4300 | 90 | | 10 | 2 | 1 | 35 | 100 | |
| 14 | R-14 | Califonria | 1300 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 15 | R-15 | Siskiyou | 830 | 90 | | 10 | 2 | 1 | 35 | 85 | |
| 16 | R-16 | Califonria | 1110 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 17 | R-17 | Del Norte | 2210 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 18 | R-18 | A Street | 1880 | 90 | | 10 | 2 | 1 | 35 | 115 | |

**WJV Acoustics, Inc**
**FHWA-RD-77-108**
**Calculation Sheets**
October 8, 2023

Project #: 23-11
Description: existing plus project
Ldn/Cnel: Ldn
Site Type: Soft

| **Contour Levels (dB)** | 60 | 65 | 70 | 75 | | | | | |
|---|---|---|---|---|---|---|---|---|---|

| Segment | Roadway Name | Segment Description | ADT | %Day | %Evening | %Night | %Med | %Heavy | Speed | Distance | Offset |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | R-1 | Whitesbridge | 8210 | 90 | | 10 | 2 | 1 | 50 | 150 | |
| 2 | R-2 | Whitesbridge | 8840 | 90 | | 10 | 2 | 1 | 50 | 85 | |
| 3 | R-3 | Siskiyou | 5100 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 4 | R-4 | Whitesbridge | 11620 | 90 | | 10 | 2 | 1 | 50 | 80 | |
| 5 | R-5 | Kearney | 2320 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 6 | R-6 | Siskiyou | 4820 | 90 | | 10 | 2 | 1 | 35 | 95 | |
| 7 | R-7 | Siskiyou | 5990 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 8 | R-8 | Kearney | 4390 | 90 | | 10 | 2 | 1 | 35 | 125 | |
| 9 | R-9 | Del Norte | 2440 | 90 | | 10 | 2 | 1 | 35 | 130 | |
| 10 | R-10 | Del Norte | 1940 | 90 | | 10 | 2 | 1 | 35 | 75 | |
| 11 | R-11 | Kearney | 5560 | 90 | | 10 | 2 | 1 | 35 | 95 | |
| 12 | R-12 | SR 145 | 11020 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 13 | R-13 | Kearney | 4480 | 90 | | 10 | 2 | 1 | 35 | 100 | |
| 14 | R-14 | Califonria | 2950 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 15 | R-15 | Siskiyou | 1230 | 90 | | 10 | 2 | 1 | 35 | 85 | |
| 16 | R-16 | Califonria | 1910 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 17 | R-17 | Del Norte | 3010 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 18 | R-18 | A Street | 2480 | 90 | | 10 | 2 | 1 | 35 | 115 | |

**WJV Acoustics, Inc**
**FHWA-RD-77-108**
**Calculation Sheets**
October 8, 2023

|  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|
| **Contour Levels (dB)** | 60 | 65 | 70 | 75 |  |  |  |  |  |

Project #: 23-11
Description: 2040 No Project
Ldn/Cnel: Ldn
Site Type: Soft

| Segment | Roadway Name | Segment Description | ADT | %Day | %Evening | %Night | %Med | %Heavy | Speed | Distance | Offset |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | R-1 | Whitesbridge | 10560 | 90 |  | 10 | 2 | 1 | 50 | 150 |  |
| 2 | R-2 | Whitesbridge | 11310 | 90 |  | 10 | 2 | 1 | 50 | 85 |  |
| 3 | R-3 | Siskiyou | 4840 | 90 |  | 10 | 2 | 1 | 35 | 70 |  |
| 4 | R-4 | Whitesbridge | 13320 | 90 |  | 10 | 2 | 1 | 50 | 80 |  |
| 5 | R-5 | Kearney | 2030 | 90 |  | 10 | 2 | 1 | 35 | 80 |  |
| 6 | R-6 | Siskiyou | 4650 | 90 |  | 10 | 2 | 1 | 35 | 95 |  |
| 7 | R-7 | Siskiyou | 5390 | 90 |  | 10 | 2 | 1 | 35 | 70 |  |
| 8 | R-8 | Kearney | 3630 | 90 |  | 10 | 2 | 1 | 35 | 125 |  |
| 9 | R-9 | Del Norte | 3020 | 90 |  | 10 | 2 | 1 | 35 | 130 |  |
| 10 | R-10 | Del Norte | 2600 | 90 |  | 10 | 2 | 1 | 35 | 75 |  |
| 11 | R-11 | Kearney | 6010 | 90 |  | 10 | 2 | 1 | 35 | 95 |  |
| 12 | R-12 | SR 145 | 14700 | 90 |  | 10 | 2 | 1 | 35 | 80 |  |
| 13 | R-13 | Kearney | 6010 | 90 |  | 10 | 2 | 1 | 35 | 100 |  |
| 14 | R-14 | Califonria | 1820 | 90 |  | 10 | 2 | 1 | 35 | 70 |  |
| 15 | R-15 | Siskiyou | 1170 | 90 |  | 10 | 2 | 1 | 35 | 85 |  |
| 16 | R-16 | Califonria | 1560 | 90 |  | 10 | 2 | 1 | 35 | 70 |  |
| 17 | R-17 | Del Norte | 3080 | 90 |  | 10 | 2 | 1 | 35 | 80 |  |
| 18 | R-18 | A Street | 2640 | 90 |  | 10 | 2 | 1 | 35 | 115 |  |

**WJV Acoustics, Inc**
**FHWA-RD-77-108**
**Calculation Sheets**
October 8, 2023

Project #: 23-11
Description: 2040 + Project
Ldn/Cnel: Ldn
Site Type: Soft

| **Contour Levels (dB)** | 60 | 65 | 70 | 75 | | | | | |
|---|---|---|---|---|---|---|---|---|---|

| **Segment** | **Roadway Name** | **Segment Description** | **ADT** | **%Day** | **%Evening** | **%Night** | **%Med** | **%Heavy** | **Speed** | **Distance** | **Offset** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | R-1 | Whitesbridge | 10640 | 90 | | 10 | 2 | 1 | 50 | 150 | |
| 2 | R-2 | Whitesbridge | 11390 | 90 | | 10 | 2 | 1 | 50 | 85 | |
| 3 | R-3 | Siskiyou | 5570 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 4 | R-4 | Whitesbridge | 13970 | 90 | | 10 | 2 | 1 | 50 | 80 | |
| 5 | R-5 | Kearney | 2030 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 6 | R-6 | Siskiyou | 5280 | 90 | | 10 | 2 | 1 | 35 | 95 | |
| 7 | R-7 | Siskiyou | 6580 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 8 | R-8 | Kearney | 4790 | 90 | | 10 | 2 | 1 | 35 | 125 | |
| 9 | R-9 | Del Norte | 3100 | 90 | | 10 | 2 | 1 | 35 | 130 | |
| 10 | R-10 | Del Norte | 2600 | 90 | | 10 | 2 | 1 | 35 | 75 | |
| 11 | R-11 | Kearney | 6500 | 90 | | 10 | 2 | 1 | 35 | 95 | |
| 12 | R-12 | SR 145 | 14700 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 13 | R-13 | Kearney | 6010 | 90 | | 10 | 2 | 1 | 35 | 100 | |
| 14 | R-14 | Califonria | 3420 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 15 | R-15 | Siskiyou | 1250 | 90 | | 10 | 2 | 1 | 35 | 85 | |
| 16 | R-16 | Califonria | 1880 | 90 | | 10 | 2 | 1 | 35 | 70 | |
| 17 | R-17 | Del Norte | 3400 | 90 | | 10 | 2 | 1 | 35 | 80 | |
| 18 | R-18 | A Street | 2880 | 90 | | 10 | 2 | 1 | 35 | 115 | |

## 7.6 Appendix F: VMT Analysis and Traffic Impact Study

Prepared by VRPA Technologies, Inc. dated March 2024.

**APPROVED**
J. Gonzalez - 2024-03-15

# Whispering Falls Project

## Transportation Impact Study
## March 8, 2024

**Prepared for:**
City of Kerman

**Prepared by:**
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722

**In Association With:**
Precision Engineering

## Whispering Falls Project
## Transportation Impact Study

### Study Team

- ✓ Georgiena Vivian, President, VRPA Technologies, Inc., gvivian@vrpatechnologies.com, (559) 259-9257
- ✓ Erik Ruehr, Dir. of Traffic Engineering, VRPA Technologies, Inc., eruehr@vrpatechnologies.com, (858) 566-1766
- ✓ Jeff Stine, Senior Transportation Planner, VRPA Technologies, Inc. jstine@vrpatechnologies.com,
- ✓ (858) 566-1766
- ✓ Nisha Pathak, Transportation Engineer, VRPA Technologies, Inc., npathak@vrpatechnologies.com, (559) 271-1200

# Table of Contents

# List of Tables

# List of Figures

# 1.0 Introduction

## 1.1 Description of the Region/Project

This Transportation Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions of proposed residential developments in the City of Kerman. The proposed project consist of single family and multifamily residential units to be built in three phases. Phase I pertains to the 20-acre parcel identified as APN 020-160-36S; Phase II and Phase III will be built later each on 20 acres of land. The Project site is located within the City of Kerman Sphere of Influence but is currently outside city limits on the east side of south Modoc Avenue between West Kearney Boulevard and West California Avenue. Figure 1-1 shows the site's regional context. Figure 1-2 shows the Project location within Fresno County. Figure 1-3 shows the site plan of the proposed Project. The Project consist of following developments:

- ✓ 118-unit Single Family Residential Units
- ✓ 56 Units Multifamily Residential Units

### 1.1.1 *Project Access*

The Project will provide three (3) Access points of ingress/egress from North California Avenue (proposed). Internal circulation within the site would be provided by private streets and alleys.

### 1.1.2 *Study Area*

The following intersections included in this TIS were determined in consultation with City of Kerman, Fresno County and Caltrans. They include:

**Intersections**

- ✓ Whitesbridge Ave (SR 180) and Lassen Ave
- ✓ Whitesbridge Ave (SR 180) and Siskiyou Ave
- ✓ W Kearney Blvd and Siskiyou Ave
- ✓ W Kearney Blvd and S Del Norte Ave
- ✓ SR 145 and W Kearney Blvd.
- ✓ Siskiyou Ave and California Ave
- ✓ S Del Norte Ave and W California Ave
- ✓ SR 145 and West A Street
- ✓ Siskiyou Ave and Jensen Ave

### 1.1.3 *Study Scenarios*

The study time periods for the traffic analysis will include the weekday AM and PM peak hours determined between 7:00 and 9:00 AM and between 4:00 and 6:00 PM. Level of service analysis for the AM and PM peak hours will be analyzed for the following scenarios:

- ✓ Existing Conditions
- ✓ Existing Plus Project Conditions
- ✓ Near-Term Opening Year With Project Conditions
- ✓ Horizon Year 2040 Without Project Conditions
- ✓ Horizon Year 2040 With Project Conditions

## 1.2 Methodology

When preparing a TIS, guidelines set by affected agencies are followed. In analyzing street and intersection capacities the level of service (LOS) methodologies from Highway Capacity Manual (HCM) were applied. Transportation agencies quantitatively assess a street and highway system's performance by rating intersections on a scale of LOS "A" through "F". In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses.

### 1.2.1 *Intersection Analysis*

Intersection LOS analysis was conducted using the Synchro 11 software program. Synchro 11 supports the Highway Capacity Manual (HCM) 6th Edition methodologies. It should be noted that two (2) of the intersections we are studying are currently signalized, four of them are all way stop, and rest of them are either two way or one way stop controlled.

Tables 1-1 and 1-2 define LOS "A" to "F" by indicating the ranges in the amounts of average delay for a vehicle at signalized and unsignalized intersections for each level of service ranging from LOS "A" to "F".

When an unsignalized intersection does not meet acceptable LOS standards, the investigation of the need for a traffic signal is typical. The California Manual on Uniform traffic Control Devices for Streets and Highways (California MUTCD) introduces standards for determining the need for traffic signals. The California MUTCD indicates that the satisfaction of one or more traffic signal warrant doesn't in itself require the installation of traffic signal. In addition to warrant analysis, an engineering study of current or expected traffic conditions should be conducted to determine whether the installation of a traffic signal us justified. The California MUTCD Peak Hour Warrant (Warrant 3) was used to determine if a traffic signal is warranted at unsignalized to fall below current LOS standards.

### 1.2.2 *Queuing Analysis*

Queuing analysis at intersections was performed utilizing Synchro 11 software program. This software aligns with the methodologies outlined in the Highway Capacity Manual (HCM) 6th Edition. Synchro provides separate results for signalized intersections while delays are obtained for unsignalized intersections by multiplying number of vehicles with the average size. For the analysis purpose a vehicle length is considered 25 feet.

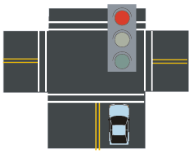
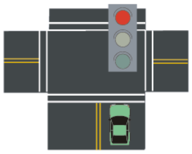
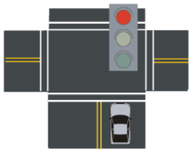
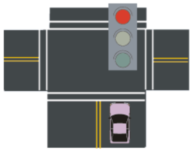
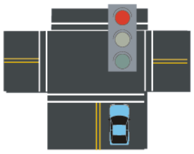
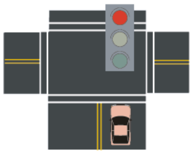
## 1.3 Policies to Maintain Level of Service

An important goal is to maintain an acceptable level of service along the highways, street, and road network. For the purposes of this TIS, LOS D was selected as the design standard for intersection operations for both the City of Kerman and Caltrans intersections. Therefore, intersections operating at LOS E or F were considered for improvements.

## 1.4 VMT Analysis

Senate Bill 743 (SB 743) went into effect throughout California on July 1, 2020. This legislation changed the performance measure for CEQA transportation studies from level of service to vehicle miles traveled (VMT). An assessment of potential VMT impacts associated with the Project is provided in Appendix E.

## Table 1-1
## Signalized Intersections Level of Service Definitions (Highway Capacity Manual)

| LEVEL OF SERVICE | DEFINITION | AVERAGE TOTAL DELAY (sec/veh) |
|---|---|---|
| **A** | Describes operations with very low delay. This level of service occurs when there is no conflicting traffic for a minor street.<br> | **≤ 10.0** |
| **B** | Describes operations with moderately low delay. This level generally occurs with a small amount of conflicting traffic causing higher levels of average delay.<br> | **> 10.0 - 20.0** |
| **C** | Describes operations with average delays. These higher delays may result from a moderate amount of minor street traffic. Queues begin to get longer.<br> | **> 20.0 - 35.0** |
| **D** | Describes a crowded operation, with below average delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from shorter gaps on the mainline and an increase of minor street traffic. The queues of vehicles are increasing.<br> | **> 35.0 - 55.0** |
| **E** | Describes operations at or near capacity. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor gaps for the minor street to cross and large queues.<br> | **> 55.0 - 80.0** |
| **F** | Describes operations that are at the failure point. This level, considered to be unacceptable to most drivers, often occurs with over- saturation, that is, when arrival flow rates exceed the capacity of the intersection. Insufficient gaps of suitable size exist to allow minor traffic to cross the intersection safely.<br> | **> 80.0** |

## Table 1-2

## Unsignalized Intersections Level of Service Definitions
## (Highway Capacity Manual)

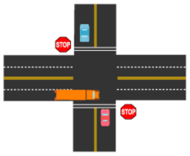
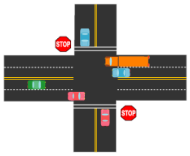
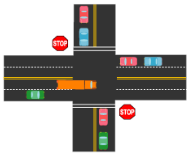
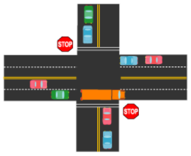
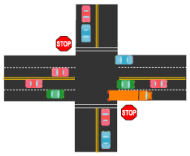
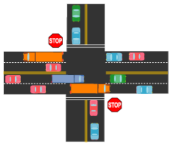
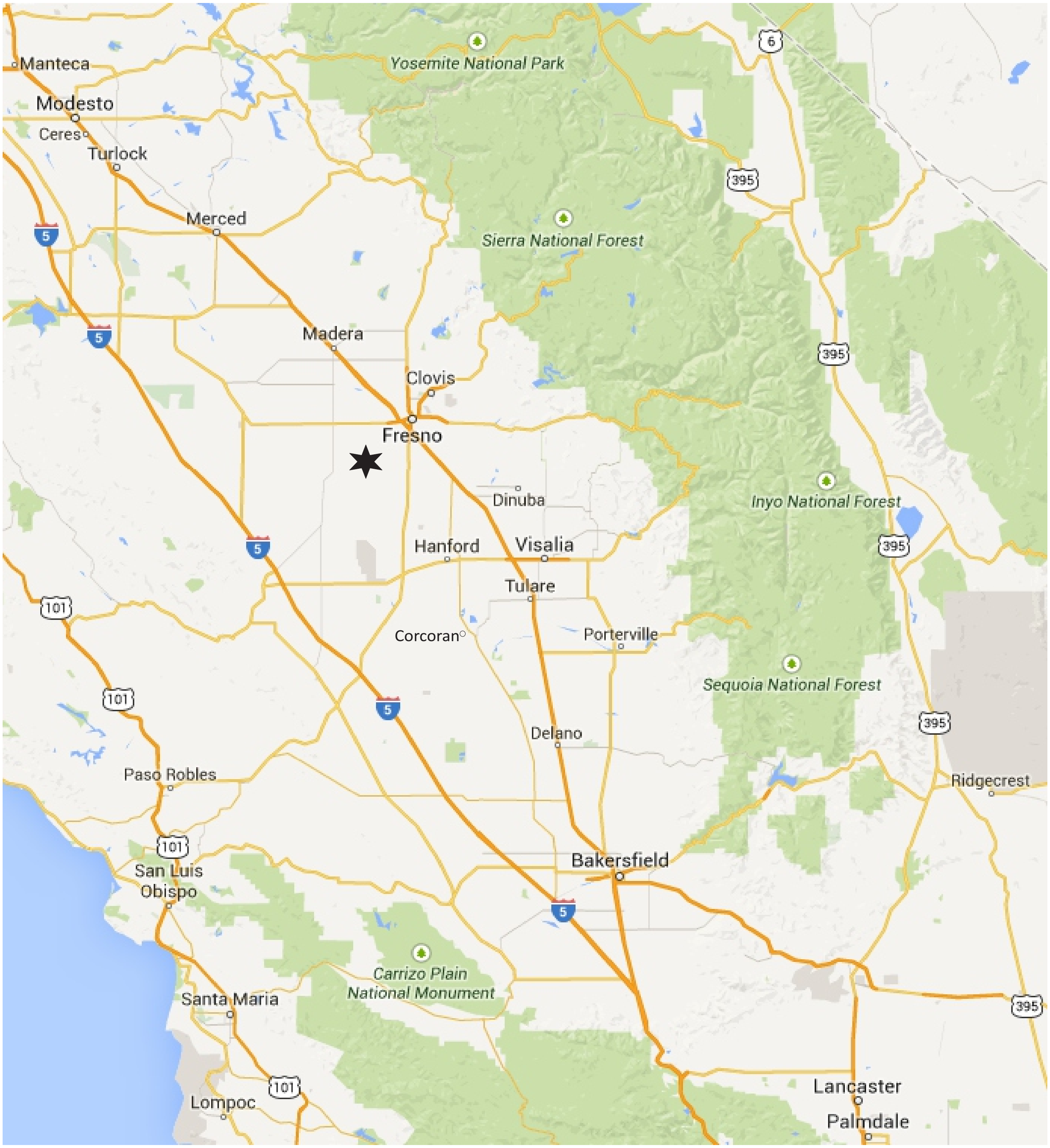
| LEVEL OF SERVICE | DEFINITION | | AVERAGE TOTAL DELAY (sec/veh) |
|---|---|---|---|
| **A** | No delay for stop-controlled approaches. |  | **0 - 10.0** |
| **B** | Describes operations with minor delay. |  | **> 10.0 - 15.0** |
| **C** | Describes operations with moderate delays. |  | **> 15.0 - 25.0** |
| **D** | Describes operations with some delays. |  | **> 25.0 - 35.0** |
| **E** | Describes operations with high delays and long queues. |  | **> 35.0 - 50.0** |
| **F** | Describes operations with extreme congestion, with very high delays and long queues unacceptable to most drivers. |  | **> 50.0** |

**Figure 1-1**



LEGEND

★ Project location

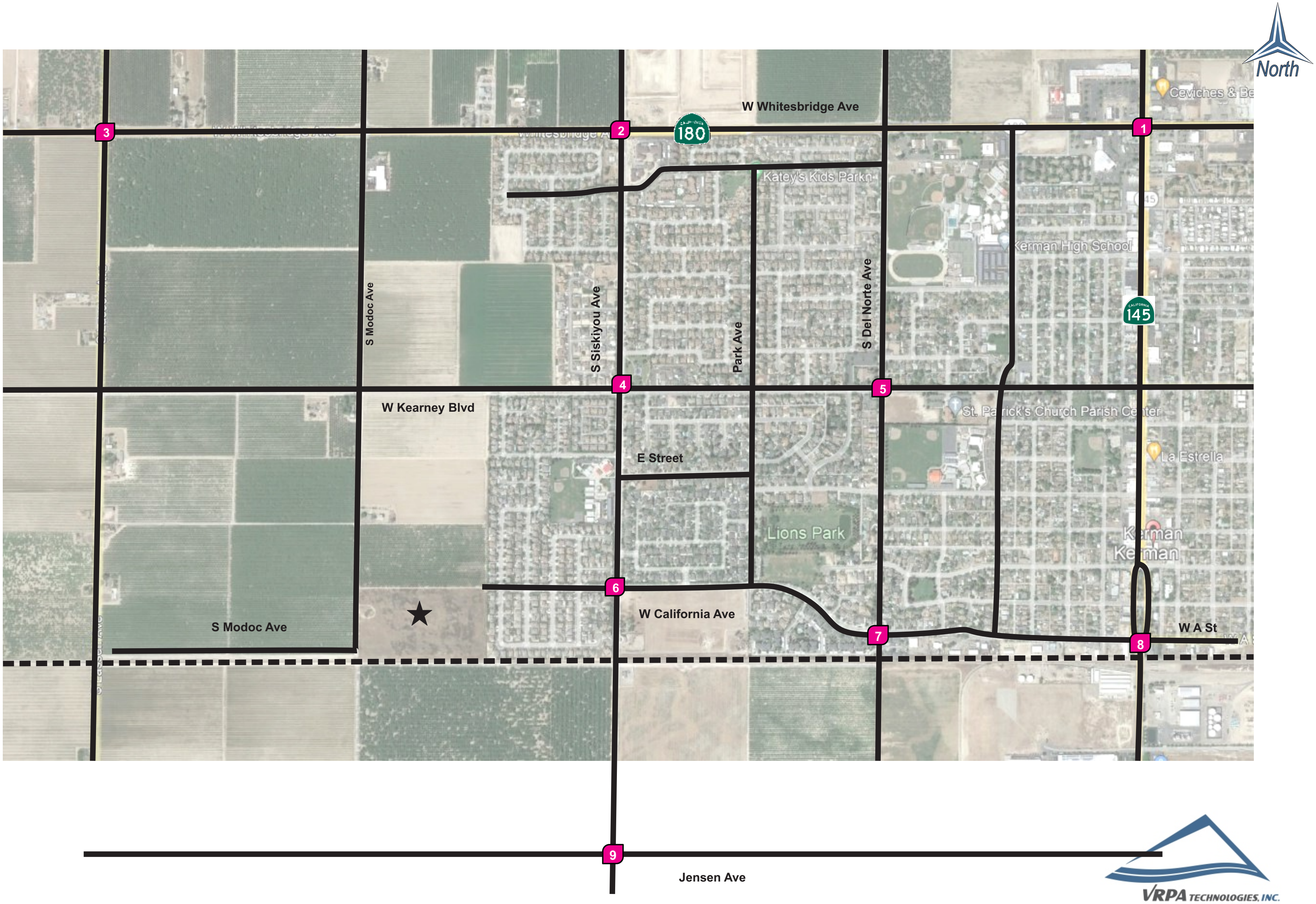
North

VRPA TECHNOLOGIES, INC.

# Whispering Falls Project

## Project Location

Figure 1-2



# Figure 1-3

# Site Plan

(This page is intentionally left blank)

LEGEND

| | |
|---|---|
| 🟨 | SINGLE FAMILY HOMES |
| 🟥 | MULTI FAMILY HOMES |
| 🟩 | OPEN SPACE |
| 🟦 | GARAGE FOR MULTI FAMILY HOMES |
| 🟪 | GARAGE/STORAGE AREA FOR HOA |
| 🟫 | TRASH ENCLOSURE FOR CLUBHOUSE |
| — — — | 6' WOOD FENCE |
| ▬ | PROPOSED SIGN (SEE SHEET A.90) |
| ☐ | PROPOSED LIGHT (SEE SHEET EP1.0) |
| FH | PROPOSED HYDRANT |
| → | DIRECTION OF DRAINAGE |

## DEVELOPMENT SUMMARY

Site (+/-) : 20 AC
Total Units: 174
Density: 8.7 du/ac

RESIDENTIAL DEVELOPMENT BREAKDOWN
Total Residential Units: 174

| SINGLE FAMILY UNITS | |
|---|---|
| Alley Loaded Single Family Homes: | 64 |
| Single Family Cluster Homes: | 46 |
| Wide Shallow Single Family Homes: | 8 |
| Sub Total: | 118 |

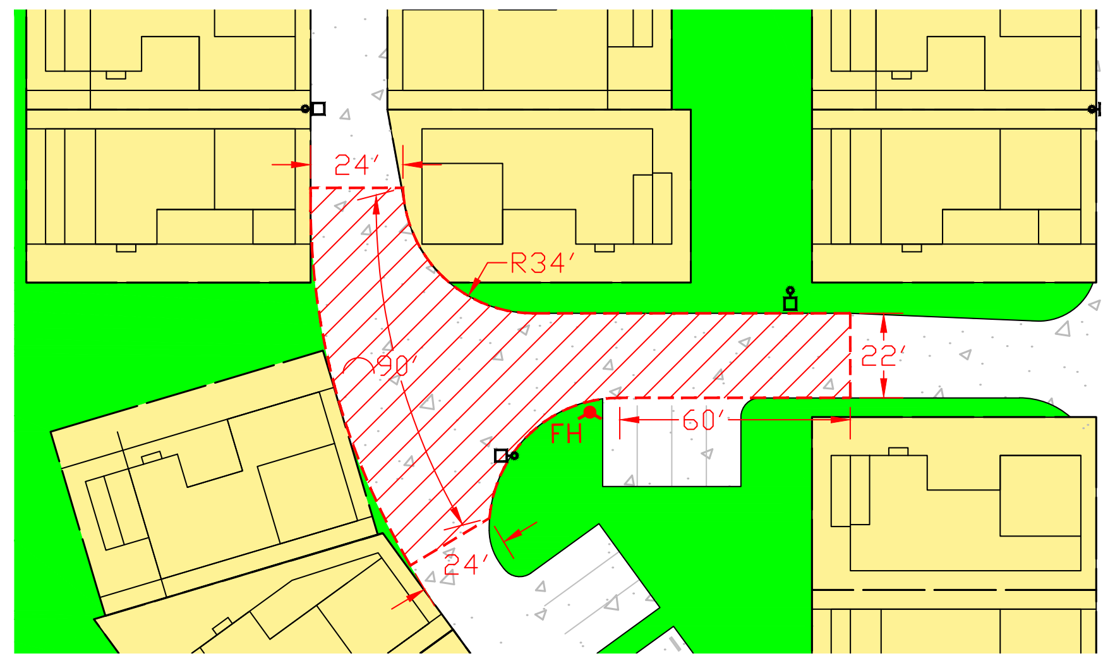
| MULTI-FAMILY UNITS | |
|---|---|
| One Bedroom Units: | 0 |
| Two Bedroom Units: | 56 |
| Sub Total: | 56 |

PARKING DISTRIBUTION

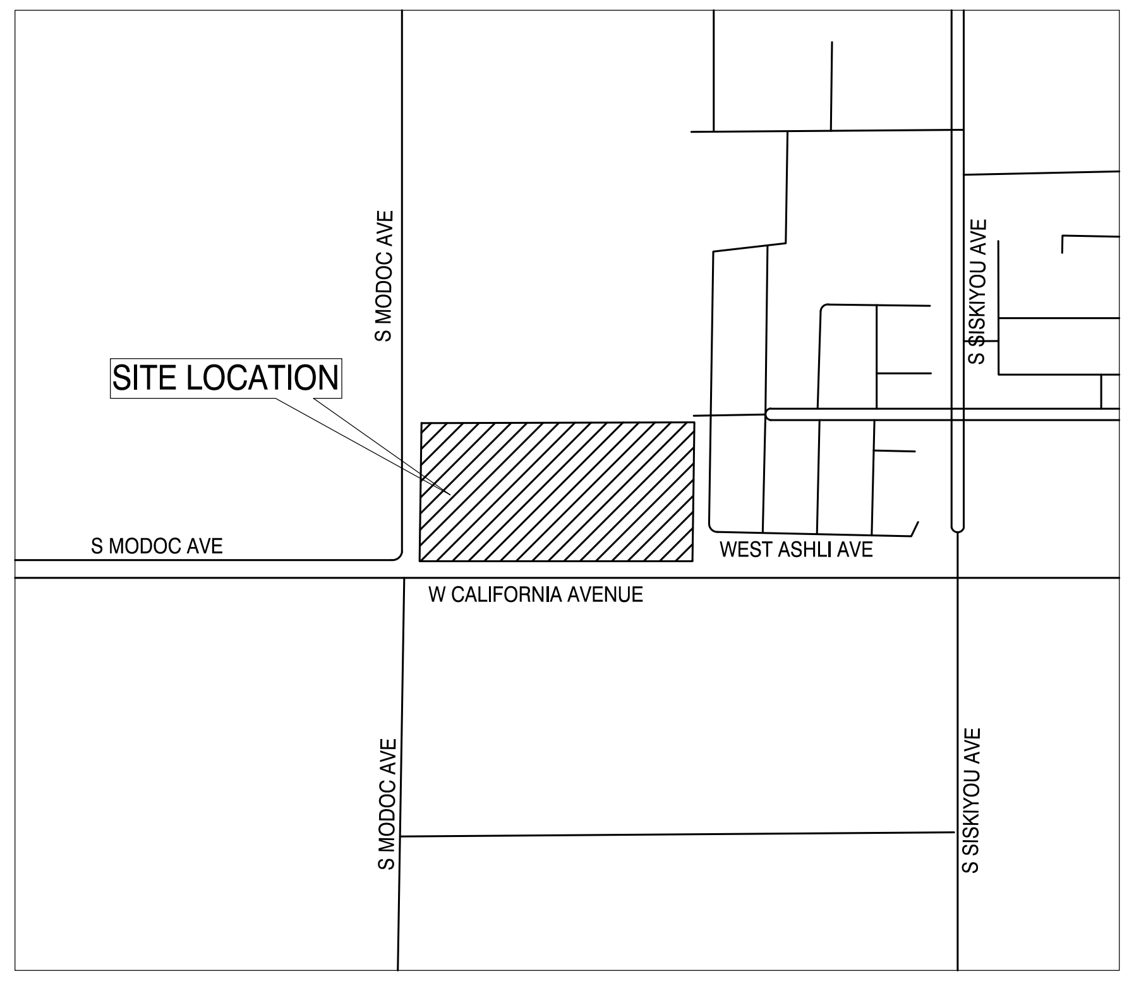
| | |
|---|---|
| Total Parking: | 430 @ 2.5 spaces per unit |
| **SINGLE FAMILY UNITS** | |
| Alley Loaded/Cluster/Wide Shallow: | 236 @ 2 enclosed sp. /unit |
| **MULTI-FAMILY UNITS** | |
| Two Bedroom Units: | 56 @ 1 enclosed sp. /unit |
| Unassigned/ On-street Spaces: | 138 |

OPEN SPACE

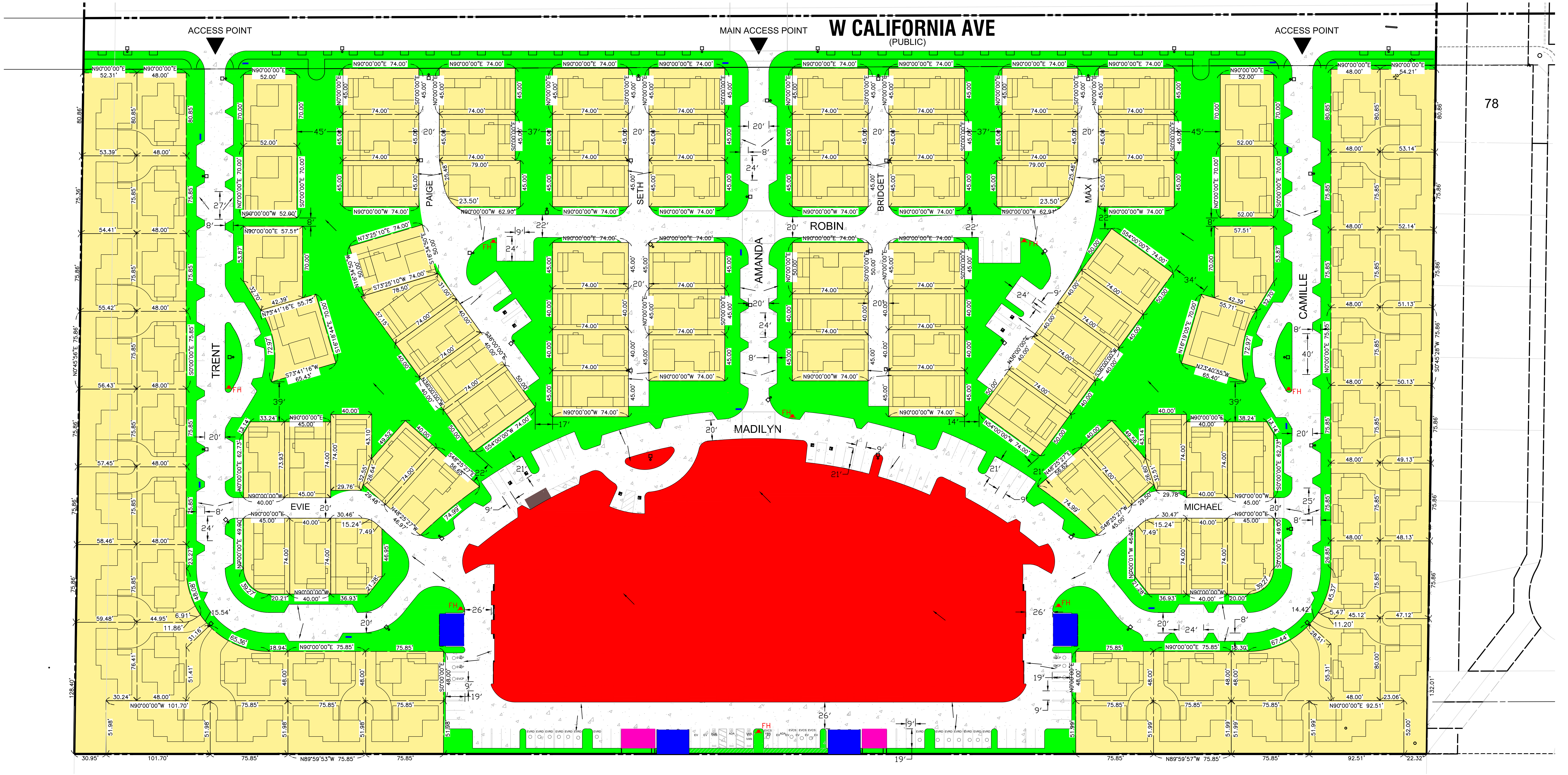
| | |
|---|---|
| Total Area of Common Open Space : | 138,928 SF / 3.19 ac |
| Estimated # of Residents: | 516 |
| Ratio: | 6.18 ac / 1,000 Residents |



TRUCK TURNAROUND DETAIL



VICINITY MAP
N.T.S.



SCOTT A. MOMMER CONSULTING

SAMC

DAHLIN

# WHISPERING FALLS
PLANNED DEVELOPMENT AND
TENTATIVE TRACT MAP IN CITY
OF KERMAN/FRESNO COUNTY

# CONCEPTUAL SITE PLAN
C3.1

SM325.21

06.23.2023

## LEGAL DESCRIPTION

PARCEL 1:

LOT 17 IN SECTION 11, TOWNSHIP 14 SOUTH, RANGE 17 EAST, MOUNT DIABLO BASE AND MERIDIAN OF FRESNO IRRIGATED FARMS CO TRACT, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 1 OF RECORDS OF SURVEYS, FRESNO COUNTY RECORDS.

EXCEPTING THEREFROM ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES AND MINERALS OF ANY KIND OR CHARACTER. IN, ON, OR THEREUNDER. AS RESERVED IN DEEDS OF RECORD.

PARCEL 2:

LOT 18 IN SECTION 11. TOWNSHIP 14 SOUTH, RANGE 17 EAST. MOUNT DIABLO BASE AND MERIDIAN, OF FRESNO IRRIGATED FARMS CO. TRACT, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 1 OF RECORD OF SURVEYS. FRESNO COUNTY RECORDS.

EXCEPTING THEREFROM THE SOUTH 75 FEET OF THE WEST 100 FEET THEREOF.

EXCEPTING THEREFROM ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES AND MINERALS OF ANY KIND OR CHARACTER, IN, ON, OR THEREUNDER, AS RESERVED IN DEEDS OF RECORD.

PARCEL 3:
THE SOUTH 76 FEET OF THE WEST 100 FEET OF LOT 16 IN SECTION 11, TOWNSHIP 14 SOUTH, RANGE 17 EAST, MOUNT DIABLO BASE AND MERIDIAN, OF FRESNO IRRIGATED FARMS CO. TRACT. ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 1 OF RECORD OF SURVEYS.

EXCEPTING THEREFROM ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES AND MINERALS OF ANY KIND OR CHARACTER. IN, ON, OR THEREUNDER, AS RESERVED IN DEEDS OF RECORD.

## ZONING/ LAND USE

APN: 020-160-36S
EXISTING ZONING: AE20
PROPOSED ZONING: PUD
PROPOSED LAND USE: RESIDENTIAL / MULTI-FAMILY
EXISTING LAND USE: VACANT
SURROUNDING ZONING: AE20
SURROUNDING LAND USE: VACANT/ RESIDENTIAL

## NOTES

1. THE SOURCE OF WATER SUPPLY SHALL BE THE CITY OF KERMAN.

## OWNER/ SUBDIVIDER

BOYD COMPANIES
275 S. MADERA AVE., #100
KERMAN, CA 93630

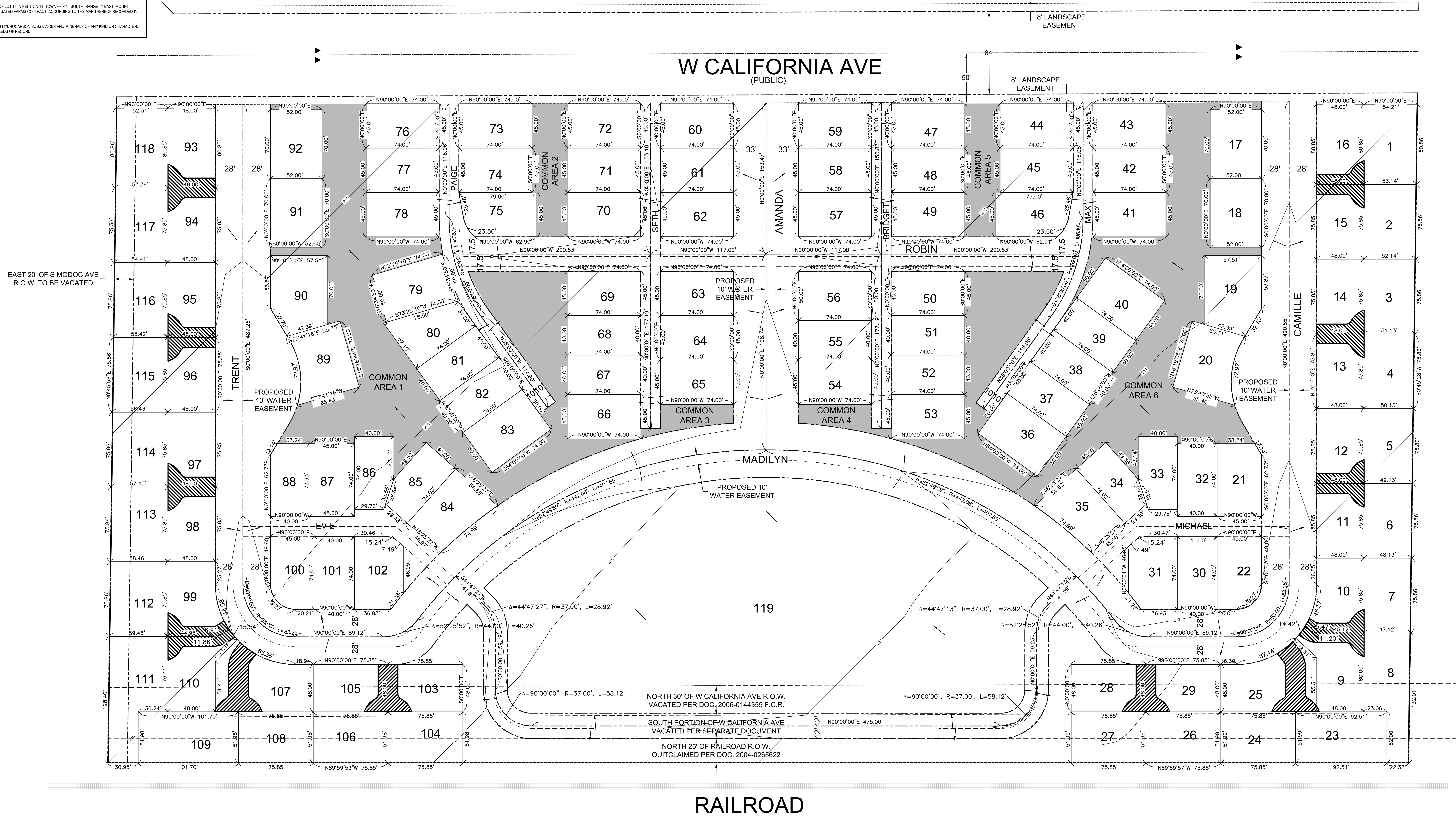
IN THE CITY OF KERMAN, COUNTY OF FRESNO, STATE OF CALIFORNIA

# PLANNED UNIT DEVELOPMENT FOR WHISPERING FALLS & TENTATIVE SUBDIVISION MAP

# TSM 2023-01

## HATCHING LEGEND

| | |
|---|---|
| ▒ | COMMON AREA |
| ▨ | PROPOSED CROSS ACCESS |
| ▲ | RIGHT-OF-WAY DEDICATED FOR STREET PURPOSES PER THIS MAP |



SCALE: 1"=50'-0"

0 25 50 100 150 200

TRUE NORTH

LARS ANDERSEN & ASSOCIATES, INC.
CIVIL ENGINEERS - LAND SURVEYORS - PLANNERS
4694 WEST JACQUELYN AVENUE – FRESNO CALIFORNIA 93722
TEL: 559 276–2790 FAX: 559 276–0850 WWW.LARSANDERSEN.COM

SAMC
SCOTT A. MOMMER CONSULTING

DAHLIN

**WHISPERING FALLS**
PLANNED DEVELOPMENT AND TENTATIVE TRACT MAP IN CITY OF KERMAN/FRESNO COUNTY

**TENTATIVE MAP**
**C4.0**

SM325.21

06.23.2023

# 2.0 Existing Conditions

## 2.1 Existing Traffic Counts and Roadway Geometrics

The first step toward assessing Project traffic impacts is to assess existing traffic conditions. Existing AM and PM peak hour turning movements were collected at each Project intersection by National Data and Surveying Services. Traffic counts were conducted for the peak hour periods of 7:00-9:00 AM and 4:00-6:00 PM for all key intersections in September, 2023. Based on recent travel trends in the San Joaquin Valley, the 2023 existing counts were considered representative of typical conditions and no adjustments were considered to be needed for the effects of the COVID pandemic.

The existing lane geometry at study area intersections is shown in Figure 2-1. Figures 2-2 and 2-3 shows existing traffic volumes for the AM and PM peak hours in the study area.

Traffic count data worksheets are provided in Appendix A.

## 2.2 Affected Streets and Highways

Street and highway intersections and segments near and adjacent to the Project site were analyzed to determine levels of service utilizing HCM-based methodologies described previously. The study intersections included in this TIS are listed below.

### Intersections

- ✓ Whitesbridge Ave (SR 180) and Lassen Ave
- ✓ Whitesbridge Ave (SR 180) and Siskiyou Ave
- ✓ W Kearney Blvd and Siskiyou Ave
- ✓ W Kearney Blvd and S Del Norte Ave
- ✓ SR 145 and W Kearney Blvd.
- ✓ Siskiyou Ave and California Ave
- ✓ S Del Norte Ave and W California Ave
- ✓ SR 145 and West A Street
- ✓ Siskiyou Ave and Jensen Ave

## 2.3 Level of Service

### 2.3.1 *Intersection Capacity Analysis*

All intersection LOS analyses were estimated using Synchro 11 Software. Various roadway geometrics, traffic volumes, and properties (peak hour factors, storage pocket length, etc.) were input into the Synchro 11 Software program to accurately determine the travel delay and LOS for each Study scenario. The intersection LOS and delays reported represent the 6th Edition HCM outputs. Synchro assumptions, listed below, show the various Synchro inputs and methodologies used in the analysis.

- ✓ **Lane Geometry**
  - Storage lengths for turn lanes for existing intersections were obtained from aerial photos and rounded to the nearest 25 feet.
  - VRPA conducted an aerial/field study of the specified intersections and segments to verify lane geometry and intersection control.

- ✓ **Traffic Conditions**
  - Peak hour factors (PHF) for each intersection approach were obtained from traffic counts in the study area and were utilized for Existing Conditions and Opening Year with Project conditions.
  - For all future scenarios, a PHF of 0.92 was applied unless the existing PHF was greater than 0.92, as this was recommended value in HCM.
  - Heavy vehicle percentages were applied as follows and are based on HCM default (3%)
  - Roadway link speed limits were observed in the field and input into the Synchro network to determine roadway link speeds
  - Traffic Count conducted in the year 2023 were applied growth factor of 2% to determine the traffic counts for future design year 2040.

Table 2-1 shows the intersection LOS for the existing conditions. Results of the analysis show that the study intersections currently operate at LOS D or better in the existing scenario. Synchro 11 (HCM 6th Edition) Worksheets are provided in Appendix B.

### 2.3.2 *Queuing Analysis*

Table 2-2 provides a queue length summary for all approaches at the study intersection for Existing Conditions. As shown in Table 2-2, all the queues are within the acceptable limits.

# Table 2-1
## Whispering Falls Project
## Existing Intersections Operation

| INTERSECTION | CONTROL | TARGET LOS | PEAK HOUR | EXISTING | |
|---|---|---|---|---|---|
| | | | | DELAY | LOS |
| Whitesbridge Ave (SR 180) and Lassen Ave | Two-way Stop | D | AM | 20.4 | C |
| | | | PM | 30.6 | D |
| Whitesbridge Ave (SR 180) and Siskiyou Ave | Signalized | D | AM | 22.9 | C |
| | | | PM | 27.5 | C |
| W Kearney Blvd and Siskiyou Ave | All way Stop | D | AM | 13.1 | B |
| | | | PM | 9.6 | A |
| W Kearney Blvd and S Del Norte Ave | All way Stop | D | AM | 13.2 | B |
| | | | PM | 10.6 | B |
| SR 145 and W Kearney Blvd | Signalized | D | AM | 23.8 | C |
| | | | PM | 25.1 | C |
| Siskiyou Ave and California Ave | All Way Stop | D | AM | 9.0 | A |
| | | | PM | 8.0 | A |
| S Del Norte Ave and W California Ave | All Way Stop | D | AM | 8.7 | A |
| | | | PM | 8.5 | A |
| SR 145 and West A Street | Two Way Stop | D | AM | 20.9 | C |
| | | | PM | 29 | D |
| Siskiyou Ave and Jensen Ave | One Way Stop | D | AM | 9.8 | A |
| | | | PM | 10.1 | B |

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized intersections, delay results show the average for the entire intersection. For two-way and All way stop controlled intersections, delay results show the delay for the worst movement.

HCM 6th doesn't support the speed limit of 65mph, so 55mph is considered for the analysis purpose.

D*- LOS D is assumed as the traffic runs without interruption and doesn’t need improvements

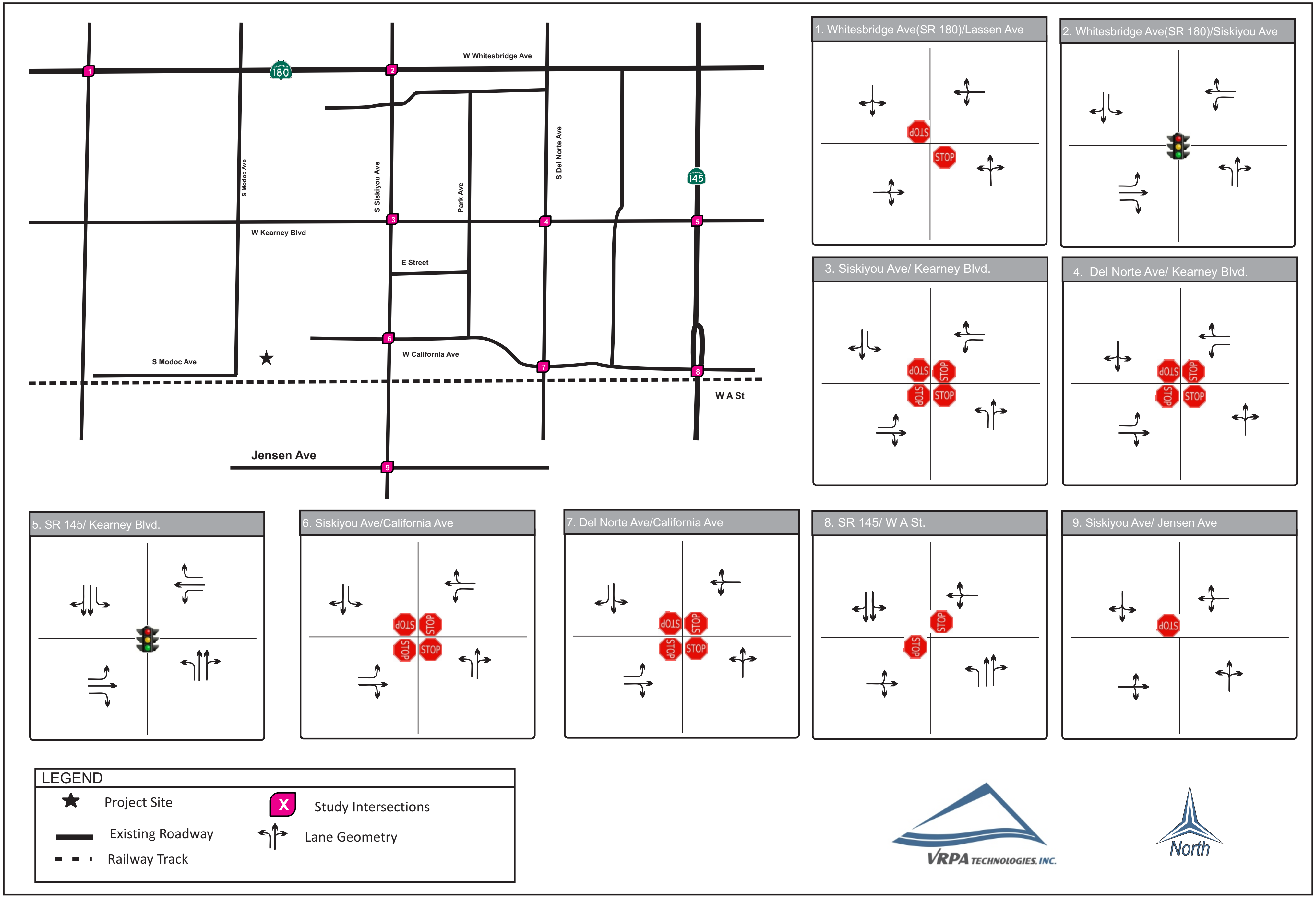
# Table 2-2
# Whispering Falls Project
# Existing Queuing Operation

| INTERSECTION | CONTROL | AVAILABLE STORAGE(FT.) | LANE | EXISTING CONDITIONS | |
|---|---|---|---|---|---|
| | | | | AM | PM |
| Whitesbridge Ave (SR 180) and Lassen Ave | One Way Stop | N/A | West Bound Left | 0.0 | 2.5 |
| | | N/A | North Bound Left | 32.5 | 67.5 |
| | | N/A | South Bound Left | 15.0 | 12.5 |
| Whitesbridge Ave (SR 180) and Siskiyou Ave | Signalized | 300 | East Bound Right | 0.0 | 0.0 |
| | | 475 | East Bound Left | 7.0 | 18.0 |
| | | 500 | West Bound Right | 0.0 | 0.0 |
| | | 500 | West Bound Left | 53.0 | 131.0 |
| | | 175 | North Bound Left | 86.0 | 29.0 |
| | | 150 | South Bound Left | 38.0 | 29.0 |
| W Kearney Blvd and Siskiyou Ave | All way Stop | 100 | East Bound Left | 5.0 | 55.0 |
| | | 150 | West Bound Left | 27.5 | 44.0 |
| | | 100 | North Bound Left | 2.5 | 45.0 |
| | | 100 | South Bound Left | 10.0 | 54.0 |
| W Kearney Blvd and S Del Norte Ave | All way Stop | 100 | East Bound Left | 25.0 | 2.5 |
| | | 100 | West Bound Left | 2.5 | 12.5 |
| | | N/A | North Bound Left | 47.5 | 2.5 |
| | | N/A | South Bound Left | 42.5 | 7.5 |
| SR 145 and W Kearney Blvd | Signalized | 100 | East Bound Right | 0.0 | 0.0 |
| | | 100 | East Bound Left | 74.0 | 7.5 |
| | | 100 | West Bound Right | 0.0 | 0.0 |
| | | 100 | West Bound Left | 37.0 | 5.0 |
| | | 100 | North Bound Left | 63.0 | 12.5 |
| | | 200 | South Bound Left | 51.0 | 15.0 |
| Siskiyou Ave and California Ave | All Way Stop | 100 | East Bound Left | 12.5 | 5.0 |
| | | 100 | West Bound Left | 2.5 | 2.5 |
| | | 100 | North Bound Left | 0.0 | 2.5 |
| | | 75 | South Bound Left | 22.5 | 5.0 |
| S Del Norte Ave and W California Ave | All Way Stop | 100 | East Bound Left | 5.0 | 5.0 |
| | | N/A | West Bound Left | 10.0 | 17.5 |
| | | N/A | North Bound Left | 5.0 | 2.5 |
| | | N/A | South Bound Left | 7.5 | 2.5 |
| | | 100 | South Bound Right | 2.5 | 5.0 |
| SR 145 and West A Street | Two Way Stop | N/A | East Bound Left | 62.5 | 55.0 |
| | | N/A | West Bound Left | 32.5 | 65.0 |
| | | 125 | North Bound Left | 2.5 | 2.5 |
| | | N/A | South Bound Left | 0.0 | 2.5 |
| Siskiyou Ave and Jensen Ave | One Way Stop | N/A | East Bound Left | 0.0 | 2.5 |
| | | N/A | South Bound Left | 5.0 | 5.0 |

Queue shown is 95th percentile summary and is measured in feet

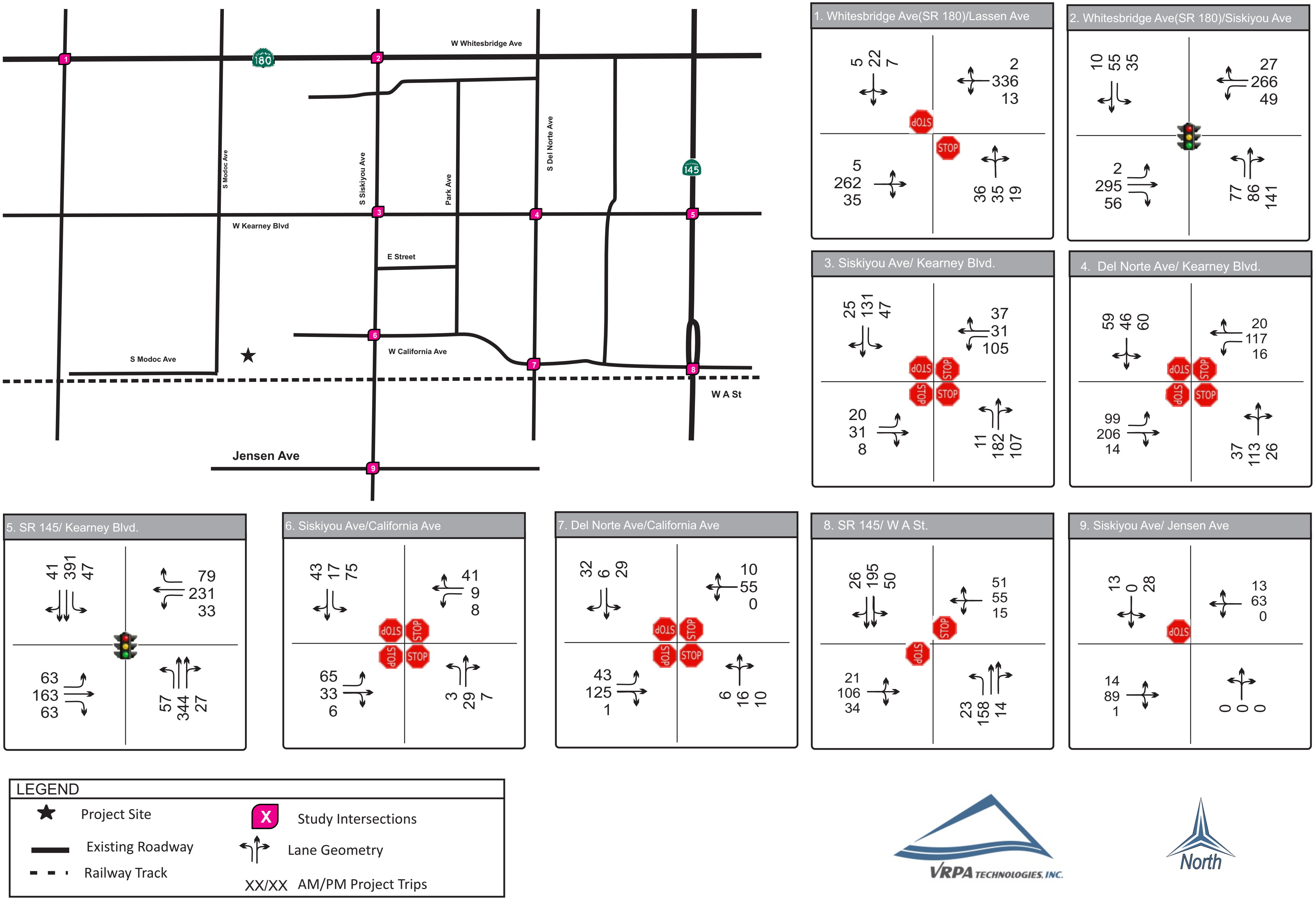
# Whispering Falls Project
## Existing Lane Geometry

Figure 2-1



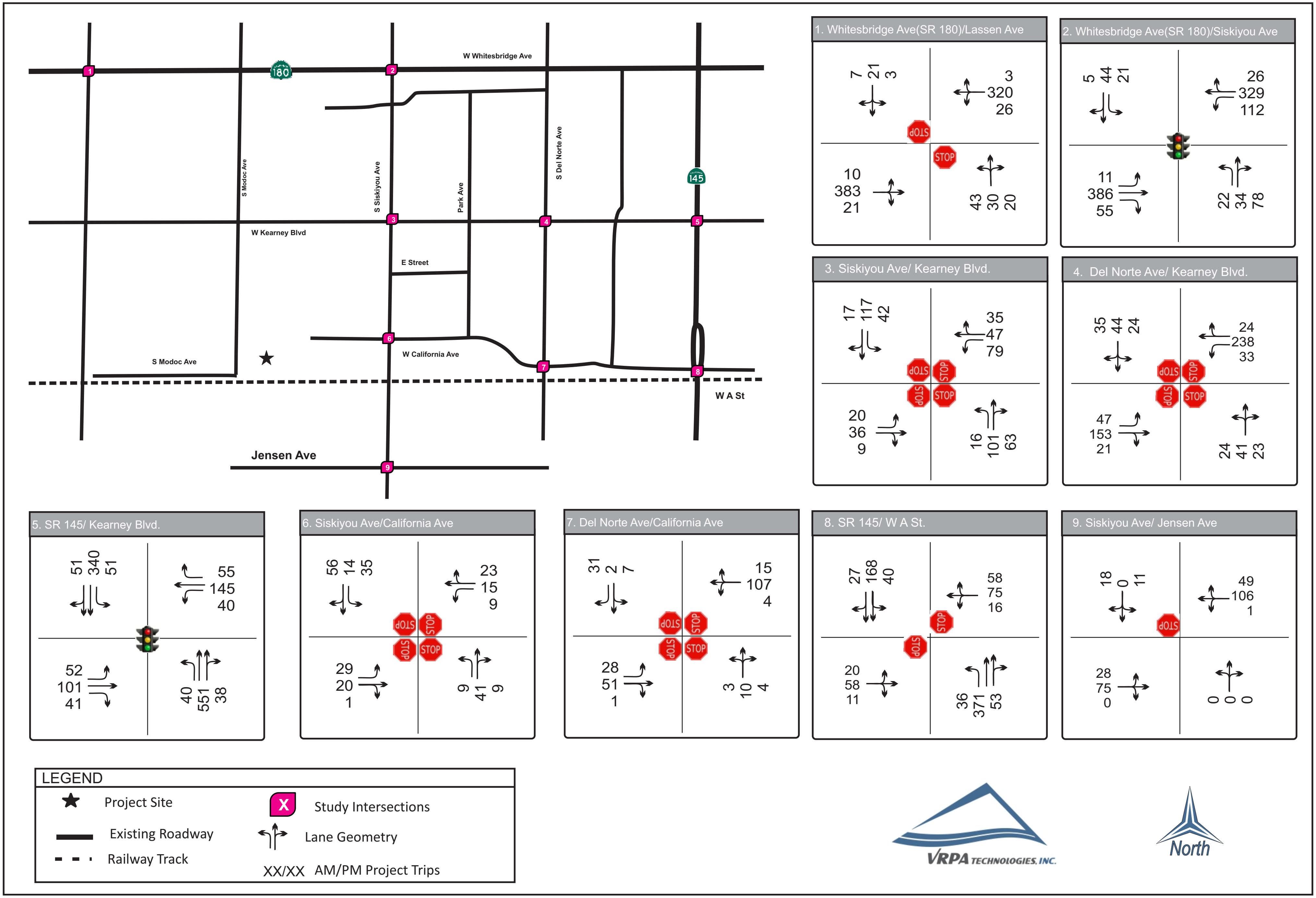
# Whispering Falls Project
## Existing AM Peak Hour

**Figure 2-2**



# Whispering Falls Project
## Existing PM Peak Hour

Figure 2-3



# 3.0 Traffic Impacts

This chapter provides an assessment of traffic the Project is expected generate and the impact of that traffic on the surrounding street system.

## 3.1 Trip Generation

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). The considerations described above led to the recommended trip generation for weekday AM (7:00-9:00am) and PM (4:00-6:00pm) peak hours shown in Table 3-1.

## 3.2 Trip Distribution

Project trip distribution is shown in Figure 3-1 and is based upon knowledge of the study area, engineering judgement, prevailing traffic patterns in the study area, major routes, population centers, and other existing developments.

## 3.3 Project Traffic

Project traffic as shown in Table 3-1 was distributed to the roadway system using the trip distribution percentages shown in Figures 3-1. The graphical representation of the resulting AM and PM peak hour Project trips used is shown in Figures 3-2 and 3-3.

## 3.4 Existing Plus Project Conditions

An Existing Plus Project Scenario was analyzed to include existing traffic plus traffic generated by the Project. The Project trips are added to the existing traffic to analyze the impacts. The resulting traffic is shown in Figures 3-4 and 3-5.

## 3.5 Approved/Pending Project Traffic

Traffic impact analyses typically require the analysis of approved or pending developments that have not yet been built in the vicinity of the Project. There are several development projects in the Project’s vicinity that will add new trips to the intersections and roadway segments being evaluated in this TIS. The approved and pending developments that are included in the TIS are listed below and the location is shown in Figure 3-6.

- ✓ Crown Schaad Development- 163 Single Family residential Development
- ✓ Tract 6293- 85 Single Family Residential Development

Trip generation and distribution information for the approved and pending developments was estimated using trip generation rates from the ITE Trip Generation Manual (11th Edition) and engineering judgement and prevailing traffic patterns. Trip generation for the approved and pending developments is shown in Table 3-2.

Trip distribution information for cumulative developments are shown in Appendix C. The trip distribution in the appendix and trip generation from Table 3-2 were utilized to estimate Approved and Pending Project trips. These traffic volumes were applied to the Near-Term Impacts traffic conditions discussed later in the report.

## 3.6 Near-Term Opening Year 2025 With Project Conditions

A near term scenario with Project traffic was analyzed on estimated Project Opening-Day (2025) applying an annual growth rate of 2% per year. The resulting traffic is shown in Figures 3-7 and 3-8.

Intersection capacity analysis for this scenario is shown in Table 3-3.

## 3.7 Horizon Year 2040 Without Project Conditions

The impacts of the Project were analyzed considering future traffic conditions, approximately fifteen(15) years after the assumed opening day of the Project, or in this case the year 2040. The levels of traffic expected in 2040 relate to the cumulative effect of traffic increases resulting from the implementation of the General Plans of local agencies, including the City of Kerman and Fresno County. Traffic conditions without the Project in the Year 2040 were estimated by applying an annual growth rate of 2% per year to existing traffic volumes. Traffic conditions resulting from this scenario are shown in Figures 3-9 and 3-10.

Intersection capacity analysis for this scenario is shown in Table 3-3.

## 3.8 Horizon Year 2040 With Project Conditions

The addition of Project trips, which were distributed to the roadway system using the trip distribution percentages shown in Figure 3-1 (Section 3.3), were added to Horizon Year 2040 Without Project traffic volumes.

Traffic conditions resulting from this scenario are shown in Figures 3-11 and 3-12.

Intersection capacity analysis for this scenario is shown in Table 3-3.

## 3.9 Impacts

### 3.9.1 *Intersection Capacity Analysis*

Results of the analysis show that the Project will contribute to an unacceptable LOS at two (2) of the nine (9) study intersections when comparing the Horizon Year 2040 scenarios.
Potential mitigation measures are discussed in Chapter 4 of this report.

### 3.9.2 *Queuing Analysis*

Table 3-4 provides a queue length summary for traffic movements at study intersections. The queue lengths presented in Table 3-4 represent the 95 percentile queue lengths for the respective lane movements based on the Synchro traffic signal timing program.

Results of the queuing analysis shows that existing queue storage will be adequate to serve expected peak hour queue lengths at most of the intersections. However, storage will be insufficient for SR 145 and W Kearney Blvd in Eastbound left in opening year and 2040 with Project scenarios. Similarly, storage will be insufficient for SR 145 and West A Street for eastbound and west bound left in opening year and 2040 scenarios.

Potential mitigation measures are discussed in Chapter 4 of this report.

## Table 3-1

## Whispering Falls Residential Development

### Trip generation

| LAND USE (ITE LAND USE CODE) | QUANTITY (DWELLING UNITS OR 1,000 | DAILY TRIP ENDS (ADT) | | WEEKDAY AM PEAK HOUR | | | | | WEEKDAY PM PEAK HOUR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RATE | VOLUME | RATE | IN:OUT SPLIT | VOLUME | | | RATE | IN:OUT SPLIT | VOLUME | | |
| | | | | | | IN | OUT | TOTAL | | | IN | OUT | TOTAL |
| Single Family Residential Residential (210) | 118 | 9.94 | 1,175 | 0.73 | 25:75 | 22 | 65 | 87 | 0.98 | 63:37 | 73 | 43 | 116 |
| Multi Family Residential (Low Rise) (220) | 56.0 | 7.75 | 434 | 0.78 | 24:76 | 10 | 33 | 44 | 1.03 | 63:37 | 36 | 22 | 58 |
| **SUBTOTAL TRIP GENERATION** | | | **1,608** | | | **32** | **99** | **132** | | | **109** | **65** | **173** |

Note: Trip generation rates are based on ITE Trip Generation Manual 11th edition fitted curve trip end volumes.

# Table 3-2

## Whispering Falls Cumulative Development Trip generation

### Trip generation

| PROJECT NAME | LAND USE (ITE LAND USE CODE) | QUANTITY (DWELLING UNITS OR 1,000 SQUARE FEET) | DAILY TRIP ENDS | (ADT) | WEEKDAY AM PEAK HOUR | | | | | WEEKDAY PM PEAK HOUR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | RATE | VOLUME | RATE | IN:OUT SPLIT | VOLUME | | | RATE | IN:OUT SPLIT | VOLUME | | |
| | | | | | | | IN | OUT | TOTAL | | | IN | OUT | TOTAL |
| Crown Schaad Residential Development | Single Family Residential Residential (210) | 163 | 9.7 | 1,582 | 0.71 | 25:75 | 29 | 87 | 116 | 0.96 | 63:37 | 99 | 58 | 157 |
| Tract 6293 Residential Development | Single Family Residential Residential (210) | 85.0 | 10.22 | 869 | 0.75 | 25:75 | 16 | 48 | 64 | 1.0 | 63:37 | 54 | 31 | 85 |
| **SUBTOTAL TRIP GENERATION** | | | | **2,450** | | | **45** | **136** | **181** | | | **153** | **89** | **242** |

Note: Trip generation rates are based on ITE Trip Generation Manual 11th edition fitted curve trip end volumes.

# Table 3-3
# Whispering Falls Project
# Future Intersections Operation

| INTERSECTION | CONTROL | TARGET LOS | PEAK HOUR | EXISTING PLUS PROJECT | | NEAR TERM OPENING YEAR 2025 | | HORIZON 2040 WITHOUT PROJECT CONDITIONS | | HORIZON 2040 WITH PROJECT CONDITIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | DELAY | LOS | DELAY | LOS | DELAY | LOS | DELAY | LOS |
| Whitesbridge Ave (SR 180) and Lassen Ave | Two-way Stop | D | AM | 20.7 | C | 22.7 | C | **38.2** | **E** | **39.1** | **E** |
| | | | PM | 31.3 | D | **39.0** | **E** | **90.3** | **F** | **94.7** | **F** |
| Whitesbridge Ave (SR 180) and Siskiyou Ave | Signalized | D | AM | 23.9 | C | 26.1 | C | 27.6 | C | 29.4 | C |
| | | | PM | 33.1 | C | 31.9 | C | 43.6 | D | 47.9 | D |
| W Kearney Blvd and Siskiyou Ave | All way Stop | D | AM | 17.3 | C | 28.4 | D | 16.7 | C | 24.6 | C |
| | | | PM | 10.7 | B | 12.4 | B | 11.2 | B | 12.8 | B |
| W Kearney Blvd and S Del Norte Ave | All way Stop | D | AM | 14.5 | B | 17.4 | C | 16.6 | C | 18.2 | C |
| | | | PM | 11.4 | B | 12.8 | B | 14.7 | B | 16.5 | C |
| SR 145 and W Kearney Blvd | Signalized | D | AM | 25.3 | C | 27.7 | C | 27.4 | C | 28.6 | C |
| | | | PM | 25.7 | C | 27.8 | C | 32.4 | C | 32.8 | C |
| Siskiyou Ave and California Ave | All Way Stop | D | AM | 10.1 | B | 10.9 | B | 8.9 | A | 9.7 | A |
| | | | PM | 8.8 | A | 9.1 | A | 8.3 | A | 9.0 | A |
| S Del Norte Ave and W California Ave | All Way Stop | D | AM | 8.8 | A | 9.0 | A | 9.1 | A | 9.3 | A |
| | | | PM | 8.6 | A | 8.9 | A | 8.9 | A | 9.0 | A |
| SR 145 and West A Street | Two Way Stop | D | AM | 22.5 | C | 27.1 | D | **47.3** | **E** | **56.3** | **F** |
| | | | PM | 32.3 | D | **39.7** | **E** | **91.0** | **F** | **>100.0** | **F** |
| Siskiyou Ave and Jensen Ave | One Way Stop | D | AM | 10.5 | B | 10.5 | D | 10.4 | B | 10.6 | B |
| | | | PM | 11.8 | B | 12.1 | B | 10.5 | B | 12.4 | B |

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized intersections, delay results show the average for the entire intersection. For two-way and All way stop controlled intersections, delay results show the delay for the worst movement.

# Table 3-4
# Whispering Falls Project
# Future Queuing Operations

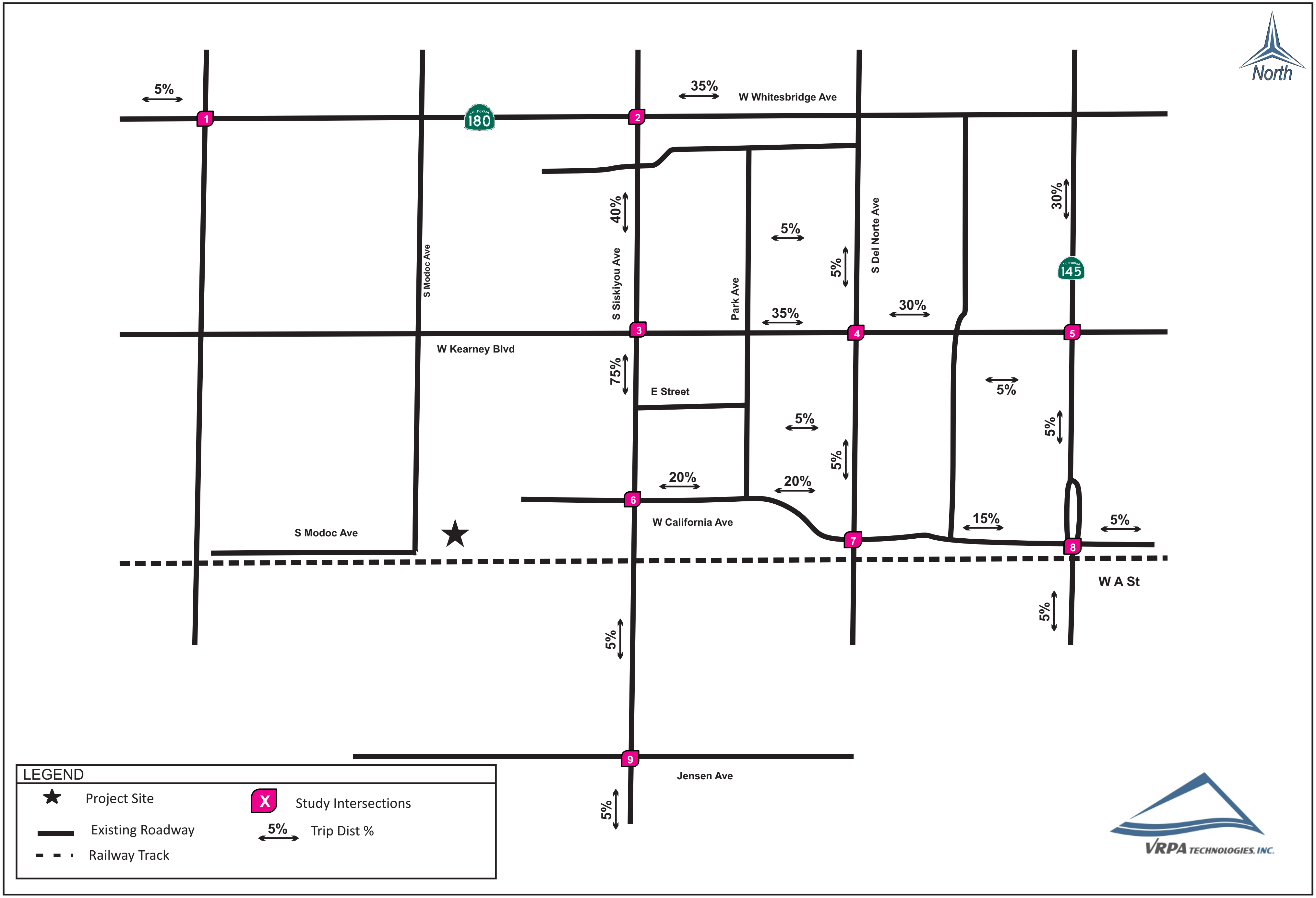
| INTERSECTION | CONTROL | AVAILABLE STORAGE(FT.) | LANE | EXISTING PLUS PROJECT | | NEAR TERM OPENING YEAR 2025 | | HORIZON 2040 WITHOUT PROJECT CONDITIONS | | HORIZON 2040 WITH PROJECT CONDITIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM | AM | PM | AM | PM |
| Whitesbridge Ave (SR 180) and Lassen Ave | One Way Stop | N/A | West Bound Left | 0.0 | 2.5 | 0.0 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| | | N/A | North Bound Left | 35.0 | 70.0 | 40.0 | 87.5 | 80.0 | **147.5** | 82.5 | **150.0** |
| | | N/A | South Bound Left | 15.0 | 12.5 | 17.5 | 15.0 | 22.5 | 22.5 | 22.5 | 25.0 |
| Whitesbridge Ave (SR 180) and Siskiyou Ave | Signalized | 300 | East Bound Right | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 3.0 | 1.0 | 5.0 |
| | | 475 | East Bound Left | 7.0 | 18.0 | 7.0 | 19.0 | 8.0 | 24.0 | 8.0 | 24.0 |
| | | 500 | West Bound Left | 69.0 | 176.0 | 90.0 | 210.0 | 81.0 | 161.0 | 96.0 | 206.0 |
| | | 175 | North Bound Left | 92.0 | 31.0 | 99.0 | 35.0 | 127.0 | 40.0 | 135.0 | 43.0 |
| | | 150 | South Bound Left | 38.0 | 29.0 | 39.0 | 31.0 | 52.0 | 38.0 | 52.0 | 38.0 |
| W Kearney Blvd and Siskiyou Ave | All way Stop | 100 | East Bound Left | 5.0 | 2.5 | 10.0 | 7.5 | 5.0 | 5.0 | 5.0 | 5.0 |
| | | 150 | West Bound Left | 32.5 | 22.5 | 40.0 | 30.0 | 35.0 | 2.5 | 42.5 | 32.5 |
| | | 100 | North Bound Left | 2.5 | 2.5 | 2.5 | 5.0 | 2.5 | 2.5 | 2.5 | 2.5 |
| | | 100 | South Bound Left | 10.0 | 7.5 | 12.5 | 7.5 | 12.5 | 10.0 | 12.5 | 10.0 |
| W Kearney Blvd and S Del Norte Ave | All way Stop | 100 | East Bound Left | 27.5 | 7.5 | 32.5 | 10.0 | 32.5 | 12.5 | 35.0 | 7.5 |
| | | 100 | West Bound Left | 2.5 | 5.0 | 5.0 | 5.0 | 5.0 | 7.5 | 5.0 | 7.5 |
| | | N/A | North Bound Left | 50.0 | 12.5 | 57.5 | 15.0 | 70.0 | 22.5 | 72.5 | 22.5 |
| | | N/A | South Bound Left | 45.0 | 17.5 | 50.0 | 20.0 | 60.0 | 27.5 | 62.5 | 30.0 |
| SR 145 and W Kearney Blvd | Signalized | 100 | East Bound Right | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | 100 | East Bound Left | 114.0 | 83.0 | **147.0** | **110.0** | 96.0 | 81.0 | **134.0** | **106.0** |
| | | 100 | West Bound Right | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | 100 | West Bound Left | 37.0 | 44.0 | 38.0 | 47.0 | 49.0 | 62.0 | 49.0 | 62.0 |
| | | 100 | North Bound Left | 63.0 | 45.0 | 70.0 | 50.0 | 96.0 | 62.0 | 96.0 | 62.0 |
| | | 200 | South Bound Left | 51.0 | 54.0 | 52.0 | 57.0 | 77.0 | 84.0 | 77.0 | 84.0 |
| Siskiyou Ave and California Ave | All Way Stop | 100 | East Bound Left | 32.5 | 12.5 | 37.5 | 15.0 | 15.0 | 5.0 | 30.0 | 12.5 |
| | | 100 | West Bound Left | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| | | 100 | North Bound Left | - | 2.5 | 0.0 | 2.5 | - | 2.5 | - | 2.5 |
| | | 75 | South Bound Left | 22.5 | 5.0 | 35.0 | 10.0 | 17.5 | 7.5 | 17.5 | 17.5 |
| S Del Norte Ave and W California Ave | All Way Stop | 100 | East Bound Left | 7.5 | 5.0 | 7.5 | 5.0 | 7.5 | 5.0 | 7.5 | 5.0 |
| | | N/A | West Bound Left | 10.0 | 22.5 | 12.5 | 25.0 | 12.5 | 25.0 | 12.5 | 27.5 |
| | | N/A | North Bound Left | 5.0 | 2.5 | 5.0 | 2.5 | 5.0 | 2.5 | 5.0 | 2.5 |
| | | N/A | South Bound Left | 7.5 | 2.5 | 7.5 | 2.5 | 7.5 | 2.5 | 7.5 | 2.5 |
| | | 100 | South Bound Right | 5.0 | 5.0 | 5.0 | 7.5 | 5.0 | 5.0 | 5.0 | 5.0 |
| SR 145 and West A Street | Two Way Stop | N/A | East Bound Left | 72.5 | 67.5 | **102.5** | **105.0** | **162.5** | **142.5** | **182.5** | **175.0** |
| | | N/A | West Bound Left | 35.0 | 72.5 | 40.0 | **105.0** | 75.0 | **>200.0** | 80.0 | **>200.0** |
| | | 125 | North Bound Left | 2.5 | 2.5 | 2.5 | 5.0 | 2.5 | 2.5 | 2.5 | 5.0 |
| | | N/A | South Bound Left | 2.5 | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | 5.0 | 5.0 |
| Siskiyou Ave and Jensen Ave | One Way Stop | N/A | East Bound Left | - | 2.5 | 0.0 | 2.5 | 0.0 | 2.5 | - | 2.5 |
| | | N/A | North Bound Left | - | 2.5 | 0.0 | 5.0 | 0.0 | 0.0 | - | 0.0 |
| | | N/A | South Bound Left | 5.0 | 7.5 | 5.0 | 7.5 | 7.5 | 2.5 | 7.5 | 5.0 |

Queue shown is 95th percentile summary and is measured in feet

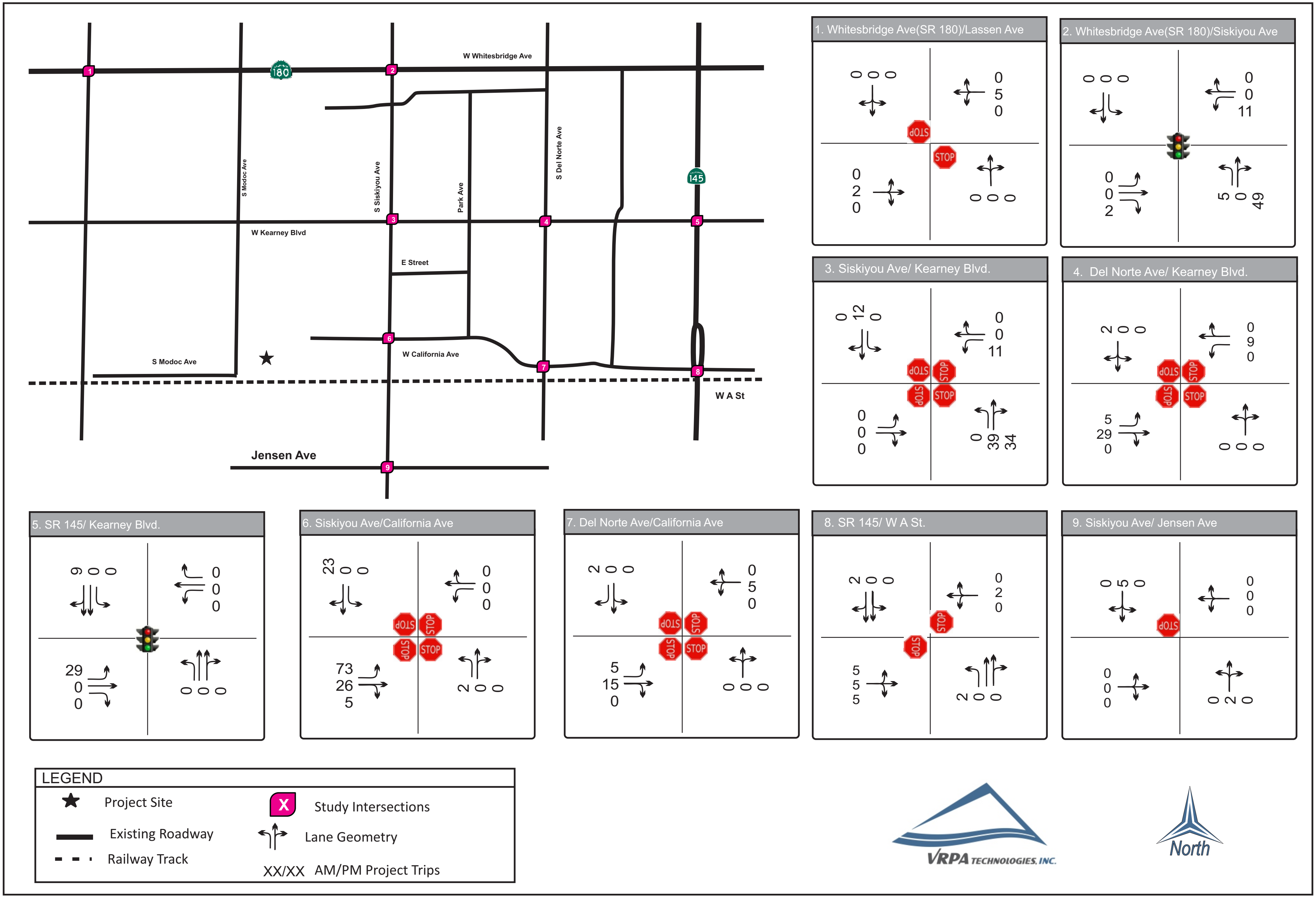
# Whispering Falls Project

## Project Trip Distribution

Figure
3-1



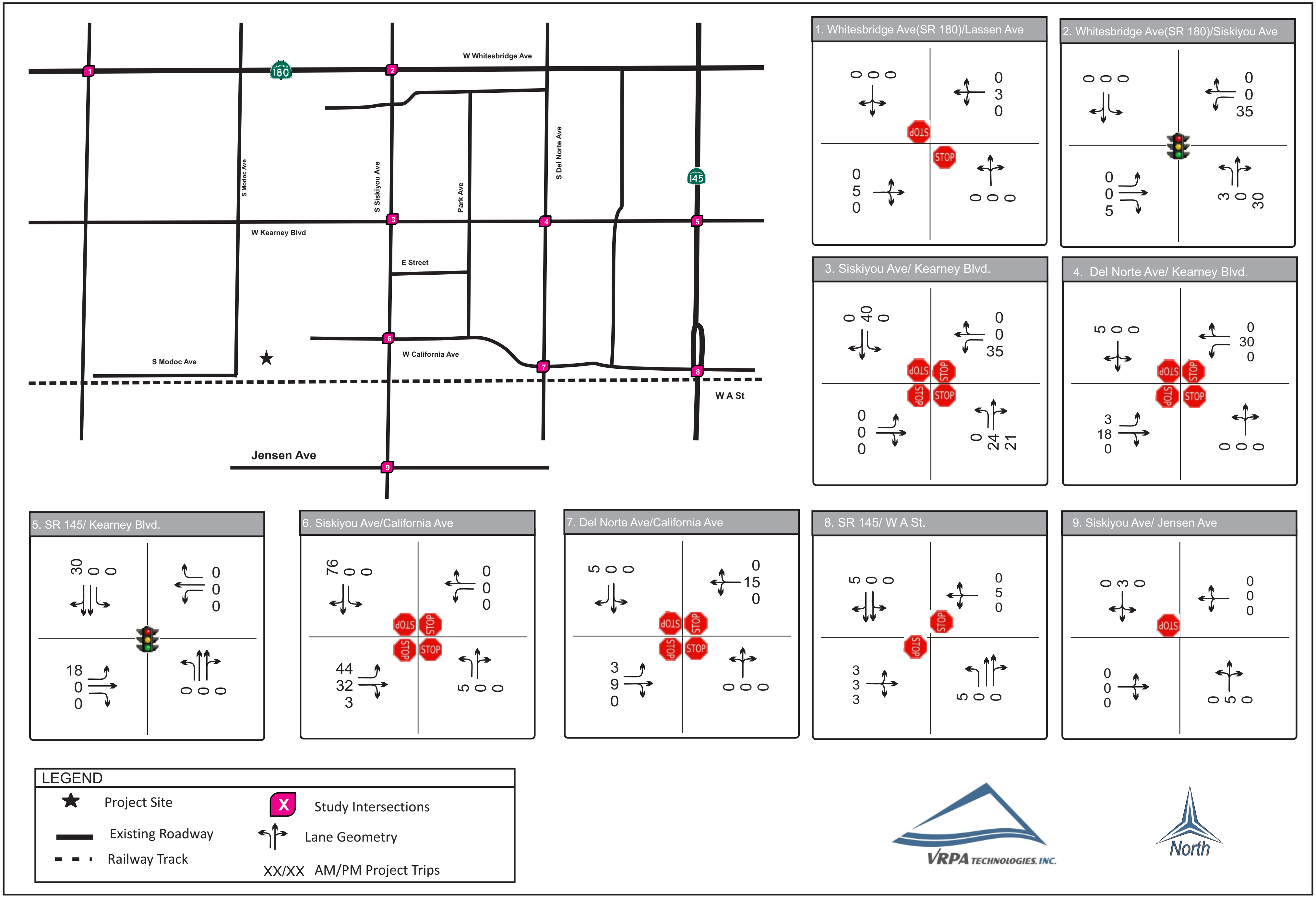
# Whispering Falls Project
## Project AM Peak Hour Trips



# Whispering Falls Project

## Project PM Peak Hour Trips

Figure 3-3

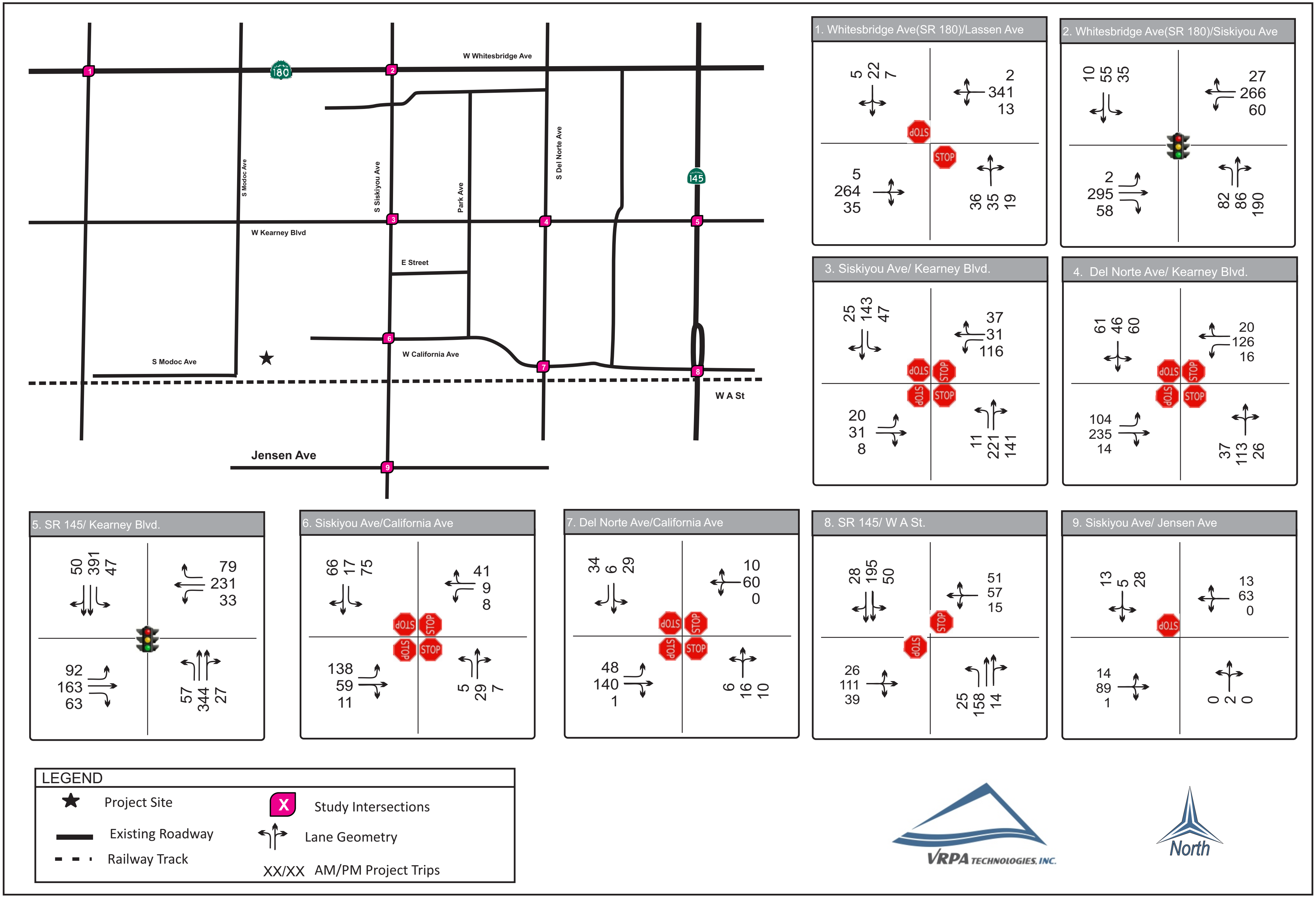


VRPA TECHNOLOGIES, INC.

# Whispering Falls Project

## Existing Plus Project Conditions AM Peak hour

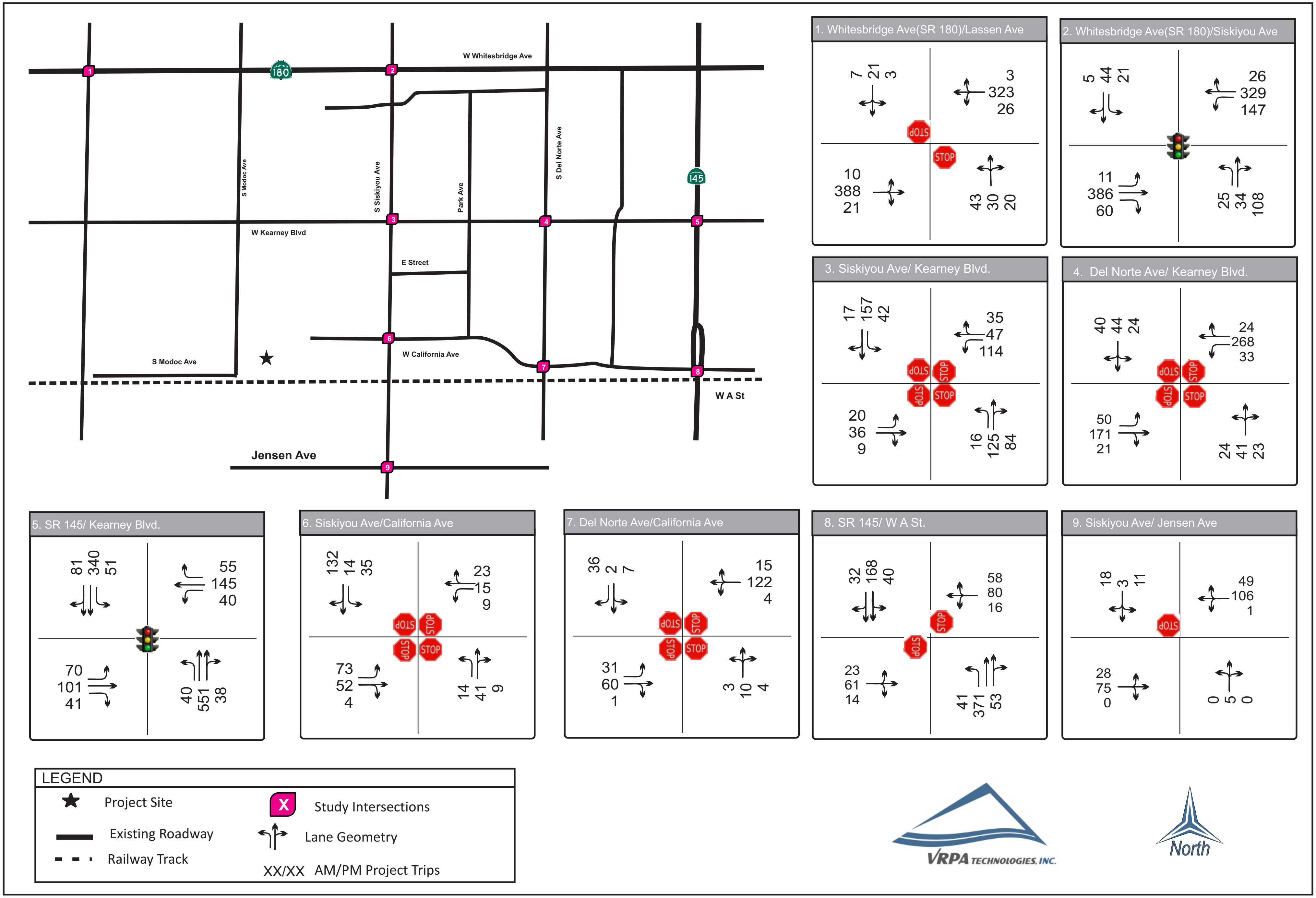
Figure 3-4



# Whispering Falls Project

## Existing Plus Project Conditions PM Peak hour

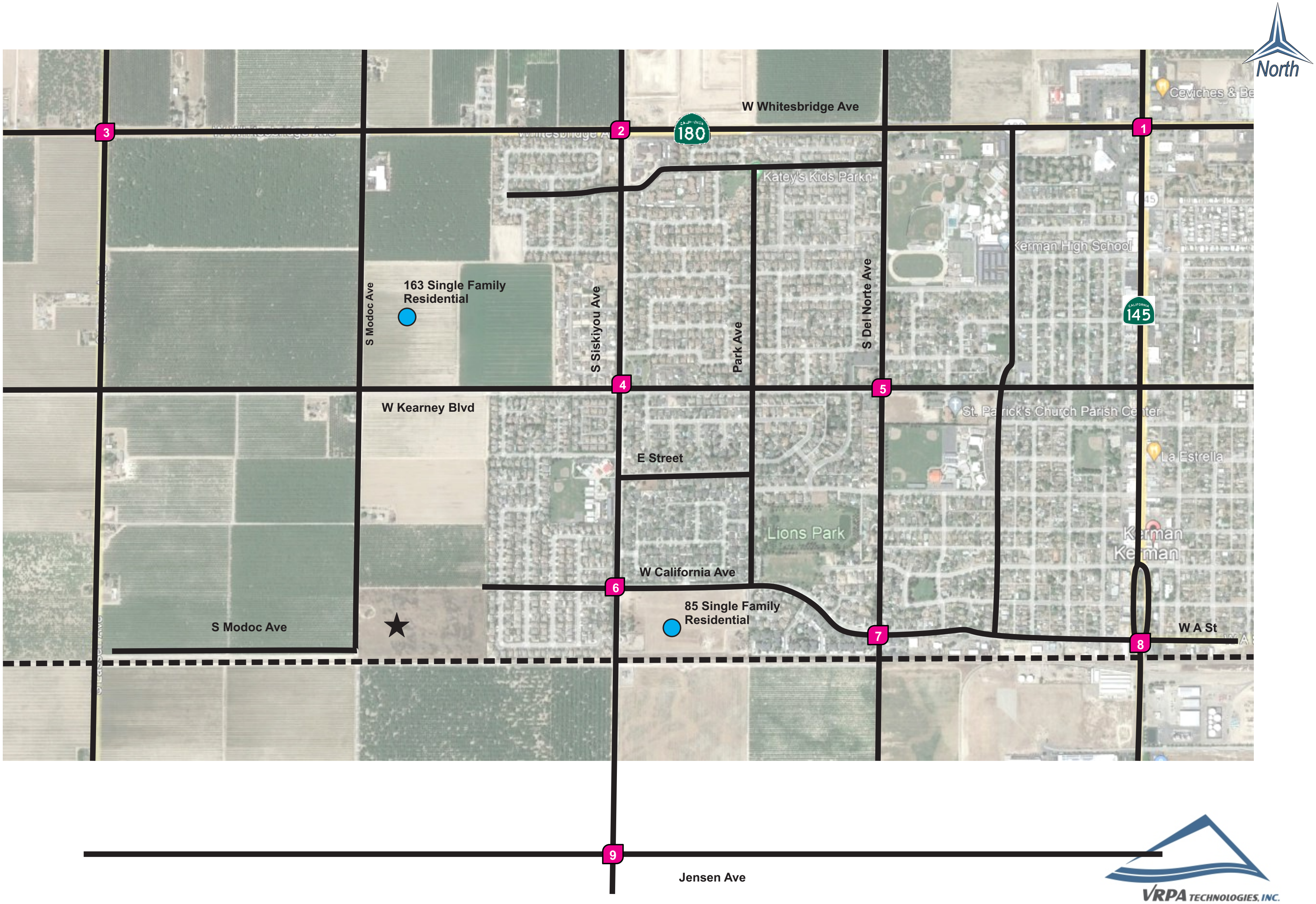
Figure 3-5



# Whispering Falls Project

## Cumulative Development Project Location

Figure 3-6

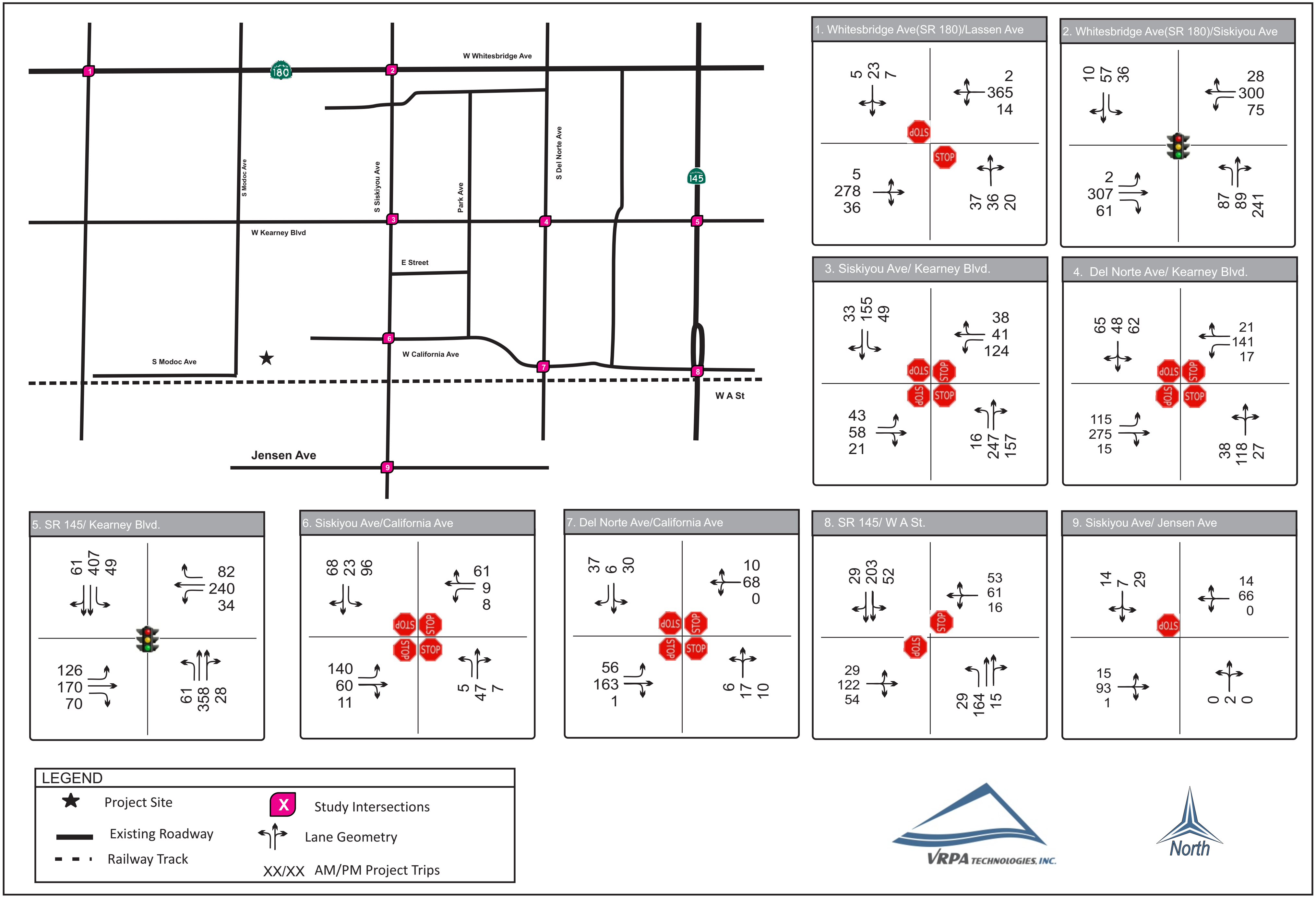


VRPA TECHNOLOGIES, INC.

# Whispering Falls Project

## Near-Term Opening Year With Project Conditions AM Peak Hour

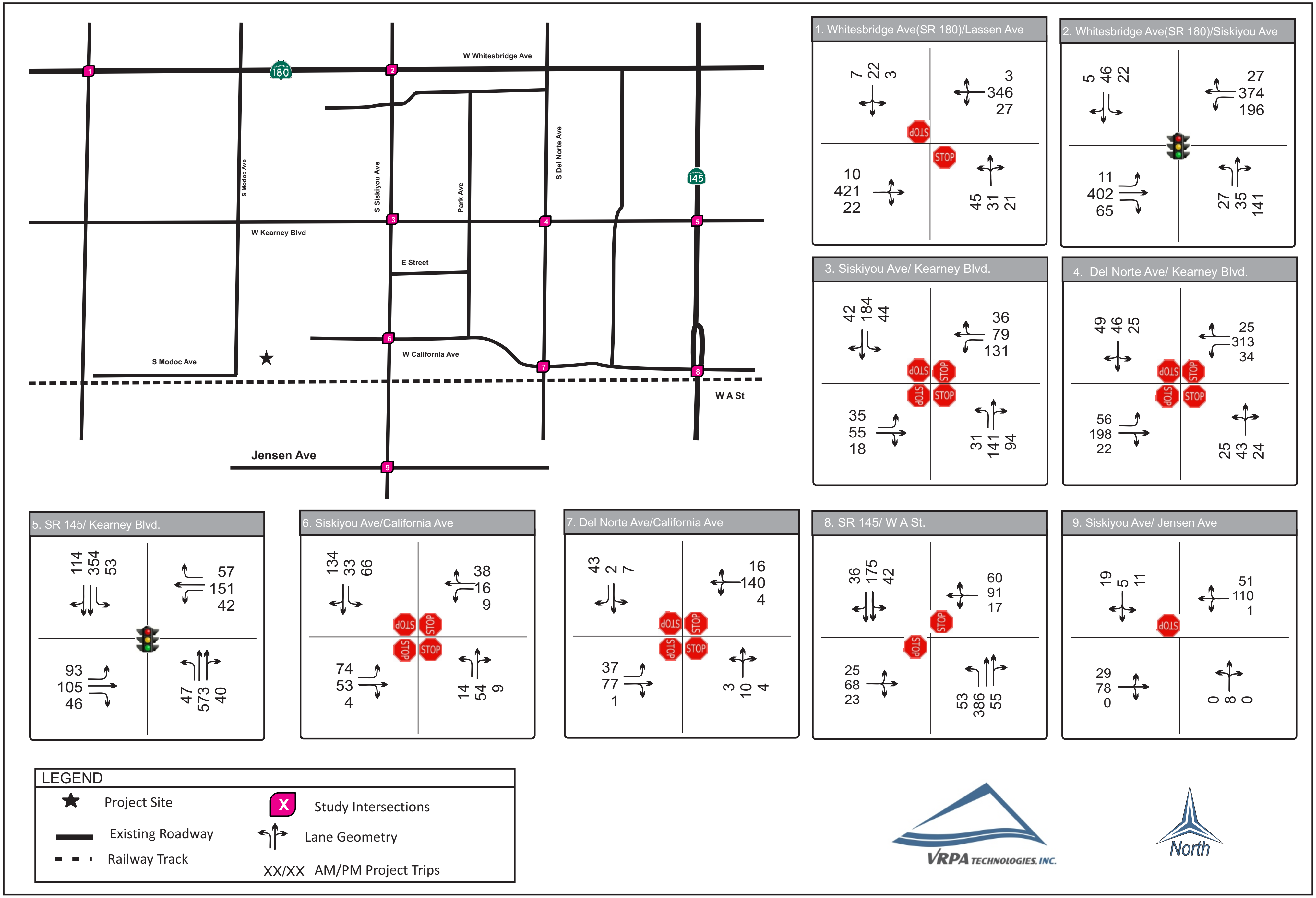
Figure 3-7



# Whispering Falls Project

## Near-Term Opening Year With Project Conditions PM Peak Hour

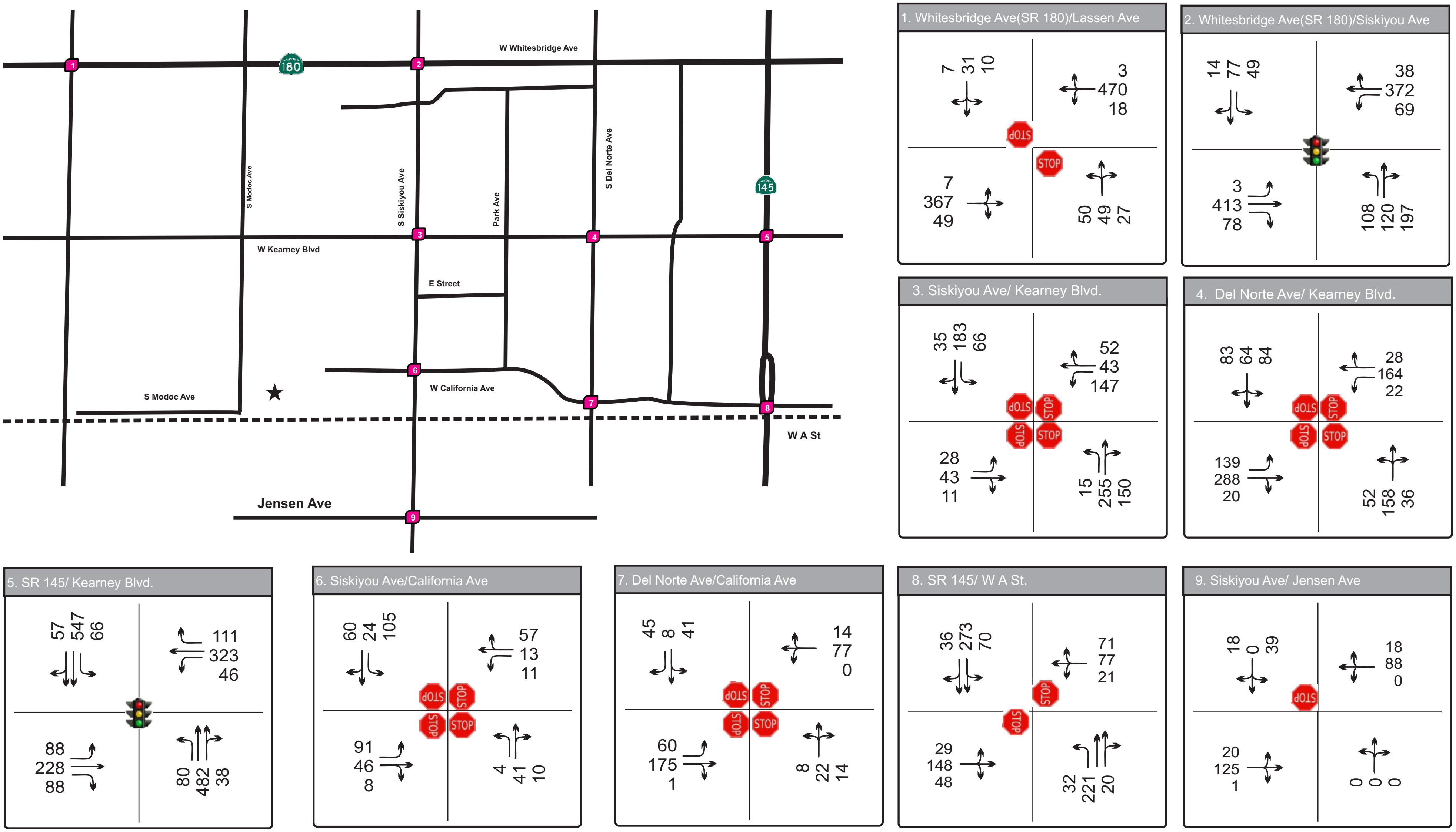
Figure 3-8



# Whispering Falls Project

## Horizon Year 2040 Without Project Conditions AM Peak Hour

**Figure 3-9**



LEGEND

| | | | |
|---|---|---|---|
| ★ | Project Site | X | Study Intersections |
| ▬ | Existing Roadway | ↰↑↱ | Lane Geometry |
| - - - | Railway Track | XX/XX | AM/PM Project Trips |

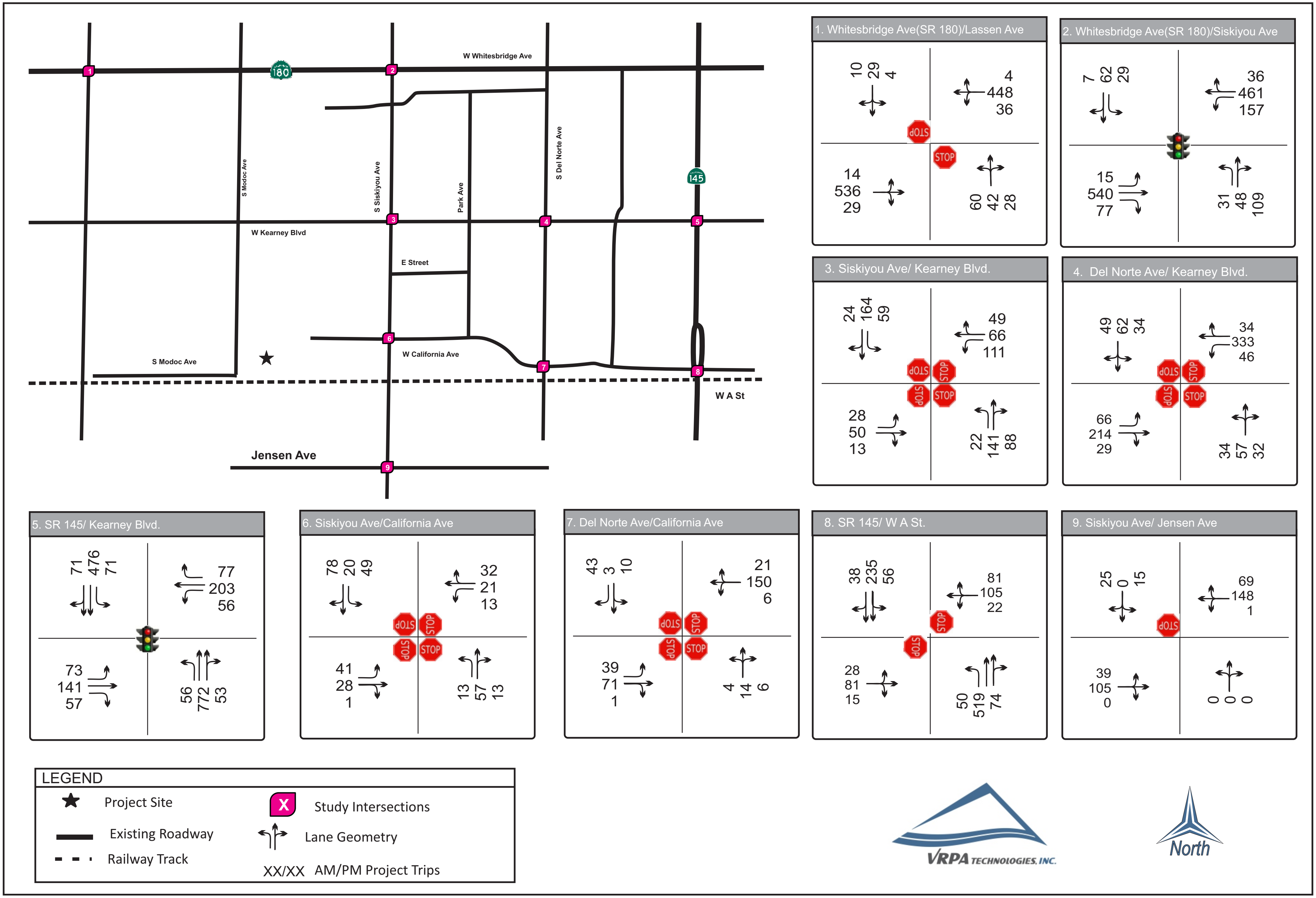
VRPA TECHNOLOGIES, INC.

North

# Whispering Falls Project

## Horizon Year 2040 Without Project Conditions PM Peak Hour

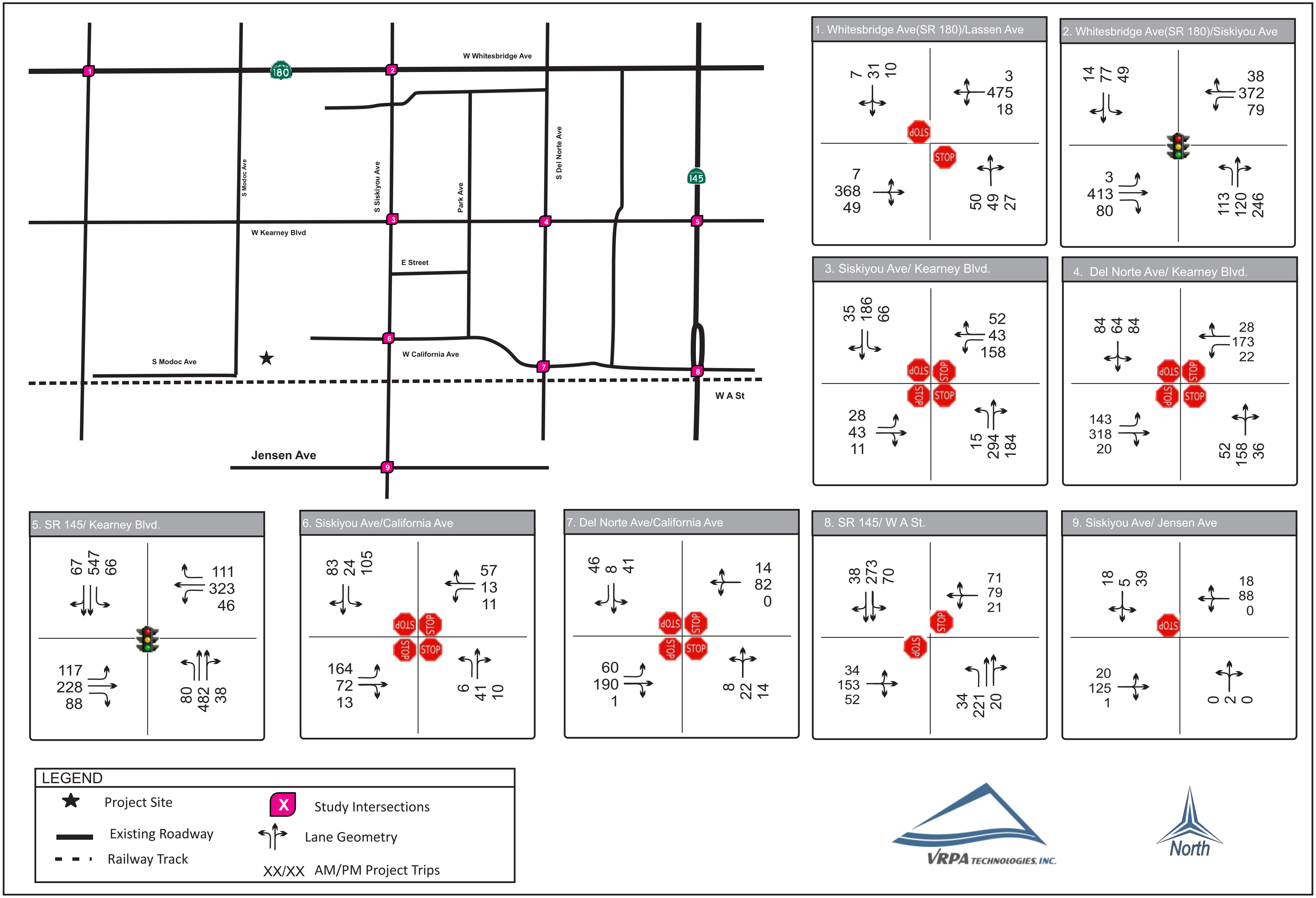
**Figure 3-10**



# Whispering Falls Project

## Horizon Year 2040 With Project Conditions AM Peak Hour

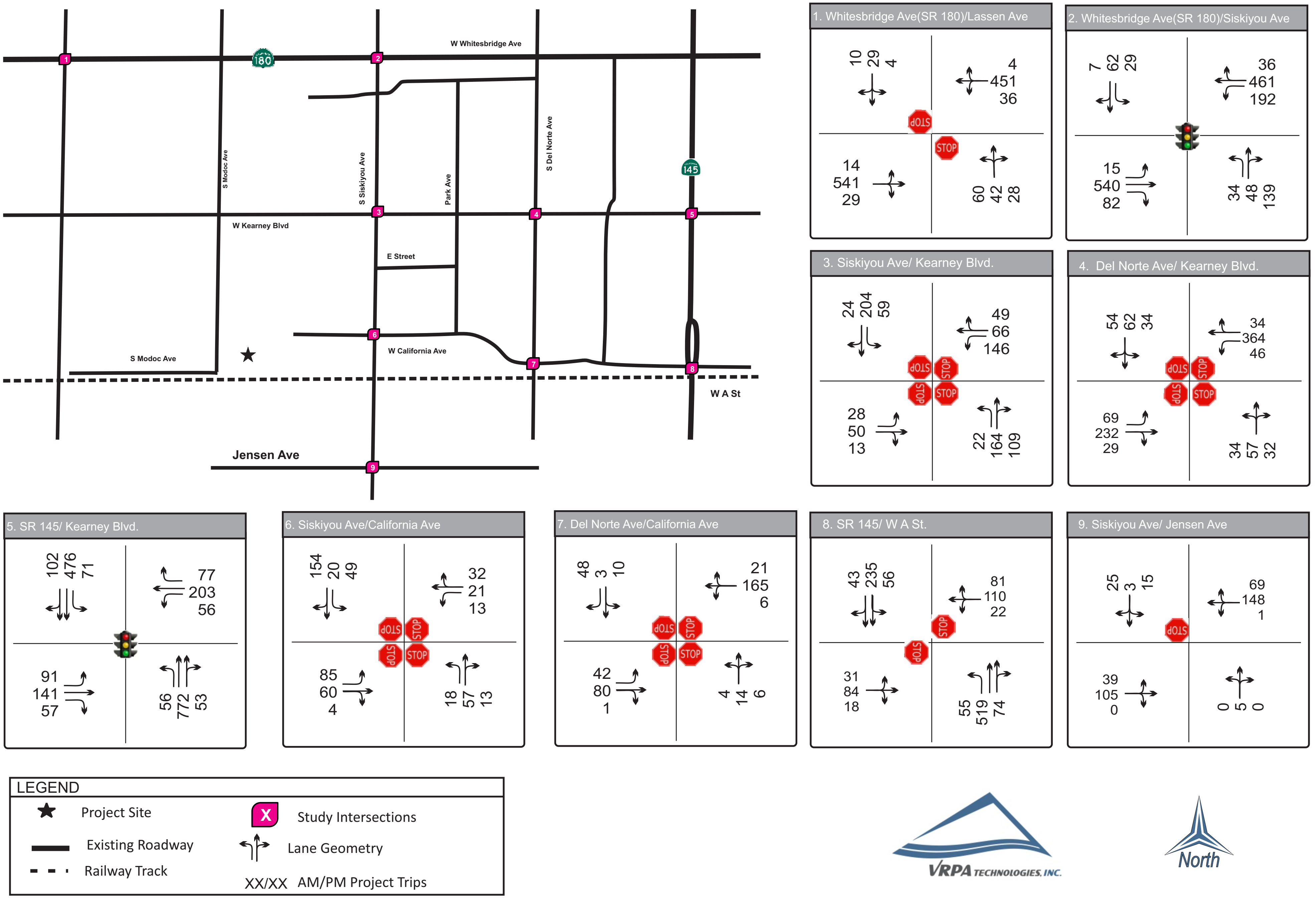
Figure 3-11



# Whispering Falls Project

## Horizon Year 2040 With Project Conditions PM Peak Hour

Figure 3-12



# 4.0 Roadway Improvements

## 4.1 Roadway Improvements

The analysis described in Chapters 1 through 3 indicates that roadway improvements may be desirable to support the implementation of the project as well as to accommodate other traffic increases expected in the study area in 2040 scenarios. Signal warrant was met on Whitesbridge Ave/Lassen Ave and SR 145/West A Avenue as shown in Appendix D. However, it should be evaluated and assessed in accordance with applicable legal standards.

Following is a summary of the intersections where improvements may be desirable in each of the future scenarios analyzed.

**INTERSECTIONS**

✓ **Whitesbridge Ave and Lassen Ave**

*Recommended improvements to achieve acceptable levels of service:*

- Near Term Opening Year 2025 Project Conditions
  - Restripe all approaches to the intersection to include a left turn lane and shared through/right lane.
- Horizon Year 2040 Without Project Conditions, Horizon Year 2040 With Project Conditions
  - Install a traffic signal when warranted
  - Restripe all approaches to the intersection to include a left turn lane and shared through/right lane.

✓ **SR 145 and West A Avenue**

- Near Term Opening Year 2025 Project Conditions
- Horizon Year 2040 Without Project Conditions
- Horizon Year 2040 With Project Conditions

*Recommended improvements to achieve acceptable levels of service:*

- Install a traffic signal when warranted.
  - Restripe east, west and southbound approach to include a left turn lane a thorough/right lane.

*Alternative Analysis*

It should be noted that an alternative mitigation for this intersection could involve installing a roundabout due to the proximity of the railroad. The analysis of the roundabout was conducted using Sidra Software for the future year under both the with-project and without-project conditions. Following lane configuration is recommended:

- Shared two-lane in north and south direction while one shared lane in the east and west directions for approach and exit.

Figure 4-1 shows the recommended improvements in the respective intersections. The results of mitigated intersections for capacity analysis are summarized in Table 4-1, while the queuing analysis result is presented in Table 4-2.

## 4.2 Equitable Share Responsibility

The Project will be required to contribute a fair-share towards the costs of improvements that are identified for the Horizon Year 2040 scenario. The intent of determining the equitable responsibility for the improvements identified above for the Horizon Year 2040 scenario, is to address traffic mitigation equitability and to calculate the equitable share for mitigating traffic impacts towards City of Kerman. The formulas used to calculate the equitable share responsibility to City of Kerman facilities is as follows:

Equitable Share = (Project Trips)/ (Horizon 2040 With Project Traffic – Existing Traffic)

Table 4-3 shows the Project's equitable fair share responsibility on a percentage basis for improvements to City of Kerman facilities as described above. The equitable fair share responsibility shown in Table 4-3 is the result of LOS enhancements related to capacity.

# Table 4-1
# Whispering Falls Project
# Mitigated Intersections Operation

| INTERSECTION | TARGET LOS | PEAK HOUR | NEAR TERM OPENING YEAR 2025 | | | HORIZON 2040 WITHOUT PROJECT CONDITIONS | | | HORIZON 2040 WITH PROJECT CONDITIONS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MITIGATED CONTROL | DELAY | LOS | MITIGATED CONTROL | DELAY | LOS | MITIGATED CONTROL | DELAY | LOS |
| Whitesbridge Ave (SR 180) and Lassen Ave | D | AM | Two Way Stop | 22.5 | C | Signalized | 25.4 | C | Signalized | 25.5 | C |
| | | PM | | 32.2 | D | | 16.5 | B | | 16.6 | B |
| SR 145 and West A Street | D | AM | Signalized | 14.1 | B | Signalized | 13.6 | B | Signalized | 13.8 | B |
| | | PM | | 11.3 | B | | 8.2 | A | | 8.4 | A |
| | | AM | Roundabout | 5.3 | A | Roundabout | 6.2 | A | Roundabout | 7.9 | A |
| | | PM | | 6.1 | A | | 7.9 | A | | 8.1 | A |

DELAY is measured in seconds

LOS = Level of Service

For signalized intersections, delay results show the average for the entire intersection.

# Table 4-2
# Whispering Falls Project
# Future Queuing Operation

| INTERSECTION | MITIGATED STORAGE(FT.) | LANE | MITIGATED CONTROL | NEAR TERM OPENING YEAR 2025 | | MITIGATED CONTROL | HORIZON 2040 WITHOUT PROJECT CONDITIONS | | MITIGATED CONTROL | HORIZON 2040 WITH PROJECT CONDITIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | | AM | PM | | AM | PM |
| Whitesbridge Ave (SR 180) and Lassen Ave | 150 | East Bound Left | Two Way Stop | 0.0 | 0.0 | Signalized | 16.0 | 11.0 | Signalized | 16.0 | 11.0 |
| | 150 | West Bound Left | | 0.0 | 2.5 | | 28.0 | 25.0 | | 28.0 | 24.0 |
| | 150 | North Bound Left | | 15.0 | 37.5 | | 57.0 | 28.0 | | 57.0 | 28.0 |
| | 150 | South Bound Left | | 5.0 | 2.5 | | 19.0 | 4.0 | | 19.0 | 4.0 |
| SR 145 and West A Street | 150 | East Bound Left | Signalized | 23.0 | 22.0 | Signalized | 23.0 | 20.0 | Signalized | 26.0 | 22.0 |
| | 150 | West Bound Left | | 16.0 | 18.0 | | 19.0 | 17.0 | | 19.0 | 17.0 |
| | 125 | North Bound Left | | 29.0 | 42.0 | | 31.0 | 19.0 | | 33.0 | 19.0 |
| | N/A | South Bound Left | | 43.0 | 35.0 | | 55.0 | 22.0 | | 55.0 | 22.0 |
| SR 145 and West A Street | 150 | East Bound Left | Roundabout | 12.3 | 20.2 | Roundabout | 17.5 | 29.0 | Roundabout | 17.8 | 30.1 |
| | 150 | West Bound Left | | 21.7 | 11.0 | | 26.2 | 12.6 | | 28.2 | 13.7 |
| | 125 | North Bound Left | | 13.1 | 12.0 | | 18.6 | 16.4 | | 18.7 | 16.8 |
| | N/A | South Bound Left | | 10.1 | 25.7 | | 14.2 | 36.9 | | 14.4 | 37.5 |

Queue shown is 95th percentile summary and is measured in feet

## Table 4-3

# Whispering Falls Project

## Project Equitable Fair Share Responsibility

| INTERSECTION | PEAK HOUR | EXISTING | PROJECT TRIPS | HORIZON YEAR 2040 WITH PROJECT | PROJECT'S EQUITABLE FAIR SHARE PERCENTAGE |
|---|---|---|---|---|---|
| Whitesbridge Ave and Lassen Ave | AM | 777 | 7 | 1,094 | 2.2% |
| | PM | 887 | 8 | 1,248 | 2.2% |
| SR 145 and West A St. | AM | 748 | 21 | 1,066 | 6.6% |
| | PM | 933 | 24 | 1,326 | 6.1% |

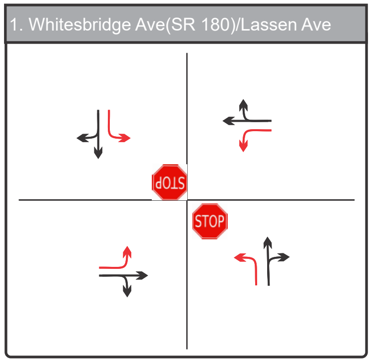
# Whispering Falls Project

## Mitigated Intersections Lane Configuration

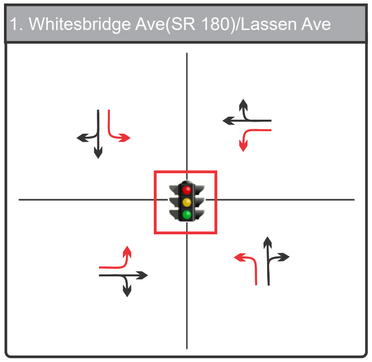
Figure 4-1

### Whitesbridge Ave and Lassen Ave

*Near Term Opening Year 2025 Project Conditions*

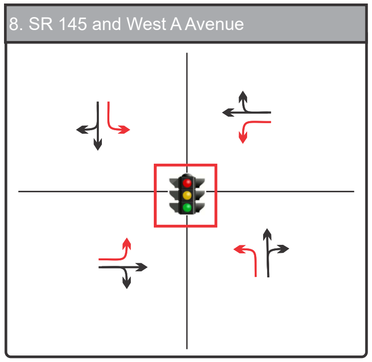


*Horizon Year 2040 With and Without Project Conditions*



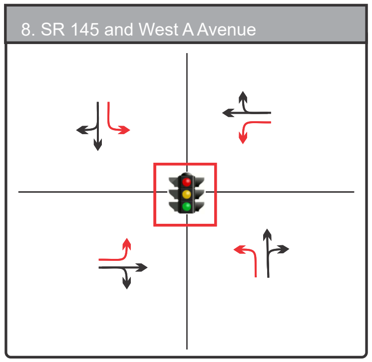
### SR 145 and West A Avenue

*Near Term Opening Year 2025 Conditions*

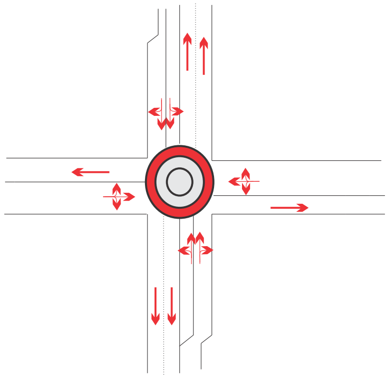


*Horizon Year 2040 With and Without Project Conditions*

*Alternative 1(Traffic Signal)*



*Alternative 2(Roundabout)*



LEGEND

- ↰↱ Existing Lane Geometry
- ↰↱ Mitigated Lane Geometry
- 🟥 Mitigated Control

VRPA TECHNOLOGIES, INC.

North

# Appendix-A
# Traffic Counts

Prepared by National Data & Surveying Services

# Siskiyou Ave & SR 180/W Whitesbridge Ave

## Peak Hour Turning Movement Count

**ID:** 23-090037-001
**City:** Kerman

**Day:** Wednesday
**Date:** 4/12/2023

| PEAK HOURS | |
|---|---|
| AM | 07:15 AM - 08:15 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 |

**Siskiyou Ave**

**SOUTHBOUND**

| | ↲ | ↓ | ↳ | ⮌ | ⇧ |
|---|---|---|---|---|---|
| AM | 10 | 55 | 35 | 0 | 115 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 5 | 44 | 21 | 0 | 71 |
| | 0 | 1 | 1 | 0 | |

**SR 180/W Whitesbridge Ave**

**EASTBOUND**

| | AM | NOON | PM | |
|---|---|---|---|---|
| ⇦ | 353 | 0 | 356 | |
| ⮌ | 0 | 0 | 0 | 0 |
| ↱ | 2 | 0 | 11 | 1 |
| → | 295 | 0 | 386 | 1 |
| ↴ | 56 | 0 | 55 | 1 |

**SR 180/W Whitesbridge Ave**

**WESTBOUND**

| | | PM | NOON | AM |
|---|---|---|---|---|
| 0 | ↰ | 26 | 0 | 27 |
| 1 | ← | 329 | 0 | 266 |
| 1 | ↙ | 112 | 0 | 49 |
| 0 | ⮌ | 0 | 0 | 0 |
| | ⇨ | 485 | 0 | 471 |

**CONTROL**

**Signalized**

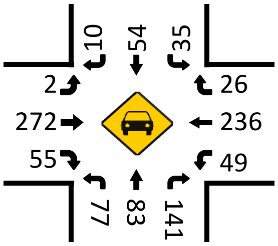
| | AM | NOON | PM |
|---|---|---|---|
| TEV | 1099 | 0 | 1123 |
| PHF | 0.95 | | 0.95 |

**NORTHBOUND**

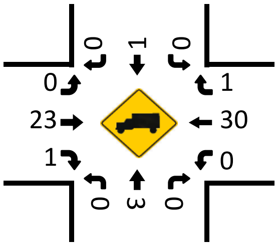
**Siskiyou Ave**

| | 0 | 1 | 1 | 0 | |
|---|---|---|---|---|---|
| | ⮌ | ↰ | ↑ | ↱ | ⇩ |
| PM | 0 | 22 | 34 | 78 | 211 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 0 | 77 | 86 | 141 | 160 |

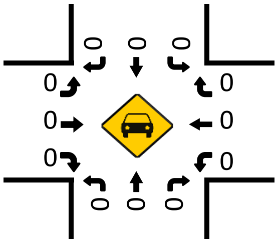
Cars (AM)



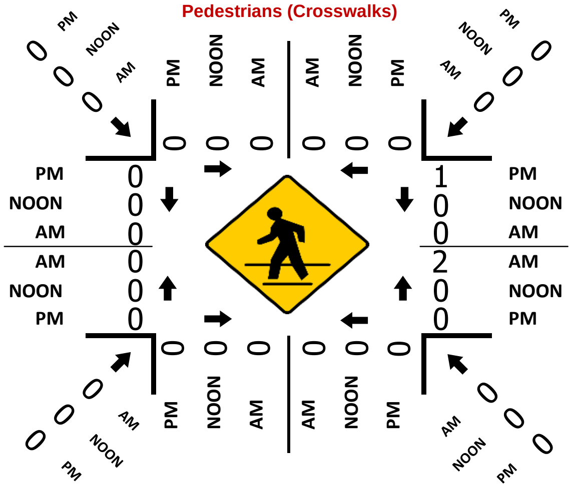
HT (AM)



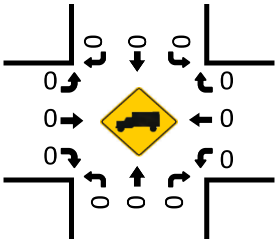
Cars (NOON)



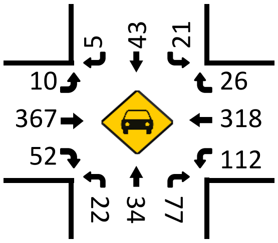
Pedestrians (Crosswalks)



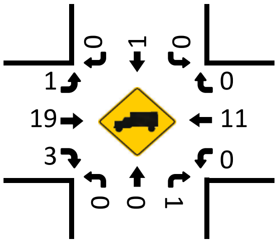
HT (NOON)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

# SR 145 & W A St

## Peak Hour Turning Movement Count

**ID:** 23-090037-002
**City:** Kerman

**Day:** Wednesday
**Date:** 4/12/2023

| PEAK HOURS | | COUNT PERIODS |
|---|---|---|
| 07:30 AM - 08:30 AM | AM | 7:00 AM - 09:00 AM |
| NONE | NOON | NONE |
| 04:15 PM - 05:15 PM | PM | 4:00 PM - 06:00 PM |

### SR 145
### SOUTHBOUND

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 26 | 195 | 50 | 9 | 239 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 27 | 168 | 40 | 5 | 454 | PM |
| | 0 | 2 | 0 | 0 | | |

### W A St
### EASTBOUND

| AM | NOON | PM | |
|---|---|---|---|
| 104 | 0 | 138 | |
| 0 | 0 | 0 | 0 |
| 21 | 0 | 20 | 0 |
| 106 | 0 | 58 | 1 |
| 34 | 0 | 11 | 0 |

AM NOON PM

### WESTBOUND
### W A St

| | PM | NOON | AM |
|---|---|---|---|
| 0 | 58 | 0 | 51 |
| 1 | 75 | 0 | 55 |
| 0 | 16 | 0 | 15 |
| 0 | 0 | 0 | 0 |
| | 151 | 0 | 170 |

PM NOON AM

**CONTROL**

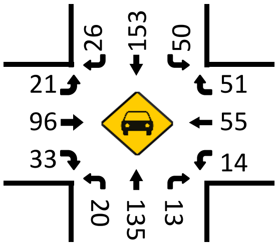
**2-Way Stop**

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 757 | 0 | 938 |
| PHF | 0.86 | | 0.88 |

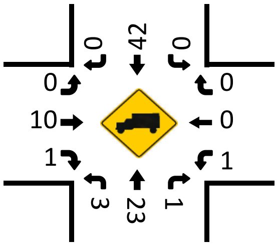
| | | | | | | |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 0 | |
| PM | 195 | 0 | 36 | 371 | 53 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 244 | 0 | 23 | 158 | 14 | AM |

### NORTHBOUND
### SR 145

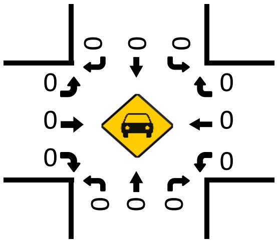
**Cars (AM)**



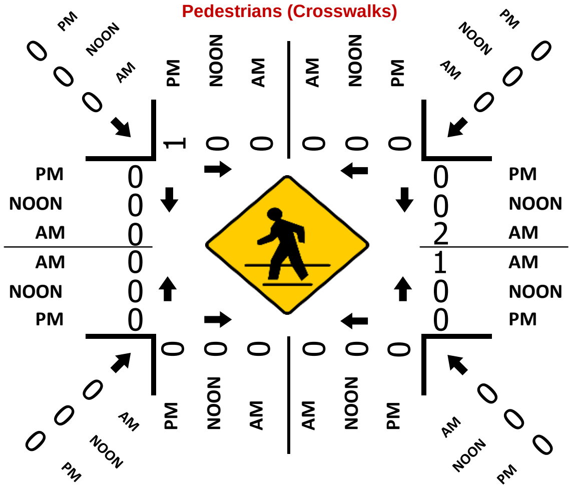
**HT (AM)**



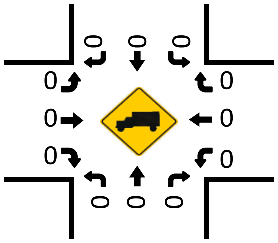
**Cars (NOON)**



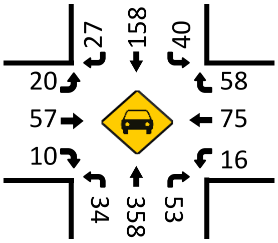
**Pedestrians (Crosswalks)**



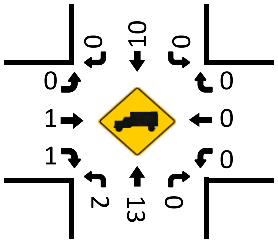
**HT (NOON)**



**Cars (PM)**



**HT (PM)**



Prepared by National Data & Surveying Services

# Siskiyou Ave & California Ave

## Peak Hour Turning Movement Count

**ID:** 23-090037-003
**City:** Kerman

**Day:** Wednesday
**Date:** 4/12/2023

| 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 |

Siskiyou Ave

**SOUTHBOUND**

| | ↲ | ↓ | ↳ | ↶ | ⇧ |
|---|---|---|---|---|---|
| AM | 43 | 17 | 75 | 0 | 135 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 56 | 14 | 35 | 0 | 93 |
| | 0 | 1 | 1 | 0 | |

California Ave

**EASTBOUND**

| | AM | NOON | PM | |
|---|---|---|---|---|
| ⇦ | 65 | 0 | 80 | |
| ↶ | 0 | 0 | 0 | 0 |
| ↱ | 65 | 0 | 29 | 1 |
| → | 33 | 0 | 20 | 1 |
| ↴ | 6 | 0 | 1 | 0 |

California Ave

**WESTBOUND**

| | | PM | NOON | AM |
|---|---|---|---|---|
| 0 | ↰ | 23 | 0 | 41 |
| 1 | ← | 15 | 0 | 19 |
| 1 | ↲ | 9 | 0 | 8 |
| 0 | ↶ | 0 | 0 | 0 |
| | ⇨ | 64 | 0 | 115 |

**CONTROL**

4-Way Stop

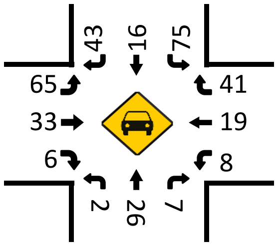
| | AM | NOON | PM |
|---|---|---|---|
| TEV | 346 | 0 | 261 |
| PHF | 0.61 | | 0.86 |

**NORTHBOUND**

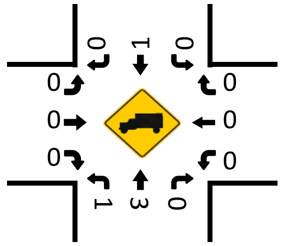
Siskiyou Ave

| | ⇩ | ↶ | ↰ | ↑ | ↱ |
|---|---|---|---|---|---|
| | | 0 | 1 | 1 | 0 |
| PM | 24 | 0 | 9 | 41 | 9 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 31 | 0 | 3 | 29 | 7 |

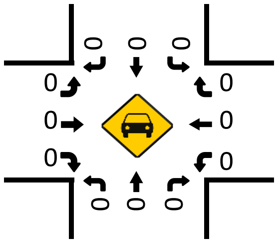
Cars (AM)



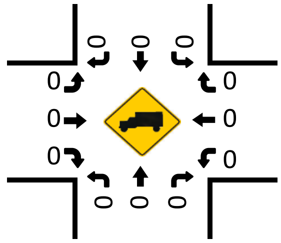
HT (AM)



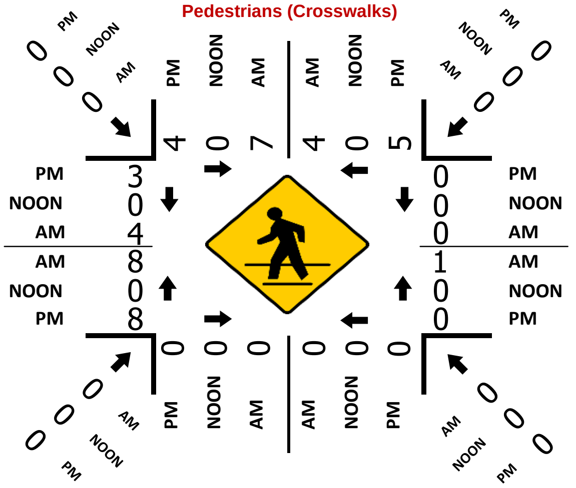
Cars (NOON)



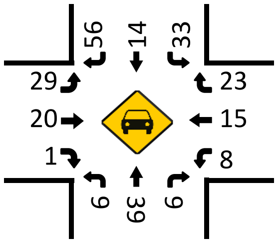
HT (NOON)



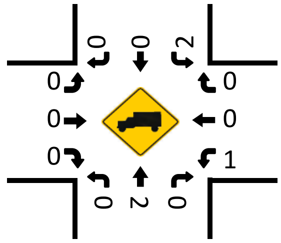
Pedestrians (Crosswalks)



Cars (PM)



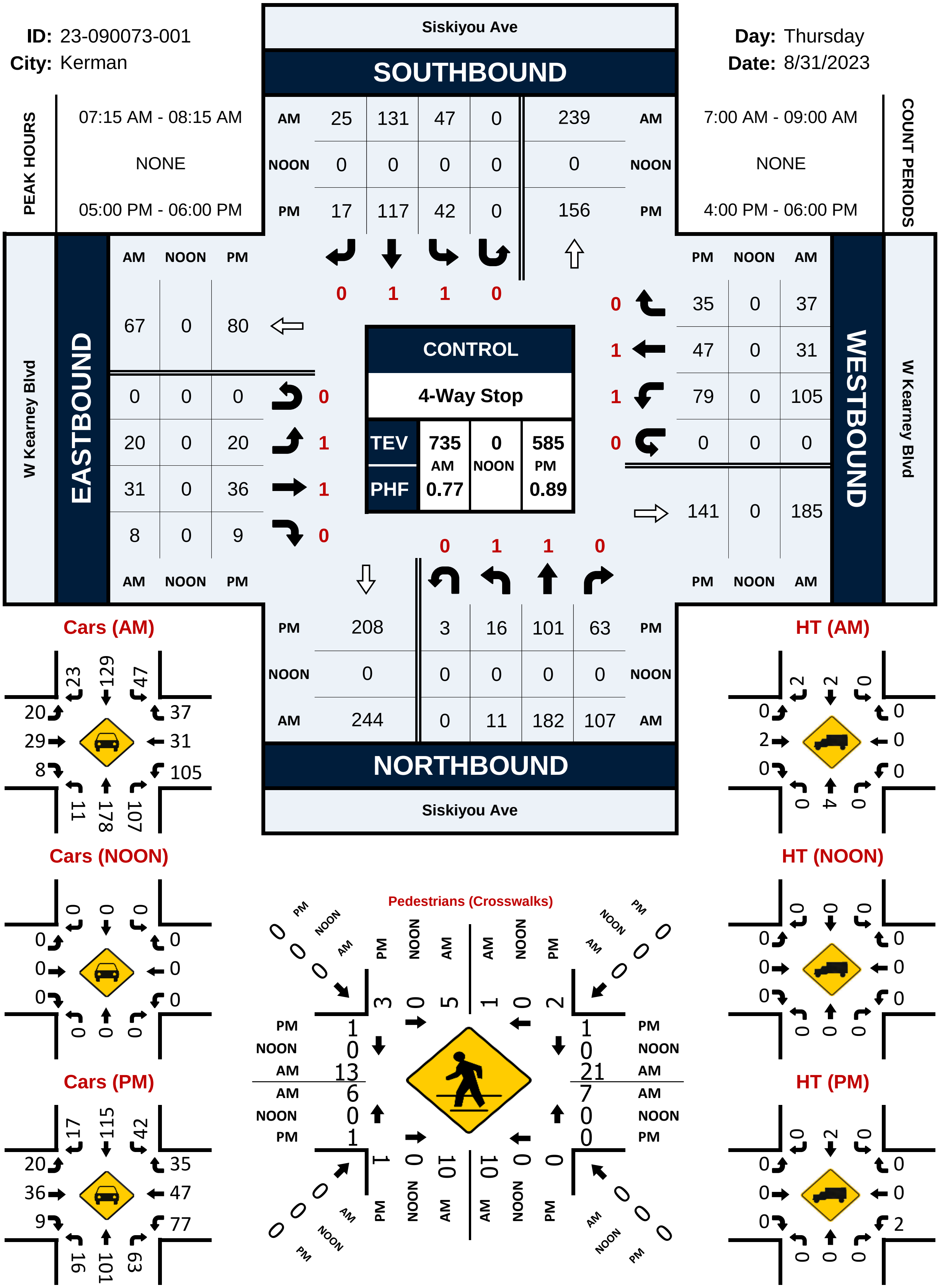
HT (PM)



Prepared by National Data & Surveying Services

# Siskiyou Ave & W Kearney Blvd

## Peak Hour Turning Movement Count



**ID:** 23-090073-001
**City:** Kerman

**Day:** Thursday
**Date:** 8/31/2023

| PEAK HOURS | |
|---|---|
| AM | 07:15 AM - 08:15 AM |
| NOON | NONE |
| PM | 05:00 PM - 06:00 PM |

| COUNT PERIODS | |
|---|---|
| AM | 7:00 AM - 09:00 AM |
| NOON | NONE |
| PM | 4:00 PM - 06:00 PM |

Siskiyou Ave

**SOUTHBOUND**

| | ↲ | ↓ | ↳ | ↶ | ⇧ |
|---|---|---|---|---|---|
| AM | 25 | 131 | 47 | 0 | 239 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 17 | 117 | 42 | 0 | 156 |
| | 0 | 1 | 1 | 0 | |

W Kearney Blvd

**EASTBOUND**

| | | AM | NOON | PM |
|---|---|---|---|---|
| ⇦ | | 67 | 0 | 80 |
| ↶ | 0 | 0 | 0 | 0 |
| ↱ | 1 | 20 | 0 | 20 |
| → | 1 | 31 | 0 | 36 |
| ↴ | 0 | 8 | 0 | 9 |

**CONTROL**

4-Way Stop

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 735 | 0 | 585 |
| PHF | 0.77 | | 0.89 |

W Kearney Blvd

**WESTBOUND**

| | | PM | NOON | AM |
|---|---|---|---|---|
| ↰ | 0 | 35 | 0 | 37 |
| ← | 1 | 47 | 0 | 31 |
| ↲ | 1 | 79 | 0 | 105 |
| ↷ | 0 | 0 | 0 | 0 |
| ⇨ | | 141 | 0 | 185 |

**NORTHBOUND**

Siskiyou Ave

| | ⇩ | ↶ | ↰ | ↑ | ↱ |
|---|---|---|---|---|---|
| | | 0 | 1 | 1 | 0 |
| PM | 208 | 3 | 16 | 101 | 63 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 244 | 0 | 11 | 182 | 107 |

**Cars (AM)**

| | ↰ / ↲ | → / ↓ / ← / ↑ | ↱ / ↳ |
|---|---|---|---|
| Southbound | 23 | 129 | 47 |
| Eastbound | 20 | 29 | 8 |
| Westbound | 105 | 31 | 37 |
| Northbound | 11 | 178 | 107 |

**HT (AM)**

| | | | |
|---|---|---|---|
| Southbound | 2 | 2 | 0 |
| Eastbound | 0 | 2 | 0 |
| Westbound | 0 | 0 | 0 |
| Northbound | 0 | 4 | 0 |

**Cars (NOON)**

| | | | |
|---|---|---|---|
| Southbound | 0 | 0 | 0 |
| Eastbound | 0 | 0 | 0 |
| Westbound | 0 | 0 | 0 |
| Northbound | 0 | 0 | 0 |

**HT (NOON)**

| | | | |
|---|---|---|---|
| Southbound | 0 | 0 | 0 |
| Eastbound | 0 | 0 | 0 |
| Westbound | 0 | 0 | 0 |
| Northbound | 0 | 0 | 0 |

**Cars (PM)**

| | | | |
|---|---|---|---|
| Southbound | 17 | 115 | 42 |
| Eastbound | 20 | 36 | 9 |
| Westbound | 77 | 47 | 35 |
| Northbound | 16 | 101 | 63 |

**HT (PM)**

| | | | |
|---|---|---|---|
| Southbound | 0 | 2 | 0 |
| Eastbound | 0 | 0 | 0 |
| Westbound | 2 | 0 | 0 |
| Northbound | 0 | 0 | 0 |

**Pedestrians (Crosswalks)**

| | AM | NOON | PM |
|---|---|---|---|
| North → | 5 | 0 | 3 |
| North ← | 1 | 0 | 2 |
| West ↓ | 13 | 0 | 1 |
| West ↑ | 6 | 0 | 1 |
| East ↓ | 21 | 0 | 1 |
| East ↑ | 7 | 0 | 0 |
| South → | 10 | 0 | 1 |
| South ← | 10 | 0 | 0 |
| ↘ | 0 | 0 | 0 |
| ↙ | 0 | 0 | 0 |
| ↗ | 0 | 0 | 0 |
| ↖ | 0 | 0 | 0 |

Prepared by National Data & Surveying Services

# S Del Norte Ave & W California Ave/W A St

## Peak Hour Turning Movement Count

**ID:** 23-090073-002
**City:** Kerman

**Day:** Thursday
**Date:** 8/31/2023

**PEAK HOURS**
07:30 AM - 08:30 AM
NONE
05:00 PM - 06:00 PM

**COUNT PERIODS**
7:00 AM - 09:00 AM
NONE
4:00 PM - 06:00 PM

**S Del Norte Ave**

**SOUTHBOUND**

| | ↲ | ↓ | ↳ | ⤿ | ⇧ |
|---|---|---|---|---|---|
| AM | 32 | 6 | 29 | 0 | 69 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 31 | 2 | 7 | 0 | 53 |
| | 1 | 1 | 0 | 0 | |

**W California Ave/W A St**

**WESTBOUND**

| | | PM | NOON | AM |
|---|---|---|---|---|
| 0 | ↰ | 15 | 0 | 10 |
| 1 | ← | 107 | 0 | 55 |
| 0 | ↙ | 4 | 0 | 0 |
| 0 | ⤿ | 1 | 0 | 0 |
| | ⇨ | 63 | 0 | 164 |

**W California Ave/W A St**

**EASTBOUND**

| AM | NOON | PM | | |
|---|---|---|---|---|
| 93 | 0 | 141 | ⇦ | |
| 0 | 0 | 0 | ⤿ | 0 |
| 43 | 0 | 28 | ↗ | 1 |
| 125 | 0 | 51 | → | 1 |
| 1 | 0 | 1 | ↘ | 0 |

**CONTROL**

**4-Way Stop**

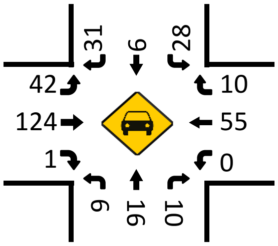
| | AM | NOON | PM |
|---|---|---|---|
| **TEV** | 333 | 0 | 264 |
| **PHF** | 0.95 | | 0.92 |

**NORTHBOUND**

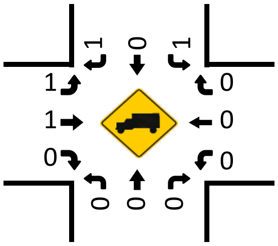
| | ⇩ | ⤿ | ↰ | ↑ | ↱ |
|---|---|---|---|---|---|
| | | 0 | 0 | 1 | 0 |
| PM | 7 | 0 | 3 | 10 | 4 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 7 | 0 | 6 | 16 | 10 |

**S Del Norte Ave**

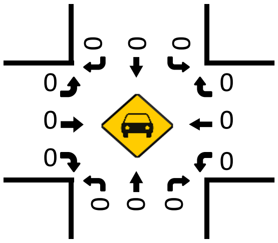
**Cars (AM)**



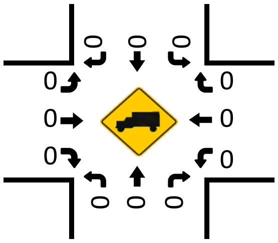
**HT (AM)**



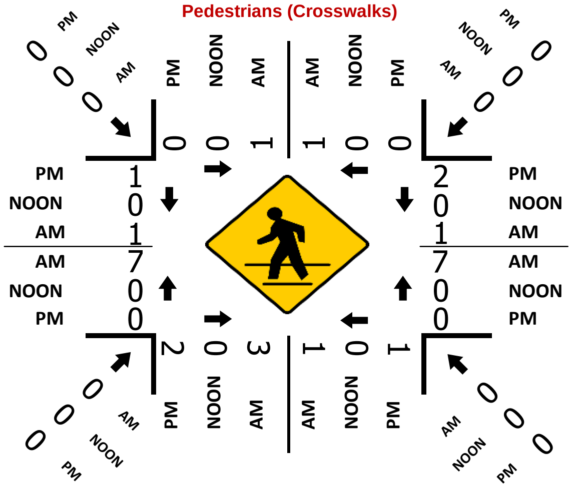
**Cars (NOON)**



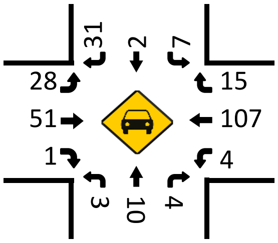
**HT (NOON)**



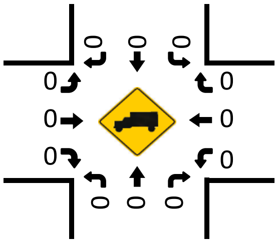
**Pedestrians (Crosswalks)**



**Cars (PM)**



**HT (PM)**



Prepared by National Data & Surveying Services

# S Del Norte Ave & W Kearney Blvd

## Peak Hour Turning Movement Count

**ID:** 23-090073-003
**City:** Kerman

**Day:** Thursday
**Date:** 8/31/2023

| PEAK HOURS | | COUNT PERIODS |
|---|---|---|
| AM | 07:30 AM - 08:30 AM | 7:00 AM - 09:00 AM |
| NOON | NONE | NONE |
| PM | 05:00 PM - 06:00 PM | 4:00 PM - 06:00 PM |

### S Del Norte Ave
### SOUTHBOUND

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 59 | 46 | 60 | 0 | 232 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 35 | 44 | 24 | 0 | 112 | PM |
| | ↲ | ↓ | ↳ | ↶ | ⇧ | |
| | 0 | 1 | 0 | 0 | | |

### W Kearney Blvd
### EASTBOUND

| | AM | NOON | PM | | |
|---|---|---|---|---|---|
| ⇦ | 213 | 0 | 297 | | |
| ↶ | 0 | 0 | 0 | 0 | |
| ↱ | 99 | 0 | 47 | 1 | |
| → | 206 | 0 | 153 | 1 | |
| ↴ | 14 | 0 | 21 | 0 | |
| | AM | NOON | PM | | |

### CONTROL

4-Way Stop

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 815 | 0 | 707 |
| PHF | 0.76 | | 0.91 |

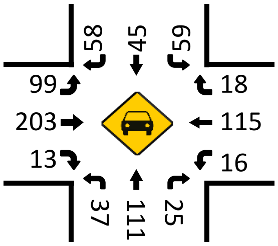
### W Kearney Blvd
### WESTBOUND

| | | PM | NOON | AM |
|---|---|---|---|---|
| 0 | ↰ | 24 | 0 | 20 |
| 1 | ← | 238 | 0 | 117 |
| 1 | ↙ | 33 | 0 | 16 |
| 0 | ↶ | 0 | 0 | 2 |
| | ⇨ | 200 | 0 | 294 |
| | | PM | NOON | AM |

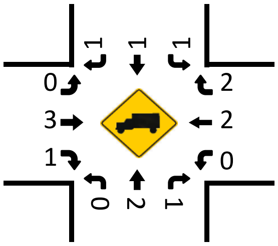
### NORTHBOUND
### S Del Norte Ave

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 0 | 0 | 1 | 0 | |
| | ⇩ | ↶ | ↰ | ↑ | ↱ | |
| PM | 98 | 0 | 24 | 41 | 23 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 76 | 0 | 37 | 113 | 26 | AM |

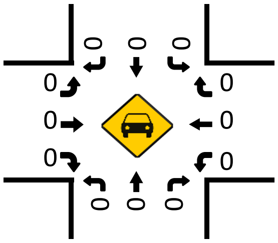
Cars (AM)



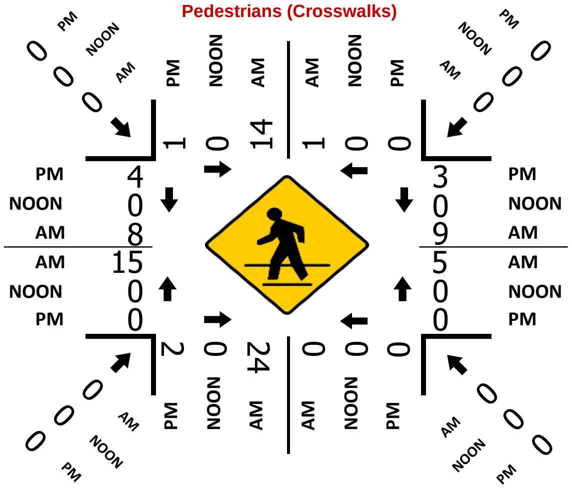
HT (AM)



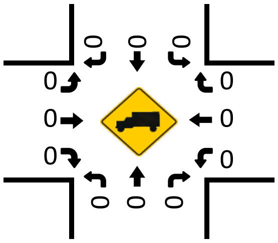
Cars (NOON)



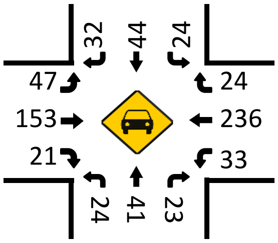
Pedestrians (Crosswalks)



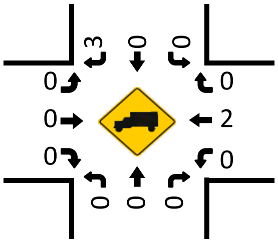
HT (NOON)



Cars (PM)



HT (PM)



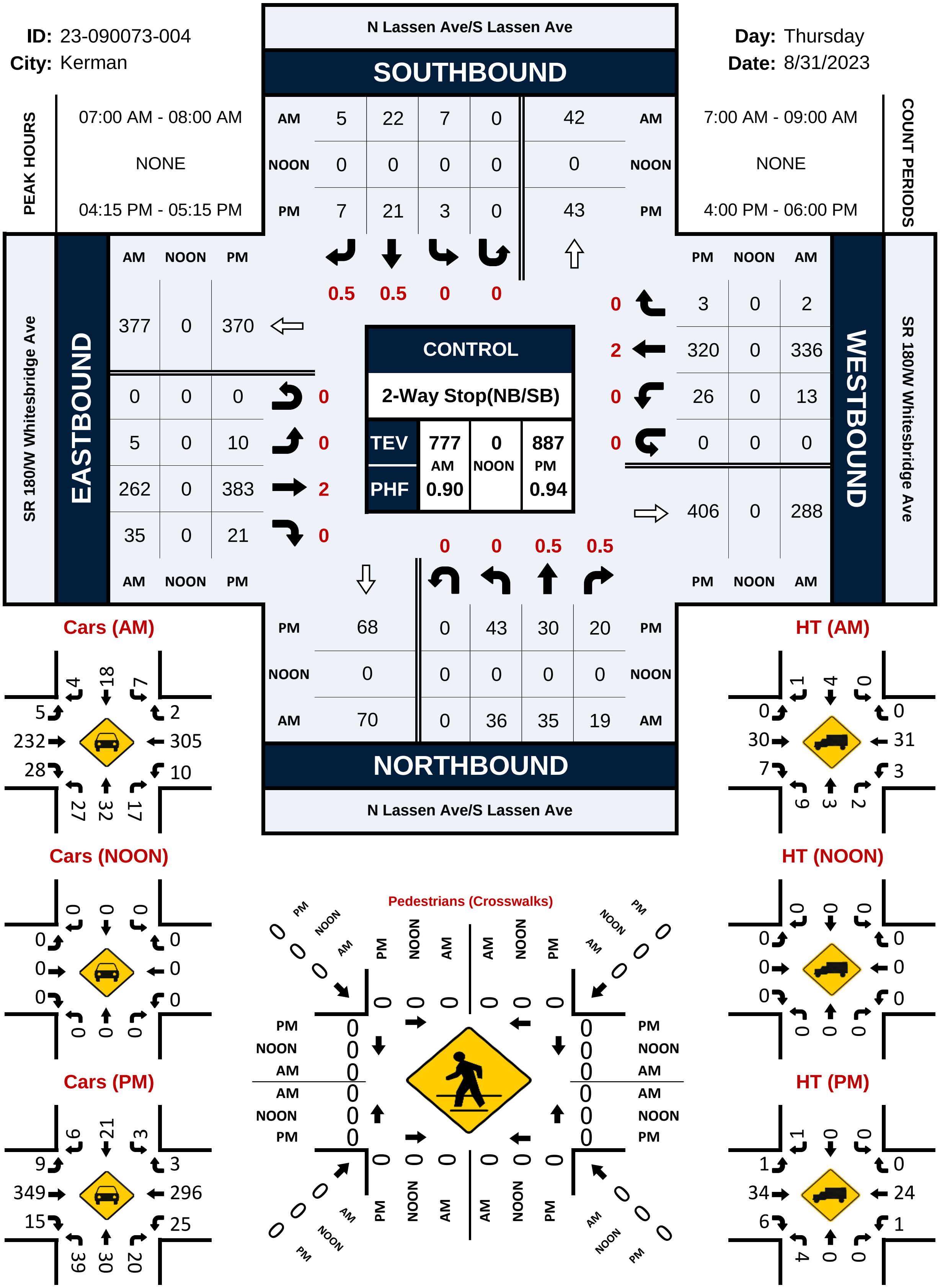
Prepared by National Data & Surveying Services

# N Lassen Ave/S Lassen Ave & SR 180/W Whitesbridge Ave

## Peak Hour Turning Movement Count

**ID:** 23-090073-004
**City:** Kerman

**Day:** Thursday
**Date:** 8/31/2023



| PEAK HOURS | | COUNT PERIODS |
|---|---|---|
| AM | 07:00 AM - 08:00 AM | 7:00 AM - 09:00 AM |
| NOON | NONE | NONE |
| PM | 04:15 PM - 05:15 PM | 4:00 PM - 06:00 PM |

**N Lassen Ave/S Lassen Ave — SOUTHBOUND**

| | ↲ | ↓ | ↳ | U | ⇧ |
|---|---|---|---|---|---|
| AM | 5 | 22 | 7 | 0 | 42 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 7 | 21 | 3 | 0 | 43 |
| | 0.5 | 0.5 | 0 | 0 | |

**SR 180/W Whitesbridge Ave — EASTBOUND**

| | AM | NOON | PM | |
|---|---|---|---|---|
| ⇦ | 377 | 0 | 370 | |
| U | 0 | 0 | 0 | 0 |
| ↰ | 5 | 0 | 10 | 0 |
| → | 262 | 0 | 383 | 2 |
| ↴ | 35 | 0 | 21 | 0 |

**SR 180/W Whitesbridge Ave — WESTBOUND**

| | | PM | NOON | AM |
|---|---|---|---|---|
| 0 | ↱ | 3 | 0 | 2 |
| 2 | ← | 320 | 0 | 336 |
| 0 | ↲ | 26 | 0 | 13 |
| 0 | U | 0 | 0 | 0 |
| | ⇨ | 406 | 0 | 288 |

**N Lassen Ave/S Lassen Ave — NORTHBOUND**

| | ⇩ | U | ↰ | ↑ | ↱ |
|---|---|---|---|---|---|
| | | 0 | 0 | 0.5 | 0.5 |
| PM | 68 | 0 | 43 | 30 | 20 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 70 | 0 | 36 | 35 | 19 |

**CONTROL**

2-Way Stop(NB/SB)

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 777 | 0 | 887 |
| PHF | 0.90 | | 0.94 |

**Cars (AM)**

**HT (AM)**

**Cars (NOON)**

**HT (NOON)**

**Pedestrians (Crosswalks)**

**Cars (PM)**

**HT (PM)**

Prepared by National Data & Surveying Services

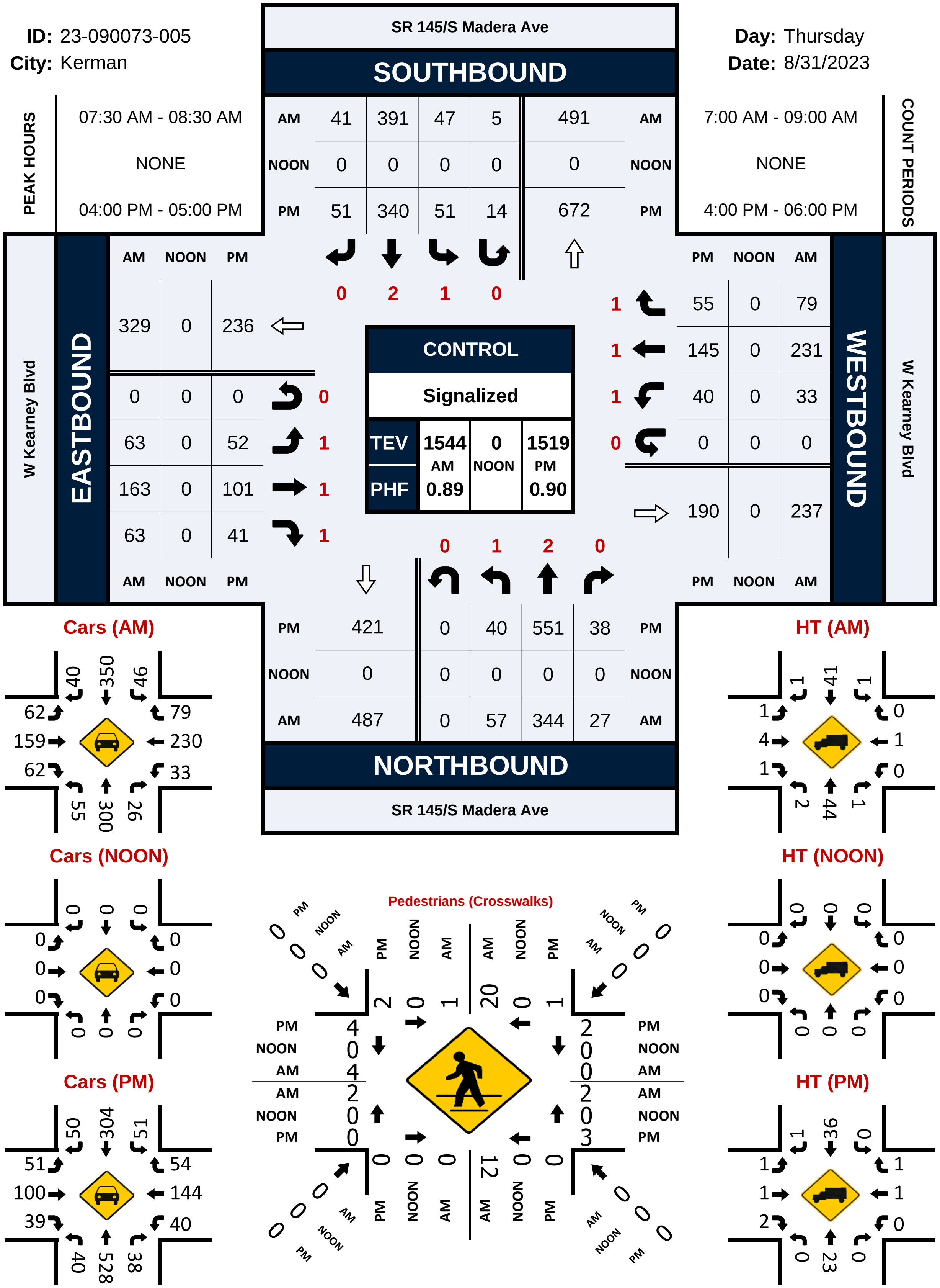
# SR 145/S Madera Ave & W Kearney Blvd

## Peak Hour Turning Movement Count

**ID:** 23-090073-005
**City:** Kerman

**Day:** Thursday
**Date:** 8/31/2023

| | PEAK HOURS | COUNT PERIODS |
|---|---|---|
| AM | 07:30 AM - 08:30 AM | 7:00 AM - 09:00 AM |
| NOON | NONE | NONE |
| PM | 04:00 PM - 05:00 PM | 4:00 PM - 06:00 PM |



**SR 145/S Madera Ave — SOUTHBOUND**

| | ↲ | ↓ | ↳ | U | ⇧ |
|---|---|---|---|---|---|
| AM | 41 | 391 | 47 | 5 | 491 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 51 | 340 | 51 | 14 | 672 |
| | 0 | 2 | 1 | 0 | |

**W Kearney Blvd — WESTBOUND**

| | | PM | NOON | AM |
|---|---|---|---|---|
| ↰ | 1 | 55 | 0 | 79 |
| ← | 1 | 145 | 0 | 231 |
| ↱ | 1 | 40 | 0 | 33 |
| U | 0 | 0 | 0 | 0 |
| ⇨ | | 190 | 0 | 237 |

**W Kearney Blvd — EASTBOUND**

| AM | NOON | PM | | |
|---|---|---|---|---|
| 329 | 0 | 236 | ⇦ | |
| 0 | 0 | 0 | U | 0 |
| 63 | 0 | 52 | ↱ | 1 |
| 163 | 0 | 101 | → | 1 |
| 63 | 0 | 41 | ↴ | 1 |

**SR 145/S Madera Ave — NORTHBOUND**

| | ⇩ | U | ↰ | ↑ | ↱ |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 0 |
| PM | 421 | 0 | 40 | 551 | 38 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 487 | 0 | 57 | 344 | 27 |

**CONTROL**

Signalized

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 1544 | 0 | 1519 |
| PHF | 0.89 | | 0.90 |

**Cars (AM)**

| | Left | Thru | Right |
|---|---|---|---|
| Southbound | 46 | 350 | 40 |
| Eastbound | 62 | 159 | 62 |
| Westbound | 33 | 230 | 79 |
| Northbound | 55 | 300 | 26 |

**HT (AM)**

| | Left | Thru | Right |
|---|---|---|---|
| Southbound | 1 | 41 | 1 |
| Eastbound | 1 | 4 | 1 |
| Westbound | 0 | 1 | 0 |
| Northbound | 2 | 44 | 1 |

**Cars (NOON)**

| | Left | Thru | Right |
|---|---|---|---|
| Southbound | 0 | 0 | 0 |
| Eastbound | 0 | 0 | 0 |
| Westbound | 0 | 0 | 0 |
| Northbound | 0 | 0 | 0 |

**HT (NOON)**

| | Left | Thru | Right |
|---|---|---|---|
| Southbound | 0 | 0 | 0 |
| Eastbound | 0 | 0 | 0 |
| Westbound | 0 | 0 | 0 |
| Northbound | 0 | 0 | 0 |

**Cars (PM)**

| | Left | Thru | Right |
|---|---|---|---|
| Southbound | 51 | 304 | 50 |
| Eastbound | 51 | 100 | 39 |
| Westbound | 40 | 144 | 54 |
| Northbound | 40 | 528 | 38 |

**HT (PM)**

| | Left | Thru | Right |
|---|---|---|---|
| Southbound | 0 | 36 | 1 |
| Eastbound | 1 | 1 | 2 |
| Westbound | 0 | 1 | 1 |
| Northbound | 0 | 23 | 0 |

**Pedestrians (Crosswalks)**

| Crosswalk | Direction | AM | NOON | PM |
|---|---|---|---|---|
| North | → | 1 | 0 | 2 |
| North | ← | 20 | 0 | 1 |
| West | ↓ | 4 | 0 | 4 |
| West | ↑ | 2 | 0 | 0 |
| East | ↓ | 0 | 0 | 2 |
| East | ↑ | 2 | 0 | 3 |
| South | → | 0 | 0 | 0 |
| South | ← | 12 | 0 | 0 |
| Northwest | ↘ | 0 | 0 | 0 |
| Northeast | ↙ | 0 | 0 | 0 |
| Southwest | ↗ | 0 | 0 | 0 |
| Southeast | ↖ | 0 | 0 | 0 |

Prepared by National Data & Surveying Services

# S Siskiyou Ave & w Jensen Ave

## Peak Hour Turning Movement Count

**ID:** 23-090073-006
**City:** Kerman

**Day:** Wednesday
**Date:** 9/6/2023

| | PEAK HOURS | COUNT PERIODS |
|---|---|---|
| AM | 07:00 AM - 08:00 AM | 7:00 AM - 09:00 AM |
| NOON | NONE | NONE |
| PM | 04:45 PM - 05:45 PM | 4:00 PM - 06:00 PM |

### S Siskiyou Ave — SOUTHBOUND

| | ↲ | ↓ | ↳ | ↺ | ⇧ |
|---|---|---|---|---|---|
| AM | 13 | 0 | 28 | 0 | 27 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 18 | 0 | 11 | 0 | 77 |
| | 0 | 1 | 0 | 0 | |

### w Jensen Ave — EASTBOUND

| | AM | NOON | PM | |
|---|---|---|---|---|
| ⇦ | 76 | 0 | 124 | |
| ↺ | 0 | 0 | 0 | 0 |
| ↱ | 14 | 0 | 28 | 0 |
| → | 89 | 0 | 75 | 1 |
| ↴ | 1 | 0 | 0 | 0 |

### w Jensen Ave — WESTBOUND

| | | PM | NOON | AM |
|---|---|---|---|---|
| 0 | ↰ | 49 | 0 | 13 |
| 1 | ← | 106 | 0 | 63 |
| 0 | ↙ | 1 | 0 | 0 |
| 0 | ↻ | 0 | 0 | 0 |
| | ⇨ | 87 | 0 | 117 |

### S Siskiyou Ave — NORTHBOUND

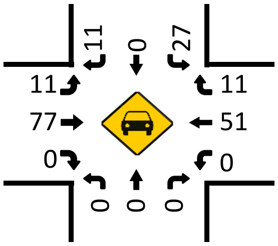
| | ⇩ | ↶ | ↰ | ↑ | ↱ |
|---|---|---|---|---|---|
| | | 0 | 0 | 1 | 0 |
| PM | 1 | 0 | 0 | 0 | 1 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 1 | 0 | 0 | 0 | 0 |

**CONTROL**

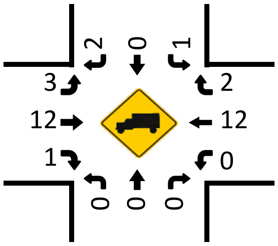
1-Way Stop(SB)

| | AM | NOON | PM |
|---|---|---|---|
| TEV | 221 | 0 | 289 |
| PHF | 0.94 | | 0.94 |

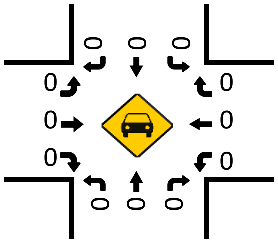
**Cars (AM)**



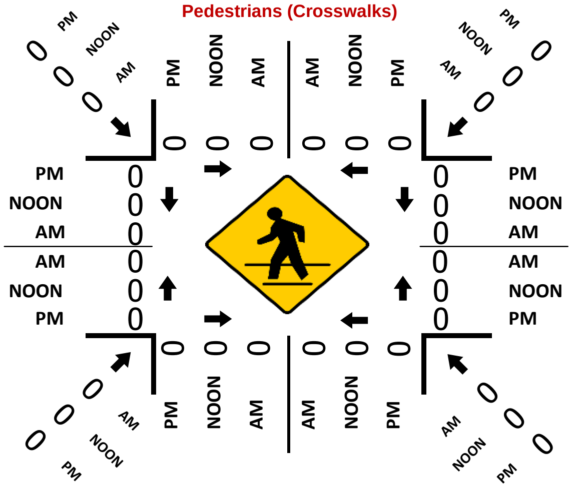
**HT (AM)**



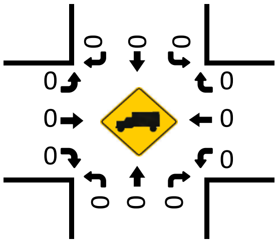
**Cars (NOON)**



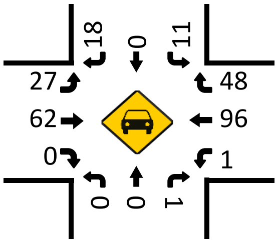
**Pedestrians (Crosswalks)**



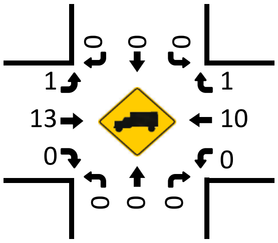
**HT (NOON)**



**Cars (PM)**



**HT (PM)**



# Whispering Falls Project

## Appendix-B

## Synchro Report

# HCM 6th TWSC
## 1: Lassen Ave & Whitesbridge Ave

11/17/2023

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 5 | 262 | 35 | 13 | 336 | 2 | 36 | 35 | 19 | 7 | 22 | 5 |
| Future Vol, veh/h | 5 | 262 | 35 | 13 | 336 | 2 | 36 | 35 | 19 | 7 | 22 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 82 | 82 | 82 | 83 | 83 | 83 | 61 | 61 | 61 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 5 | 288 | 38 | 16 | 410 | 2 | 43 | 42 | 23 | 11 | 36 | 8 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 412 | 0 | 0 | 326 | 0 | 0 | 782 | 761 | 307 | 793 | 779 | 411 |
| Stage 1 | - | - | - | - | - | - | 317 | 317 | - | 443 | 443 | - |
| Stage 2 | - | - | - | - | - | - | 465 | 444 | - | 350 | 336 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1142 | - | - | 1228 | - | - | 310 | 334 | 731 | 305 | 326 | 639 |
| Stage 1 | - | - | - | - | - | - | 692 | 652 | - | 592 | 574 | - |
| Stage 2 | - | - | - | - | - | - | 576 | 573 | - | 664 | 640 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1142 | - | - | 1228 | - | - | 275 | 327 | 731 | 262 | 319 | 639 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 275 | 327 | - | 262 | 319 | - |
| Stage 1 | - | - | - | - | - | - | 689 | 649 | - | 589 | 564 | - |
| Stage 2 | - | - | - | - | - | - | 523 | 563 | - | 598 | 637 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.3 | 20.4 | 18.2 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 341 | 1142 | - | - | 1228 | - | - | 328 |
| HCM Lane V/C Ratio | 0.318 | 0.005 | - | - | 0.013 | - | - | 0.17 |
| HCM Control Delay (s) | 20.4 | 8.2 | 0 | - | 8 | 0 | - | 18.2 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 1.3 | 0 | - | - | 0 | - | - | 0.6 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↗ | ↘ | ↓ | ↙ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Volume (veh/h) | 2 | 295 | 56 | 49 | 266 | 27 | 77 | 86 | 141 | 35 | 55 | 10 |
| Future Volume (veh/h) | 2 | 295 | 56 | 49 | 266 | 27 | 77 | 86 | 141 | 35 | 55 | 10 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 3 | 378 | 72 | 55 | 299 | 30 | 93 | 102 | 168 | 50 | 77 | 14 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.89 | 0.89 | 0.89 | 0.83 | 0.84 | 0.84 | 0.70 | 0.71 | 0.71 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 7 | 454 | 385 | 90 | 1028 | 459 | 119 | 216 | 355 | 85 | 493 | 90 |
| Arrive On Green | 0.00 | 0.24 | 0.24 | 0.05 | 0.29 | 0.29 | 0.07 | 0.34 | 0.34 | 0.05 | 0.32 | 0.32 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 630 | 1038 | 1767 | 1528 | 278 |
| Grp Volume(v), veh/h | 3 | 378 | 72 | 55 | 299 | 30 | 93 | 0 | 270 | 50 | 0 | 91 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1669 | 1767 | 0 | 1806 |
| Q Serve(g_s), s | 0.1 | 11.1 | 2.1 | 1.7 | 3.8 | 0.8 | 3.0 | 0.0 | 7.3 | 1.6 | 0.0 | 2.1 |
| Cycle Q Clear(g_c), s | 0.1 | 11.1 | 2.1 | 1.7 | 3.8 | 0.8 | 3.0 | 0.0 | 7.3 | 1.6 | 0.0 | 2.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.62 | 1.00 | | 0.15 |
| Lane Grp Cap(c), veh/h | 7 | 454 | 385 | 90 | 1028 | 459 | 119 | 0 | 571 | 85 | 0 | 583 |
| V/C Ratio(X) | 0.42 | 0.83 | 0.19 | 0.61 | 0.29 | 0.07 | 0.78 | 0.00 | 0.47 | 0.59 | 0.00 | 0.16 |
| Avail Cap(c_a), veh/h | 154 | 583 | 494 | 154 | 1107 | 494 | 170 | 0 | 571 | 154 | 0 | 583 |
| 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 | 28.5 | 20.5 | 17.1 | 26.6 | 15.7 | 14.7 | 26.3 | 0.0 | 14.8 | 26.7 | 0.0 | 13.8 |
| Incr Delay (d2), s/veh | 34.3 | 8.0 | 0.2 | 6.6 | 0.2 | 0.1 | 13.8 | 0.0 | 2.8 | 6.4 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.1 | 4.8 | 0.6 | 0.8 | 1.2 | 0.2 | 1.6 | 0.0 | 2.8 | 0.8 | 0.0 | 0.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 62.7 | 28.5 | 17.4 | 33.2 | 15.9 | 14.7 | 40.1 | 0.0 | 17.6 | 33.1 | 0.0 | 14.4 |
| LnGrp LOS | E | C | B | C | B | B | D | A | B | C | A | B |
| Approach Vol, veh/h | | 453 | | | 384 | | | 363 | | | 141 | |
| Approach Delay, s/veh | | 26.9 | | | 18.3 | | | 23.4 | | | 21.1 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.2 | 24.1 | 7.4 | 18.5 | 8.4 | 23.0 | 4.7 | 21.2 |
| 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 | 19.0 | 5.0 | 18.0 | 5.5 | 18.5 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 3.6 | 9.3 | 3.7 | 13.1 | 5.0 | 4.1 | 2.1 | 5.8 |
| Green Ext Time (p_c), s | 0.0 | 1.1 | 0.0 | 1.0 | 0.0 | 0.3 | 0.0 | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 22.9 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 13.1 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 20 | 31 | 8 | 105 | 31 | 37 | 11 | 182 | 107 | 47 | 131 | 25 |
| Future Vol, veh/h | 20 | 31 | 8 | 105 | 31 | 37 | 11 | 182 | 107 | 47 | 131 | 25 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 26 | 40 | 10 | 136 | 40 | 48 | 14 | 236 | 139 | 61 | 170 | 32 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 10.2 | 11.4 | 15.9 | 11.3 |
| HCM LOS | B | B | C | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 63% | 0% | 79% | 0% | 46% | 0% | 84% |
| Vol Right, % | 0% | 37% | 0% | 21% | 0% | 54% | 0% | 16% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 11 | 289 | 20 | 39 | 105 | 68 | 47 | 156 |
| LT Vol | 11 | 0 | 20 | 0 | 105 | 0 | 47 | 0 |
| Through Vol | 0 | 182 | 0 | 31 | 0 | 31 | 0 | 131 |
| RT Vol | 0 | 107 | 0 | 8 | 0 | 37 | 0 | 25 |
| Lane Flow Rate | 14 | 375 | 26 | 51 | 136 | 88 | 61 | 203 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.025 | 0.588 | 0.053 | 0.094 | 0.265 | 0.15 | 0.111 | 0.334 |
| Departure Headway (Hd) | 6.408 | 5.641 | 7.322 | 6.666 | 7.009 | 6.115 | 6.56 | 5.94 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 558 | 638 | 488 | 536 | 511 | 586 | 546 | 604 |
| Service Time | 4.15 | 3.382 | 5.084 | 4.427 | 4.759 | 3.864 | 4.307 | 3.686 |
| HCM Lane V/C Ratio | 0.025 | 0.588 | 0.053 | 0.095 | 0.266 | 0.15 | 0.112 | 0.336 |
| HCM Control Delay | 9.3 | 16.2 | 10.5 | 10.1 | 12.3 | 9.9 | 10.1 | 11.7 |
| HCM Lane LOS | A | C | B | B | B | A | B | B |
| HCM 95th-tile Q | 0.1 | 3.8 | 0.2 | 0.3 | 1.1 | 0.5 | 0.4 | 1.5 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 13.2 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 99 | 206 | 14 | 16 | 117 | 20 | 37 | 113 | 26 | 60 | 46 | 59 |
| Future Vol, veh/h | 99 | 206 | 14 | 16 | 117 | 20 | 37 | 113 | 26 | 60 | 46 | 59 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 130 | 271 | 18 | 21 | 154 | 26 | 49 | 149 | 34 | 79 | 61 | 78 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 14.1 | 12.3 | 13.1 | 12.6 |
| HCM LOS | B | B | B | B |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 21% | 100% | 0% | 100% | 0% | 36% |
| Vol Thru, % | 64% | 0% | 94% | 0% | 85% | 28% |
| Vol Right, % | 15% | 0% | 6% | 0% | 15% | 36% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 176 | 99 | 220 | 16 | 137 | 165 |
| LT Vol | 37 | 99 | 0 | 16 | 0 | 60 |
| Through Vol | 113 | 0 | 206 | 0 | 117 | 46 |
| RT Vol | 26 | 0 | 14 | 0 | 20 | 59 |
| Lane Flow Rate | 232 | 130 | 289 | 21 | 180 | 217 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.392 | 0.246 | 0.502 | 0.042 | 0.327 | 0.364 |
| Departure Headway (Hd) | 6.098 | 6.792 | 6.237 | 7.142 | 6.527 | 6.041 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 586 | 526 | 573 | 498 | 546 | 591 |
| Service Time | 4.186 | 4.568 | 4.013 | 4.932 | 4.316 | 4.131 |
| HCM Lane V/C Ratio | 0.396 | 0.247 | 0.504 | 0.042 | 0.33 | 0.367 |
| HCM Control Delay | 13.1 | 11.8 | 15.2 | 10.2 | 12.5 | 12.6 |
| HCM Lane LOS | B | B | C | B | B | B |
| HCM 95th-tile Q | 1.9 | 1 | 2.8 | 0.1 | 1.4 | 1.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 63 | 163 | 63 | 33 | 231 | 79 | 57 | 344 | 27 | 47 | 391 | 41 |
| Future Volume (veh/h) | 63 | 163 | 63 | 33 | 231 | 79 | 57 | 344 | 27 | 47 | 391 | 41 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 72 | 185 | 72 | 45 | 316 | 108 | 68 | 410 | 32 | 54 | 449 | 47 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.73 | 0.73 | 0.73 | 0.84 | 0.84 | 0.84 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 136 | 514 | 435 | 136 | 514 | 435 | 136 | 969 | 75 | 136 | 942 | 98 |
| Arrive On Green | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.29 | 0.29 | 0.08 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3314 | 258 | 1767 | 3222 | 336 |
| Grp Volume(v), veh/h | 72 | 185 | 72 | 45 | 316 | 108 | 68 | 217 | 225 | 54 | 245 | 251 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1809 | 1767 | 1763 | 1795 |
| Q Serve(g_s), s | 2.5 | 5.2 | 2.3 | 1.6 | 9.6 | 2.4 | 2.4 | 6.5 | 6.5 | 1.9 | 7.4 | 7.5 |
| Cycle Q Clear(g_c), s | 2.5 | 5.2 | 2.3 | 1.6 | 9.6 | 2.4 | 2.4 | 6.5 | 6.5 | 1.9 | 7.4 | 7.5 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.14 | 1.00 |  | 0.19 |
| Lane Grp Cap(c), veh/h | 136 | 514 | 435 | 136 | 514 | 435 | 136 | 515 | 529 | 136 | 515 | 525 |
| V/C Ratio(X) | 0.53 | 0.36 | 0.17 | 0.33 | 0.61 | 0.25 | 0.50 | 0.42 | 0.42 | 0.40 | 0.48 | 0.48 |
| Avail Cap(c_a), veh/h | 136 | 514 | 435 | 136 | 514 | 435 | 136 | 515 | 529 | 136 | 515 | 525 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.9 | 18.9 | 17.8 | 28.4 | 20.5 | 9.0 | 28.8 | 18.6 | 18.6 | 28.6 | 18.9 | 18.9 |
| Incr Delay (d2), s/veh | 14.0 | 2.0 | 0.8 | 6.4 | 5.4 | 1.4 | 12.6 | 2.5 | 2.5 | 8.5 | 3.1 | 3.1 |
| 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 | 1.5 | 2.3 | 0.8 | 0.9 | 4.6 | 1.3 | 1.4 | 2.8 | 2.9 | 1.1 | 3.3 | 3.3 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 42.9 | 20.8 | 18.6 | 34.8 | 25.9 | 10.4 | 41.4 | 21.1 | 21.1 | 37.0 | 22.0 | 22.0 |
| LnGrp LOS | D | C | B | C | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h |  | 329 |  |  | 469 |  |  | 510 |  |  | 550 |  |
| Approach Delay, s/veh |  | 25.2 |  |  | 23.2 |  |  | 23.8 |  |  | 23.5 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 23.5 | 9.5 | 22.5 | 9.5 | 23.5 | 9.5 | 22.5 |
| 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 | 19.0 | 5.0 | 18.0 | 5.0 | 19.0 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 3.9 | 8.5 | 3.6 | 7.2 | 4.4 | 9.5 | 4.5 | 11.6 |
| Green Ext Time (p_c), s | 0.0 | 1.9 | 0.0 | 0.9 | 0.0 | 2.1 | 0.0 | 1.2 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 23.8 |
| HCM 6th LOS | C |

## 6: Siskiyou Ave & California Ave

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 65 | 33 | 6 | 8 | 9 | 41 | 3 | 29 | 7 | 75 | 17 | 43 |
| Future Vol, veh/h | 65 | 33 | 6 | 8 | 9 | 41 | 3 | 29 | 7 | 75 | 17 | 43 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.60 | 0.60 | 0.60 | 0.70 | 0.70 | 0.70 | 0.53 | 0.53 | 0.53 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 87 | 44 | 8 | 13 | 15 | 68 | 4 | 41 | 10 | 142 | 32 | 81 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 9.2 | 8.4 | 8.5 | 9.3 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 81% | 0% | 85% | 0% | 18% | 0% | 28% |
| Vol Right, % | 0% | 19% | 0% | 15% | 0% | 82% | 0% | 72% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 3 | 36 | 65 | 39 | 8 | 50 | 75 | 60 |
| LT Vol | 3 | 0 | 65 | 0 | 8 | 0 | 75 | 0 |
| Through Vol | 0 | 29 | 0 | 33 | 0 | 9 | 0 | 17 |
| RT Vol | 0 | 7 | 0 | 6 | 0 | 41 | 0 | 43 |
| Lane Flow Rate | 4 | 51 | 87 | 52 | 13 | 83 | 142 | 113 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.007 | 0.076 | 0.143 | 0.077 | 0.022 | 0.114 | 0.225 | 0.148 |
| Departure Headway (Hd) | 5.947 | 5.306 | 5.943 | 5.332 | 6.009 | 4.928 | 5.727 | 4.721 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 600 | 672 | 602 | 670 | 594 | 724 | 625 | 757 |
| Service Time | 3.703 | 3.062 | 3.689 | 3.078 | 3.76 | 2.678 | 3.471 | 2.464 |
| HCM Lane V/C Ratio | 0.007 | 0.076 | 0.145 | 0.078 | 0.022 | 0.115 | 0.227 | 0.149 |
| HCM Control Delay | 8.7 | 8.5 | 9.7 | 8.5 | 8.9 | 8.3 | 10.1 | 8.3 |
| HCM Lane LOS | A | A | A | A | A | A | B | A |
| HCM 95th-tile Q | 0 | 0.2 | 0.5 | 0.2 | 0.1 | 0.4 | 0.9 | 0.5 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.7 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | | ✥ | | | ✥ | | | ↰ | ↱ |
| Traffic Vol, veh/h | 43 | 125 | 1 | 0 | 55 | 10 | 6 | 16 | 10 | 29 | 6 | 32 |
| Future Vol, veh/h | 43 | 125 | 1 | 0 | 55 | 10 | 6 | 16 | 10 | 29 | 6 | 32 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.78 | 0.78 | 0.78 | 0.80 | 0.80 | 0.80 | 0.60 | 0.60 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 47 | 136 | 1 | 0 | 71 | 13 | 8 | 20 | 13 | 48 | 10 | 35 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 8.8 | 8.7 | 8.5 | 8.4 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 19% | 100% | 0% | 0% | 83% | 0% |
| Vol Thru, % | 50% | 0% | 99% | 85% | 17% | 0% |
| Vol Right, % | 31% | 0% | 1% | 15% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 32 | 43 | 126 | 65 | 35 | 32 |
| LT Vol | 6 | 43 | 0 | 0 | 29 | 0 |
| Through Vol | 16 | 0 | 125 | 55 | 6 | 0 |
| RT Vol | 10 | 0 | 1 | 10 | 0 | 32 |
| Lane Flow Rate | 40 | 47 | 137 | 83 | 58 | 35 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.058 | 0.071 | 0.189 | 0.116 | 0.092 | 0.044 |
| Departure Headway (Hd) | 5.198 | 5.479 | 4.972 | 5.028 | 5.686 | 4.566 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 690 | 655 | 723 | 714 | 631 | 785 |
| Service Time | 3.226 | 3.199 | 2.692 | 3.052 | 3.41 | 2.29 |
| HCM Lane V/C Ratio | 0.058 | 0.072 | 0.189 | 0.116 | 0.092 | 0.045 |
| HCM Control Delay | 8.5 | 8.6 | 8.9 | 8.7 | 9 | 7.5 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.2 | 0.7 | 0.4 | 0.3 | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | ↰ | ↑↱ | | | ↰↑ | |
| Traffic Vol, veh/h | 21 | 106 | 34 | 15 | 55 | 51 | 23 | 158 | 14 | 50 | 195 | 26 |
| Future Vol, veh/h | 21 | 106 | 34 | 15 | 55 | 51 | 23 | 158 | 14 | 50 | 195 | 26 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 80 | 80 | 80 | 82 | 82 | 82 | 88 | 88 | 88 | 87 | 87 | 87 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 26 | 133 | 43 | 18 | 67 | 62 | 26 | 180 | 16 | 57 | 224 | 30 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 529 | 601 | 127 | 533 | 608 | 98 | 254 | 0 | 0 | 196 | 0 | 0 |
| Stage 1 | 353 | 353 | - | 240 | 240 | - | - | - | - | - | - | - |
| Stage 2 | 176 | 248 | - | 293 | 368 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 430 | 410 | 896 | 428 | 407 | 936 | 1301 | - | - | 1367 | - | - |
| Stage 1 | 634 | 627 | - | 739 | 703 | - | - | - | - | - | - | - |
| Stage 2 | 806 | 697 | - | 688 | 617 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 329 | 382 | 896 | 283 | 379 | 936 | 1301 | - | - | 1367 | - | - |
| Mov Cap-2 Maneuver | 329 | 382 | - | 283 | 379 | - | - | - | - | - | - | - |
| Stage 1 | 621 | 596 | - | 724 | 689 | - | - | - | - | - | - | - |
| Stage 2 | 666 | 683 | - | 485 | 587 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 20.9 | 15.8 | 0.9 | 1.5 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1301 | - | - | 425 | 479 | 1367 | - | - |
| HCM Lane V/C Ratio | 0.02 | - | - | 0.474 | 0.308 | 0.042 | - | - |
| HCM Control Delay (s) | 7.8 | - | - | 20.9 | 15.8 | 7.7 | 0.1 | - |
| HCM Lane LOS | A | - | - | C | C | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 2.5 | 1.3 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 14 | 89 | 1 | 0 | 63 | 13 | 0 | 0 | 0 | 28 | 0 | 13 |
| Future Vol, veh/h | 14 | 89 | 1 | 0 | 63 | 13 | 0 | 0 | 0 | 28 | 0 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 86 | 86 | 86 | 25 | 25 | 25 | 86 | 86 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 16 | 101 | 1 | 0 | 73 | 15 | 0 | 0 | 0 | 33 | 0 | 14 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 88 | 0 | 0 | 102 | 0 | 0 | 222 | 222 | 102 | 215 | 215 | 81 |
| Stage 1 | - | - | - | - | - | - | 134 | 134 | - | 81 | 81 | - |
| Stage 2 | - | - | - | - | - | - | 88 | 88 | - | 134 | 134 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1501 | - | - | 1484 | - | - | 732 | 675 | 950 | 739 | 681 | 976 |
| Stage 1 | - | - | - | - | - | - | 867 | 784 | - | 925 | 826 | - |
| Stage 2 | - | - | - | - | - | - | 917 | 820 | - | 867 | 784 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1501 | - | - | 1484 | - | - | 715 | 668 | 950 | 733 | 674 | 976 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 715 | 668 | - | 733 | 674 | - |
| Stage 1 | - | - | - | - | - | - | 857 | 775 | - | 915 | 826 | - |
| Stage 2 | - | - | - | - | - | - | 904 | 820 | - | 857 | 775 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1 | 0 | 0 | 9.8 |
| HCM LOS | | | A | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 1501 | - | - | 1484 | - | - | 793 |
| HCM Lane V/C Ratio | - | 0.011 | - | - | - | - | - | 0.059 |
| HCM Control Delay (s) | 0 | 7.4 | 0 | - | 0 | - | - | 9.8 |
| HCM Lane LOS | A | A | A | - | A | - | - | A |
| HCM 95th %tile Q(veh) | - | 0 | - | - | 0 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 10 | 383 | 21 | 26 | 320 | 3 | 43 | 30 | 20 | 3 | 21 | 7 |
| Future Vol, veh/h | 10 | 383 | 21 | 26 | 320 | 3 | 43 | 30 | 20 | 3 | 21 | 7 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 88 | 88 | 88 | 65 | 65 | 65 | 70 | 70 | 70 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 11 | 416 | 23 | 30 | 364 | 3 | 66 | 46 | 31 | 4 | 30 | 10 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 367 | 0 | 0 | 439 | 0 | 0 | 896 | 877 | 428 | 914 | 887 | 366 |
| Stage 1 | - | - | - | - | - | - | 450 | 450 | - | 426 | 426 | - |
| Stage 2 | - | - | - | - | - | - | 446 | 427 | - | 488 | 461 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1186 | - | - | 1116 | - | - | 260 | 286 | 625 | 253 | 282 | 677 |
| Stage 1 | - | - | - | - | - | - | 587 | 570 | - | 604 | 584 | - |
| Stage 2 | - | - | - | - | - | - | 590 | 584 | - | 559 | 564 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1186 | - | - | 1116 | - | - | 226 | 273 | 625 | 202 | 269 | 677 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 226 | 273 | - | 202 | 269 | - |
| Stage 1 | - | - | - | - | - | - | 580 | 563 | - | 597 | 564 | - |
| Stage 2 | - | - | - | - | - | - | 532 | 564 | - | 482 | 557 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.6 | 30.6 | 19.1 |
| HCM LOS | | | D | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 280 | 1186 | - | - | 1116 | - | - | 300 |
| HCM Lane V/C Ratio | 0.511 | 0.009 | - | - | 0.026 | - | - | 0.148 |
| HCM Control Delay (s) | 30.6 | 8.1 | 0 | - | 8.3 | 0 | - | 19.1 |
| HCM Lane LOS | D | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 2.7 | 0 | - | - | 0.1 | - | - | 0.5 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 11 | 386 | 55 | 112 | 329 | 26 | 22 | 34 | 78 | 21 | 44 | 5 |
| Future Volume (veh/h) | 11 | 386 | 55 | 112 | 329 | 26 | 22 | 34 | 78 | 21 | 44 | 5 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 13 | 471 | 67 | 122 | 358 | 28 | 28 | 42 | 98 | 24 | 51 | 6 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.80 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 29 | 525 | 445 | 155 | 1249 | 557 | 55 | 151 | 352 | 48 | 492 | 58 |
| Arrive On Green | 0.02 | 0.28 | 0.28 | 0.09 | 0.35 | 0.35 | 0.03 | 0.31 | 0.31 | 0.03 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 494 | 1154 | 1767 | 1629 | 192 |
| Grp Volume(v), veh/h | 13 | 471 | 67 | 122 | 358 | 28 | 28 | 0 | 140 | 24 | 0 | 57 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1648 | 1767 | 0 | 1821 |
| Q Serve(g_s), s | 0.4 | 14.8 | 1.9 | 4.1 | 4.4 | 0.7 | 0.9 | 0.0 | 3.9 | 0.8 | 0.0 | 1.4 |
| Cycle Q Clear(g_c), s | 0.4 | 14.8 | 1.9 | 4.1 | 4.4 | 0.7 | 0.9 | 0.0 | 3.9 | 0.8 | 0.0 | 1.4 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.70 | 1.00 |  | 0.11 |
| Lane Grp Cap(c), veh/h | 29 | 525 | 445 | 155 | 1249 | 557 | 55 | 0 | 503 | 48 | 0 | 549 |
| V/C Ratio(X) | 0.45 | 0.90 | 0.15 | 0.79 | 0.29 | 0.05 | 0.51 | 0.00 | 0.28 | 0.50 | 0.00 | 0.10 |
| Avail Cap(c_a), veh/h | 146 | 551 | 467 | 166 | 1249 | 557 | 146 | 0 | 503 | 146 | 0 | 549 |
| 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 | 29.6 | 20.9 | 16.3 | 27.1 | 14.1 | 12.9 | 28.9 | 0.0 | 16.0 | 29.1 | 0.0 | 15.3 |
| Incr Delay (d2), s/veh | 10.8 | 17.0 | 0.2 | 20.6 | 0.1 | 0.0 | 7.2 | 0.0 | 1.4 | 7.6 | 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 | 0.3 | 7.6 | 0.6 | 2.4 | 1.4 | 0.2 | 0.5 | 0.0 | 1.5 | 0.4 | 0.0 | 0.6 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 40.4 | 37.9 | 16.4 | 47.7 | 14.2 | 12.9 | 36.1 | 0.0 | 17.4 | 36.7 | 0.0 | 15.6 |
| LnGrp LOS | D | D | B | D | B | B | D | A | B | D | A | B |
| Approach Vol, veh/h |  | 551 |  |  | 508 |  |  | 168 |  |  | 81 |  |
| Approach Delay, s/veh |  | 35.3 |  |  | 22.2 |  |  | 20.5 |  |  | 21.9 |  |
| Approach LOS |  | D |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.2 | 23.0 | 9.8 | 21.7 | 6.4 | 22.8 | 5.5 | 26.0 |
| 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 | 18.3 | 5.7 | 18.0 | 5.0 | 18.3 | 5.0 | 18.7 |
| Max Q Clear Time (g_c+I1), s | 2.8 | 5.9 | 6.1 | 16.8 | 2.9 | 3.4 | 2.4 | 6.4 |
| Green Ext Time (p_c), s | 0.0 | 0.5 | 0.0 | 0.4 | 0.0 | 0.2 | 0.0 | 1.6 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 27.5 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9.6 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 20 | 36 | 9 | 79 | 47 | 35 | 16 | 101 | 63 | 42 | 117 | 17 |
| Future Vol, veh/h | 20 | 36 | 9 | 79 | 47 | 35 | 16 | 101 | 63 | 42 | 117 | 17 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 22 | 40 | 10 | 89 | 53 | 39 | 18 | 113 | 71 | 47 | 131 | 19 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 9.1 | 9.5 | 9.8 | 9.6 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 62% | 0% | 80% | 0% | 57% | 0% | 87% |
| Vol Right, % | 0% | 38% | 0% | 20% | 0% | 43% | 0% | 13% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 16 | 164 | 20 | 45 | 79 | 82 | 42 | 134 |
| LT Vol | 16 | 0 | 20 | 0 | 79 | 0 | 42 | 0 |
| Through Vol | 0 | 101 | 0 | 36 | 0 | 47 | 0 | 117 |
| RT Vol | 0 | 63 | 0 | 9 | 0 | 35 | 0 | 17 |
| Lane Flow Rate | 18 | 184 | 22 | 51 | 89 | 92 | 47 | 151 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.03 | 0.266 | 0.039 | 0.079 | 0.152 | 0.137 | 0.078 | 0.224 |
| Departure Headway (Hd) | 5.966 | 5.192 | 6.305 | 5.658 | 6.157 | 5.352 | 5.96 | 5.367 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 597 | 687 | 563 | 626 | 579 | 664 | 597 | 664 |
| Service Time | 3.737 | 2.962 | 4.099 | 3.452 | 3.937 | 3.131 | 3.732 | 3.138 |
| HCM Lane V/C Ratio | 0.03 | 0.268 | 0.039 | 0.081 | 0.154 | 0.139 | 0.079 | 0.227 |
| HCM Control Delay | 8.9 | 9.9 | 9.4 | 8.9 | 10.1 | 9 | 9.2 | 9.7 |
| HCM Lane LOS | A | A | A | A | B | A | A | A |
| HCM 95th-tile Q | 0.1 | 1.1 | 0.1 | 0.3 | 0.5 | 0.5 | 0.3 | 0.9 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 10.6 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 47 | 153 | 21 | 33 | 238 | 24 | 24 | 41 | 23 | 24 | 44 | 35 |
| Future Vol, veh/h | 47 | 153 | 21 | 33 | 238 | 24 | 24 | 41 | 23 | 24 | 44 | 35 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 52 | 168 | 23 | 36 | 262 | 26 | 26 | 45 | 25 | 26 | 48 | 38 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 10.1 | 11.7 | 9.4 | 9.5 |
| HCM LOS | B | B | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 27% | 100% | 0% | 100% | 0% | 23% |
| Vol Thru, % | 47% | 0% | 88% | 0% | 91% | 43% |
| Vol Right, % | 26% | 0% | 12% | 0% | 9% | 34% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 88 | 47 | 174 | 33 | 262 | 103 |
| LT Vol | 24 | 47 | 0 | 33 | 0 | 24 |
| Through Vol | 41 | 0 | 153 | 0 | 238 | 44 |
| RT Vol | 23 | 0 | 21 | 0 | 24 | 35 |
| Lane Flow Rate | 97 | 52 | 191 | 36 | 288 | 113 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.145 | 0.085 | 0.284 | 0.059 | 0.423 | 0.168 |
| Departure Headway (Hd) | 5.412 | 5.939 | 5.349 | 5.859 | 5.29 | 5.33 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 655 | 598 | 663 | 606 | 674 | 666 |
| Service Time | 3.512 | 3.733 | 3.142 | 3.646 | 3.076 | 3.425 |
| HCM Lane V/C Ratio | 0.148 | 0.087 | 0.288 | 0.059 | 0.427 | 0.17 |
| HCM Control Delay | 9.4 | 9.3 | 10.3 | 9 | 12 | 9.5 |
| HCM Lane LOS | A | A | B | A | B | A |
| HCM 95th-tile Q | 0.5 | 0.3 | 1.2 | 0.2 | 2.1 | 0.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 52 | 101 | 41 | 40 | 145 | 55 | 40 | 551 | 38 | 51 | 340 | 51 |
| Future Volume (veh/h) | 52 | 101 | 41 | 40 | 145 | 55 | 40 | 551 | 38 | 51 | 340 | 51 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 59 | 115 | 47 | 43 | 158 | 60 | 48 | 656 | 45 | 59 | 391 | 59 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 | 0.84 | 0.84 | 0.84 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 139 | 517 | 438 | 136 | 514 | 435 | 136 | 973 | 67 | 136 | 894 | 134 |
| Arrive On Green | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.29 | 0.29 | 0.08 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3348 | 229 | 1767 | 3075 | 461 |
| Grp Volume(v), veh/h | 59 | 115 | 47 | 43 | 158 | 60 | 48 | 345 | 356 | 59 | 223 | 227 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1814 | 1767 | 1763 | 1773 |
| Q Serve(g_s), s | 2.1 | 3.1 | 1.4 | 1.5 | 4.4 | 1.9 | 1.7 | 11.2 | 11.2 | 2.1 | 6.7 | 6.8 |
| Cycle Q Clear(g_c), s | 2.1 | 3.1 | 1.4 | 1.5 | 4.4 | 1.9 | 1.7 | 11.2 | 11.2 | 2.1 | 6.7 | 6.8 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.13 | 1.00 |  | 0.26 |
| Lane Grp Cap(c), veh/h | 139 | 517 | 438 | 136 | 514 | 435 | 136 | 513 | 528 | 136 | 513 | 515 |
| V/C Ratio(X) | 0.43 | 0.22 | 0.11 | 0.32 | 0.31 | 0.14 | 0.35 | 0.67 | 0.67 | 0.43 | 0.43 | 0.44 |
| Avail Cap(c_a), veh/h | 139 | 517 | 438 | 136 | 514 | 435 | 136 | 513 | 528 | 136 | 513 | 515 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.6 | 18.0 | 17.4 | 28.4 | 18.6 | 17.7 | 28.5 | 20.3 | 20.3 | 28.6 | 18.7 | 18.7 |
| Incr Delay (d2), s/veh | 9.3 | 1.0 | 0.5 | 6.0 | 1.5 | 0.7 | 7.1 | 6.9 | 6.8 | 9.8 | 2.7 | 2.7 |
| 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 | 1.2 | 1.4 | 0.5 | 0.8 | 1.9 | 0.7 | 0.9 | 5.2 | 5.4 | 1.2 | 2.9 | 3.0 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 37.8 | 19.0 | 17.9 | 34.4 | 20.1 | 18.3 | 35.5 | 27.2 | 27.1 | 38.4 | 21.4 | 21.5 |
| LnGrp LOS | D | B | B | C | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h |  | 221 |  |  | 261 |  |  | 749 |  |  | 509 |  |
| Approach Delay, s/veh |  | 23.8 |  |  | 22.1 |  |  | 27.7 |  |  | 23.4 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 23.4 | 9.5 | 22.6 | 9.5 | 23.4 | 9.6 | 22.5 |
| 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 | 18.9 | 5.0 | 18.1 | 5.0 | 18.9 | 5.1 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.1 | 13.2 | 3.5 | 5.1 | 3.7 | 8.8 | 4.1 | 6.4 |
| Green Ext Time (p_c), s | 0.0 | 2.1 | 0.0 | 0.5 | 0.0 | 1.9 | 0.0 | 0.7 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 25.1 |
| HCM 6th LOS | C |

# HCM 6th AWSC
## 6: Siskiyou Ave & California Ave

11/17/2023

| 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 | 29 | 20 | 1 | 9 | 15 | 23 | 9 | 41 | 9 | 35 | 14 | 56 |
| Future Vol, veh/h | 29 | 20 | 1 | 9 | 15 | 23 | 9 | 41 | 9 | 35 | 14 | 56 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.84 | 0.84 | 0.84 | 0.74 | 0.74 | 0.74 | 0.91 | 0.91 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 37 | 26 | 1 | 11 | 18 | 27 | 12 | 55 | 12 | 38 | 15 | 61 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 8.3 | 7.8 | 8 | 7.8 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 82% | 0% | 95% | 0% | 39% | 0% | 20% |
| Vol Right, % | 0% | 18% | 0% | 5% | 0% | 61% | 0% | 80% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 9 | 50 | 29 | 21 | 9 | 38 | 35 | 70 |
| LT Vol | 9 | 0 | 29 | 0 | 9 | 0 | 35 | 0 |
| Through Vol | 0 | 41 | 0 | 20 | 0 | 15 | 0 | 14 |
| RT Vol | 0 | 9 | 0 | 1 | 0 | 23 | 0 | 56 |
| Lane Flow Rate | 12 | 68 | 37 | 27 | 11 | 45 | 38 | 76 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.018 | 0.091 | 0.058 | 0.038 | 0.017 | 0.059 | 0.058 | 0.093 |
| Departure Headway (Hd) | 5.458 | 4.83 | 5.575 | 5.039 | 5.589 | 4.662 | 5.43 | 4.367 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 657 | 743 | 644 | 713 | 642 | 770 | 662 | 822 |
| Service Time | 3.177 | 2.549 | 3.291 | 2.755 | 3.305 | 2.378 | 3.148 | 2.085 |
| HCM Lane V/C Ratio | 0.018 | 0.092 | 0.057 | 0.038 | 0.017 | 0.058 | 0.057 | 0.092 |
| HCM Control Delay | 8.3 | 8 | 8.6 | 8 | 8.4 | 7.7 | 8.5 | 7.5 |
| HCM Lane LOS | A | A | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.3 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.5 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | | ✣ | | | ✣ | | | ↰ | ↱ |
| Traffic Vol, veh/h | 28 | 51 | 1 | 4 | 107 | 15 | 3 | 10 | 4 | 7 | 2 | 31 |
| Future Vol, veh/h | 28 | 51 | 1 | 4 | 107 | 15 | 3 | 10 | 4 | 7 | 2 | 31 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.84 | 0.84 | 0.84 | 0.86 | 0.86 | 0.86 | 0.71 | 0.71 | 0.71 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 35 | 64 | 1 | 5 | 127 | 18 | 3 | 12 | 5 | 10 | 3 | 44 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 8.1 | 9 | 8.3 | 7.7 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 18% | 100% | 0% | 3% | 78% | 0% |
| Vol Thru, % | 59% | 0% | 98% | 85% | 22% | 0% |
| Vol Right, % | 24% | 0% | 2% | 12% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 17 | 28 | 52 | 126 | 9 | 31 |
| LT Vol | 3 | 28 | 0 | 4 | 7 | 0 |
| Through Vol | 10 | 0 | 51 | 107 | 2 | 0 |
| RT Vol | 4 | 0 | 1 | 15 | 0 | 31 |
| Lane Flow Rate | 20 | 35 | 65 | 150 | 13 | 44 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.028 | 0.052 | 0.088 | 0.2 | 0.02 | 0.054 |
| Departure Headway (Hd) | 5.141 | 5.369 | 4.854 | 4.798 | 5.588 | 4.493 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 698 | 671 | 742 | 752 | 643 | 799 |
| Service Time | 3.157 | 3.071 | 2.556 | 2.8 | 3.301 | 2.207 |
| HCM Lane V/C Ratio | 0.029 | 0.052 | 0.088 | 0.199 | 0.02 | 0.055 |
| HCM Control Delay | 8.3 | 8.4 | 8 | 9 | 8.4 | 7.5 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.2 | 0.3 | 0.7 | 0.1 | 0.2 |

# HCM 6th TWSC
## 8: SR 145 & California Ave

11/17/2023

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | ↰ | ↑↱ | | | ↰↑↱ | |
| Traffic Vol, veh/h | 20 | 58 | 11 | 16 | 75 | 58 | 36 | 371 | 53 | 40 | 168 | 27 |
| Future Vol, veh/h | 20 | 58 | 11 | 16 | 75 | 58 | 36 | 371 | 53 | 40 | 168 | 27 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 72 | 72 | 72 | 92 | 92 | 92 | 82 | 82 | 82 | 88 | 88 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 28 | 81 | 15 | 17 | 82 | 63 | 44 | 452 | 65 | 45 | 191 | 29 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 651 | 901 | 110 | 799 | 883 | 259 | 220 | 0 | 0 | 517 | 0 | 0 |
| Stage 1 | 296 | 296 | - | 573 | 573 | - | - | - | - | - | - | - |
| Stage 2 | 355 | 605 | - | 226 | 310 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 352 | 275 | 919 | 275 | 281 | 737 | 1339 | - | - | 1038 | - | - |
| Stage 1 | 685 | 664 | - | 469 | 499 | - | - | - | - | - | - | - |
| Stage 2 | 632 | 483 | - | 753 | 655 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 229 | 253 | 919 | 192 | 258 | 737 | 1339 | - | - | 1038 | - | - |
| Mov Cap-2 Maneuver | 229 | 253 | - | 192 | 258 | - | - | - | - | - | - | - |
| Stage 1 | 662 | 631 | - | 454 | 483 | - | - | - | - | - | - | - |
| Stage 2 | 465 | 467 | - | 614 | 622 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 29 | 26.1 | 0.6 | 1.5 |
| HCM LOS | D | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1339 | - | - | 271 | 329 | 1038 | - | - |
| HCM Lane V/C Ratio | 0.033 | - | - | 0.456 | 0.492 | 0.044 | - | - |
| HCM Control Delay (s) | 7.8 | - | - | 29 | 26.1 | 8.6 | 0.1 | - |
| HCM Lane LOS | A | - | - | D | D | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 2.2 | 2.6 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 28 | 75 | 0 | 1 | 106 | 49 | 0 | 0 | 0 | 11 | 0 | 18 |
| Future Vol, veh/h | 28 | 75 | 0 | 1 | 106 | 49 | 0 | 0 | 0 | 11 | 0 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 75 | 75 | 75 | 87 | 87 | 87 | 25 | 25 | 25 | 51 | 51 | 51 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 37 | 100 | 0 | 1 | 122 | 56 | 0 | 0 | 0 | 22 | 0 | 35 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 178 | 0 | 0 | 100 | 0 | 0 | 344 | 354 | 100 | 326 | 326 | 150 |
| Stage 1 | - | - | - | - | - | - | 174 | 174 | - | 152 | 152 | - |
| Stage 2 | - | - | - | - | - | - | 170 | 180 | - | 174 | 174 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1392 | - | - | 1486 | - | - | 608 | 570 | 953 | 625 | 591 | 894 |
| Stage 1 | - | - | - | - | - | - | 825 | 753 | - | 848 | 770 | - |
| Stage 2 | - | - | - | - | - | - | 830 | 749 | - | 825 | 753 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1392 | - | - | 1486 | - | - | 571 | 553 | 953 | 611 | 574 | 894 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 571 | 553 | - | 611 | 574 | - |
| Stage 1 | - | - | - | - | - | - | 802 | 732 | - | 824 | 769 | - |
| Stage 2 | - | - | - | - | - | - | 796 | 748 | - | 802 | 732 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 2.1 | 0 | 0 | 10.1 |
| HCM LOS | | | A | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 1392 | - | - | 1486 | - | - | 760 |
| HCM Lane V/C Ratio | - | 0.027 | - | - | 0.001 | - | - | 0.075 |
| HCM Control Delay (s) | 0 | 7.7 | 0 | - | 7.4 | 0 | - | 10.1 |
| HCM Lane LOS | A | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | - | 0.1 | - | - | 0 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 5 | 264 | 35 | 13 | 341 | 2 | 36 | 35 | 19 | 7 | 22 | 5 |
| Future Vol, veh/h | 5 | 264 | 35 | 13 | 341 | 2 | 36 | 35 | 19 | 7 | 22 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 82 | 82 | 82 | 83 | 83 | 83 | 61 | 61 | 61 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 5 | 290 | 38 | 16 | 416 | 2 | 43 | 42 | 23 | 11 | 36 | 8 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 418 | 0 | 0 | 328 | 0 | 0 | 790 | 769 | 309 | 801 | 787 | 417 |
| Stage 1 | - | - | - | - | - | - | 319 | 319 | - | 449 | 449 | - |
| Stage 2 | - | - | - | - | - | - | 471 | 450 | - | 352 | 338 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1136 | - | - | 1226 | - | - | 307 | 330 | 729 | 301 | 323 | 634 |
| Stage 1 | - | - | - | - | - | - | 690 | 651 | - | 587 | 571 | - |
| Stage 2 | - | - | - | - | - | - | 571 | 570 | - | 663 | 639 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1136 | - | - | 1226 | - | - | 272 | 323 | 729 | 258 | 316 | 634 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 272 | 323 | - | 258 | 316 | - |
| Stage 1 | - | - | - | - | - | - | 687 | 648 | - | 584 | 561 | - |
| Stage 2 | - | - | - | - | - | - | 518 | 560 | - | 597 | 636 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.3 | 20.7 | 18.4 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 337 | 1136 | - | - | 1226 | - | - | 325 |
| HCM Lane V/C Ratio | 0.322 | 0.005 | - | - | 0.013 | - | - | 0.172 |
| HCM Control Delay (s) | 20.7 | 8.2 | 0 | - | 8 | 0 | - | 18.4 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 1.4 | 0 | - | - | 0 | - | - | 0.6 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↗ | ↘ | ↓ | ↙ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Volume (veh/h) | 2 | 295 | 58 | 60 | 266 | 27 | 82 | 86 | 190 | 35 | 55 | 10 |
| Future Volume (veh/h) | 2 | 295 | 58 | 60 | 266 | 27 | 82 | 86 | 190 | 35 | 55 | 10 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 3 | 378 | 74 | 67 | 299 | 30 | 99 | 102 | 226 | 50 | 77 | 14 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.89 | 0.89 | 0.89 | 0.83 | 0.84 | 0.84 | 0.70 | 0.71 | 0.71 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 7 | 453 | 384 | 100 | 1046 | 467 | 126 | 176 | 389 | 84 | 486 | 88 |
| Arrive On Green | 0.00 | 0.24 | 0.24 | 0.06 | 0.30 | 0.30 | 0.07 | 0.34 | 0.34 | 0.05 | 0.32 | 0.32 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 513 | 1137 | 1767 | 1528 | 278 |
| Grp Volume(v), veh/h | 3 | 378 | 74 | 67 | 299 | 30 | 99 | 0 | 328 | 50 | 0 | 91 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1651 | 1767 | 0 | 1806 |
| Q Serve(g_s), s | 0.1 | 11.2 | 2.2 | 2.2 | 3.8 | 0.8 | 3.2 | 0.0 | 9.5 | 1.6 | 0.0 | 2.1 |
| Cycle Q Clear(g_c), s | 0.1 | 11.2 | 2.2 | 2.2 | 3.8 | 0.8 | 3.2 | 0.0 | 9.5 | 1.6 | 0.0 | 2.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.69 | 1.00 | | 0.15 |
| Lane Grp Cap(c), veh/h | 7 | 453 | 384 | 100 | 1046 | 467 | 126 | 0 | 565 | 84 | 0 | 574 |
| V/C Ratio(X) | 0.42 | 0.83 | 0.19 | 0.67 | 0.29 | 0.06 | 0.78 | 0.00 | 0.58 | 0.59 | 0.00 | 0.16 |
| Avail Cap(c_a), veh/h | 152 | 574 | 487 | 152 | 1091 | 487 | 167 | 0 | 565 | 152 | 0 | 574 |
| 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 | 28.9 | 20.9 | 17.4 | 26.9 | 15.7 | 14.7 | 26.6 | 0.0 | 15.7 | 27.1 | 0.0 | 14.2 |
| Incr Delay (d2), s/veh | 34.3 | 8.4 | 0.2 | 7.4 | 0.1 | 0.1 | 16.0 | 0.0 | 4.3 | 6.5 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.1 | 4.9 | 0.7 | 1.0 | 1.2 | 0.2 | 1.8 | 0.0 | 3.8 | 0.8 | 0.0 | 0.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 63.2 | 29.3 | 17.7 | 34.3 | 15.9 | 14.7 | 42.5 | 0.0 | 20.0 | 33.7 | 0.0 | 14.8 |
| LnGrp LOS | E | C | B | C | B | B | D | A | C | C | A | B |
| Approach Vol, veh/h | | 455 | | | 396 | | | 427 | | | 141 | |
| Approach Delay, s/veh | | 27.6 | | | 18.9 | | | 25.3 | | | 21.5 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.3 | 24.4 | 7.8 | 18.7 | 8.7 | 23.0 | 4.7 | 21.8 |
| 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 | 19.0 | 5.0 | 18.0 | 5.5 | 18.5 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 3.6 | 11.5 | 4.2 | 13.2 | 5.2 | 4.1 | 2.1 | 5.8 |
| Green Ext Time (p_c), s | 0.0 | 1.2 | 0.0 | 0.9 | 0.0 | 0.3 | 0.0 | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 23.9 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 17.3 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 20 | 31 | 8 | 116 | 31 | 37 | 11 | 221 | 141 | 47 | 143 | 25 |
| Future Vol, veh/h | 20 | 31 | 8 | 116 | 31 | 37 | 11 | 221 | 141 | 47 | 143 | 25 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 26 | 40 | 10 | 151 | 40 | 48 | 14 | 287 | 183 | 61 | 186 | 32 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 10.8 | 12.3 | 23.7 | 12.2 |
| HCM LOS | B | B | C | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 61% | 0% | 79% | 0% | 46% | 0% | 85% |
| Vol Right, % | 0% | 39% | 0% | 21% | 0% | 54% | 0% | 15% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 11 | 362 | 20 | 39 | 116 | 68 | 47 | 168 |
| LT Vol | 11 | 0 | 20 | 0 | 116 | 0 | 47 | 0 |
| Through Vol | 0 | 221 | 0 | 31 | 0 | 31 | 0 | 143 |
| RT Vol | 0 | 141 | 0 | 8 | 0 | 37 | 0 | 25 |
| Lane Flow Rate | 14 | 470 | 26 | 51 | 151 | 88 | 61 | 218 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.026 | 0.753 | 0.056 | 0.1 | 0.308 | 0.158 | 0.116 | 0.376 |
| Departure Headway (Hd) | 6.547 | 5.765 | 7.747 | 7.088 | 7.354 | 6.457 | 6.814 | 6.199 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 545 | 625 | 460 | 502 | 487 | 553 | 524 | 578 |
| Service Time | 4.305 | 3.522 | 5.539 | 4.879 | 5.126 | 4.228 | 4.583 | 3.968 |
| HCM Lane V/C Ratio | 0.026 | 0.752 | 0.057 | 0.102 | 0.31 | 0.159 | 0.116 | 0.377 |
| HCM Control Delay | 9.5 | 24.1 | 11 | 10.7 | 13.4 | 10.4 | 10.5 | 12.7 |
| HCM Lane LOS | A | C | B | B | B | B | B | B |
| HCM 95th-tile Q | 0.1 | 6.8 | 0.2 | 0.3 | 1.3 | 0.6 | 0.4 | 1.7 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 14.5 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 104 | 235 | 14 | 16 | 126 | 20 | 37 | 113 | 26 | 60 | 46 | 61 |
| Future Vol, veh/h | 104 | 235 | 14 | 16 | 126 | 20 | 37 | 113 | 26 | 60 | 46 | 61 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 137 | 309 | 18 | 21 | 166 | 26 | 49 | 149 | 34 | 79 | 61 | 80 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 16.2 | 13 | 13.8 | 13.3 |
| HCM LOS | C | B | B | B |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 21% | 100% | 0% | 100% | 0% | 36% |
| Vol Thru, % | 64% | 0% | 94% | 0% | 86% | 28% |
| Vol Right, % | 15% | 0% | 6% | 0% | 14% | 37% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 176 | 104 | 249 | 16 | 146 | 167 |
| LT Vol | 37 | 104 | 0 | 16 | 0 | 60 |
| Through Vol | 113 | 0 | 235 | 0 | 126 | 46 |
| RT Vol | 26 | 0 | 14 | 0 | 20 | 61 |
| Lane Flow Rate | 232 | 137 | 328 | 21 | 192 | 220 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.411 | 0.266 | 0.586 | 0.043 | 0.361 | 0.386 |
| Departure Headway (Hd) | 6.386 | 6.989 | 6.439 | 7.375 | 6.765 | 6.322 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 563 | 517 | 564 | 485 | 532 | 569 |
| Service Time | 4.426 | 4.689 | 4.139 | 5.12 | 4.51 | 4.363 |
| HCM Lane V/C Ratio | 0.412 | 0.265 | 0.582 | 0.043 | 0.361 | 0.387 |
| HCM Control Delay | 13.8 | 12.2 | 17.8 | 10.5 | 13.3 | 13.3 |
| HCM Lane LOS | B | B | C | B | B | B |
| HCM 95th-tile Q | 2 | 1.1 | 3.8 | 0.1 | 1.6 | 1.8 |

# HCM 6th Signalized Intersection Summary
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ | | ↰ | ↑↱ | |
| Traffic Volume (veh/h) | 92 | 163 | 63 | 33 | 231 | 79 | 57 | 344 | 27 | 47 | 391 | 50 |
| Future Volume (veh/h) | 92 | 163 | 63 | 33 | 231 | 79 | 57 | 344 | 27 | 47 | 391 | 50 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 105 | 185 | 72 | 45 | 316 | 108 | 68 | 410 | 32 | 54 | 449 | 57 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.73 | 0.73 | 0.73 | 0.84 | 0.84 | 0.84 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 136 | 514 | 435 | 136 | 514 | 435 | 136 | 969 | 75 | 136 | 920 | 116 |
| Arrive On Green | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.29 | 0.29 | 0.08 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3314 | 258 | 1767 | 3149 | 398 |
| Grp Volume(v), veh/h | 105 | 185 | 72 | 45 | 316 | 108 | 68 | 217 | 225 | 54 | 250 | 256 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1809 | 1767 | 1763 | 1784 |
| Q Serve(g_s), s | 3.8 | 5.2 | 2.3 | 1.6 | 9.6 | 2.4 | 2.4 | 6.5 | 6.5 | 1.9 | 7.6 | 7.7 |
| Cycle Q Clear(g_c), s | 3.8 | 5.2 | 2.3 | 1.6 | 9.6 | 2.4 | 2.4 | 6.5 | 6.5 | 1.9 | 7.6 | 7.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.14 | 1.00 | | 0.22 |
| Lane Grp Cap(c), veh/h | 136 | 514 | 435 | 136 | 514 | 435 | 136 | 515 | 529 | 136 | 515 | 521 |
| V/C Ratio(X) | 0.77 | 0.36 | 0.17 | 0.33 | 0.61 | 0.25 | 0.50 | 0.42 | 0.42 | 0.40 | 0.49 | 0.49 |
| Avail Cap(c_a), veh/h | 136 | 514 | 435 | 136 | 514 | 435 | 136 | 515 | 529 | 136 | 515 | 521 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.4 | 18.9 | 17.8 | 28.4 | 20.5 | 9.0 | 28.8 | 18.6 | 18.6 | 28.6 | 19.0 | 19.0 |
| Incr Delay (d2), s/veh | 33.8 | 2.0 | 0.8 | 6.4 | 5.4 | 1.4 | 12.6 | 2.5 | 2.5 | 8.5 | 3.3 | 3.3 |
| 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 | 2.8 | 2.3 | 0.8 | 0.9 | 4.6 | 1.3 | 1.4 | 2.8 | 2.9 | 1.1 | 3.3 | 3.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 63.2 | 20.8 | 18.6 | 34.8 | 25.9 | 10.4 | 41.4 | 21.1 | 21.1 | 37.0 | 22.2 | 22.3 |
| LnGrp LOS | E | C | B | C | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h | | 362 | | | 469 | | | 510 | | | 560 | |
| Approach Delay, s/veh | | 32.7 | | | 23.2 | | | 23.8 | | | 23.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 23.5 | 9.5 | 22.5 | 9.5 | 23.5 | 9.5 | 22.5 |
| 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 | 19.0 | 5.0 | 18.0 | 5.0 | 19.0 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 3.9 | 8.5 | 3.6 | 7.2 | 4.4 | 9.7 | 5.8 | 11.6 |
| Green Ext Time (p_c), s | 0.0 | 1.9 | 0.0 | 0.9 | 0.0 | 2.1 | 0.0 | 1.2 |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 25.3 |
| HCM 6th LOS | | C |

# HCM 6th AWSC
## 6: Siskiyou Ave & California Ave

11/17/2023

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 10.1 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 138 | 59 | 11 | 8 | 9 | 41 | 5 | 29 | 7 | 75 | 17 | 66 |
| Future Vol, veh/h | 138 | 59 | 11 | 8 | 9 | 41 | 5 | 29 | 7 | 75 | 17 | 66 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.60 | 0.60 | 0.60 | 0.70 | 0.70 | 0.70 | 0.53 | 0.53 | 0.53 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 184 | 79 | 15 | 13 | 15 | 68 | 7 | 41 | 10 | 142 | 32 | 125 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 10.8 | 8.9 | 9.1 | 10.1 |
| HCM LOS | B | A | A | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 81% | 0% | 84% | 0% | 18% | 0% | 20% |
| Vol Right, % | 0% | 19% | 0% | 16% | 0% | 82% | 0% | 80% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 5 | 36 | 138 | 70 | 8 | 50 | 75 | 83 |
| LT Vol | 5 | 0 | 138 | 0 | 8 | 0 | 75 | 0 |
| Through Vol | 0 | 29 | 0 | 59 | 0 | 9 | 0 | 17 |
| RT Vol | 0 | 7 | 0 | 11 | 0 | 41 | 0 | 66 |
| Lane Flow Rate | 7 | 51 | 184 | 93 | 13 | 83 | 142 | 157 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.013 | 0.084 | 0.311 | 0.142 | 0.024 | 0.124 | 0.241 | 0.22 |
| Departure Headway (Hd) | 6.534 | 5.89 | 6.082 | 5.468 | 6.439 | 5.353 | 6.122 | 5.058 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 550 | 611 | 585 | 649 | 559 | 673 | 582 | 702 |
| Service Time | 4.241 | 3.597 | 3.873 | 3.258 | 4.141 | 3.055 | 3.909 | 2.844 |
| HCM Lane V/C Ratio | 0.013 | 0.083 | 0.315 | 0.143 | 0.023 | 0.123 | 0.244 | 0.224 |
| HCM Control Delay | 9.3 | 9.1 | 11.6 | 9.2 | 9.3 | 8.8 | 10.9 | 9.3 |
| HCM Lane LOS | A | A | B | A | A | A | B | A |
| HCM 95th-tile Q | 0 | 0.3 | 1.3 | 0.5 | 0.1 | 0.4 | 0.9 | 0.8 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.8 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | | ✥ | | | ✥ | | | ↰ | ↱ |
| Traffic Vol, veh/h | 48 | 140 | 1 | 0 | 60 | 10 | 6 | 16 | 10 | 29 | 6 | 34 |
| Future Vol, veh/h | 48 | 140 | 1 | 0 | 60 | 10 | 6 | 16 | 10 | 29 | 6 | 34 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.78 | 0.78 | 0.78 | 0.80 | 0.80 | 0.80 | 0.60 | 0.60 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 52 | 152 | 1 | 0 | 77 | 13 | 8 | 20 | 13 | 48 | 10 | 37 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 9 | 8.8 | 8.6 | 8.5 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 19% | 100% | 0% | 0% | 83% | 0% |
| Vol Thru, % | 50% | 0% | 99% | 86% | 17% | 0% |
| Vol Right, % | 31% | 0% | 1% | 14% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 32 | 48 | 141 | 70 | 35 | 34 |
| LT Vol | 6 | 48 | 0 | 0 | 29 | 0 |
| Through Vol | 16 | 0 | 140 | 60 | 6 | 0 |
| RT Vol | 10 | 0 | 1 | 10 | 0 | 34 |
| Lane Flow Rate | 40 | 52 | 153 | 90 | 58 | 37 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.059 | 0.08 | 0.212 | 0.126 | 0.093 | 0.048 |
| Departure Headway (Hd) | 5.272 | 5.493 | 4.986 | 5.067 | 5.756 | 4.635 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 679 | 653 | 720 | 708 | 623 | 772 |
| Service Time | 3.305 | 3.217 | 2.71 | 3.096 | 3.486 | 2.365 |
| HCM Lane V/C Ratio | 0.059 | 0.08 | 0.212 | 0.127 | 0.093 | 0.048 |
| HCM Control Delay | 8.6 | 8.7 | 9.1 | 8.8 | 9.1 | 7.6 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.3 | 0.8 | 0.4 | 0.3 | 0.2 |

# HCM 6th TWSC
## 8: SR 145 & California Ave

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | ↰ | ↑↱ | | | ↰↑↱ | |
| Traffic Vol, veh/h | 26 | 111 | 39 | 15 | 57 | 51 | 25 | 158 | 14 | 50 | 195 | 28 |
| Future Vol, veh/h | 26 | 111 | 39 | 15 | 57 | 51 | 25 | 158 | 14 | 50 | 195 | 28 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 80 | 80 | 80 | 82 | 82 | 82 | 88 | 88 | 88 | 87 | 87 | 87 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 33 | 139 | 49 | 18 | 70 | 62 | 28 | 180 | 16 | 57 | 224 | 32 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 535 | 606 | 128 | 540 | 614 | 98 | 256 | 0 | 0 | 196 | 0 | 0 |
| Stage 1 | 354 | 354 | - | 244 | 244 | - | - | - | - | - | - | - |
| Stage 2 | 181 | 252 | - | 296 | 370 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 426 | 408 | 895 | 423 | 403 | 936 | 1299 | - | - | 1367 | - | - |
| Stage 1 | 633 | 626 | - | 735 | 700 | - | - | - | - | - | - | - |
| Stage 2 | 800 | 695 | - | 685 | 616 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 323 | 379 | 895 | 272 | 375 | 936 | 1299 | - | - | 1367 | - | - |
| Mov Cap-2 Maneuver | 323 | 379 | - | 272 | 375 | - | - | - | - | - | - | - |
| Stage 1 | 619 | 595 | - | 719 | 685 | - | - | - | - | - | - | - |
| Stage 2 | 657 | 680 | - | 472 | 586 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 22.5 | 16.2 | 1 | 1.5 |
| HCM LOS | C | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1299 | - | - | 422 | 470 | 1367 | - | - |
| HCM Lane V/C Ratio | 0.022 | - | - | 0.521 | 0.319 | 0.042 | - | - |
| HCM Control Delay (s) | 7.8 | - | - | 22.5 | 16.2 | 7.7 | 0.1 | - |
| HCM Lane LOS | A | - | - | C | C | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 2.9 | 1.4 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 14 | 89 | 1 | 0 | 63 | 13 | 0 | 2 | 0 | 28 | 5 | 13 |
| Future Vol, veh/h | 14 | 89 | 1 | 0 | 63 | 13 | 0 | 2 | 0 | 28 | 5 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 86 | 86 | 86 | 25 | 25 | 25 | 86 | 86 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 16 | 101 | 1 | 0 | 73 | 15 | 0 | 8 | 0 | 33 | 6 | 14 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 88 | 0 | 0 | 102 | 0 | 0 | 225 | 222 | 102 | 219 | 215 | 81 |
| Stage 1 | - | - | - | - | - | - | 134 | 134 | - | 81 | 81 | - |
| Stage 2 | - | - | - | - | - | - | 91 | 88 | - | 138 | 134 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1501 | - | - | 1484 | - | - | 728 | 675 | 950 | 735 | 681 | 976 |
| Stage 1 | - | - | - | - | - | - | 867 | 784 | - | 925 | 826 | - |
| Stage 2 | - | - | - | - | - | - | 914 | 820 | - | 863 | 784 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1501 | - | - | 1484 | - | - | 707 | 668 | 950 | 723 | 674 | 976 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 707 | 668 | - | 723 | 674 | - |
| Stage 1 | - | - | - | - | - | - | 857 | 775 | - | 915 | 826 | - |
| Stage 2 | - | - | - | - | - | - | 894 | 820 | - | 845 | 775 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1 | 0 | 10.5 | 10 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 668 | 1501 | - | - | 1484 | - | - | 771 |
| HCM Lane V/C Ratio | 0.012 | 0.011 | - | - | - | - | - | 0.068 |
| HCM Control Delay (s) | 10.5 | 7.4 | 0 | - | 0 | - | - | 10 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | 0 | - | - | 0 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 10 | 388 | 21 | 26 | 323 | 3 | 43 | 30 | 20 | 3 | 21 | 7 |
| Future Vol, veh/h | 10 | 388 | 21 | 26 | 323 | 3 | 43 | 30 | 20 | 3 | 21 | 7 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 88 | 88 | 88 | 65 | 65 | 65 | 70 | 70 | 70 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 11 | 422 | 23 | 30 | 367 | 3 | 66 | 46 | 31 | 4 | 30 | 10 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 370 | 0 | 0 | 445 | 0 | 0 | 905 | 886 | 434 | 923 | 896 | 369 |
| Stage 1 | - | - | - | - | - | - | 456 | 456 | - | 429 | 429 | - |
| Stage 2 | - | - | - | - | - | - | 449 | 430 | - | 494 | 467 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1183 | - | - | 1110 | - | - | 256 | 282 | 620 | 249 | 279 | 674 |
| Stage 1 | - | - | - | - | - | - | 582 | 566 | - | 602 | 582 | - |
| Stage 2 | - | - | - | - | - | - | 587 | 582 | - | 555 | 560 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1183 | - | - | 1110 | - | - | 222 | 269 | 620 | 198 | 266 | 674 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 222 | 269 | - | 198 | 266 | - |
| Stage 1 | - | - | - | - | - | - | 575 | 559 | - | 595 | 562 | - |
| Stage 2 | - | - | - | - | - | - | 529 | 562 | - | 478 | 553 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.6 | 31.3 | 19.2 |
| HCM LOS | | | D | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 276 | 1183 | - | - | 1110 | - | - | 297 |
| HCM Lane V/C Ratio | 0.518 | 0.009 | - | - | 0.027 | - | - | 0.149 |
| HCM Control Delay (s) | 31.3 | 8.1 | 0 | - | 8.3 | 0 | - | 19.2 |
| HCM Lane LOS | D | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 2.8 | 0 | - | - | 0.1 | - | - | 0.5 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 11 | 386 | 60 | 147 | 329 | 26 | 25 | 34 | 108 | 21 | 44 | 5 |
| Future Volume (veh/h) | 11 | 386 | 60 | 147 | 329 | 26 | 25 | 34 | 108 | 21 | 44 | 5 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 13 | 471 | 73 | 160 | 358 | 28 | 31 | 42 | 135 | 24 | 51 | 6 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.80 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 29 | 523 | 443 | 164 | 1264 | 564 | 59 | 118 | 379 | 48 | 486 | 57 |
| Arrive On Green | 0.02 | 0.28 | 0.28 | 0.09 | 0.36 | 0.36 | 0.03 | 0.30 | 0.30 | 0.03 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 387 | 1244 | 1767 | 1629 | 192 |
| Grp Volume(v), veh/h | 13 | 471 | 73 | 160 | 358 | 28 | 31 | 0 | 177 | 24 | 0 | 57 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1632 | 1767 | 0 | 1821 |
| Q Serve(g_s), s | 0.4 | 15.0 | 2.1 | 5.5 | 4.4 | 0.7 | 1.1 | 0.0 | 5.2 | 0.8 | 0.0 | 1.4 |
| Cycle Q Clear(g_c), s | 0.4 | 15.0 | 2.1 | 5.5 | 4.4 | 0.7 | 1.1 | 0.0 | 5.2 | 0.8 | 0.0 | 1.4 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.76 | 1.00 |  | 0.11 |
| Lane Grp Cap(c), veh/h | 29 | 523 | 443 | 164 | 1264 | 564 | 59 | 0 | 497 | 48 | 0 | 543 |
| V/C Ratio(X) | 0.45 | 0.90 | 0.16 | 0.97 | 0.28 | 0.05 | 0.52 | 0.00 | 0.36 | 0.50 | 0.00 | 0.10 |
| Avail Cap(c_a), veh/h | 144 | 544 | 461 | 164 | 1264 | 564 | 144 | 0 | 497 | 144 | 0 | 543 |
| 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 | 29.9 | 21.2 | 16.6 | 27.8 | 14.0 | 12.8 | 29.2 | 0.0 | 16.6 | 29.4 | 0.0 | 15.6 |
| Incr Delay (d2), s/veh | 10.8 | 17.6 | 0.2 | 62.4 | 0.1 | 0.0 | 7.0 | 0.0 | 2.0 | 7.7 | 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 | 0.3 | 7.8 | 0.6 | 4.9 | 1.4 | 0.2 | 0.5 | 0.0 | 2.0 | 0.4 | 0.0 | 0.6 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 40.7 | 38.8 | 16.8 | 90.2 | 14.2 | 12.9 | 36.2 | 0.0 | 18.6 | 37.1 | 0.0 | 16.0 |
| LnGrp LOS | D | D | B | F | B | B | D | A | B | D | A | B |
| Approach Vol, veh/h |  | 557 |  |  | 546 |  |  | 208 |  |  | 81 |  |
| Approach Delay, s/veh |  | 36.0 |  |  | 36.4 |  |  | 21.3 |  |  | 22.2 |  |
| Approach LOS |  | D |  |  | D |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.2 | 23.2 | 10.2 | 21.8 | 6.6 | 22.8 | 5.5 | 26.5 |
| 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 | 18.3 | 5.7 | 18.0 | 5.0 | 18.3 | 5.0 | 18.7 |
| Max Q Clear Time (g_c+I1), s | 2.8 | 7.2 | 7.5 | 17.0 | 3.1 | 3.4 | 2.4 | 6.4 |
| Green Ext Time (p_c), s | 0.0 | 0.7 | 0.0 | 0.3 | 0.0 | 0.2 | 0.0 | 1.6 |

| Intersection Summary |  |  |  |
|---|---|---|---|
| HCM 6th Ctrl Delay |  |  | 33.1 |
| HCM 6th LOS |  |  | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 10.7 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 20 | 36 | 9 | 114 | 47 | 35 | 16 | 125 | 84 | 42 | 157 | 17 |
| Future Vol, veh/h | 20 | 36 | 9 | 114 | 47 | 35 | 16 | 125 | 84 | 42 | 157 | 17 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 22 | 40 | 10 | 128 | 53 | 39 | 18 | 140 | 94 | 47 | 176 | 19 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 9.6 | 10.4 | 11.2 | 10.7 |
| HCM LOS | A | B | B | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 60% | 0% | 80% | 0% | 57% | 0% | 90% |
| Vol Right, % | 0% | 40% | 0% | 20% | 0% | 43% | 0% | 10% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 16 | 209 | 20 | 45 | 114 | 82 | 42 | 174 |
| LT Vol | 16 | 0 | 20 | 0 | 114 | 0 | 42 | 0 |
| Through Vol | 0 | 125 | 0 | 36 | 0 | 47 | 0 | 157 |
| RT Vol | 0 | 84 | 0 | 9 | 0 | 35 | 0 | 17 |
| Lane Flow Rate | 18 | 235 | 22 | 51 | 128 | 92 | 47 | 196 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.031 | 0.358 | 0.042 | 0.086 | 0.233 | 0.147 | 0.082 | 0.31 |
| Departure Headway (Hd) | 6.276 | 5.487 | 6.795 | 6.146 | 6.538 | 5.73 | 6.274 | 5.7 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 572 | 658 | 527 | 583 | 551 | 627 | 572 | 631 |
| Service Time | 4.003 | 3.213 | 4.529 | 3.88 | 4.265 | 3.457 | 4.001 | 3.427 |
| HCM Lane V/C Ratio | 0.031 | 0.357 | 0.042 | 0.087 | 0.232 | 0.147 | 0.082 | 0.311 |
| HCM Control Delay | 9.2 | 11.3 | 9.8 | 9.5 | 11.2 | 9.4 | 9.6 | 11 |
| HCM Lane LOS | A | B | A | A | B | A | A | B |
| HCM 95th-tile Q | 0.1 | 1.6 | 0.1 | 0.3 | 0.9 | 0.5 | 0.3 | 1.3 |

## 4: S Del Norte Ave & Kearney Blvd.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 11.4 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 50 | 171 | 21 | 33 | 268 | 24 | 24 | 41 | 23 | 24 | 44 | 40 |
| Future Vol, veh/h | 50 | 171 | 21 | 33 | 268 | 24 | 24 | 41 | 23 | 24 | 44 | 40 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 55 | 188 | 23 | 36 | 295 | 26 | 26 | 45 | 25 | 26 | 48 | 44 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 10.6 | 12.9 | 9.8 | 9.9 |
| HCM LOS | B | B | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 27% | 100% | 0% | 100% | 0% | 22% |
| Vol Thru, % | 47% | 0% | 89% | 0% | 92% | 41% |
| Vol Right, % | 26% | 0% | 11% | 0% | 8% | 37% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 88 | 50 | 192 | 33 | 292 | 108 |
| LT Vol | 24 | 50 | 0 | 33 | 0 | 24 |
| Through Vol | 41 | 0 | 171 | 0 | 268 | 44 |
| RT Vol | 23 | 0 | 21 | 0 | 24 | 40 |
| Lane Flow Rate | 97 | 55 | 211 | 36 | 321 | 119 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.153 | 0.093 | 0.324 | 0.061 | 0.488 | 0.183 |
| Departure Headway (Hd) | 5.686 | 6.112 | 5.529 | 6.033 | 5.47 | 5.565 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 631 | 587 | 652 | 597 | 664 | 644 |
| Service Time | 3.721 | 3.837 | 3.254 | 3.733 | 3.17 | 3.601 |
| HCM Lane V/C Ratio | 0.154 | 0.094 | 0.324 | 0.06 | 0.483 | 0.185 |
| HCM Control Delay | 9.8 | 9.5 | 10.9 | 9.1 | 13.3 | 9.9 |
| HCM Lane LOS | A | A | B | A | B | A |
| HCM 95th-tile Q | 0.5 | 0.3 | 1.4 | 0.2 | 2.7 | 0.7 |

## HCM 6th Signalized Intersection Summary
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 70 | 101 | 41 | 40 | 145 | 55 | 40 | 551 | 38 | 51 | 340 | 81 |
| Future Volume (veh/h) | 70 | 101 | 41 | 40 | 145 | 55 | 40 | 551 | 38 | 51 | 340 | 81 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 80 | 115 | 47 | 43 | 158 | 60 | 48 | 656 | 45 | 59 | 391 | 93 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 | 0.84 | 0.84 | 0.84 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 139 | 517 | 438 | 136 | 514 | 435 | 136 | 973 | 67 | 136 | 823 | 194 |
| Arrive On Green | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.29 | 0.29 | 0.08 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3348 | 229 | 1767 | 2832 | 667 |
| Grp Volume(v), veh/h | 80 | 115 | 47 | 43 | 158 | 60 | 48 | 345 | 356 | 59 | 242 | 242 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1814 | 1767 | 1763 | 1736 |
| Q Serve(g_s), s | 2.8 | 3.1 | 1.4 | 1.5 | 4.4 | 1.9 | 1.7 | 11.2 | 11.2 | 2.1 | 7.3 | 7.5 |
| Cycle Q Clear(g_c), s | 2.8 | 3.1 | 1.4 | 1.5 | 4.4 | 1.9 | 1.7 | 11.2 | 11.2 | 2.1 | 7.3 | 7.5 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.13 | 1.00 |  | 0.38 |
| Lane Grp Cap(c), veh/h | 139 | 517 | 438 | 136 | 514 | 435 | 136 | 513 | 528 | 136 | 513 | 505 |
| V/C Ratio(X) | 0.58 | 0.22 | 0.11 | 0.32 | 0.31 | 0.14 | 0.35 | 0.67 | 0.67 | 0.43 | 0.47 | 0.48 |
| Avail Cap(c_a), veh/h | 139 | 517 | 438 | 136 | 514 | 435 | 136 | 513 | 528 | 136 | 513 | 505 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.9 | 18.0 | 17.4 | 28.4 | 18.6 | 17.7 | 28.5 | 20.3 | 20.3 | 28.6 | 18.9 | 19.0 |
| Incr Delay (d2), s/veh | 16.3 | 1.0 | 0.5 | 6.0 | 1.5 | 0.7 | 7.1 | 6.9 | 6.8 | 9.8 | 3.1 | 3.2 |
| 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 | 1.8 | 1.4 | 0.5 | 0.8 | 1.9 | 0.7 | 0.9 | 5.2 | 5.4 | 1.2 | 3.2 | 3.2 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 45.2 | 19.0 | 17.9 | 34.4 | 20.1 | 18.3 | 35.5 | 27.2 | 27.1 | 38.4 | 22.0 | 22.2 |
| LnGrp LOS | D | B | B | C | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h |  | 242 |  |  | 261 |  |  | 749 |  |  | 543 |  |
| Approach Delay, s/veh |  | 27.5 |  |  | 22.1 |  |  | 27.7 |  |  | 23.9 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 23.4 | 9.5 | 22.6 | 9.5 | 23.4 | 9.6 | 22.5 |
| 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 | 18.9 | 5.0 | 18.1 | 5.0 | 18.9 | 5.1 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.1 | 13.2 | 3.5 | 5.1 | 3.7 | 9.5 | 4.8 | 6.4 |
| Green Ext Time (p_c), s | 0.0 | 2.1 | 0.0 | 0.5 | 0.0 | 2.0 | 0.0 | 0.7 |

| Intersection Summary |  |  |  |
|---|---|---|---|
| HCM 6th Ctrl Delay |  |  | 25.7 |
| HCM 6th LOS |  |  | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.8 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 73 | 52 | 4 | 9 | 15 | 23 | 14 | 41 | 9 | 35 | 14 | 132 |
| Future Vol, veh/h | 73 | 52 | 4 | 9 | 15 | 23 | 14 | 41 | 9 | 35 | 14 | 132 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.84 | 0.84 | 0.84 | 0.74 | 0.74 | 0.74 | 0.91 | 0.91 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 94 | 67 | 5 | 11 | 18 | 27 | 19 | 55 | 12 | 38 | 15 | 143 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 9.2 | 8.2 | 8.6 | 8.6 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 82% | 0% | 93% | 0% | 39% | 0% | 10% |
| Vol Right, % | 0% | 18% | 0% | 7% | 0% | 61% | 0% | 90% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 14 | 50 | 73 | 56 | 9 | 38 | 35 | 146 |
| LT Vol | 14 | 0 | 73 | 0 | 9 | 0 | 35 | 0 |
| Through Vol | 0 | 41 | 0 | 52 | 0 | 15 | 0 | 14 |
| RT Vol | 0 | 9 | 0 | 4 | 0 | 23 | 0 | 132 |
| Lane Flow Rate | 19 | 68 | 94 | 72 | 11 | 45 | 38 | 159 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.031 | 0.098 | 0.151 | 0.105 | 0.018 | 0.063 | 0.061 | 0.203 |
| Departure Headway (Hd) | 5.833 | 5.203 | 5.793 | 5.24 | 5.929 | 4.999 | 5.735 | 4.596 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 613 | 687 | 618 | 682 | 602 | 713 | 625 | 780 |
| Service Time | 3.575 | 2.945 | 3.538 | 2.985 | 3.682 | 2.752 | 3.47 | 2.331 |
| HCM Lane V/C Ratio | 0.031 | 0.099 | 0.152 | 0.106 | 0.018 | 0.063 | 0.061 | 0.204 |
| HCM Control Delay | 8.8 | 8.5 | 9.6 | 8.6 | 8.8 | 8.1 | 8.8 | 8.5 |
| HCM Lane LOS | A | A | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.3 | 0.5 | 0.4 | 0.1 | 0.2 | 0.2 | 0.8 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.6 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑↱ | | | ↰↑↱ | | | ↰↑↱ | | | ↰↑ | ↱ |
| Traffic Vol, veh/h | 31 | 60 | 1 | 4 | 122 | 15 | 3 | 10 | 4 | 7 | 2 | 36 |
| Future Vol, veh/h | 31 | 60 | 1 | 4 | 122 | 15 | 3 | 10 | 4 | 7 | 2 | 36 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.84 | 0.84 | 0.84 | 0.86 | 0.86 | 0.86 | 0.71 | 0.71 | 0.71 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 39 | 75 | 1 | 5 | 145 | 18 | 3 | 12 | 5 | 10 | 3 | 51 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 8.3 | 9.2 | 8.4 | 7.8 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 18% | 100% | 0% | 3% | 78% | 0% |
| Vol Thru, % | 59% | 0% | 98% | 87% | 22% | 0% |
| Vol Right, % | 24% | 0% | 2% | 11% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 17 | 31 | 61 | 141 | 9 | 36 |
| LT Vol | 3 | 31 | 0 | 4 | 7 | 0 |
| Through Vol | 10 | 0 | 60 | 122 | 2 | 0 |
| RT Vol | 4 | 0 | 1 | 15 | 0 | 36 |
| Lane Flow Rate | 20 | 39 | 76 | 168 | 13 | 51 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.029 | 0.058 | 0.103 | 0.225 | 0.02 | 0.064 |
| Departure Headway (Hd) | 5.233 | 5.394 | 4.881 | 4.832 | 5.669 | 4.575 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 686 | 666 | 737 | 745 | 633 | 785 |
| Service Time | 3.251 | 3.11 | 2.596 | 2.846 | 3.386 | 2.291 |
| HCM Lane V/C Ratio | 0.029 | 0.059 | 0.103 | 0.226 | 0.021 | 0.065 |
| HCM Control Delay | 8.4 | 8.4 | 8.2 | 9.2 | 8.5 | 7.6 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.2 | 0.3 | 0.9 | 0.1 | 0.2 |

# HCM 6th TWSC
## 8: SR 145 & California Ave

11/17/2023

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | ↰ | ↑↱ | | | ↰↱ | |
| Traffic Vol, veh/h | 23 | 61 | 14 | 16 | 80 | 58 | 41 | 371 | 53 | 40 | 168 | 32 |
| Future Vol, veh/h | 23 | 61 | 14 | 16 | 80 | 58 | 41 | 371 | 53 | 40 | 168 | 32 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 72 | 72 | 72 | 92 | 92 | 92 | 82 | 82 | 82 | 88 | 88 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 32 | 85 | 19 | 17 | 87 | 63 | 50 | 452 | 65 | 45 | 191 | 35 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 669 | 916 | 113 | 813 | 901 | 259 | 226 | 0 | 0 | 517 | 0 | 0 |
| Stage 1 | 299 | 299 | - | 585 | 585 | - | - | - | - | - | - | - |
| Stage 2 | 370 | 617 | - | 228 | 316 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 341 | 269 | 915 | 268 | 275 | 737 | 1332 | - | - | 1038 | - | - |
| Stage 1 | 682 | 662 | - | 462 | 493 | - | - | - | - | - | - | - |
| Stage 2 | 620 | 477 | - | 751 | 651 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 214 | 246 | 915 | 180 | 251 | 737 | 1332 | - | - | 1038 | - | - |
| Mov Cap-2 Maneuver | 214 | 246 | - | 180 | 251 | - | - | - | - | - | - | - |
| Stage 1 | 656 | 629 | - | 444 | 474 | - | - | - | - | - | - | - |
| Stage 2 | 446 | 459 | - | 604 | 618 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 32.3 | 28.4 | 0.7 | 1.5 |
| HCM LOS | D | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1332 | - | - | 264 | 317 | 1038 | - | - |
| HCM Lane V/C Ratio | 0.038 | - | - | 0.516 | 0.528 | 0.044 | - | - |
| HCM Control Delay (s) | 7.8 | - | - | 32.3 | 28.4 | 8.6 | 0.1 | - |
| HCM Lane LOS | A | - | - | D | D | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 2.7 | 2.9 | 0.1 | - | - |

# HCM 6th TWSC
## 9: Jensen Ave & Siskiyou Ave

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 28 | 75 | 0 | 1 | 106 | 49 | 0 | 5 | 0 | 11 | 3 | 18 |
| Future Vol, veh/h | 28 | 75 | 0 | 1 | 106 | 49 | 0 | 5 | 0 | 11 | 3 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 75 | 75 | 75 | 87 | 87 | 87 | 25 | 25 | 25 | 51 | 51 | 51 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 37 | 100 | 0 | 1 | 122 | 56 | 0 | 20 | 0 | 22 | 6 | 35 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 178 | 0 | 0 | 100 | 0 | 0 | 347 | 354 | 100 | 336 | 326 | 150 |
| Stage 1 | - | - | - | - | - | - | 174 | 174 | - | 152 | 152 | - |
| Stage 2 | - | - | - | - | - | - | 173 | 180 | - | 184 | 174 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1392 | - | - | 1486 | - | - | 606 | 570 | 953 | 616 | 591 | 894 |
| Stage 1 | - | - | - | - | - | - | 825 | 753 | - | 848 | 770 | - |
| Stage 2 | - | - | - | - | - | - | 827 | 749 | - | 815 | 753 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1392 | - | - | 1486 | - | - | 565 | 553 | 953 | 586 | 574 | 894 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 565 | 553 | - | 586 | 574 | - |
| Stage 1 | - | - | - | - | - | - | 802 | 732 | - | 824 | 769 | - |
| Stage 2 | - | - | - | - | - | - | 787 | 748 | - | 771 | 732 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 2.1 | 0 | 11.8 | 10.4 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 553 | 1392 | - | - | 1486 | - | - | 725 |
| HCM Lane V/C Ratio | 0.036 | 0.027 | - | - | 0.001 | - | - | 0.087 |
| HCM Control Delay (s) | 11.8 | 7.7 | 0 | - | 7.4 | 0 | - | 10.4 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.1 | 0.1 | - | - | 0 | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 5 | 278 | 36 | 14 | 365 | 2 | 37 | 36 | 20 | 7 | 23 | 5 |
| Future Vol, veh/h | 5 | 278 | 36 | 14 | 365 | 2 | 37 | 36 | 20 | 7 | 23 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 82 | 82 | 82 | 83 | 83 | 83 | 61 | 61 | 61 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 5 | 305 | 40 | 17 | 445 | 2 | 45 | 43 | 24 | 11 | 38 | 8 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 447 | 0 | 0 | 345 | 0 | 0 | 838 | 816 | 325 | 849 | 835 | 446 |
| Stage 1 | - | - | - | - | - | - | 335 | 335 | - | 480 | 480 | - |
| Stage 2 | - | - | - | - | - | - | 503 | 481 | - | 369 | 355 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1108 | - | - | 1208 | - | - | 285 | 310 | 714 | 280 | 302 | 610 |
| Stage 1 | - | - | - | - | - | - | 677 | 641 | - | 565 | 553 | - |
| Stage 2 | - | - | - | - | - | - | 549 | 552 | - | 649 | 628 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1108 | - | - | 1208 | - | - | 249 | 302 | 714 | 236 | 294 | 610 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 249 | 302 | - | 236 | 294 | - |
| Stage 1 | - | - | - | - | - | - | 673 | 637 | - | 562 | 542 | - |
| Stage 2 | - | - | - | - | - | - | 494 | 542 | - | 581 | 624 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.3 | 22.7 | 19.8 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 314 | 1108 | - | - | 1208 | - | - | 301 |
| HCM Lane V/C Ratio | 0.357 | 0.005 | - | - | 0.014 | - | - | 0.191 |
| HCM Control Delay (s) | 22.7 | 8.3 | 0 | - | 8 | 0 | - | 19.8 |
| HCM Lane LOS | C | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 1.6 | 0 | - | - | 0 | - | - | 0.7 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↗ | ↘ | ↓ | ↙ |
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 2 | 307 | 61 | 75 | 300 | 28 | 87 | 89 | 241 | 36 | 57 | 10 |
| Future Volume (veh/h) | 2 | 307 | 61 | 75 | 300 | 28 | 87 | 89 | 241 | 36 | 57 | 10 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 3 | 394 | 78 | 84 | 337 | 31 | 105 | 106 | 287 | 51 | 80 | 14 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.89 | 0.89 | 0.89 | 0.83 | 0.84 | 0.84 | 0.70 | 0.71 | 0.71 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 7 | 464 | 393 | 111 | 1089 | 486 | 134 | 149 | 405 | 84 | 476 | 83 |
| Arrive On Green | 0.00 | 0.25 | 0.25 | 0.06 | 0.31 | 0.31 | 0.08 | 0.34 | 0.34 | 0.05 | 0.31 | 0.31 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 442 | 1198 | 1767 | 1538 | 269 |
| Grp Volume(v), veh/h | 3 | 394 | 78 | 84 | 337 | 31 | 105 | 0 | 393 | 51 | 0 | 94 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1640 | 1767 | 0 | 1807 |
| Q Serve(g_s), s | 0.1 | 12.1 | 2.3 | 2.8 | 4.4 | 0.8 | 3.5 | 0.0 | 12.5 | 1.7 | 0.0 | 2.3 |
| Cycle Q Clear(g_c), s | 0.1 | 12.1 | 2.3 | 2.8 | 4.4 | 0.8 | 3.5 | 0.0 | 12.5 | 1.7 | 0.0 | 2.3 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.73 | 1.00 |  | 0.15 |
| Lane Grp Cap(c), veh/h | 7 | 464 | 393 | 111 | 1089 | 486 | 134 | 0 | 554 | 84 | 0 | 560 |
| V/C Ratio(X) | 0.42 | 0.85 | 0.20 | 0.76 | 0.31 | 0.06 | 0.78 | 0.00 | 0.71 | 0.60 | 0.00 | 0.17 |
| Avail Cap(c_a), veh/h | 148 | 559 | 474 | 148 | 1089 | 486 | 163 | 0 | 554 | 148 | 0 | 560 |
| 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 | 29.7 | 21.3 | 17.7 | 27.5 | 15.8 | 14.5 | 27.1 | 0.0 | 17.2 | 27.9 | 0.0 | 15.0 |
| Incr Delay (d2), s/veh | 34.3 | 10.2 | 0.2 | 14.2 | 0.2 | 0.1 | 18.2 | 0.0 | 7.5 | 6.8 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.1 | 5.5 | 0.7 | 1.5 | 1.4 | 0.2 | 2.0 | 0.0 | 5.2 | 0.8 | 0.0 | 0.9 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 64.0 | 31.5 | 17.9 | 41.8 | 15.9 | 14.6 | 45.3 | 0.0 | 24.7 | 34.6 | 0.0 | 15.6 |
| LnGrp LOS | E | C | B | D | B | B | D | A | C | C | A | B |
| Approach Vol, veh/h |  | 475 |  |  | 452 |  |  | 498 |  |  | 145 |  |
| Approach Delay, s/veh |  | 29.5 |  |  | 20.6 |  |  | 29.1 |  |  | 22.3 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.4 | 24.7 | 8.3 | 19.4 | 9.0 | 23.0 | 4.7 | 22.9 |
| 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 | 19.0 | 5.0 | 18.0 | 5.5 | 18.5 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 3.7 | 14.5 | 4.8 | 14.1 | 5.5 | 4.3 | 2.1 | 6.4 |
| Green Ext Time (p_c), s | 0.0 | 1.0 | 0.0 | 0.9 | 0.0 | 0.3 | 0.0 | 1.5 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 26.1 |
| HCM 6th LOS | C |

# HCM 6th AWSC
## 3: Siskiyou Ave & Kearney Blvd.

11/17/2023

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 28.4 |
| Intersection LOS | D |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 43 | 58 | 21 | 124 | 41 | 38 | 16 | 247 | 157 | 49 | 155 | 33 |
| Future Vol, veh/h | 43 | 58 | 21 | 124 | 41 | 38 | 16 | 247 | 157 | 49 | 155 | 33 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 56 | 75 | 27 | 161 | 53 | 49 | 21 | 321 | 204 | 64 | 201 | 43 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 12.6 | 14.1 | 47.4 | 15 |
| HCM LOS | B | B | E | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 61% | 0% | 73% | 0% | 52% | 0% | 82% |
| Vol Right, % | 0% | 39% | 0% | 27% | 0% | 48% | 0% | 18% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 16 | 404 | 43 | 79 | 124 | 79 | 49 | 188 |
| LT Vol | 16 | 0 | 43 | 0 | 124 | 0 | 49 | 0 |
| Through Vol | 0 | 247 | 0 | 58 | 0 | 41 | 0 | 155 |
| RT Vol | 0 | 157 | 0 | 21 | 0 | 38 | 0 | 33 |
| Lane Flow Rate | 21 | 525 | 56 | 103 | 161 | 103 | 64 | 244 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.042 | 0.936 | 0.131 | 0.22 | 0.364 | 0.208 | 0.135 | 0.474 |
| Departure Headway (Hd) | 7.21 | 6.424 | 8.441 | 7.734 | 8.141 | 7.281 | 7.633 | 6.994 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 497 | 567 | 424 | 463 | 441 | 492 | 469 | 515 |
| Service Time | 4.955 | 4.168 | 6.207 | 5.498 | 5.898 | 5.037 | 5.389 | 4.75 |
| HCM Lane V/C Ratio | 0.042 | 0.926 | 0.132 | 0.222 | 0.365 | 0.209 | 0.136 | 0.474 |
| HCM Control Delay | 10.3 | 48.9 | 12.5 | 12.7 | 15.5 | 12 | 11.6 | 15.9 |
| HCM Lane LOS | B | E | B | B | C | B | B | C |
| HCM 95th-tile Q | 0.1 | 11.9 | 0.4 | 0.8 | 1.6 | 0.8 | 0.5 | 2.5 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 17.4 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 115 | 275 | 15 | 17 | 141 | 21 | 38 | 118 | 27 | 62 | 48 | 65 |
| Future Vol, veh/h | 115 | 275 | 15 | 17 | 141 | 21 | 38 | 118 | 27 | 62 | 48 | 65 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 151 | 362 | 20 | 22 | 186 | 28 | 50 | 155 | 36 | 82 | 63 | 86 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 20.7 | 14.5 | 15.3 | 14.7 |
| HCM LOS | C | B | C | B |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 21% | 100% | 0% | 100% | 0% | 35% |
| Vol Thru, % | 64% | 0% | 95% | 0% | 87% | 27% |
| Vol Right, % | 15% | 0% | 5% | 0% | 13% | 37% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 183 | 115 | 290 | 17 | 162 | 175 |
| LT Vol | 38 | 115 | 0 | 17 | 0 | 62 |
| Through Vol | 118 | 0 | 275 | 0 | 141 | 48 |
| RT Vol | 27 | 0 | 15 | 0 | 21 | 65 |
| Lane Flow Rate | 241 | 151 | 382 | 22 | 213 | 230 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.452 | 0.302 | 0.703 | 0.048 | 0.419 | 0.427 |
| Departure Headway (Hd) | 6.751 | 7.181 | 6.633 | 7.689 | 7.082 | 6.683 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 532 | 501 | 546 | 465 | 507 | 539 |
| Service Time | 4.8 | 4.928 | 4.38 | 5.444 | 4.837 | 4.736 |
| HCM Lane V/C Ratio | 0.453 | 0.301 | 0.7 | 0.047 | 0.42 | 0.427 |
| HCM Control Delay | 15.3 | 13 | 23.7 | 10.8 | 14.9 | 14.7 |
| HCM Lane LOS | C | B | C | B | B | B |
| HCM 95th-tile Q | 2.3 | 1.3 | 5.6 | 0.2 | 2 | 2.1 |

# HCM 6th Signalized Intersection Summary
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ | | ↰ | ↑↱ | |
| Traffic Volume (veh/h) | 126 | 170 | 70 | 34 | 240 | 82 | 61 | 358 | 28 | 49 | 407 | 61 |
| Future Volume (veh/h) | 126 | 170 | 70 | 34 | 240 | 82 | 61 | 358 | 28 | 49 | 407 | 61 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 143 | 193 | 80 | 47 | 329 | 112 | 73 | 426 | 33 | 56 | 468 | 70 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.73 | 0.73 | 0.73 | 0.84 | 0.84 | 0.84 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 918 | 71 | 136 | 852 | 127 |
| Arrive On Green | 0.09 | 0.28 | 0.28 | 0.09 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3316 | 256 | 1767 | 3078 | 458 |
| Grp Volume(v), veh/h | 143 | 193 | 80 | 47 | 329 | 112 | 73 | 226 | 233 | 56 | 267 | 271 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1809 | 1767 | 1763 | 1773 |
| Q Serve(g_s), s | 5.2 | 5.5 | 2.5 | 1.6 | 10.1 | 2.5 | 2.6 | 6.9 | 7.0 | 2.0 | 8.4 | 8.5 |
| Cycle Q Clear(g_c), s | 5.2 | 5.5 | 2.5 | 1.6 | 10.1 | 2.5 | 2.6 | 6.9 | 7.0 | 2.0 | 8.4 | 8.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.14 | 1.00 | | 0.26 |
| Lane Grp Cap(c), veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 488 | 501 | 136 | 488 | 491 |
| V/C Ratio(X) | 0.88 | 0.38 | 0.18 | 0.29 | 0.64 | 0.26 | 0.54 | 0.46 | 0.47 | 0.41 | 0.55 | 0.55 |
| Avail Cap(c_a), veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 488 | 501 | 136 | 488 | 491 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.1 | 19.0 | 17.9 | 27.5 | 20.7 | 9.0 | 28.9 | 19.5 | 19.5 | 28.6 | 20.0 | 20.1 |
| Incr Delay (d2), s/veh | 43.8 | 2.1 | 0.9 | 4.4 | 6.0 | 1.4 | 14.4 | 3.1 | 3.1 | 9.0 | 4.4 | 4.4 |
| 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 | 4.1 | 2.4 | 1.0 | 0.8 | 4.8 | 1.3 | 1.6 | 3.1 | 3.2 | 1.1 | 3.8 | 3.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 73.0 | 21.1 | 18.8 | 31.9 | 26.7 | 10.4 | 43.3 | 22.6 | 22.6 | 37.6 | 24.4 | 24.5 |
| LnGrp LOS | E | C | B | C | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h | | 416 | | | 488 | | | 532 | | | 594 | |
| Approach Delay, s/veh | | 38.5 | | | 23.4 | | | 25.4 | | | 25.7 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 22.5 | 10.5 | 22.5 | 9.5 | 22.5 | 10.5 | 22.5 |
| 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 | 18.0 | 6.0 | 18.0 | 5.0 | 18.0 | 6.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.0 | 9.0 | 3.6 | 7.5 | 4.6 | 10.5 | 7.2 | 12.1 |
| Green Ext Time (p_c), s | 0.0 | 1.8 | 0.0 | 0.9 | 0.0 | 1.9 | 0.0 | 1.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 27.7 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 10.9 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 140 | 60 | 11 | 8 | 9 | 61 | 5 | 47 | 7 | 96 | 23 | 68 |
| Future Vol, veh/h | 140 | 60 | 11 | 8 | 9 | 61 | 5 | 47 | 7 | 96 | 23 | 68 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.60 | 0.60 | 0.60 | 0.70 | 0.70 | 0.70 | 0.53 | 0.53 | 0.53 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 187 | 80 | 15 | 13 | 15 | 102 | 7 | 67 | 10 | 181 | 43 | 128 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 11.6 | 9.6 | 9.9 | 11 |
| HCM LOS | B | A | A | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 87% | 0% | 85% | 0% | 13% | 0% | 25% |
| Vol Right, % | 0% | 13% | 0% | 15% | 0% | 87% | 0% | 75% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 5 | 54 | 140 | 71 | 8 | 70 | 96 | 91 |
| LT Vol | 5 | 0 | 140 | 0 | 8 | 0 | 96 | 0 |
| Through Vol | 0 | 47 | 0 | 60 | 0 | 9 | 0 | 23 |
| RT Vol | 0 | 7 | 0 | 11 | 0 | 61 | 0 | 68 |
| Lane Flow Rate | 7 | 77 | 187 | 95 | 13 | 117 | 181 | 172 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.013 | 0.133 | 0.336 | 0.154 | 0.025 | 0.182 | 0.321 | 0.255 |
| Departure Headway (Hd) | 6.788 | 6.189 | 6.475 | 5.86 | 6.736 | 5.611 | 6.388 | 5.355 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 527 | 579 | 556 | 612 | 532 | 639 | 563 | 671 |
| Service Time | 4.527 | 3.927 | 4.204 | 3.589 | 4.47 | 3.344 | 4.119 | 3.086 |
| HCM Lane V/C Ratio | 0.013 | 0.133 | 0.336 | 0.155 | 0.024 | 0.183 | 0.321 | 0.256 |
| HCM Control Delay | 9.6 | 9.9 | 12.5 | 9.7 | 9.6 | 9.6 | 12.1 | 9.9 |
| HCM Lane LOS | A | A | B | A | A | A | B | A |
| HCM 95th-tile Q | 0 | 0.5 | 1.5 | 0.5 | 0.1 | 0.7 | 1.4 | 1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | | ✥ | | | ✥ | | | ↰ | ↱ |
| Traffic Vol, veh/h | 56 | 163 | 1 | 0 | 68 | 10 | 6 | 17 | 10 | 30 | 6 | 37 |
| Future Vol, veh/h | 56 | 163 | 1 | 0 | 68 | 10 | 6 | 17 | 10 | 30 | 6 | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.78 | 0.78 | 0.78 | 0.80 | 0.80 | 0.80 | 0.60 | 0.60 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 61 | 177 | 1 | 0 | 87 | 13 | 8 | 21 | 13 | 50 | 10 | 40 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 9.2 | 9 | 8.8 | 8.7 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 18% | 100% | 0% | 0% | 83% | 0% |
| Vol Thru, % | 52% | 0% | 99% | 87% | 17% | 0% |
| Vol Right, % | 30% | 0% | 1% | 13% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 33 | 56 | 164 | 78 | 36 | 37 |
| LT Vol | 6 | 56 | 0 | 0 | 30 | 0 |
| Through Vol | 17 | 0 | 163 | 68 | 6 | 0 |
| RT Vol | 10 | 0 | 1 | 10 | 0 | 37 |
| Lane Flow Rate | 41 | 61 | 178 | 100 | 60 | 40 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.062 | 0.093 | 0.249 | 0.143 | 0.098 | 0.053 |
| Departure Headway (Hd) | 5.395 | 5.526 | 5.02 | 5.138 | 5.873 | 4.748 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 663 | 649 | 717 | 698 | 610 | 753 |
| Service Time | 3.437 | 3.254 | 2.748 | 3.171 | 3.61 | 2.485 |
| HCM Lane V/C Ratio | 0.062 | 0.094 | 0.248 | 0.143 | 0.098 | 0.053 |
| HCM Control Delay | 8.8 | 8.8 | 9.4 | 9 | 9.3 | 7.8 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.3 | 1 | 0.5 | 0.3 | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 10.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↰↑↱ | | | ↰↑↱ | | ↰ | ↑↱ | | | ↰↑↱ | |
| Traffic Vol, veh/h | 29 | 122 | 54 | 16 | 61 | 53 | 29 | 164 | 15 | 52 | 203 | 29 |
| Future Vol, veh/h | 29 | 122 | 54 | 16 | 61 | 53 | 29 | 164 | 15 | 52 | 203 | 29 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 80 | 80 | 80 | 82 | 82 | 82 | 88 | 88 | 88 | 87 | 87 | 87 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 36 | 153 | 68 | 20 | 74 | 65 | 33 | 186 | 17 | 60 | 233 | 33 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 566 | 639 | 133 | 574 | 647 | 102 | 266 | 0 | 0 | 203 | 0 | 0 |
| Stage 1 | 370 | 370 | - | 261 | 261 | - | - | - | - | - | - | - |
| Stage 2 | 196 | 269 | - | 313 | 386 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 405 | 390 | 888 | 400 | 386 | 930 | 1288 | - | - | 1359 | - | - |
| Stage 1 | 620 | 616 | - | 718 | 688 | - | - | - | - | - | - | - |
| Stage 2 | 784 | 683 | - | 670 | 606 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 298 | 360 | 888 | 234 | 356 | 930 | 1288 | - | - | 1359 | - | - |
| Mov Cap-2 Maneuver | 298 | 360 | - | 234 | 356 | - | - | - | - | - | - | - |
| Stage 1 | 604 | 584 | - | 699 | 670 | - | - | - | - | - | - | - |
| Stage 2 | 632 | 665 | - | 434 | 574 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 27.1 | 17.8 | 1.1 | 1.5 |
| HCM LOS | D | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1288 | - | - | 412 | 438 | 1359 | - | - |
| HCM Lane V/C Ratio | 0.026 | - | - | 0.622 | 0.362 | 0.044 | - | - |
| HCM Control Delay (s) | 7.9 | - | - | 27.1 | 17.8 | 7.8 | 0.1 | - |
| HCM Lane LOS | A | - | - | D | C | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 4.1 | 1.6 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 15 | 93 | 1 | 0 | 66 | 14 | 0 | 2 | 0 | 29 | 7 | 14 |
| Future Vol, veh/h | 15 | 93 | 1 | 0 | 66 | 14 | 0 | 2 | 0 | 29 | 7 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 86 | 86 | 86 | 25 | 25 | 25 | 86 | 86 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 17 | 106 | 1 | 0 | 77 | 16 | 0 | 8 | 0 | 34 | 8 | 15 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 93 | 0 | 0 | 107 | 0 | 0 | 238 | 234 | 107 | 230 | 226 | 85 |
| Stage 1 | - | - | - | - | - | - | 141 | 141 | - | 85 | 85 | - |
| Stage 2 | - | - | - | - | - | - | 97 | 93 | - | 145 | 141 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1495 | - | - | 1478 | - | - | 714 | 665 | 944 | 723 | 671 | 971 |
| Stage 1 | - | - | - | - | - | - | 860 | 778 | - | 920 | 822 | - |
| Stage 2 | - | - | - | - | - | - | 907 | 816 | - | 855 | 778 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1495 | - | - | 1478 | - | - | 690 | 657 | 944 | 710 | 663 | 971 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 690 | 657 | - | 710 | 663 | - |
| Stage 1 | - | - | - | - | - | - | 850 | 769 | - | 909 | 822 | - |
| Stage 2 | - | - | - | - | - | - | 884 | 816 | - | 836 | 769 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1 | 0 | 10.5 | 10.1 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 657 | 1495 | - | - | 1478 | - | - | 757 |
| HCM Lane V/C Ratio | 0.012 | 0.011 | - | - | - | - | - | 0.075 |
| HCM Control Delay (s) | 10.5 | 7.4 | 0 | - | 0 | - | - | 10.1 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | 0 | - | - | 0 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 10 | 421 | 22 | 27 | 346 | 3 | 45 | 31 | 21 | 3 | 22 | 7 |
| Future Vol, veh/h | 10 | 421 | 22 | 27 | 346 | 3 | 45 | 31 | 21 | 3 | 22 | 7 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 88 | 88 | 88 | 65 | 65 | 65 | 70 | 70 | 70 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 11 | 458 | 24 | 31 | 393 | 3 | 69 | 48 | 32 | 4 | 31 | 10 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 396 | 0 | 0 | 482 | 0 | 0 | 969 | 950 | 470 | 989 | 961 | 395 |
| Stage 1 | - | - | - | - | - | - | 492 | 492 | - | 457 | 457 | - |
| Stage 2 | - | - | - | - | - | - | 477 | 458 | - | 532 | 504 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1157 | - | - | 1075 | - | - | 232 | 259 | 591 | 225 | 255 | 652 |
| Stage 1 | - | - | - | - | - | - | 557 | 546 | - | 581 | 566 | - |
| Stage 2 | - | - | - | - | - | - | 567 | 565 | - | 529 | 539 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1157 | - | - | 1075 | - | - | 198 | 246 | 591 | 174 | 242 | 652 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 198 | 246 | - | 174 | 242 | - |
| Stage 1 | - | - | - | - | - | - | 550 | 539 | - | 573 | 545 | - |
| Stage 2 | - | - | - | - | - | - | 507 | 544 | - | 450 | 532 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.6 | 39 | 21.1 |
| HCM LOS | | | E | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 249 | 1157 | - | - | 1075 | - | - | 269 |
| HCM Lane V/C Ratio | 0.599 | 0.009 | - | - | 0.029 | - | - | 0.17 |
| HCM Control Delay (s) | 39 | 8.1 | 0 | - | 8.4 | 0 | - | 21.1 |
| HCM Lane LOS | E | A | A | - | A | A | - | C |
| HCM 95th %tile Q(veh) | 3.5 | 0 | - | - | 0.1 | - | - | 0.6 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 11 | 402 | 65 | 196 | 374 | 27 | 27 | 35 | 141 | 22 | 46 | 5 |
| Future Volume (veh/h) | 11 | 402 | 65 | 196 | 374 | 27 | 27 | 35 | 141 | 22 | 46 | 5 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 13 | 490 | 79 | 213 | 407 | 29 | 34 | 44 | 176 | 25 | 53 | 6 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.80 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 28 | 531 | 450 | 247 | 1445 | 644 | 62 | 91 | 362 | 49 | 445 | 50 |
| Arrive On Green | 0.02 | 0.29 | 0.29 | 0.14 | 0.41 | 0.41 | 0.03 | 0.28 | 0.28 | 0.03 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 324 | 1298 | 1767 | 1637 | 185 |
| Grp Volume(v), veh/h | 13 | 490 | 79 | 213 | 407 | 29 | 34 | 0 | 220 | 25 | 0 | 59 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1622 | 1767 | 0 | 1822 |
| Q Serve(g_s), s | 0.5 | 17.2 | 2.5 | 7.9 | 5.2 | 0.7 | 1.3 | 0.0 | 7.6 | 0.9 | 0.0 | 1.6 |
| Cycle Q Clear(g_c), s | 0.5 | 17.2 | 2.5 | 7.9 | 5.2 | 0.7 | 1.3 | 0.0 | 7.6 | 0.9 | 0.0 | 1.6 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.80 | 1.00 |  | 0.10 |
| Lane Grp Cap(c), veh/h | 28 | 531 | 450 | 247 | 1445 | 644 | 62 | 0 | 453 | 49 | 0 | 495 |
| V/C Ratio(X) | 0.46 | 0.92 | 0.18 | 0.86 | 0.28 | 0.05 | 0.55 | 0.00 | 0.49 | 0.51 | 0.00 | 0.12 |
| Avail Cap(c_a), veh/h | 131 | 532 | 451 | 247 | 1445 | 644 | 131 | 0 | 453 | 131 | 0 | 495 |
| 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 | 32.8 | 23.3 | 18.1 | 28.3 | 13.3 | 11.9 | 32.0 | 0.0 | 20.2 | 32.3 | 0.0 | 18.4 |
| Incr Delay (d2), s/veh | 11.1 | 21.8 | 0.2 | 25.5 | 0.1 | 0.0 | 7.4 | 0.0 | 3.7 | 8.0 | 0.0 | 0.5 |
| 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 | 0.3 | 9.4 | 0.8 | 4.7 | 1.6 | 0.2 | 0.6 | 0.0 | 3.1 | 0.5 | 0.0 | 0.7 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 44.0 | 45.1 | 18.2 | 53.9 | 13.4 | 12.0 | 39.4 | 0.0 | 23.9 | 40.2 | 0.0 | 18.9 |
| LnGrp LOS | D | D | B | D | B | B | D | A | C | D | A | B |
| Approach Vol, veh/h |  | 582 |  |  | 649 |  |  | 254 |  |  | 84 |  |
| Approach Delay, s/veh |  | 41.4 |  |  | 26.6 |  |  | 26.0 |  |  | 25.3 |  |
| Approach LOS |  | D |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.4 | 23.3 | 13.9 | 23.8 | 6.9 | 22.8 | 5.6 | 32.1 |
| 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 | 18.3 | 9.4 | 19.3 | 5.0 | 18.3 | 5.0 | 23.7 |
| Max Q Clear Time (g_c+I1), s | 2.9 | 9.6 | 9.9 | 19.2 | 3.3 | 3.6 | 2.5 | 7.2 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.1 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 31.9 |
| HCM 6th LOS | C |

## 3: Siskiyou Ave & Kearney Blvd.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 12.4 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 35 | 55 | 18 | 131 | 79 | 36 | 31 | 141 | 94 | 44 | 184 | 42 |
| Future Vol, veh/h | 35 | 55 | 18 | 131 | 79 | 36 | 31 | 141 | 94 | 44 | 184 | 42 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 39 | 62 | 20 | 147 | 89 | 40 | 35 | 158 | 106 | 49 | 207 | 47 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 10.7 | 11.8 | 13 | 13 |
| HCM LOS | B | B | B | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 60% | 0% | 75% | 0% | 69% | 0% | 81% |
| Vol Right, % | 0% | 40% | 0% | 25% | 0% | 31% | 0% | 19% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 31 | 235 | 35 | 73 | 131 | 115 | 44 | 226 |
| LT Vol | 31 | 0 | 35 | 0 | 131 | 0 | 44 | 0 |
| Through Vol | 0 | 141 | 0 | 55 | 0 | 79 | 0 | 184 |
| RT Vol | 0 | 94 | 0 | 18 | 0 | 36 | 0 | 42 |
| Lane Flow Rate | 35 | 264 | 39 | 82 | 147 | 129 | 49 | 254 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.066 | 0.44 | 0.08 | 0.151 | 0.287 | 0.226 | 0.093 | 0.433 |
| Departure Headway (Hd) | 6.793 | 6.002 | 7.333 | 6.647 | 7.027 | 6.297 | 6.777 | 6.138 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 526 | 597 | 486 | 536 | 509 | 569 | 528 | 584 |
| Service Time | 4.554 | 3.762 | 5.109 | 4.423 | 4.79 | 4.059 | 4.537 | 3.897 |
| HCM Lane V/C Ratio | 0.067 | 0.442 | 0.08 | 0.153 | 0.289 | 0.227 | 0.093 | 0.435 |
| HCM Control Delay | 10 | 13.4 | 10.8 | 10.6 | 12.6 | 10.9 | 10.2 | 13.5 |
| HCM Lane LOS | A | B | B | B | B | B | B | B |
| HCM 95th-tile Q | 0.2 | 2.2 | 0.3 | 0.5 | 1.2 | 0.9 | 0.3 | 2.2 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 12.8 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 56 | 198 | 22 | 34 | 313 | 25 | 25 | 43 | 24 | 25 | 46 | 49 |
| Future Vol, veh/h | 56 | 198 | 22 | 34 | 313 | 25 | 25 | 43 | 24 | 25 | 46 | 49 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 62 | 218 | 24 | 37 | 344 | 27 | 27 | 47 | 26 | 27 | 51 | 54 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 11.6 | 15.2 | 10.2 | 10.4 |
| HCM LOS | B | C | B | B |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 27% | 100% | 0% | 100% | 0% | 21% |
| Vol Thru, % | 47% | 0% | 90% | 0% | 93% | 38% |
| Vol Right, % | 26% | 0% | 10% | 0% | 7% | 41% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 92 | 56 | 220 | 34 | 338 | 120 |
| LT Vol | 25 | 56 | 0 | 34 | 0 | 25 |
| Through Vol | 43 | 0 | 198 | 0 | 313 | 46 |
| RT Vol | 24 | 0 | 22 | 0 | 25 | 49 |
| Lane Flow Rate | 101 | 62 | 242 | 37 | 371 | 132 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.168 | 0.107 | 0.383 | 0.064 | 0.578 | 0.213 |
| Departure Headway (Hd) | 5.984 | 6.279 | 5.701 | 6.158 | 5.599 | 5.812 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 599 | 571 | 631 | 582 | 646 | 616 |
| Service Time | 4.032 | 4.016 | 3.438 | 3.891 | 3.332 | 3.859 |
| HCM Lane V/C Ratio | 0.169 | 0.109 | 0.384 | 0.064 | 0.574 | 0.214 |
| HCM Control Delay | 10.2 | 9.8 | 12 | 9.3 | 15.8 | 10.4 |
| HCM Lane LOS | B | A | B | A | C | B |
| HCM 95th-tile Q | 0.6 | 0.4 | 1.8 | 0.2 | 3.7 | 0.8 |

# HCM 6th Signalized Intersection Summary
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 93 | 105 | 46 | 42 | 151 | 57 | 47 | 573 | 40 | 53 | 354 | 114 |
| Future Volume (veh/h) | 93 | 105 | 46 | 42 | 151 | 57 | 47 | 573 | 40 | 53 | 354 | 114 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 106 | 119 | 52 | 46 | 164 | 62 | 56 | 682 | 48 | 61 | 407 | 131 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 | 0.84 | 0.84 | 0.84 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 951 | 67 | 136 | 749 | 238 |
| Arrive On Green | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3341 | 235 | 1767 | 2630 | 837 |
| Grp Volume(v), veh/h | 106 | 119 | 52 | 46 | 164 | 62 | 56 | 360 | 370 | 61 | 271 | 267 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1813 | 1767 | 1763 | 1705 |
| Q Serve(g_s), s | 3.8 | 3.2 | 1.6 | 1.6 | 4.6 | 1.9 | 2.0 | 11.9 | 11.9 | 2.1 | 8.5 | 8.6 |
| Cycle Q Clear(g_c), s | 3.8 | 3.2 | 1.6 | 1.6 | 4.6 | 1.9 | 2.0 | 11.9 | 11.9 | 2.1 | 8.5 | 8.6 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.13 | 1.00 |  | 0.49 |
| Lane Grp Cap(c), veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 502 | 516 | 136 | 502 | 485 |
| V/C Ratio(X) | 0.71 | 0.23 | 0.12 | 0.34 | 0.32 | 0.14 | 0.41 | 0.72 | 0.72 | 0.45 | 0.54 | 0.55 |
| Avail Cap(c_a), veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 502 | 516 | 136 | 502 | 485 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.0 | 17.8 | 17.2 | 28.4 | 18.6 | 17.7 | 28.6 | 20.9 | 20.9 | 28.7 | 19.7 | 19.7 |
| Incr Delay (d2), s/veh | 24.7 | 1.0 | 0.5 | 6.6 | 1.6 | 0.7 | 9.0 | 8.5 | 8.3 | 10.3 | 4.1 | 4.4 |
| 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 | 2.5 | 1.4 | 0.6 | 0.9 | 2.0 | 0.7 | 1.1 | 5.7 | 5.9 | 1.3 | 3.8 | 3.8 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 53.6 | 18.8 | 17.7 | 35.1 | 20.3 | 18.4 | 37.6 | 29.4 | 29.2 | 39.0 | 23.8 | 24.1 |
| LnGrp LOS | D | B | B | D | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h |  | 277 |  |  | 272 |  |  | 786 |  |  | 599 |  |
| Approach Delay, s/veh |  | 31.9 |  |  | 22.3 |  |  | 29.9 |  |  | 25.5 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 23.0 | 9.5 | 23.0 | 9.5 | 23.0 | 10.0 | 22.5 |
| 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 | 18.5 | 5.0 | 18.5 | 5.0 | 18.5 | 5.5 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.1 | 13.9 | 3.6 | 5.2 | 4.0 | 10.6 | 5.8 | 6.6 |
| Green Ext Time (p_c), s | 0.0 | 1.9 | 0.0 | 0.6 | 0.0 | 2.0 | 0.0 | 0.8 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 27.8 |
| HCM 6th LOS | C |

| 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 | 74 | 53 | 4 | 9 | 16 | 38 | 14 | 54 | 9 | 66 | 33 | 134 |
| Future Vol, veh/h | 74 | 53 | 4 | 9 | 16 | 38 | 14 | 54 | 9 | 66 | 33 | 134 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.84 | 0.84 | 0.84 | 0.74 | 0.74 | 0.74 | 0.91 | 0.91 | 0.92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 95 | 68 | 5 | 11 | 19 | 45 | 19 | 73 | 12 | 73 | 36 | 146 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 9.5 | 8.5 | 8.9 | 9.1 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 86% | 0% | 93% | 0% | 30% | 0% | 20% |
| Vol Right, % | 0% | 14% | 0% | 7% | 0% | 70% | 0% | 80% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 14 | 63 | 74 | 57 | 9 | 54 | 66 | 167 |
| LT Vol | 14 | 0 | 74 | 0 | 9 | 0 | 66 | 0 |
| Through Vol | 0 | 54 | 0 | 53 | 0 | 16 | 0 | 33 |
| RT Vol | 0 | 9 | 0 | 4 | 0 | 38 | 0 | 134 |
| Lane Flow Rate | 19 | 85 | 95 | 73 | 11 | 64 | 73 | 182 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.031 | 0.127 | 0.158 | 0.111 | 0.018 | 0.092 | 0.117 | 0.24 |
| Departure Headway (Hd) | 5.97 | 5.366 | 6.014 | 5.462 | 6.146 | 5.145 | 5.821 | 4.754 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 597 | 665 | 594 | 653 | 580 | 692 | 614 | 753 |
| Service Time | 3.731 | 3.127 | 3.774 | 3.22 | 3.914 | 2.912 | 3.57 | 2.502 |
| HCM Lane V/C Ratio | 0.032 | 0.128 | 0.16 | 0.112 | 0.019 | 0.092 | 0.119 | 0.242 |
| HCM Control Delay | 8.9 | 8.9 | 9.9 | 8.9 | 9 | 8.4 | 9.3 | 9 |
| HCM Lane LOS | A | A | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.4 | 0.6 | 0.4 | 0.1 | 0.3 | 0.4 | 0.9 |

| 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 | 37 | 77 | 1 | 4 | 140 | 16 | 3 | 10 | 4 | 7 | 2 | 43 |
| Future Vol, veh/h | 37 | 77 | 1 | 4 | 140 | 16 | 3 | 10 | 4 | 7 | 2 | 43 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.84 | 0.84 | 0.84 | 0.86 | 0.86 | 0.86 | 0.71 | 0.71 | 0.71 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 46 | 96 | 1 | 5 | 167 | 19 | 3 | 12 | 5 | 10 | 3 | 61 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 8.5 | 9.6 | 8.6 | 7.9 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 18% | 100% | 0% | 3% | 78% | 0% |
| Vol Thru, % | 59% | 0% | 99% | 88% | 22% | 0% |
| Vol Right, % | 24% | 0% | 1% | 10% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 17 | 37 | 78 | 160 | 9 | 43 |
| LT Vol | 3 | 37 | 0 | 4 | 7 | 0 |
| Through Vol | 10 | 0 | 77 | 140 | 2 | 0 |
| RT Vol | 4 | 0 | 1 | 16 | 0 | 43 |
| Lane Flow Rate | 20 | 46 | 98 | 190 | 13 | 61 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.03 | 0.07 | 0.134 | 0.259 | 0.02 | 0.079 |
| Departure Headway (Hd) | 5.375 | 5.443 | 4.932 | 4.895 | 5.799 | 4.703 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 666 | 660 | 728 | 735 | 618 | 762 |
| Service Time | 3.405 | 3.164 | 2.653 | 2.916 | 3.524 | 2.428 |
| HCM Lane V/C Ratio | 0.03 | 0.07 | 0.135 | 0.259 | 0.021 | 0.08 |
| HCM Control Delay | 8.6 | 8.6 | 8.4 | 9.6 | 8.6 | 7.8 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.2 | 0.5 | 1 | 0.1 | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 12.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | ↰ | ↑↑↱ | | | ↰↑↑↱ | |
| Traffic Vol, veh/h | 25 | 68 | 23 | 17 | 91 | 60 | 53 | 386 | 55 | 42 | 175 | 36 |
| Future Vol, veh/h | 25 | 68 | 23 | 17 | 91 | 60 | 53 | 386 | 55 | 42 | 175 | 36 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 72 | 72 | 72 | 92 | 92 | 92 | 82 | 82 | 82 | 88 | 88 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 35 | 94 | 32 | 18 | 99 | 65 | 65 | 471 | 67 | 48 | 199 | 39 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 730 | 983 | 119 | 878 | 969 | 269 | 238 | 0 | 0 | 538 | 0 | 0 |
| Stage 1 | 315 | 315 | - | 635 | 635 | - | - | - | - | - | - | - |
| Stage 2 | 415 | 668 | - | 243 | 334 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 308 | 246 | 907 | 241 | 250 | 726 | 1319 | - | - | 1019 | - | - |
| Stage 1 | 668 | 652 | - | 431 | 468 | - | - | - | - | - | - | - |
| Stage 2 | 583 | 452 | - | 736 | 639 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 171 | 221 | 907 | 144 | 225 | 726 | 1319 | - | - | 1019 | - | - |
| Mov Cap-2 Maneuver | 171 | 221 | - | 144 | 225 | - | - | - | - | - | - | - |
| Stage 1 | 635 | 616 | - | 410 | 445 | - | - | - | - | - | - | - |
| Stage 2 | 392 | 430 | - | 568 | 604 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 45.2 | 39.7 | 0.8 | 1.6 |
| HCM LOS | E | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1319 | - | - | 242 | 278 | 1019 | - | - |
| HCM Lane V/C Ratio | 0.049 | - | - | 0.666 | 0.657 | 0.047 | - | - |
| HCM Control Delay (s) | 7.9 | - | - | 45.2 | 39.7 | 8.7 | 0.2 | - |
| HCM Lane LOS | A | - | - | E | E | A | A | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 4.2 | 4.2 | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 29 | 78 | 0 | 1 | 110 | 51 | 0 | 8 | 0 | 11 | 5 | 19 |
| Future Vol, veh/h | 29 | 78 | 0 | 1 | 110 | 51 | 0 | 8 | 0 | 11 | 5 | 19 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 75 | 75 | 75 | 87 | 87 | 87 | 25 | 25 | 25 | 51 | 51 | 51 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 39 | 104 | 0 | 1 | 126 | 59 | 0 | 32 | 0 | 22 | 10 | 37 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 185 | 0 | 0 | 104 | 0 | 0 | 363 | 369 | 104 | 356 | 340 | 156 |
| Stage 1 | - | - | - | - | - | - | 182 | 182 | - | 158 | 158 | - |
| Stage 2 | - | - | - | - | - | - | 181 | 187 | - | 198 | 182 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1384 | - | - | 1481 | - | - | 591 | 559 | 948 | 597 | 580 | 887 |
| Stage 1 | - | - | - | - | - | - | 817 | 747 | - | 842 | 765 | - |
| Stage 2 | - | - | - | - | - | - | 818 | 743 | - | 802 | 747 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1384 | - | - | 1481 | - | - | 545 | 542 | 948 | 557 | 562 | 887 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 545 | 542 | - | 557 | 562 | - |
| Stage 1 | - | - | - | - | - | - | 792 | 725 | - | 817 | 764 | - |
| Stage 2 | - | - | - | - | - | - | 773 | 742 | - | 744 | 725 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 2.1 | 0 | 12.1 | 10.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 542 | 1384 | - | - | 1481 | - | - | 699 |
| HCM Lane V/C Ratio | 0.059 | 0.028 | - | - | 0.001 | - | - | 0.098 |
| HCM Control Delay (s) | 12.1 | 7.7 | 0 | - | 7.4 | 0 | - | 10.7 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | 0 | - | - | 0.3 |

# HCM 6th TWSC
## 1: Lassen Ave & Whitesbridge Ave

11/17/2023

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 7 | 367 | 49 | 18 | 470 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| Future Vol, veh/h | 7 | 367 | 49 | 18 | 470 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 8 | 399 | 53 | 20 | 511 | 3 | 54 | 53 | 29 | 11 | 34 | 8 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 514 | 0 | 0 | 452 | 0 | 0 | 1016 | 996 | 426 | 1036 | 1021 | 513 |
| Stage 1 | - | - | - | - | - | - | 442 | 442 | - | 553 | 553 | - |
| Stage 2 | - | - | - | - | - | - | 574 | 554 | - | 483 | 468 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1046 | - | - | 1103 | - | - | 215 | 243 | 626 | 209 | 235 | 559 |
| Stage 1 | - | - | - | - | - | - | 592 | 575 | - | 516 | 513 | - |
| Stage 2 | - | - | - | - | - | - | 502 | 512 | - | 563 | 560 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1046 | - | - | 1103 | - | - | 183 | 234 | 626 | 160 | 227 | 559 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 183 | 234 | - | 160 | 227 | - |
| Stage 1 | - | - | - | - | - | - | 586 | 569 | - | 511 | 500 | - |
| Stage 2 | - | - | - | - | - | - | 450 | 499 | - | 482 | 554 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.3 | 38.2 | 25.5 |
| HCM LOS | | | E | D |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 240 | 1046 | - | - | 1103 | - | - | 227 |
| HCM Lane V/C Ratio | 0.571 | 0.007 | - | - | 0.018 | - | - | 0.23 |
| HCM Control Delay (s) | 38.2 | 8.5 | 0 | - | 8.3 | 0 | - | 25.5 |
| HCM Lane LOS | E | A | A | - | A | A | - | D |
| HCM 95th %tile Q(veh) | 3.2 | 0 | - | - | 0.1 | - | - | 0.9 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↑↱ | | ↰ | ↑↱ | |
| Traffic Volume (veh/h) | 3 | 413 | 78 | 69 | 372 | 38 | 108 | 120 | 197 | 49 | 77 | 14 |
| Future Volume (veh/h) | 3 | 413 | 78 | 69 | 372 | 38 | 108 | 120 | 197 | 49 | 77 | 14 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 3 | 449 | 85 | 75 | 404 | 41 | 117 | 130 | 214 | 53 | 84 | 15 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 7 | 504 | 427 | 103 | 1149 | 512 | 149 | 210 | 346 | 85 | 455 | 81 |
| Arrive On Green | 0.00 | 0.27 | 0.27 | 0.06 | 0.33 | 0.33 | 0.08 | 0.33 | 0.33 | 0.05 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 631 | 1038 | 1767 | 1533 | 274 |
| Grp Volume(v), veh/h | 3 | 449 | 85 | 75 | 404 | 41 | 117 | 0 | 344 | 53 | 0 | 99 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1669 | 1767 | 0 | 1806 |
| Q Serve(g_s), s | 0.1 | 14.5 | 2.6 | 2.6 | 5.4 | 1.1 | 4.0 | 0.0 | 10.8 | 1.8 | 0.0 | 2.5 |
| Cycle Q Clear(g_c), s | 0.1 | 14.5 | 2.6 | 2.6 | 5.4 | 1.1 | 4.0 | 0.0 | 10.8 | 1.8 | 0.0 | 2.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.62 | 1.00 | | 0.15 |
| Lane Grp Cap(c), veh/h | 7 | 504 | 427 | 103 | 1149 | 512 | 149 | 0 | 556 | 85 | 0 | 536 |
| V/C Ratio(X) | 0.42 | 0.89 | 0.20 | 0.73 | 0.35 | 0.08 | 0.79 | 0.00 | 0.62 | 0.62 | 0.00 | 0.18 |
| Avail Cap(c_a), veh/h | 142 | 536 | 454 | 142 | 1149 | 512 | 156 | 0 | 556 | 142 | 0 | 536 |
| 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 | 31.0 | 21.8 | 17.5 | 28.8 | 16.0 | 14.5 | 28.0 | 0.0 | 17.5 | 29.1 | 0.0 | 16.3 |
| Incr Delay (d2), s/veh | 34.4 | 16.3 | 0.2 | 11.2 | 0.2 | 0.1 | 22.0 | 0.0 | 5.1 | 7.2 | 0.0 | 0.8 |
| 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 | 0.1 | 7.4 | 0.8 | 1.3 | 1.8 | 0.3 | 2.5 | 0.0 | 4.4 | 0.9 | 0.0 | 1.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 65.4 | 38.1 | 17.7 | 40.0 | 16.2 | 14.6 | 50.0 | 0.0 | 22.6 | 36.3 | 0.0 | 17.1 |
| LnGrp LOS | E | D | B | D | B | B | D | A | C | D | A | B |
| Approach Vol, veh/h | | 537 | | | 520 | | | 461 | | | 152 | |
| Approach Delay, s/veh | | 35.0 | | | 19.5 | | | 29.5 | | | 23.8 | |
| Approach LOS | | D | | | B | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.5 | 25.2 | 8.1 | 21.4 | 9.7 | 23.0 | 4.8 | 24.8 |
| 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 | 19.0 | 5.0 | 18.0 | 5.5 | 18.5 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 3.8 | 12.8 | 4.6 | 16.5 | 6.0 | 4.5 | 2.1 | 7.4 |
| Green Ext Time (p_c), s | 0.0 | 1.1 | 0.0 | 0.4 | 0.0 | 0.3 | 0.0 | 1.7 |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | | 27.6 |
| HCM 6th LOS | | | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 16.7 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 28 | 43 | 11 | 147 | 43 | 52 | 15 | 255 | 150 | 66 | 183 | 35 |
| Future Vol, veh/h | 28 | 43 | 11 | 147 | 43 | 52 | 15 | 255 | 150 | 66 | 183 | 35 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 30 | 47 | 12 | 160 | 47 | 57 | 16 | 277 | 163 | 72 | 199 | 38 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 11.1 | 12.7 | 22.7 | 12.9 |
| HCM LOS | B | B | C | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 63% | 0% | 80% | 0% | 45% | 0% | 84% |
| Vol Right, % | 0% | 37% | 0% | 20% | 0% | 55% | 0% | 16% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 15 | 405 | 28 | 54 | 147 | 95 | 66 | 218 |
| LT Vol | 15 | 0 | 28 | 0 | 147 | 0 | 66 | 0 |
| Through Vol | 0 | 255 | 0 | 43 | 0 | 43 | 0 | 183 |
| RT Vol | 0 | 150 | 0 | 11 | 0 | 52 | 0 | 35 |
| Lane Flow Rate | 16 | 440 | 30 | 59 | 160 | 103 | 72 | 237 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.03 | 0.729 | 0.067 | 0.119 | 0.33 | 0.187 | 0.138 | 0.416 |
| Departure Headway (Hd) | 6.731 | 5.961 | 7.949 | 7.289 | 7.426 | 6.525 | 6.936 | 6.313 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 529 | 603 | 453 | 495 | 481 | 546 | 514 | 566 |
| Service Time | 4.507 | 3.736 | 5.649 | 4.989 | 5.212 | 4.311 | 4.721 | 4.098 |
| HCM Lane V/C Ratio | 0.03 | 0.73 | 0.066 | 0.119 | 0.333 | 0.189 | 0.14 | 0.419 |
| HCM Control Delay | 9.7 | 23.2 | 11.2 | 11 | 13.9 | 10.8 | 10.8 | 13.6 |
| HCM Lane LOS | A | C | B | B | B | B | B | B |
| HCM 95th-tile Q | 0.1 | 6.2 | 0.2 | 0.4 | 1.4 | 0.7 | 0.5 | 2 |

# HCM 6th AWSC
## 4: S Del Norte Ave & Kearney Blvd.

11/17/2023

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 16.6 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 139 | 288 | 20 | 22 | 164 | 28 | 52 | 158 | 36 | 84 | 64 | 83 |
| Future Vol, veh/h | 139 | 288 | 20 | 22 | 164 | 28 | 52 | 158 | 36 | 84 | 64 | 83 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 151 | 313 | 22 | 24 | 178 | 30 | 57 | 172 | 39 | 91 | 70 | 90 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 18.3 | 14.6 | 16.3 | 15.4 |
| HCM LOS | C | B | C | C |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 21% | 100% | 0% | 100% | 0% | 36% |
| Vol Thru, % | 64% | 0% | 94% | 0% | 85% | 28% |
| Vol Right, % | 15% | 0% | 6% | 0% | 15% | 36% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 246 | 139 | 308 | 22 | 192 | 231 |
| LT Vol | 52 | 139 | 0 | 22 | 0 | 84 |
| Through Vol | 158 | 0 | 288 | 0 | 164 | 64 |
| RT Vol | 36 | 0 | 20 | 0 | 28 | 83 |
| Lane Flow Rate | 267 | 151 | 335 | 24 | 209 | 251 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.499 | 0.308 | 0.631 | 0.052 | 0.416 | 0.465 |
| Departure Headway (Hd) | 6.713 | 7.347 | 6.788 | 7.8 | 7.18 | 6.668 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 535 | 488 | 532 | 458 | 501 | 540 |
| Service Time | 4.769 | 5.101 | 4.542 | 5.561 | 4.941 | 4.727 |
| HCM Lane V/C Ratio | 0.499 | 0.309 | 0.63 | 0.052 | 0.417 | 0.465 |
| HCM Control Delay | 16.3 | 13.4 | 20.5 | 11 | 15 | 15.4 |
| HCM Lane LOS | C | B | C | B | B | C |
| HCM 95th-tile Q | 2.8 | 1.3 | 4.4 | 0.2 | 2 | 2.4 |

# HCM 6th Signalized Intersection Summary
## 5: SR 145 & Kearney Blvd./Kearney Blvd

11/17/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 88 | 228 | 88 | 46 | 323 | 111 | 80 | 482 | 38 | 66 | 547 | 57 |
| Future Volume (veh/h) | 88 | 228 | 88 | 46 | 323 | 111 | 80 | 482 | 38 | 66 | 547 | 57 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 96 | 248 | 96 | 50 | 351 | 121 | 87 | 524 | 41 | 72 | 595 | 62 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 917 | 72 | 136 | 892 | 93 |
| Arrive On Green | 0.09 | 0.28 | 0.28 | 0.09 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3313 | 259 | 1767 | 3223 | 335 |
| Grp Volume(v), veh/h | 96 | 248 | 96 | 50 | 351 | 121 | 87 | 278 | 287 | 72 | 325 | 332 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1809 | 1767 | 1763 | 1795 |
| Q Serve(g_s), s | 3.4 | 7.3 | 3.1 | 1.7 | 11.0 | 2.8 | 3.1 | 8.8 | 8.9 | 2.5 | 10.6 | 10.7 |
| Cycle Q Clear(g_c), s | 3.4 | 7.3 | 3.1 | 1.7 | 11.0 | 2.8 | 3.1 | 8.8 | 8.9 | 2.5 | 10.6 | 10.7 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.14 | 1.00 |  | 0.19 |
| Lane Grp Cap(c), veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 488 | 501 | 136 | 488 | 497 |
| V/C Ratio(X) | 0.59 | 0.48 | 0.22 | 0.31 | 0.68 | 0.28 | 0.64 | 0.57 | 0.57 | 0.53 | 0.67 | 0.67 |
| Avail Cap(c_a), veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 488 | 501 | 136 | 488 | 497 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.3 | 19.6 | 18.1 | 27.6 | 21.0 | 9.1 | 29.1 | 20.2 | 20.2 | 28.9 | 20.8 | 20.8 |
| Incr Delay (d2), s/veh | 14.6 | 3.2 | 1.2 | 4.8 | 7.2 | 1.6 | 20.9 | 4.8 | 4.7 | 14.0 | 7.0 | 7.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.0 | 3.3 | 1.2 | 0.9 | 5.3 | 1.5 | 2.0 | 4.0 | 4.1 | 1.6 | 5.0 | 5.1 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 42.9 | 22.8 | 19.3 | 32.4 | 28.1 | 10.7 | 50.0 | 24.9 | 24.9 | 42.9 | 27.8 | 27.8 |
| LnGrp LOS | D | C | B | C | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h |  | 440 |  |  | 522 |  |  | 652 |  |  | 729 |  |
| Approach Delay, s/veh |  | 26.4 |  |  | 24.5 |  |  | 28.3 |  |  | 29.3 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 22.5 | 10.5 | 22.5 | 9.5 | 22.5 | 10.5 | 22.5 |
| 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 | 18.0 | 6.0 | 18.0 | 5.0 | 18.0 | 6.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.5 | 10.9 | 3.7 | 9.3 | 5.1 | 12.7 | 5.4 | 13.0 |
| Green Ext Time (p_c), s | 0.0 | 2.0 | 0.0 | 1.1 | 0.0 | 1.9 | 0.0 | 1.1 |

| Intersection Summary |  |  |  |
|---|---|---|---|
| HCM 6th Ctrl Delay |  |  | 27.4 |
| HCM 6th LOS |  |  | C |

| 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 | 91 | 46 | 8 | 11 | 13 | 57 | 4 | 41 | 10 | 105 | 24 | 60 |
| Future Vol, veh/h | 91 | 46 | 8 | 11 | 13 | 57 | 4 | 41 | 10 | 105 | 24 | 60 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 99 | 50 | 9 | 12 | 14 | 62 | 4 | 45 | 11 | 114 | 26 | 65 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 9.2 | 8.2 | 8.5 | 9 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 80% | 0% | 85% | 0% | 19% | 0% | 29% |
| Vol Right, % | 0% | 20% | 0% | 15% | 0% | 81% | 0% | 71% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 4 | 51 | 91 | 54 | 11 | 70 | 105 | 84 |
| LT Vol | 4 | 0 | 91 | 0 | 11 | 0 | 105 | 0 |
| Through Vol | 0 | 41 | 0 | 46 | 0 | 13 | 0 | 24 |
| RT Vol | 0 | 10 | 0 | 8 | 0 | 57 | 0 | 60 |
| Lane Flow Rate | 4 | 55 | 99 | 59 | 12 | 76 | 114 | 91 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.007 | 0.081 | 0.16 | 0.085 | 0.02 | 0.102 | 0.182 | 0.12 |
| Departure Headway (Hd) | 5.917 | 5.275 | 5.821 | 5.214 | 5.916 | 4.839 | 5.754 | 4.749 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 603 | 677 | 615 | 686 | 604 | 738 | 623 | 753 |
| Service Time | 3.666 | 3.025 | 3.561 | 2.954 | 3.661 | 2.584 | 3.494 | 2.489 |
| HCM Lane V/C Ratio | 0.007 | 0.081 | 0.161 | 0.086 | 0.02 | 0.103 | 0.183 | 0.121 |
| HCM Control Delay | 8.7 | 8.5 | 9.7 | 8.4 | 8.8 | 8.1 | 9.8 | 8.1 |
| HCM Lane LOS | A | A | A | A | A | A | A | A |
| HCM 95th-tile Q | 0 | 0.3 | 0.6 | 0.3 | 0.1 | 0.3 | 0.7 | 0.4 |

| 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 | 60 | 175 | 1 | 0 | 77 | 14 | 8 | 22 | 14 | 41 | 8 | 45 |
| Future Vol, veh/h | 60 | 175 | 1 | 0 | 77 | 14 | 8 | 22 | 14 | 41 | 8 | 45 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 65 | 190 | 1 | 0 | 84 | 15 | 9 | 24 | 15 | 45 | 9 | 49 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 9.4 | 9.1 | 8.9 | 8.6 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 18% | 100% | 0% | 0% | 84% | 0% |
| Vol Thru, % | 50% | 0% | 99% | 85% | 16% | 0% |
| Vol Right, % | 32% | 0% | 1% | 15% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 44 | 60 | 176 | 91 | 49 | 45 |
| LT Vol | 8 | 60 | 0 | 0 | 41 | 0 |
| Through Vol | 22 | 0 | 175 | 77 | 8 | 0 |
| RT Vol | 14 | 0 | 1 | 14 | 0 | 45 |
| Lane Flow Rate | 48 | 65 | 191 | 99 | 53 | 49 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.072 | 0.1 | 0.268 | 0.142 | 0.088 | 0.065 |
| Departure Headway (Hd) | 5.427 | 5.545 | 5.039 | 5.162 | 5.924 | 4.798 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 659 | 646 | 714 | 693 | 605 | 745 |
| Service Time | 3.471 | 3.277 | 2.77 | 3.2 | 3.664 | 2.537 |
| HCM Lane V/C Ratio | 0.073 | 0.101 | 0.268 | 0.143 | 0.088 | 0.066 |
| HCM Control Delay | 8.9 | 8.9 | 9.6 | 9.1 | 9.2 | 7.9 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.3 | 1.1 | 0.5 | 0.3 | 0.2 |

# HCM 6th TWSC
# 8: SR 145 & California Ave

11/17/2023

| Intersection | |
|---|---|
| Int Delay, s/veh | 15.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | ↰ | ↑↱ | | | ↰↱ | |
| Traffic Vol, veh/h | 29 | 148 | 48 | 21 | 77 | 71 | 32 | 221 | 20 | 70 | 273 | 36 |
| Future Vol, veh/h | 29 | 148 | 48 | 21 | 77 | 71 | 32 | 221 | 20 | 70 | 273 | 36 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 32 | 161 | 52 | 23 | 84 | 77 | 35 | 240 | 22 | 76 | 297 | 39 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 701 | 801 | 168 | 702 | 809 | 131 | 336 | 0 | 0 | 262 | 0 | 0 |
| Stage 1 | 469 | 469 | - | 321 | 321 | - | - | - | - | - | - | - |
| Stage 2 | 232 | 332 | - | 381 | 488 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 324 | 314 | 844 | 323 | 311 | 891 | 1213 | - | - | 1292 | - | - |
| Stage 1 | 541 | 556 | - | 662 | 648 | - | - | - | - | - | - | - |
| Stage 2 | 747 | 640 | - | 610 | 546 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 211 | 283 | 844 | 155 | 280 | 891 | 1213 | - | - | 1292 | - | - |
| Mov Cap-2 Maneuver | 211 | 283 | - | 155 | 280 | - | - | - | - | - | - | - |
| Stage 1 | 525 | 515 | - | 643 | 629 | - | - | - | - | - | - | - |
| Stage 2 | 574 | 621 | - | 365 | 506 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 47.3 | 26.7 | 0.9 | 1.6 |
| HCM LOS | E | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1213 | - | - | 314 | 345 | 1292 | - | - |
| HCM Lane V/C Ratio | 0.029 | - | - | 0.779 | 0.532 | 0.059 | - | - |
| HCM Control Delay (s) | 8.1 | - | - | 47.3 | 26.7 | 8 | 0.2 | - |
| HCM Lane LOS | A | - | - | E | D | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 6.2 | 3 | 0.2 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 20 | 125 | 1 | 0 | 88 | 18 | 0 | 0 | 0 | 39 | 0 | 18 |
| Future Vol, veh/h | 20 | 125 | 1 | 0 | 88 | 18 | 0 | 0 | 0 | 39 | 0 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 22 | 136 | 1 | 0 | 96 | 20 | 0 | 0 | 0 | 42 | 0 | 20 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 116 | 0 | 0 | 137 | 0 | 0 | 297 | 297 | 137 | 287 | 287 | 106 |
| Stage 1 | - | - | - | - | - | - | 181 | 181 | - | 106 | 106 | - |
| Stage 2 | - | - | - | - | - | - | 116 | 116 | - | 181 | 181 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1466 | - | - | 1441 | - | - | 653 | 613 | 909 | 663 | 621 | 946 |
| Stage 1 | - | - | - | - | - | - | 818 | 748 | - | 897 | 806 | - |
| Stage 2 | - | - | - | - | - | - | 886 | 798 | - | 818 | 748 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1466 | - | - | 1441 | - | - | 631 | 603 | 909 | 655 | 611 | 946 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 631 | 603 | - | 655 | 611 | - |
| Stage 1 | - | - | - | - | - | - | 805 | 736 | - | 883 | 806 | - |
| Stage 2 | - | - | - | - | - | - | 868 | 798 | - | 805 | 736 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1 | 0 | 0 | 10.4 |
| HCM LOS | | | A | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 1466 | - | - | 1441 | - | - | 725 |
| HCM Lane V/C Ratio | - | 0.015 | - | - | - | - | - | 0.085 |
| HCM Control Delay (s) | 0 | 7.5 | 0 | - | 0 | - | - | 10.4 |
| HCM Lane LOS | A | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | - | 0 | - | - | 0 | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 10.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 14 | 536 | 29 | 36 | 448 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| Future Vol, veh/h | 14 | 536 | 29 | 36 | 448 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 15 | 583 | 32 | 39 | 487 | 4 | 65 | 46 | 30 | 4 | 32 | 11 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 491 | 0 | 0 | 615 | 0 | 0 | 1218 | 1198 | 599 | 1234 | 1212 | 489 |
| Stage 1 | - | - | - | - | - | - | 629 | 629 | - | 567 | 567 | - |
| Stage 2 | - | - | - | - | - | - | 589 | 569 | - | 667 | 645 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1067 | - | - | 960 | - | - | 157 | 185 | 500 | 153 | 181 | 577 |
| Stage 1 | - | - | - | - | - | - | 469 | 474 | - | 507 | 505 | - |
| Stage 2 | - | - | - | - | - | - | 493 | 504 | - | 447 | 466 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1067 | - | - | 960 | - | - | 124 | 171 | 500 | 108 | 167 | 577 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 124 | 171 | - | 108 | 167 | - |
| Stage 1 | - | - | - | - | - | - | 459 | 464 | - | 496 | 477 | - |
| Stage 2 | - | - | - | - | - | - | 426 | 476 | - | 371 | 456 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.7 | 90.3 | 30.2 |
| HCM LOS | | | F | D |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 166 | 1067 | - | - | 960 | - | - | 189 |
| HCM Lane V/C Ratio | 0.851 | 0.014 | - | - | 0.041 | - | - | 0.247 |
| HCM Control Delay (s) | 90.3 | 8.4 | 0 | - | 8.9 | 0 | - | 30.2 |
| HCM Lane LOS | F | A | A | - | A | A | - | D |
| HCM 95th %tile Q(veh) | 5.9 | 0 | - | - | 0.1 | - | - | 0.9 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

|  | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↗ | ↘ | ↓ | ↙ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 15 | 540 | 77 | 157 | 461 | 36 | 31 | 48 | 109 | 29 | 62 | 7 |
| Future Volume (veh/h) | 15 | 540 | 77 | 157 | 461 | 36 | 31 | 48 | 109 | 29 | 62 | 7 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 16 | 587 | 84 | 171 | 501 | 39 | 34 | 52 | 118 | 32 | 67 | 8 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 34 | 544 | 461 | 212 | 1389 | 619 | 62 | 141 | 320 | 59 | 452 | 54 |
| Arrive On Green | 0.02 | 0.29 | 0.29 | 0.12 | 0.39 | 0.39 | 0.04 | 0.28 | 0.28 | 0.03 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 505 | 1145 | 1767 | 1626 | 194 |
| Grp Volume(v), veh/h | 16 | 587 | 84 | 171 | 501 | 39 | 34 | 0 | 170 | 32 | 0 | 75 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1649 | 1767 | 0 | 1821 |
| Q Serve(g_s), s | 0.6 | 19.3 | 2.6 | 6.2 | 6.6 | 1.0 | 1.2 | 0.0 | 5.4 | 1.2 | 0.0 | 2.0 |
| Cycle Q Clear(g_c), s | 0.6 | 19.3 | 2.6 | 6.2 | 6.6 | 1.0 | 1.2 | 0.0 | 5.4 | 1.2 | 0.0 | 2.0 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.69 | 1.00 |  | 0.11 |
| Lane Grp Cap(c), veh/h | 34 | 544 | 461 | 212 | 1389 | 619 | 62 | 0 | 461 | 59 | 0 | 506 |
| V/C Ratio(X) | 0.47 | 1.08 | 0.18 | 0.81 | 0.36 | 0.06 | 0.55 | 0.00 | 0.37 | 0.54 | 0.00 | 0.15 |
| Avail Cap(c_a), veh/h | 134 | 544 | 461 | 252 | 1389 | 619 | 134 | 0 | 461 | 134 | 0 | 506 |
| 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 | 31.9 | 23.3 | 17.4 | 28.2 | 14.1 | 12.4 | 31.2 | 0.0 | 19.0 | 31.3 | 0.0 | 17.9 |
| Incr Delay (d2), s/veh | 9.7 | 61.5 | 0.2 | 15.0 | 0.2 | 0.0 | 7.3 | 0.0 | 2.3 | 7.4 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 16.2 | 0.8 | 3.2 | 2.1 | 0.3 | 0.6 | 0.0 | 2.2 | 0.6 | 0.0 | 0.9 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 41.7 | 84.7 | 17.5 | 43.2 | 14.2 | 12.4 | 38.5 | 0.0 | 21.3 | 38.7 | 0.0 | 18.5 |
| LnGrp LOS | D | F | B | D | B | B | D | A | C | D | A | B |
| Approach Vol, veh/h |  | 687 |  |  | 711 |  |  | 204 |  |  | 107 |  |
| Approach Delay, s/veh |  | 75.5 |  |  | 21.1 |  |  | 24.2 |  |  | 24.5 |  |
| Approach LOS |  | E |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.7 | 22.9 | 12.4 | 23.8 | 6.8 | 22.8 | 5.8 | 30.4 |
| 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 | 18.3 | 9.4 | 19.3 | 5.0 | 18.3 | 5.0 | 23.7 |
| Max Q Clear Time (g_c+I1), s | 3.2 | 7.4 | 8.2 | 21.3 | 3.2 | 4.0 | 2.6 | 8.6 |
| Green Ext Time (p_c), s | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.6 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 43.6 |
| HCM 6th LOS | D |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 11.2 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 28 | 50 | 13 | 111 | 66 | 49 | 22 | 141 | 88 | 59 | 164 | 24 |
| Future Vol, veh/h | 28 | 50 | 13 | 111 | 66 | 49 | 22 | 141 | 88 | 59 | 164 | 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 30 | 54 | 14 | 121 | 72 | 53 | 24 | 153 | 96 | 64 | 178 | 26 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 10.1 | 10.8 | 12 | 11.2 |
| HCM LOS | B | B | B | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 62% | 0% | 79% | 0% | 57% | 0% | 87% |
| Vol Right, % | 0% | 38% | 0% | 21% | 0% | 43% | 0% | 13% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 22 | 229 | 28 | 63 | 111 | 115 | 59 | 188 |
| LT Vol | 22 | 0 | 28 | 0 | 111 | 0 | 59 | 0 |
| Through Vol | 0 | 141 | 0 | 50 | 0 | 66 | 0 | 164 |
| RT Vol | 0 | 88 | 0 | 13 | 0 | 49 | 0 | 24 |
| Lane Flow Rate | 24 | 249 | 30 | 68 | 121 | 125 | 64 | 204 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.043 | 0.396 | 0.059 | 0.121 | 0.226 | 0.206 | 0.116 | 0.335 |
| Departure Headway (Hd) | 6.506 | 5.728 | 7.016 | 6.361 | 6.752 | 5.943 | 6.499 | 5.902 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 550 | 627 | 510 | 563 | 532 | 604 | 552 | 609 |
| Service Time | 4.243 | 3.465 | 4.766 | 4.11 | 4.494 | 3.684 | 4.236 | 3.64 |
| HCM Lane V/C Ratio | 0.044 | 0.397 | 0.059 | 0.121 | 0.227 | 0.207 | 0.116 | 0.335 |
| HCM Control Delay | 9.5 | 12.2 | 10.2 | 10 | 11.5 | 10.2 | 10.1 | 11.6 |
| HCM Lane LOS | A | B | B | A | B | B | B | B |
| HCM 95th-tile Q | 0.1 | 1.9 | 0.2 | 0.4 | 0.9 | 0.8 | 0.4 | 1.5 |

## 4: S Del Norte Ave & Kearney Blvd.

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 14.7 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 66 | 214 | 29 | 46 | 333 | 34 | 34 | 57 | 32 | 34 | 62 | 49 |
| Future Vol, veh/h | 66 | 214 | 29 | 46 | 333 | 34 | 34 | 57 | 32 | 34 | 62 | 49 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 72 | 233 | 32 | 50 | 362 | 37 | 37 | 62 | 35 | 37 | 67 | 53 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 12.9 | 18.2 | 11.4 | 11.6 |
| HCM LOS | B | C | B | B |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 28% | 100% | 0% | 100% | 0% | 23% |
| Vol Thru, % | 46% | 0% | 88% | 0% | 91% | 43% |
| Vol Right, % | 26% | 0% | 12% | 0% | 9% | 34% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 123 | 66 | 243 | 46 | 367 | 145 |
| LT Vol | 34 | 66 | 0 | 46 | 0 | 34 |
| Through Vol | 57 | 0 | 214 | 0 | 333 | 62 |
| RT Vol | 32 | 0 | 29 | 0 | 34 | 49 |
| Lane Flow Rate | 134 | 72 | 264 | 50 | 399 | 158 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.235 | 0.132 | 0.443 | 0.09 | 0.654 | 0.271 |
| Departure Headway (Hd) | 6.315 | 6.629 | 6.036 | 6.48 | 5.906 | 6.198 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 564 | 539 | 594 | 552 | 610 | 575 |
| Service Time | 4.397 | 4.392 | 3.799 | 4.237 | 3.663 | 4.278 |
| HCM Lane V/C Ratio | 0.238 | 0.134 | 0.444 | 0.091 | 0.654 | 0.275 |
| HCM Control Delay | 11.4 | 10.4 | 13.6 | 9.9 | 19.2 | 11.6 |
| HCM Lane LOS | B | B | B | A | C | B |
| HCM 95th-tile Q | 0.9 | 0.5 | 2.3 | 0.3 | 4.8 | 1.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ | | ↰ | ↑↱ | |
| Traffic Volume (veh/h) | 73 | 141 | 57 | 56 | 203 | 77 | 56 | 772 | 53 | 71 | 476 | 71 |
| Future Volume (veh/h) | 73 | 141 | 57 | 56 | 203 | 77 | 56 | 772 | 53 | 71 | 476 | 71 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 79 | 153 | 62 | 61 | 221 | 84 | 61 | 839 | 58 | 77 | 517 | 77 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 952 | 66 | 136 | 876 | 130 |
| Arrive On Green | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3345 | 231 | 1767 | 3079 | 457 |
| Grp Volume(v), veh/h | 79 | 153 | 62 | 61 | 221 | 84 | 61 | 442 | 455 | 77 | 295 | 299 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1814 | 1767 | 1763 | 1773 |
| Q Serve(g_s), s | 2.8 | 4.2 | 1.9 | 2.1 | 6.4 | 2.7 | 2.1 | 15.6 | 15.6 | 2.7 | 9.4 | 9.4 |
| Cycle Q Clear(g_c), s | 2.8 | 4.2 | 1.9 | 2.1 | 6.4 | 2.7 | 2.1 | 15.6 | 15.6 | 2.7 | 9.4 | 9.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.13 | 1.00 | | 0.26 |
| Lane Grp Cap(c), veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 502 | 516 | 136 | 502 | 505 |
| V/C Ratio(X) | 0.53 | 0.29 | 0.14 | 0.45 | 0.43 | 0.19 | 0.45 | 0.88 | 0.88 | 0.57 | 0.59 | 0.59 |
| Avail Cap(c_a), veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 502 | 516 | 136 | 502 | 505 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.5 | 18.1 | 17.3 | 28.7 | 19.3 | 18.0 | 28.7 | 22.2 | 22.2 | 29.0 | 20.0 | 20.0 |
| Incr Delay (d2), s/veh | 12.7 | 1.4 | 0.6 | 10.3 | 2.6 | 1.0 | 10.3 | 19.5 | 19.1 | 16.0 | 5.0 | 5.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 1.8 | 0.7 | 1.2 | 2.9 | 1.0 | 1.3 | 8.6 | 8.8 | 1.7 | 4.2 | 4.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 41.2 | 19.5 | 18.0 | 39.0 | 21.9 | 18.9 | 39.0 | 41.7 | 41.3 | 44.9 | 25.0 | 25.0 |
| LnGrp LOS | D | B | B | D | C | B | D | D | D | D | C | C |
| Approach Vol, veh/h | | 294 | | | 366 | | | 958 | | | 671 | |
| Approach Delay, s/veh | | 25.0 | | | 24.1 | | | 41.3 | | | 27.3 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 23.0 | 9.5 | 23.0 | 9.5 | 23.0 | 10.0 | 22.5 |
| 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 | 18.5 | 5.0 | 18.5 | 5.0 | 18.5 | 5.5 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.7 | 17.6 | 4.1 | 6.2 | 4.1 | 11.4 | 4.8 | 8.4 |
| Green Ext Time (p_c), s | 0.0 | 0.5 | 0.0 | 0.7 | 0.0 | 2.1 | 0.0 | 1.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 32.4 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.3 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 41 | 28 | 1 | 13 | 21 | 32 | 13 | 57 | 13 | 49 | 20 | 78 |
| Future Vol, veh/h | 41 | 28 | 1 | 13 | 21 | 32 | 13 | 57 | 13 | 49 | 20 | 78 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 45 | 30 | 1 | 14 | 23 | 35 | 14 | 62 | 14 | 53 | 22 | 85 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 8.6 | 8 | 8.3 | 8.2 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 81% | 0% | 97% | 0% | 40% | 0% | 20% |
| Vol Right, % | 0% | 19% | 0% | 3% | 0% | 60% | 0% | 80% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 13 | 70 | 41 | 29 | 13 | 53 | 49 | 98 |
| LT Vol | 13 | 0 | 41 | 0 | 13 | 0 | 49 | 0 |
| Through Vol | 0 | 57 | 0 | 28 | 0 | 21 | 0 | 20 |
| RT Vol | 0 | 13 | 0 | 1 | 0 | 32 | 0 | 78 |
| Lane Flow Rate | 14 | 76 | 45 | 32 | 14 | 58 | 53 | 107 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.022 | 0.105 | 0.071 | 0.046 | 0.023 | 0.077 | 0.082 | 0.132 |
| Departure Headway (Hd) | 5.583 | 4.951 | 5.729 | 5.202 | 5.742 | 4.815 | 5.523 | 4.463 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 642 | 724 | 626 | 689 | 624 | 744 | 650 | 804 |
| Service Time | 3.309 | 2.676 | 3.457 | 2.93 | 3.47 | 2.543 | 3.246 | 2.185 |
| HCM Lane V/C Ratio | 0.022 | 0.105 | 0.072 | 0.046 | 0.022 | 0.078 | 0.082 | 0.133 |
| HCM Control Delay | 8.4 | 8.3 | 8.9 | 8.2 | 8.6 | 7.9 | 8.7 | 7.9 |
| HCM Lane LOS | A | A | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.4 | 0.2 | 0.1 | 0.1 | 0.2 | 0.3 | 0.5 |

# HCM 6th AWSC
# 7: California Ave & S Del Norte Ave

11/17/2023

| 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 | 39 | 71 | 1 | 6 | 150 | 21 | 4 | 14 | 6 | 10 | 3 | 43 |
| Future Vol, veh/h | 39 | 71 | 1 | 6 | 150 | 21 | 4 | 14 | 6 | 10 | 3 | 43 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 42 | 77 | 1 | 7 | 163 | 23 | 4 | 15 | 7 | 11 | 3 | 47 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 8.3 | 9.6 | 8.5 | 7.9 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 17% | 100% | 0% | 3% | 77% | 0% |
| Vol Thru, % | 58% | 0% | 99% | 85% | 23% | 0% |
| Vol Right, % | 25% | 0% | 1% | 12% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 24 | 39 | 72 | 177 | 13 | 43 |
| LT Vol | 4 | 39 | 0 | 6 | 10 | 0 |
| Through Vol | 14 | 0 | 71 | 150 | 3 | 0 |
| RT Vol | 6 | 0 | 1 | 21 | 0 | 43 |
| Lane Flow Rate | 26 | 42 | 78 | 192 | 14 | 47 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.038 | 0.064 | 0.107 | 0.259 | 0.023 | 0.06 |
| Departure Headway (Hd) | 5.297 | 5.431 | 4.919 | 4.848 | 5.748 | 4.657 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 677 | 662 | 730 | 743 | 624 | 770 |
| Service Time | 3.321 | 3.147 | 2.636 | 2.863 | 3.47 | 2.378 |
| HCM Lane V/C Ratio | 0.038 | 0.063 | 0.107 | 0.258 | 0.022 | 0.061 |
| HCM Control Delay | 8.5 | 8.5 | 8.2 | 9.6 | 8.6 | 7.7 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.2 | 0.4 | 1 | 0.1 | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 26.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | ↰ | ↑↱ | | | ↰↱ | |
| Traffic Vol, veh/h | 28 | 81 | 15 | 22 | 105 | 81 | 50 | 519 | 74 | 56 | 235 | 38 |
| Future Vol, veh/h | 28 | 81 | 15 | 22 | 105 | 81 | 50 | 519 | 74 | 56 | 235 | 38 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 30 | 88 | 16 | 24 | 114 | 88 | 54 | 564 | 80 | 61 | 255 | 41 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 845 | 1150 | 148 | 1006 | 1130 | 322 | 296 | 0 | 0 | 644 | 0 | 0 |
| Stage 1 | 398 | 398 | - | 712 | 712 | - | - | - | - | - | - | - |
| Stage 2 | 447 | 752 | - | 294 | 418 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 254 | 195 | 869 | 194 | 201 | 671 | 1255 | - | - | 930 | - | - |
| Stage 1 | 596 | 599 | - | 387 | 432 | - | - | - | - | - | - | - |
| Stage 2 | 558 | 414 | - | 687 | 587 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 98 | 172 | 869 | 104 | 177 | 671 | 1255 | - | - | 930 | - | - |
| Mov Cap-2 Maneuver | 98 | 172 | - | 104 | 177 | - | - | - | - | - | - | - |
| Stage 1 | 570 | 552 | - | 370 | 413 | - | - | - | - | - | - | - |
| Stage 2 | 336 | 396 | - | 522 | 541 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 91 | 107.2 | 0.6 | 1.7 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1255 | - | - | 160 | 225 | 930 | - | - |
| HCM Lane V/C Ratio | 0.043 | - | - | 0.842 | 1.005 | 0.065 | - | - |
| HCM Control Delay (s) | 8 | - | - | 91 | 107.2 | 9.1 | 0.2 | - |
| HCM Lane LOS | A | - | - | F | F | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 5.7 | 9.3 | 0.2 | - | - |

## 9: Jensen Ave & Siskiyou Ave

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 39 | 105 | 0 | 1 | 148 | 69 | 0 | 0 | 0 | 15 | 0 | 25 |
| Future Vol, veh/h | 39 | 105 | 0 | 1 | 148 | 69 | 0 | 0 | 0 | 15 | 0 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 42 | 114 | 0 | 1 | 161 | 75 | 0 | 0 | 0 | 16 | 0 | 27 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 236 | 0 | 0 | 114 | 0 | 0 | 412 | 436 | 114 | 399 | 399 | 199 |
| Stage 1 | - | - | - | - | - | - | 198 | 198 | - | 201 | 201 | - |
| Stage 2 | - | - | - | - | - | - | 214 | 238 | - | 198 | 198 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1325 | - | - | 1469 | - | - | 549 | 512 | 936 | 560 | 537 | 839 |
| Stage 1 | - | - | - | - | - | - | 802 | 735 | - | 799 | 733 | - |
| Stage 2 | - | - | - | - | - | - | 786 | 706 | - | 802 | 735 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1325 | - | - | 1469 | - | - | 517 | 494 | 936 | 545 | 518 | 839 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 517 | 494 | - | 545 | 518 | - |
| Stage 1 | - | - | - | - | - | - | 775 | 710 | - | 772 | 732 | - |
| Stage 2 | - | - | - | - | - | - | 760 | 705 | - | 775 | 710 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 2.1 | 0 | 0 | 10.5 |
| HCM LOS | | | A | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 1325 | - | - | 1469 | - | - | 698 |
| HCM Lane V/C Ratio | - | 0.032 | - | - | 0.001 | - | - | 0.062 |
| HCM Control Delay (s) | 0 | 7.8 | 0 | - | 7.5 | 0 | - | 10.5 |
| HCM Lane LOS | A | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | - | 0.1 | - | - | 0 | - | - | 0.2 |

# HCM 6th TWSC
# 1: Lassen Ave & Whitesbridge Ave

11/20/2023

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 7 | 368 | 49 | 18 | 475 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| Future Vol, veh/h | 7 | 368 | 49 | 18 | 475 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 8 | 400 | 53 | 20 | 516 | 3 | 54 | 53 | 29 | 11 | 34 | 8 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 519 | 0 | 0 | 453 | 0 | 0 | 1022 | 1002 | 427 | 1042 | 1027 | 518 |
| Stage 1 | - | - | - | - | - | - | 443 | 443 | - | 558 | 558 | - |
| Stage 2 | - | - | - | - | - | - | 579 | 559 | - | 484 | 469 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1042 | - | - | 1102 | - | - | 213 | 241 | 625 | 207 | 233 | 556 |
| Stage 1 | - | - | - | - | - | - | 592 | 574 | - | 512 | 510 | - |
| Stage 2 | - | - | - | - | - | - | 499 | 509 | - | 562 | 559 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1042 | - | - | 1102 | - | - | 181 | 232 | 625 | 158 | 225 | 556 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 181 | 232 | - | 158 | 225 | - |
| Stage 1 | - | - | - | - | - | - | 586 | 568 | - | 507 | 497 | - |
| Stage 2 | - | - | - | - | - | - | 447 | 496 | - | 481 | 553 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.3 | 39.1 | 25.8 |
| HCM LOS | | | E | D |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 237 | 1042 | - | - | 1102 | - | - | 225 |
| HCM Lane V/C Ratio | 0.578 | 0.007 | - | - | 0.018 | - | - | 0.232 |
| HCM Control Delay (s) | 39.1 | 8.5 | 0 | - | 8.3 | 0 | - | 25.8 |
| HCM Lane LOS | E | A | A | - | A | A | - | D |
| HCM 95th %tile Q(veh) | 3.3 | 0 | - | - | 0.1 | - | - | 0.9 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 3 | 413 | 80 | 79 | 372 | 38 | 113 | 120 | 246 | 49 | 77 | 14 |
| Future Volume (veh/h) | 3 | 413 | 80 | 79 | 372 | 38 | 113 | 120 | 246 | 49 | 77 | 14 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 3 | 449 | 87 | 86 | 404 | 41 | 123 | 130 | 267 | 53 | 84 | 15 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 7 | 502 | 426 | 110 | 1159 | 517 | 154 | 181 | 371 | 85 | 450 | 80 |
| Arrive On Green | 0.00 | 0.27 | 0.27 | 0.06 | 0.33 | 0.33 | 0.09 | 0.33 | 0.33 | 0.05 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 542 | 1113 | 1767 | 1533 | 274 |
| Grp Volume(v), veh/h | 3 | 449 | 87 | 86 | 404 | 41 | 123 | 0 | 397 | 53 | 0 | 99 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1655 | 1767 | 0 | 1806 |
| Q Serve(g_s), s | 0.1 | 14.7 | 2.7 | 3.0 | 5.5 | 1.1 | 4.3 | 0.0 | 13.2 | 1.9 | 0.0 | 2.6 |
| Cycle Q Clear(g_c), s | 0.1 | 14.7 | 2.7 | 3.0 | 5.5 | 1.1 | 4.3 | 0.0 | 13.2 | 1.9 | 0.0 | 2.6 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.67 | 1.00 |  | 0.15 |
| Lane Grp Cap(c), veh/h | 7 | 502 | 426 | 110 | 1159 | 517 | 154 | 0 | 552 | 85 | 0 | 531 |
| V/C Ratio(X) | 0.42 | 0.89 | 0.20 | 0.78 | 0.35 | 0.08 | 0.80 | 0.00 | 0.72 | 0.62 | 0.00 | 0.19 |
| Avail Cap(c_a), veh/h | 140 | 531 | 450 | 140 | 1159 | 517 | 154 | 0 | 552 | 140 | 0 | 531 |
| 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 | 31.3 | 22.1 | 17.7 | 29.1 | 16.0 | 14.6 | 28.2 | 0.0 | 18.4 | 29.4 | 0.0 | 16.6 |
| Incr Delay (d2), s/veh | 34.4 | 16.9 | 0.2 | 19.6 | 0.2 | 0.1 | 24.5 | 0.0 | 7.9 | 7.3 | 0.0 | 0.8 |
| 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 | 0.1 | 7.5 | 0.8 | 1.7 | 1.8 | 0.3 | 2.8 | 0.0 | 5.7 | 0.9 | 0.0 | 1.1 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 65.7 | 39.0 | 18.0 | 48.7 | 16.2 | 14.6 | 52.7 | 0.0 | 26.3 | 36.7 | 0.0 | 17.4 |
| LnGrp LOS | E | D | B | D | B | B | D | A | C | D | A | B |
| Approach Vol, veh/h |  | 539 |  |  | 531 |  |  | 520 |  |  | 152 |  |
| Approach Delay, s/veh |  | 35.7 |  |  | 21.3 |  |  | 32.5 |  |  | 24.1 |  |
| Approach LOS |  | D |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.5 | 25.5 | 8.4 | 21.5 | 10.0 | 23.0 | 4.8 | 25.2 |
| 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 | 19.0 | 5.0 | 18.0 | 5.5 | 18.5 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 3.9 | 15.2 | 5.0 | 16.7 | 6.3 | 4.6 | 2.1 | 7.5 |
| Green Ext Time (p_c), s | 0.0 | 0.9 | 0.0 | 0.4 | 0.0 | 0.3 | 0.0 | 1.7 |

| Intersection Summary |  |  |  |
|---|---|---|---|
| HCM 6th Ctrl Delay |  |  | 29.4 |
| HCM 6th LOS |  |  | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 24.6 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 28 | 43 | 11 | 158 | 43 | 52 | 15 | 294 | 184 | 66 | 186 | 35 |
| Future Vol, veh/h | 28 | 43 | 11 | 158 | 43 | 52 | 15 | 294 | 184 | 66 | 186 | 35 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 30 | 47 | 12 | 172 | 47 | 57 | 16 | 320 | 200 | 72 | 202 | 38 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 11.6 | 13.7 | 38.7 | 13.8 |
| HCM LOS | B | B | E | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 62% | 0% | 80% | 0% | 45% | 0% | 84% |
| Vol Right, % | 0% | 38% | 0% | 20% | 0% | 55% | 0% | 16% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 15 | 478 | 28 | 54 | 158 | 95 | 66 | 221 |
| LT Vol | 15 | 0 | 28 | 0 | 158 | 0 | 66 | 0 |
| Through Vol | 0 | 294 | 0 | 43 | 0 | 43 | 0 | 186 |
| RT Vol | 0 | 184 | 0 | 11 | 0 | 52 | 0 | 35 |
| Lane Flow Rate | 16 | 520 | 30 | 59 | 172 | 103 | 72 | 240 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.031 | 0.89 | 0.07 | 0.125 | 0.372 | 0.198 | 0.145 | 0.443 |
| Departure Headway (Hd) | 6.951 | 6.169 | 8.323 | 7.661 | 7.802 | 6.898 | 7.269 | 6.645 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 518 | 592 | 430 | 468 | 462 | 520 | 494 | 543 |
| Service Time | 4.651 | 3.869 | 6.076 | 5.413 | 5.544 | 4.639 | 5.007 | 4.383 |
| HCM Lane V/C Ratio | 0.031 | 0.878 | 0.07 | 0.126 | 0.372 | 0.198 | 0.146 | 0.442 |
| HCM Control Delay | 9.9 | 39.6 | 11.7 | 11.5 | 15.1 | 11.3 | 11.2 | 14.6 |
| HCM Lane LOS | A | E | B | B | C | B | B | B |
| HCM 95th-tile Q | 0.1 | 10.5 | 0.2 | 0.4 | 1.7 | 0.7 | 0.5 | 2.3 |

| 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 | 143 | 318 | 20 | 22 | 173 | 28 | 52 | 158 | 36 | 84 | 64 | 83 |
| Future Vol, veh/h | 143 | 318 | 20 | 22 | 173 | 28 | 52 | 158 | 36 | 84 | 64 | 83 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 155 | 346 | 22 | 24 | 188 | 30 | 57 | 172 | 39 | 91 | 70 | 90 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 21.1 | 15.3 | 17 | 16.1 |
| HCM LOS | C | C | C | C |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 21% | 100% | 0% | 100% | 0% | 36% |
| Vol Thru, % | 64% | 0% | 94% | 0% | 86% | 28% |
| Vol Right, % | 15% | 0% | 6% | 0% | 14% | 36% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 246 | 143 | 338 | 22 | 201 | 231 |
| LT Vol | 52 | 143 | 0 | 22 | 0 | 84 |
| Through Vol | 158 | 0 | 318 | 0 | 173 | 64 |
| RT Vol | 36 | 0 | 20 | 0 | 28 | 83 |
| Lane Flow Rate | 267 | 155 | 367 | 24 | 218 | 251 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.511 | 0.321 | 0.701 | 0.053 | 0.444 | 0.477 |
| Departure Headway (Hd) | 6.884 | 7.424 | 6.869 | 7.924 | 7.309 | 6.842 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 521 | 483 | 525 | 451 | 492 | 525 |
| Service Time | 4.951 | 5.186 | 4.63 | 5.694 | 5.079 | 4.911 |
| HCM Lane V/C Ratio | 0.512 | 0.321 | 0.699 | 0.053 | 0.443 | 0.478 |
| HCM Control Delay | 17 | 13.7 | 24.3 | 11.1 | 15.8 | 16.1 |
| HCM Lane LOS | C | B | C | B | C | C |
| HCM 95th-tile Q | 2.9 | 1.4 | 5.5 | 0.2 | 2.2 | 2.5 |

# HCM 6th Signalized Intersection Summary
## 5: SR 145 & Kearney Blvd./Kearney Blvd

11/20/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 117 | 228 | 88 | 46 | 323 | 111 | 80 | 482 | 38 | 66 | 547 | 67 |
| Future Volume (veh/h) | 117 | 228 | 88 | 46 | 323 | 111 | 80 | 482 | 38 | 66 | 547 | 67 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 127 | 248 | 96 | 50 | 351 | 121 | 87 | 524 | 41 | 72 | 595 | 73 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 917 | 72 | 136 | 876 | 107 |
| Arrive On Green | 0.09 | 0.28 | 0.28 | 0.09 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3313 | 259 | 1767 | 3162 | 387 |
| Grp Volume(v), veh/h | 127 | 248 | 96 | 50 | 351 | 121 | 87 | 278 | 287 | 72 | 331 | 337 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1809 | 1767 | 1763 | 1786 |
| Q Serve(g_s), s | 4.6 | 7.3 | 3.1 | 1.7 | 11.0 | 2.8 | 3.1 | 8.8 | 8.9 | 2.5 | 10.9 | 10.9 |
| Cycle Q Clear(g_c), s | 4.6 | 7.3 | 3.1 | 1.7 | 11.0 | 2.8 | 3.1 | 8.8 | 8.9 | 2.5 | 10.9 | 10.9 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.14 | 1.00 |  | 0.22 |
| Lane Grp Cap(c), veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 488 | 501 | 136 | 488 | 495 |
| V/C Ratio(X) | 0.78 | 0.48 | 0.22 | 0.31 | 0.68 | 0.28 | 0.64 | 0.57 | 0.57 | 0.53 | 0.68 | 0.68 |
| Avail Cap(c_a), veh/h | 163 | 514 | 435 | 163 | 514 | 435 | 136 | 488 | 501 | 136 | 488 | 495 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.9 | 19.6 | 18.1 | 27.6 | 21.0 | 9.1 | 29.1 | 20.2 | 20.2 | 28.9 | 20.9 | 20.9 |
| Incr Delay (d2), s/veh | 29.9 | 3.2 | 1.2 | 4.8 | 7.2 | 1.6 | 20.9 | 4.8 | 4.7 | 14.0 | 7.4 | 7.4 |
| 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 | 3.2 | 3.3 | 1.2 | 0.9 | 5.3 | 1.5 | 2.0 | 4.0 | 4.1 | 1.6 | 5.1 | 5.2 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 58.7 | 22.8 | 19.3 | 32.4 | 28.1 | 10.7 | 50.0 | 24.9 | 24.9 | 42.9 | 28.3 | 28.3 |
| LnGrp LOS | E | C | B | C | C | B | D | C | C | D | C | C |
| Approach Vol, veh/h |  | 471 |  |  | 522 |  |  | 652 |  |  | 740 |  |
| Approach Delay, s/veh |  | 31.8 |  |  | 24.5 |  |  | 28.3 |  |  | 29.7 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 22.5 | 10.5 | 22.5 | 9.5 | 22.5 | 10.5 | 22.5 |
| 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 | 18.0 | 6.0 | 18.0 | 5.0 | 18.0 | 6.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.5 | 10.9 | 3.7 | 9.3 | 5.1 | 12.9 | 6.6 | 13.0 |
| Green Ext Time (p_c), s | 0.0 | 2.0 | 0.0 | 1.1 | 0.0 | 1.9 | 0.0 | 1.1 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 28.6 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9.7 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 164 | 72 | 13 | 11 | 13 | 57 | 6 | 41 | 10 | 105 | 24 | 83 |
| Future Vol, veh/h | 164 | 72 | 13 | 11 | 13 | 57 | 6 | 41 | 10 | 105 | 24 | 83 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 178 | 78 | 14 | 12 | 14 | 62 | 7 | 45 | 11 | 114 | 26 | 90 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 10.3 | 8.6 | 9 | 9.5 |
| HCM LOS | B | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 80% | 0% | 85% | 0% | 19% | 0% | 22% |
| Vol Right, % | 0% | 20% | 0% | 15% | 0% | 81% | 0% | 78% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 6 | 51 | 164 | 85 | 11 | 70 | 105 | 107 |
| LT Vol | 6 | 0 | 164 | 0 | 11 | 0 | 105 | 0 |
| Through Vol | 0 | 41 | 0 | 72 | 0 | 13 | 0 | 24 |
| RT Vol | 0 | 10 | 0 | 13 | 0 | 57 | 0 | 83 |
| Lane Flow Rate | 7 | 55 | 178 | 92 | 12 | 76 | 114 | 116 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.011 | 0.087 | 0.293 | 0.136 | 0.02 | 0.107 | 0.192 | 0.162 |
| Departure Headway (Hd) | 6.279 | 5.636 | 5.909 | 5.298 | 6.146 | 5.067 | 6.069 | 5.018 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 566 | 630 | 606 | 673 | 578 | 701 | 589 | 709 |
| Service Time | 4.063 | 3.419 | 3.674 | 3.063 | 3.927 | 2.847 | 3.834 | 2.783 |
| HCM Lane V/C Ratio | 0.012 | 0.087 | 0.294 | 0.137 | 0.021 | 0.108 | 0.194 | 0.164 |
| HCM Control Delay | 9.1 | 9 | 11.1 | 8.9 | 9.1 | 8.5 | 10.3 | 8.8 |
| HCM Lane LOS | A | A | B | A | A | A | B | A |
| HCM 95th-tile Q | 0 | 0.3 | 1.2 | 0.5 | 0.1 | 0.4 | 0.7 | 0.6 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9.3 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | | ✣ | | | ✣ | | | ↰ | ↱ |
| Traffic Vol, veh/h | 60 | 190 | 1 | 0 | 82 | 14 | 8 | 22 | 14 | 41 | 8 | 46 |
| Future Vol, veh/h | 60 | 190 | 1 | 0 | 82 | 14 | 8 | 22 | 14 | 41 | 8 | 46 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 65 | 207 | 1 | 0 | 89 | 15 | 9 | 24 | 15 | 45 | 9 | 50 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 9.7 | 9.2 | 9 | 8.6 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 18% | 100% | 0% | 0% | 84% | 0% |
| Vol Thru, % | 50% | 0% | 99% | 85% | 16% | 0% |
| Vol Right, % | 32% | 0% | 1% | 15% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 44 | 60 | 191 | 96 | 49 | 46 |
| LT Vol | 8 | 60 | 0 | 0 | 41 | 0 |
| Through Vol | 22 | 0 | 190 | 82 | 8 | 0 |
| RT Vol | 14 | 0 | 1 | 14 | 0 | 46 |
| Lane Flow Rate | 48 | 65 | 208 | 104 | 53 | 50 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.073 | 0.101 | 0.291 | 0.15 | 0.088 | 0.067 |
| Departure Headway (Hd) | 5.482 | 5.556 | 5.05 | 5.191 | 5.979 | 4.852 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 652 | 645 | 712 | 690 | 599 | 737 |
| Service Time | 3.529 | 3.288 | 2.782 | 3.231 | 3.721 | 2.594 |
| HCM Lane V/C Ratio | 0.074 | 0.101 | 0.292 | 0.151 | 0.088 | 0.068 |
| HCM Control Delay | 9 | 8.9 | 9.9 | 9.2 | 9.3 | 7.9 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.3 | 1.2 | 0.5 | 0.3 | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 18 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↰↑↱ | | | ↰↑↱ | | ↰ | ↑↑↱ | | | ↰↑↑↱ | |
| Traffic Vol, veh/h | 34 | 153 | 52 | 21 | 79 | 71 | 34 | 221 | 20 | 70 | 273 | 38 |
| Future Vol, veh/h | 34 | 153 | 52 | 21 | 79 | 71 | 34 | 221 | 20 | 70 | 273 | 38 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 37 | 166 | 57 | 23 | 86 | 77 | 37 | 240 | 22 | 76 | 297 | 41 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 707 | 806 | 169 | 709 | 815 | 131 | 338 | 0 | 0 | 262 | 0 | 0 |
| Stage 1 | 470 | 470 | - | 325 | 325 | - | - | - | - | - | - | - |
| Stage 2 | 237 | 336 | - | 384 | 490 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 320 | 312 | 842 | 319 | 308 | 891 | 1211 | - | - | 1292 | - | - |
| Stage 1 | 541 | 556 | - | 659 | 645 | - | - | - | - | - | - | - |
| Stage 2 | 742 | 638 | - | 608 | 545 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 206 | 280 | 842 | 146 | 277 | 891 | 1211 | - | - | 1292 | - | - |
| Mov Cap-2 Maneuver | 206 | 280 | - | 146 | 277 | - | - | - | - | - | - | - |
| Stage 1 | 524 | 515 | - | 639 | 625 | - | - | - | - | - | - | - |
| Stage 2 | 567 | 618 | - | 356 | 505 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 56.3 | 28.2 | 1 | 1.6 |
| HCM LOS | F | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1211 | - | - | 309 | 336 | 1292 | - | - |
| HCM Lane V/C Ratio | 0.031 | - | - | 0.841 | 0.553 | 0.059 | - | - |
| HCM Control Delay (s) | 8.1 | - | - | 56.3 | 28.2 | 8 | 0.2 | - |
| HCM Lane LOS | A | - | - | F | D | A | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 7.3 | 3.2 | 0.2 | - | - |

# HCM 6th TWSC
## 9: Jensen Ave & Siskiyou Ave

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 20 | 125 | 1 | 0 | 88 | 18 | 0 | 2 | 0 | 39 | 5 | 18 |
| Future Vol, veh/h | 20 | 125 | 1 | 0 | 88 | 18 | 0 | 2 | 0 | 39 | 5 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 22 | 136 | 1 | 0 | 96 | 20 | 0 | 2 | 0 | 42 | 5 | 20 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 116 | 0 | 0 | 137 | 0 | 0 | 300 | 297 | 137 | 288 | 287 | 106 |
| Stage 1 | - | - | - | - | - | - | 181 | 181 | - | 106 | 106 | - |
| Stage 2 | - | - | - | - | - | - | 119 | 116 | - | 182 | 181 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1466 | - | - | 1441 | - | - | 650 | 613 | 909 | 662 | 621 | 946 |
| Stage 1 | - | - | - | - | - | - | 818 | 748 | - | 897 | 806 | - |
| Stage 2 | - | - | - | - | - | - | 883 | 798 | - | 817 | 748 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1466 | - | - | 1441 | - | - | 625 | 603 | 909 | 652 | 611 | 946 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 625 | 603 | - | 652 | 611 | - |
| Stage 1 | - | - | - | - | - | - | 805 | 736 | - | 883 | 806 | - |
| Stage 2 | - | - | - | - | - | - | 859 | 798 | - | 802 | 736 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1 | 0 | 11 | 10.6 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 603 | 1466 | - | - | 1441 | - | - | 712 |
| HCM Lane V/C Ratio | 0.004 | 0.015 | - | - | - | - | - | 0.095 |
| HCM Control Delay (s) | 11 | 7.5 | 0 | - | 0 | - | - | 10.6 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | 0 | - | - | 0 | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 11.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 14 | 541 | 29 | 36 | 451 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| Future Vol, veh/h | 14 | 541 | 29 | 36 | 451 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 15 | 588 | 32 | 39 | 490 | 4 | 65 | 46 | 30 | 4 | 32 | 11 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 494 | 0 | 0 | 620 | 0 | 0 | 1226 | 1206 | 604 | 1242 | 1220 | 492 |
| Stage 1 | - | - | - | - | - | - | 634 | 634 | - | 570 | 570 | - |
| Stage 2 | - | - | - | - | - | - | 592 | 572 | - | 672 | 650 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1064 | - | - | 956 | - | - | 155 | 183 | 496 | 151 | 179 | 575 |
| Stage 1 | - | - | - | - | - | - | 466 | 471 | - | 505 | 504 | - |
| Stage 2 | - | - | - | - | - | - | 491 | 503 | - | 444 | 464 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1064 | - | - | 956 | - | - | 122 | 169 | 496 | 106 | 165 | 575 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 122 | 169 | - | 106 | 165 | - |
| Stage 1 | - | - | - | - | - | - | 456 | 461 | - | 494 | 476 | - |
| Stage 2 | - | - | - | - | - | - | 425 | 475 | - | 367 | 454 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.7 | 94.7 | 30.7 |
| HCM LOS | | | F | D |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 163 | 1064 | - | - | 956 | - | - | 186 |
| HCM Lane V/C Ratio | 0.867 | 0.014 | - | - | 0.041 | - | - | 0.251 |
| HCM Control Delay (s) | 94.7 | 8.4 | 0 | - | 8.9 | 0 | - | 30.7 |
| HCM Lane LOS | F | A | A | - | A | A | - | D |
| HCM 95th %tile Q(veh) | 6 | 0 | - | - | 0.1 | - | - | 1 |

# HCM 6th Signalized Intersection Summary
## 2: Siskiyou Ave & Whitesbridge Ave

11/20/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↗ | ↘ | ↓ | ↙ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑↑ | ↱ | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Volume (veh/h) | 15 | 540 | 82 | 192 | 461 | 36 | 34 | 48 | 139 | 29 | 62 | 7 |
| Future Volume (veh/h) | 15 | 540 | 82 | 192 | 461 | 36 | 34 | 48 | 139 | 29 | 62 | 7 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 16 | 587 | 89 | 209 | 501 | 39 | 37 | 52 | 151 | 32 | 67 | 8 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 34 | 531 | 450 | 246 | 1431 | 638 | 65 | 115 | 334 | 59 | 441 | 53 |
| Arrive On Green | 0.02 | 0.29 | 0.29 | 0.14 | 0.41 | 0.41 | 0.04 | 0.27 | 0.27 | 0.03 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 3526 | 1572 | 1767 | 419 | 1217 | 1767 | 1626 | 194 |
| Grp Volume(v), veh/h | 16 | 587 | 89 | 209 | 501 | 39 | 37 | 0 | 203 | 32 | 0 | 75 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1763 | 1572 | 1767 | 0 | 1636 | 1767 | 0 | 1821 |
| Q Serve(g_s), s | 0.6 | 19.3 | 2.9 | 7.8 | 6.6 | 1.0 | 1.4 | 0.0 | 6.9 | 1.2 | 0.0 | 2.1 |
| Cycle Q Clear(g_c), s | 0.6 | 19.3 | 2.9 | 7.8 | 6.6 | 1.0 | 1.4 | 0.0 | 6.9 | 1.2 | 0.0 | 2.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.74 | 1.00 | | 0.11 |
| Lane Grp Cap(c), veh/h | 34 | 531 | 450 | 246 | 1431 | 638 | 65 | 0 | 450 | 59 | 0 | 494 |
| V/C Ratio(X) | 0.47 | 1.11 | 0.20 | 0.85 | 0.35 | 0.06 | 0.56 | 0.00 | 0.45 | 0.54 | 0.00 | 0.15 |
| Avail Cap(c_a), veh/h | 131 | 531 | 450 | 246 | 1431 | 638 | 131 | 0 | 450 | 131 | 0 | 494 |
| 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 | 32.8 | 24.1 | 18.2 | 28.4 | 13.9 | 12.2 | 32.0 | 0.0 | 20.3 | 32.1 | 0.0 | 18.7 |
| Incr Delay (d2), s/veh | 9.8 | 71.5 | 0.2 | 23.4 | 0.1 | 0.0 | 7.4 | 0.0 | 3.3 | 7.5 | 0.0 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 17.5 | 0.9 | 4.5 | 2.1 | 0.3 | 0.7 | 0.0 | 2.8 | 0.6 | 0.0 | 0.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 42.6 | 95.6 | 18.5 | 51.8 | 14.0 | 12.3 | 39.4 | 0.0 | 23.5 | 39.6 | 0.0 | 19.4 |
| LnGrp LOS | D | F | B | D | B | B | D | A | C | D | A | B |
| Approach Vol, veh/h | | 692 | | | 749 | | | 240 | | | 107 | |
| Approach Delay, s/veh | | 84.5 | | | 24.5 | | | 26.0 | | | 25.4 | |
| Approach LOS | | F | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.8 | 23.0 | 13.9 | 23.8 | 7.0 | 22.8 | 5.8 | 31.9 |
| 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 | 18.3 | 9.4 | 19.3 | 5.0 | 18.3 | 5.0 | 23.7 |
| Max Q Clear Time (g_c+I1), s | 3.2 | 8.9 | 9.8 | 21.3 | 3.4 | 4.1 | 2.6 | 8.6 |
| Green Ext Time (p_c), s | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 2.6 |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | | 47.9 |
| HCM 6th LOS | | | D |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 12.8 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 28 | 50 | 13 | 146 | 66 | 49 | 22 | 164 | 109 | 59 | 204 | 24 |
| Future Vol, veh/h | 28 | 50 | 13 | 146 | 66 | 49 | 22 | 164 | 109 | 59 | 204 | 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 30 | 54 | 14 | 159 | 72 | 53 | 24 | 178 | 118 | 64 | 222 | 26 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 10.6 | 12 | 14.2 | 12.9 |
| HCM LOS | B | B | B | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 60% | 0% | 79% | 0% | 57% | 0% | 89% |
| Vol Right, % | 0% | 40% | 0% | 21% | 0% | 43% | 0% | 11% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 22 | 273 | 28 | 63 | 146 | 115 | 59 | 228 |
| LT Vol | 22 | 0 | 28 | 0 | 146 | 0 | 59 | 0 |
| Through Vol | 0 | 164 | 0 | 50 | 0 | 66 | 0 | 204 |
| RT Vol | 0 | 109 | 0 | 13 | 0 | 49 | 0 | 24 |
| Lane Flow Rate | 24 | 297 | 30 | 68 | 159 | 125 | 64 | 248 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.045 | 0.493 | 0.063 | 0.129 | 0.312 | 0.217 | 0.121 | 0.426 |
| Departure Headway (Hd) | 6.769 | 5.979 | 7.444 | 6.786 | 7.067 | 6.255 | 6.769 | 6.187 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 528 | 599 | 479 | 525 | 508 | 571 | 528 | 580 |
| Service Time | 4.529 | 3.738 | 5.224 | 4.565 | 4.831 | 4.019 | 4.529 | 3.947 |
| HCM Lane V/C Ratio | 0.045 | 0.496 | 0.063 | 0.13 | 0.313 | 0.219 | 0.121 | 0.428 |
| HCM Control Delay | 9.9 | 14.5 | 10.7 | 10.6 | 13 | 10.8 | 10.5 | 13.5 |
| HCM Lane LOS | A | B | B | B | B | B | B | B |
| HCM 95th-tile Q | 0.1 | 2.7 | 0.2 | 0.4 | 1.3 | 0.8 | 0.4 | 2.1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 16.5 |
| Intersection LOS | C |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 49 | 232 | 29 | 46 | 364 | 34 | 34 | 57 | 32 | 34 | 62 | 54 |
| Future Vol, veh/h | 49 | 232 | 29 | 46 | 364 | 34 | 34 | 57 | 32 | 34 | 62 | 54 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 53 | 252 | 32 | 50 | 396 | 37 | 37 | 62 | 35 | 37 | 67 | 59 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 2 |
| HCM Control Delay | 13.9 | 21.1 | 11.6 | 12 |
| HCM LOS | B | C | B | B |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|---|
| Vol Left, % | 28% | 100% | 0% | 100% | 0% | 23% |
| Vol Thru, % | 46% | 0% | 89% | 0% | 91% | 41% |
| Vol Right, % | 26% | 0% | 11% | 0% | 9% | 36% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 123 | 49 | 261 | 46 | 398 | 150 |
| LT Vol | 34 | 49 | 0 | 46 | 0 | 34 |
| Through Vol | 57 | 0 | 232 | 0 | 364 | 62 |
| RT Vol | 32 | 0 | 29 | 0 | 34 | 54 |
| Lane Flow Rate | 134 | 53 | 284 | 50 | 433 | 163 |
| Geometry Grp | 2 | 7 | 7 | 7 | 7 | 2 |
| Degree of Util (X) | 0.24 | 0.099 | 0.483 | 0.091 | 0.716 | 0.286 |
| Departure Headway (Hd) | 6.464 | 6.722 | 6.134 | 6.524 | 5.955 | 6.314 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 551 | 530 | 584 | 547 | 606 | 564 |
| Service Time | 4.56 | 4.497 | 3.908 | 4.289 | 3.72 | 4.406 |
| HCM Lane V/C Ratio | 0.243 | 0.1 | 0.486 | 0.091 | 0.715 | 0.289 |
| HCM Control Delay | 11.6 | 10.2 | 14.6 | 9.9 | 22.4 | 12 |
| HCM Lane LOS | B | B | B | A | C | B |
| HCM 95th-tile Q | 0.9 | 0.3 | 2.6 | 0.3 | 5.9 | 1.2 |

# HCM 6th Signalized Intersection Summary
## 5: SR 145 & Kearney Blvd./Kearney Blvd

11/20/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ | ↰ | ↑↱ |  | ↰ | ↑↱ |  |
| Traffic Volume (veh/h) | 91 | 141 | 57 | 56 | 203 | 77 | 56 | 772 | 53 | 71 | 476 | 71 |
| Future Volume (veh/h) | 91 | 141 | 57 | 56 | 203 | 77 | 56 | 772 | 53 | 71 | 476 | 71 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 99 | 153 | 62 | 61 | 221 | 84 | 61 | 839 | 58 | 77 | 517 | 77 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 952 | 66 | 136 | 876 | 130 |
| Arrive On Green | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 | 0.08 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 3345 | 231 | 1767 | 3079 | 457 |
| Grp Volume(v), veh/h | 99 | 153 | 62 | 61 | 221 | 84 | 61 | 442 | 455 | 77 | 295 | 299 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1572 | 1767 | 1856 | 1572 | 1767 | 1763 | 1814 | 1767 | 1763 | 1773 |
| Q Serve(g_s), s | 3.5 | 4.2 | 1.9 | 2.1 | 6.4 | 2.7 | 2.1 | 15.6 | 15.6 | 2.7 | 9.4 | 9.4 |
| Cycle Q Clear(g_c), s | 3.5 | 4.2 | 1.9 | 2.1 | 6.4 | 2.7 | 2.1 | 15.6 | 15.6 | 2.7 | 9.4 | 9.4 |
| Prop In Lane | 1.00 |  | 1.00 | 1.00 |  | 1.00 | 1.00 |  | 0.13 | 1.00 |  | 0.26 |
| Lane Grp Cap(c), veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 502 | 516 | 136 | 502 | 505 |
| V/C Ratio(X) | 0.66 | 0.29 | 0.14 | 0.45 | 0.43 | 0.19 | 0.45 | 0.88 | 0.88 | 0.57 | 0.59 | 0.59 |
| Avail Cap(c_a), veh/h | 150 | 528 | 448 | 136 | 514 | 435 | 136 | 502 | 516 | 136 | 502 | 505 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.8 | 18.1 | 17.3 | 28.7 | 19.3 | 18.0 | 28.7 | 22.2 | 22.2 | 29.0 | 20.0 | 20.0 |
| Incr Delay (d2), s/veh | 20.8 | 1.4 | 0.6 | 10.3 | 2.6 | 1.0 | 10.3 | 19.5 | 19.1 | 16.0 | 5.0 | 5.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.3 | 1.8 | 0.7 | 1.2 | 2.9 | 1.0 | 1.3 | 8.6 | 8.8 | 1.7 | 4.2 | 4.3 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 49.6 | 19.5 | 18.0 | 39.0 | 21.9 | 18.9 | 39.0 | 41.7 | 41.3 | 44.9 | 25.0 | 25.0 |
| LnGrp LOS | D | B | B | D | C | B | D | D | D | D | C | C |
| Approach Vol, veh/h |  | 314 |  |  | 366 |  |  | 958 |  |  | 671 |  |
| Approach Delay, s/veh |  | 28.7 |  |  | 24.1 |  |  | 41.3 |  |  | 27.3 |  |
| Approach LOS |  | C |  |  | C |  |  | D |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.5 | 23.0 | 9.5 | 23.0 | 9.5 | 23.0 | 10.0 | 22.5 |
| 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 | 18.5 | 5.0 | 18.5 | 5.0 | 18.5 | 5.5 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 4.7 | 17.6 | 4.1 | 6.2 | 4.1 | 11.4 | 5.5 | 8.4 |
| Green Ext Time (p_c), s | 0.0 | 0.5 | 0.0 | 0.7 | 0.0 | 2.1 | 0.0 | 1.0 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 32.8 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 85 | 60 | 4 | 13 | 21 | 32 | 18 | 57 | 13 | 49 | 20 | 154 |
| Future Vol, veh/h | 85 | 60 | 4 | 13 | 21 | 32 | 18 | 57 | 13 | 49 | 20 | 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 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 92 | 65 | 4 | 14 | 23 | 35 | 20 | 62 | 14 | 53 | 22 | 167 |
| Number of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 2 | 2 | 2 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 2 | 2 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 2 | 2 | 2 | 2 |
| HCM Control Delay | 9.4 | 8.5 | 8.7 | 8.9 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | EBLn2 | WBLn1 | WBLn2 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 81% | 0% | 94% | 0% | 40% | 0% | 11% |
| Vol Right, % | 0% | 19% | 0% | 6% | 0% | 60% | 0% | 89% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 18 | 70 | 85 | 64 | 13 | 53 | 49 | 174 |
| LT Vol | 18 | 0 | 85 | 0 | 13 | 0 | 49 | 0 |
| Through Vol | 0 | 57 | 0 | 60 | 0 | 21 | 0 | 20 |
| RT Vol | 0 | 13 | 0 | 4 | 0 | 32 | 0 | 154 |
| Lane Flow Rate | 20 | 76 | 92 | 70 | 14 | 58 | 53 | 189 |
| Geometry Grp | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| Degree of Util (X) | 0.032 | 0.112 | 0.153 | 0.104 | 0.024 | 0.082 | 0.086 | 0.245 |
| Departure Headway (Hd) | 5.924 | 5.29 | 5.947 | 5.4 | 6.07 | 5.14 | 5.786 | 4.661 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 602 | 675 | 601 | 661 | 587 | 692 | 618 | 768 |
| Service Time | 3.679 | 3.044 | 3.704 | 3.157 | 3.835 | 2.904 | 3.53 | 2.404 |
| HCM Lane V/C Ratio | 0.033 | 0.113 | 0.153 | 0.106 | 0.024 | 0.084 | 0.086 | 0.246 |
| HCM Control Delay | 8.9 | 8.7 | 9.8 | 8.8 | 9 | 8.4 | 9.1 | 8.9 |
| HCM Lane LOS | A | A | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.4 | 0.5 | 0.3 | 0.1 | 0.3 | 0.3 | 1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9 |
| Intersection LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | | ✥ | | | ✥ | | | ↰ | ↱ |
| Traffic Vol, veh/h | 42 | 80 | 1 | 6 | 165 | 21 | 4 | 14 | 6 | 10 | 3 | 43 |
| Future Vol, veh/h | 42 | 80 | 1 | 6 | 165 | 21 | 4 | 14 | 6 | 10 | 3 | 43 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 46 | 87 | 1 | 7 | 179 | 23 | 4 | 15 | 7 | 11 | 3 | 47 |
| Number of Lanes | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 2 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 2 |
| HCM Control Delay | 8.4 | 9.8 | 8.6 | 8 |
| HCM LOS | A | A | A | A |

| Lane | NBLn1 | EBLn1 | EBLn2 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Vol Left, % | 17% | 100% | 0% | 3% | 77% | 0% |
| Vol Thru, % | 58% | 0% | 99% | 86% | 23% | 0% |
| Vol Right, % | 25% | 0% | 1% | 11% | 0% | 100% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 24 | 42 | 81 | 192 | 13 | 43 |
| LT Vol | 4 | 42 | 0 | 6 | 10 | 0 |
| Through Vol | 14 | 0 | 80 | 165 | 3 | 0 |
| RT Vol | 6 | 0 | 1 | 21 | 0 | 43 |
| Lane Flow Rate | 26 | 46 | 88 | 209 | 14 | 47 |
| Geometry Grp | 6 | 7 | 7 | 6 | 7 | 7 |
| Degree of Util (X) | 0.039 | 0.069 | 0.121 | 0.282 | 0.023 | 0.061 |
| Departure Headway (Hd) | 5.37 | 5.449 | 4.938 | 4.871 | 5.821 | 4.729 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 667 | 659 | 728 | 739 | 616 | 758 |
| Service Time | 3.398 | 3.166 | 2.655 | 2.888 | 3.546 | 2.454 |
| HCM Lane V/C Ratio | 0.039 | 0.07 | 0.121 | 0.283 | 0.023 | 0.062 |
| HCM Control Delay | 8.6 | 8.6 | 8.3 | 9.8 | 8.7 | 7.8 |
| HCM Lane LOS | A | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.2 | 0.4 | 1.2 | 0.1 | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 33.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | ↰ | ↑↱ | | | ↰↱ | |
| Traffic Vol, veh/h | 31 | 84 | 18 | 22 | 110 | 81 | 55 | 519 | 74 | 56 | 235 | 43 |
| Future Vol, veh/h | 31 | 84 | 18 | 22 | 110 | 81 | 55 | 519 | 74 | 56 | 235 | 43 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 125 | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 34 | 91 | 20 | 24 | 120 | 88 | 60 | 564 | 80 | 61 | 255 | 47 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 863 | 1165 | 151 | 1019 | 1148 | 322 | 302 | 0 | 0 | 644 | 0 | 0 |
| Stage 1 | 401 | 401 | - | 724 | 724 | - | - | - | - | - | - | - |
| Stage 2 | 462 | 764 | - | 295 | 424 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.56 | 6.56 | 6.96 | 7.56 | 6.56 | 6.96 | 4.16 | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.56 | 5.56 | - | 6.56 | 5.56 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.53 | 4.03 | 3.33 | 3.53 | 4.03 | 3.33 | 2.23 | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver | 247 | 191 | 865 | 190 | 196 | 671 | 1249 | - | - | 930 | - | - |
| Stage 1 | 594 | 597 | - | 381 | 426 | - | - | - | - | - | - | - |
| Stage 2 | 546 | 408 | - | 686 | 583 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 86 | 168 | 865 | 97 | 172 | 671 | 1249 | - | - | 930 | - | - |
| Mov Cap-2 Maneuver | 86 | 168 | - | 97 | 172 | - | - | - | - | - | - | - |
| Stage 1 | 565 | 550 | - | 363 | 406 | - | - | - | - | - | - | - |
| Stage 2 | 319 | 388 | - | 515 | 537 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 121.1 | 128.9 | 0.7 | 1.7 |
| HCM LOS | F | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1249 | - | - | 151 | 216 | 930 | - | - |
| HCM Lane V/C Ratio | 0.048 | - | - | 0.957 | 1.072 | 0.065 | - | - |
| HCM Control Delay (s) | 8 | - | - | 121.1 | 128.9 | 9.1 | 0.2 | - |
| HCM Lane LOS | A | - | - | F | F | A | A | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 7 | 10.3 | 0.2 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Traffic Vol, veh/h | 39 | 105 | 0 | 1 | 148 | 69 | 0 | 5 | 0 | 15 | 3 | 25 |
| Future Vol, veh/h | 39 | 105 | 0 | 1 | 148 | 69 | 0 | 5 | 0 | 15 | 3 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 42 | 114 | 0 | 1 | 161 | 75 | 0 | 5 | 0 | 16 | 3 | 27 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 236 | 0 | 0 | 114 | 0 | 0 | 414 | 436 | 114 | 402 | 399 | 199 |
| Stage 1 | - | - | - | - | - | - | 198 | 198 | - | 201 | 201 | - |
| Stage 2 | - | - | - | - | - | - | 216 | 238 | - | 201 | 198 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1325 | - | - | 1469 | - | - | 547 | 512 | 936 | 557 | 537 | 839 |
| Stage 1 | - | - | - | - | - | - | 802 | 735 | - | 799 | 733 | - |
| Stage 2 | - | - | - | - | - | - | 784 | 706 | - | 799 | 735 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1325 | - | - | 1469 | - | - | 513 | 494 | 936 | 538 | 518 | 839 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 513 | 494 | - | 538 | 518 | - |
| Stage 1 | - | - | - | - | - | - | 775 | 710 | - | 772 | 732 | - |
| Stage 2 | - | - | - | - | - | - | 754 | 705 | - | 766 | 710 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 2.1 | 0 | 12.4 | 10.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 494 | 1325 | - | - | 1469 | - | - | 677 |
| HCM Lane V/C Ratio | 0.011 | 0.032 | - | - | 0.001 | - | - | 0.069 |
| HCM Control Delay (s) | 12.4 | 7.8 | 0 | - | 7.5 | 0 | - | 10.7 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0 | 0.1 | - | - | 0 | - | - | 0.2 |

# Synchro Reports

# Queuing Analysis

# Queues
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 3 | 378 | 72 | 55 | 299 | 30 | 93 | 270 | 50 | 91 |
| v/c Ratio | 0.02 | 0.76 | 0.13 | 0.34 | 0.26 | 0.05 | 0.53 | 0.37 | 0.31 | 0.14 |
| Control Delay | 28.0 | 32.1 | 0.5 | 34.4 | 15.3 | 0.1 | 41.6 | 11.3 | 33.5 | 15.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.0 | 32.1 | 0.5 | 34.4 | 15.3 | 0.1 | 41.6 | 11.3 | 33.5 | 15.6 |
| Queue Length 50th (ft) | 1 | 136 | 0 | 21 | 37 | 0 | 37 | 43 | 19 | 23 |
| Queue Length 95th (ft) | 7 | 185 | 0 | 53 | 78 | 0 | #86 | 90 | 38 | 41 |
| Internal Link Dist (ft) |  | 5219 |  |  | 2559 |  |  | 2531 |  | 1389 |
| Turn Bay Length (ft) | 475 |  | 300 | 500 |  | 500 | 175 |  | 150 |  |
| Base Capacity (vph) | 161 | 612 | 638 | 161 | 1369 | 719 | 177 | 727 | 161 | 629 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.02 | 0.62 | 0.11 | 0.34 | 0.22 | 0.04 | 0.53 | 0.37 | 0.31 | 0.14 |

### Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 72 | 185 | 72 | 45 | 316 | 108 | 68 | 442 | 54 | 496 |
| v/c Ratio | 0.54 | 0.36 | 0.12 | 0.34 | 0.62 | 0.18 | 0.51 | 0.43 | 0.40 | 0.49 |
| Control Delay | 45.5 | 21.4 | 0.4 | 35.6 | 26.8 | 0.6 | 43.6 | 19.7 | 38.0 | 20.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 45.5 | 21.4 | 0.4 | 35.6 | 26.8 | 0.6 | 43.6 | 19.7 | 38.0 | 20.2 |
| Queue Length 50th (ft) | 28 | 59 | 0 | 17 | 109 | 0 | 27 | 71 | 21 | 81 |
| Queue Length 95th (ft) | #74 | 106 | 0 | 37 | 141 | 0 | #63 | 101 | 51 | 117 |
| Internal Link Dist (ft) |  | 2596 |  |  | 3194 |  |  | 2482 |  | 1259 |
| Turn Bay Length (ft) | 100 |  | 100 | 100 |  | 75 | 100 |  | 200 |  |
| Base Capacity (vph) | 134 | 510 | 616 | 134 | 510 | 616 | 134 | 1021 | 134 | 1022 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.54 | 0.36 | 0.12 | 0.34 | 0.62 | 0.18 | 0.51 | 0.43 | 0.40 | 0.49 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 13 | 471 | 67 | 122 | 358 | 28 | 28 | 141 | 24 | 57 |
| v/c Ratio | 0.09 | 0.85 | 0.11 | 0.72 | 0.23 | 0.04 | 0.19 | 0.24 | 0.16 | 0.10 |
| Control Delay | 28.6 | 38.8 | 0.4 | 54.7 | 12.5 | 0.1 | 30.4 | 8.3 | 30.0 | 15.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.6 | 38.8 | 0.4 | 54.7 | 12.5 | 0.1 | 30.4 | 8.3 | 30.0 | 15.5 |
| Queue Length 50th (ft) | 4 | 139 | 0 | 40 | 31 | 0 | 9 | 10 | 8 | 11 |
| Queue Length 95th (ft) | 18 | #296 | 0 | #131 | 92 | 0 | 29 | 40 | 29 | 38 |
| Internal Link Dist (ft) | | 5219 | | | 2559 | | | 2531 | | 1389 |
| Turn Bay Length (ft) | 475 | | 300 | 500 | | 500 | 175 | | 150 | |
| Base Capacity (vph) | 149 | 568 | 604 | 170 | 1559 | 795 | 149 | 584 | 149 | 572 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.09 | 0.83 | 0.11 | 0.72 | 0.23 | 0.04 | 0.19 | 0.24 | 0.16 | 0.10 |

Intersection Summary

\#    95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 59 | 115 | 47 | 43 | 158 | 60 | 48 | 701 | 59 | 450 |
| v/c Ratio | 0.43 | 0.22 | 0.08 | 0.32 | 0.31 | 0.11 | 0.36 | 0.69 | 0.44 | 0.44 |
| Control Delay | 38.8 | 19.5 | 0.3 | 35.2 | 20.7 | 0.4 | 36.4 | 24.3 | 39.4 | 19.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 38.8 | 19.5 | 0.3 | 35.2 | 20.7 | 0.4 | 36.4 | 24.3 | 39.4 | 19.3 |
| Queue Length 50th (ft) | 23 | 35 | 0 | 17 | 49 | 0 | 19 | 126 | 23 | 71 |
| Queue Length 95th (ft) | 55 | 70 | 0 | 44 | 94 | 0 | 45 | 165 | 54 | 105 |
| Internal Link Dist (ft) | | 2596 | | | 3194 | | | 2482 | | 1259 |
| Turn Bay Length (ft) | 100 | | 100 | 100 | | 75 | 100 | | 200 | |
| Base Capacity (vph) | 137 | 513 | 563 | 134 | 510 | 561 | 134 | 1016 | 134 | 1017 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.43 | 0.22 | 0.08 | 0.32 | 0.31 | 0.11 | 0.36 | 0.69 | 0.44 | 0.44 |

Intersection Summary

# Queues

## 2: Siskiyou Ave & Whitesbridge Ave

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 3 | 378 | 74 | 67 | 299 | 30 | 99 | 328 | 50 | 91 |
| v/c Ratio | 0.02 | 0.76 | 0.13 | 0.42 | 0.26 | 0.05 | 0.56 | 0.44 | 0.31 | 0.14 |
| Control Delay | 28.0 | 32.1 | 0.5 | 37.5 | 15.3 | 0.1 | 43.5 | 11.0 | 33.5 | 15.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.0 | 32.1 | 0.5 | 37.5 | 15.3 | 0.1 | 43.5 | 11.0 | 33.5 | 15.6 |
| Queue Length 50th (ft) | 1 | 136 | 0 | 26 | 37 | 0 | 39 | 48 | 19 | 23 |
| Queue Length 95th (ft) | 7 | 185 | 0 | #69 | 78 | 0 | #92 | 101 | 38 | 41 |
| Internal Link Dist (ft) |  | 5219 |  |  | 2559 |  |  | 2531 |  | 1389 |
| Turn Bay Length (ft) | 475 |  | 300 | 500 |  | 500 | 175 |  | 150 |  |
| Base Capacity (vph) | 161 | 612 | 638 | 161 | 1369 | 719 | 177 | 747 | 161 | 629 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.02 | 0.62 | 0.12 | 0.42 | 0.22 | 0.04 | 0.56 | 0.44 | 0.31 | 0.14 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

## 5: SR 145 & Kearney Blvd./Kearney Blvd

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 105 | 185 | 72 | 45 | 316 | 108 | 68 | 442 | 54 | 506 |
| v/c Ratio | 0.78 | 0.36 | 0.12 | 0.34 | 0.62 | 0.18 | 0.51 | 0.43 | 0.40 | 0.50 |
| Control Delay | 69.9 | 21.4 | 0.4 | 35.6 | 26.8 | 0.6 | 43.6 | 19.7 | 38.0 | 20.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 69.9 | 21.4 | 0.4 | 35.6 | 26.8 | 0.6 | 43.6 | 19.7 | 38.0 | 20.2 |
| Queue Length 50th (ft) | 42 | 59 | 0 | 17 | 109 | 0 | 27 | 71 | 21 | 82 |
| Queue Length 95th (ft) | #114 | 106 | 0 | 37 | 141 | 0 | #63 | 101 | 51 | 119 |
| Internal Link Dist (ft) | | 2596 | | | 3194 | | | 2482 | | 1259 |
| Turn Bay Length (ft) | 100 | | 100 | 100 | | 75 | 100 | | 200 | |
| Base Capacity (vph) | 134 | 510 | 616 | 134 | 510 | 616 | 134 | 1021 | 134 | 1021 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.78 | 0.36 | 0.12 | 0.34 | 0.62 | 0.18 | 0.51 | 0.43 | 0.40 | 0.50 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues

## 2: Siskiyou Ave & Whitesbridge Ave

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 13 | 471 | 73 | 160 | 358 | 28 | 31 | 178 | 24 | 57 |
| v/c Ratio | 0.09 | 0.85 | 0.12 | 0.94 | 0.23 | 0.04 | 0.21 | 0.29 | 0.16 | 0.10 |
| Control Delay | 28.6 | 38.8 | 0.4 | 89.4 | 12.5 | 0.1 | 30.8 | 7.5 | 30.0 | 15.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.6 | 38.8 | 0.4 | 89.4 | 12.5 | 0.1 | 30.8 | 7.5 | 30.0 | 15.5 |
| Queue Length 50th (ft) | 4 | 139 | 0 | 54 | 31 | 0 | 10 | 10 | 8 | 11 |
| Queue Length 95th (ft) | 18 | #296 | 0 | #176 | 92 | 0 | 31 | 43 | 29 | 38 |
| Internal Link Dist (ft) | | 5219 | | | 2559 | | | 2531 | | 1389 |
| Turn Bay Length (ft) | 475 | | 300 | 500 | | 500 | 175 | | 150 | |
| Base Capacity (vph) | 149 | 568 | 604 | 170 | 1559 | 795 | 149 | 604 | 149 | 572 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.09 | 0.83 | 0.12 | 0.94 | 0.23 | 0.04 | 0.21 | 0.29 | 0.16 | 0.10 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 80 | 115 | 47 | 43 | 158 | 60 | 48 | 701 | 59 | 484 |
| v/c Ratio | 0.58 | 0.22 | 0.08 | 0.32 | 0.31 | 0.11 | 0.36 | 0.69 | 0.44 | 0.47 |
| Control Delay | 48.4 | 19.5 | 0.3 | 35.2 | 20.7 | 0.4 | 36.4 | 24.3 | 39.4 | 18.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 48.4 | 19.5 | 0.3 | 35.2 | 20.7 | 0.4 | 36.4 | 24.3 | 39.4 | 18.9 |
| Queue Length 50th (ft) | 31 | 35 | 0 | 17 | 49 | 0 | 19 | 126 | 23 | 73 |
| Queue Length 95th (ft) | #83 | 70 | 0 | 44 | 94 | 0 | 45 | 165 | 54 | 109 |
| Internal Link Dist (ft) | | 2596 | | | 3194 | | | 2482 | | 1259 |
| Turn Bay Length (ft) | 100 | | 100 | 100 | | 75 | 100 | | 200 | |
| Base Capacity (vph) | 137 | 513 | 563 | 134 | 510 | 561 | 134 | 1016 | 134 | 1021 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.58 | 0.22 | 0.08 | 0.32 | 0.31 | 0.11 | 0.36 | 0.69 | 0.44 | 0.47 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 2: Siskiyou Ave & Whitesbridge Ave

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 3 | 394 | 78 | 84 | 337 | 31 | 105 | 393 | 51 | 94 |
| v/c Ratio | 0.02 | 0.79 | 0.14 | 0.55 | 0.27 | 0.05 | 0.62 | 0.54 | 0.33 | 0.16 |
| Control Delay | 28.0 | 35.0 | 0.5 | 45.3 | 14.9 | 0.1 | 48.3 | 12.0 | 34.8 | 16.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.0 | 35.0 | 0.5 | 45.3 | 14.9 | 0.1 | 48.3 | 12.0 | 34.8 | 16.2 |
| Queue Length 50th (ft) | 1 | 143 | 0 | 33 | 43 | 0 | 41 | 57 | 20 | 24 |
| Queue Length 95th (ft) | 7 | 194 | 0 | #90 | 87 | 0 | #99 | 119 | 39 | 42 |
| Internal Link Dist (ft) | | 5219 | | | 2559 | | | 2531 | | 1389 |
| Turn Bay Length (ft) | 475 | | 300 | 500 | | 500 | 175 | | 150 | |
| Base Capacity (vph) | 154 | 585 | 618 | 154 | 1406 | 734 | 170 | 734 | 154 | 603 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.02 | 0.67 | 0.13 | 0.55 | 0.24 | 0.04 | 0.62 | 0.54 | 0.33 | 0.16 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

11/17/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 143 | 193 | 80 | 47 | 329 | 112 | 73 | 459 | 56 | 538 |
| v/c Ratio | 0.89 | 0.38 | 0.13 | 0.29 | 0.65 | 0.18 | 0.54 | 0.47 | 0.42 | 0.56 |
| Control Delay | 80.8 | 21.6 | 0.4 | 32.6 | 27.6 | 0.6 | 46.1 | 21.0 | 38.5 | 21.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 80.8 | 21.6 | 0.4 | 32.6 | 27.6 | 0.6 | 46.1 | 21.0 | 38.5 | 21.7 |
| Queue Length 50th (ft) | 57 | 61 | 0 | 18 | 114 | 0 | 29 | 76 | 22 | 90 |
| Queue Length 95th (ft) | #147 | 110 | 0 | 38 | 146 | 0 | #70 | 107 | 52 | 130 |
| Internal Link Dist (ft) | | 2596 | | | 3194 | | | 2482 | | 1259 |
| Turn Bay Length (ft) | 100 | | 100 | 100 | | 75 | 100 | | 200 | |
| Base Capacity (vph) | 161 | 510 | 616 | 161 | 510 | 616 | 134 | 968 | 134 | 969 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.89 | 0.38 | 0.13 | 0.29 | 0.65 | 0.18 | 0.54 | 0.47 | 0.42 | 0.56 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 13 | 490 | 79 | 213 | 407 | 29 | 34 | 220 | 25 | 59 |
| v/c Ratio | 0.10 | 0.88 | 0.13 | 0.83 | 0.24 | 0.03 | 0.25 | 0.37 | 0.18 | 0.11 |
| Control Delay | 31.5 | 43.4 | 0.5 | 57.1 | 11.6 | 0.1 | 34.5 | 7.9 | 33.0 | 17.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 31.5 | 43.4 | 0.5 | 57.1 | 11.6 | 0.1 | 34.5 | 7.9 | 33.0 | 17.8 |
| Queue Length 50th (ft) | 5 | 163 | 0 | 76 | 35 | 0 | 12 | 11 | 9 | 14 |
| Queue Length 95th (ft) | 19 | #332 | 0 | #210 | 102 | 0 | 35 | 49 | 31 | 43 |
| Internal Link Dist (ft) |  | 5219 |  |  | 2559 |  |  | 2531 |  | 1389 |
| Turn Bay Length (ft) | 475 |  | 300 | 500 |  | 500 | 175 |  | 150 |  |
| Base Capacity (vph) | 136 | 556 | 587 | 257 | 1723 | 854 | 136 | 589 | 136 | 523 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.88 | 0.13 | 0.83 | 0.24 | 0.03 | 0.25 | 0.37 | 0.18 | 0.11 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

11/17/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 106 | 119 | 52 | 46 | 164 | 62 | 56 | 730 | 61 | 538 |
| v/c Ratio | 0.72 | 0.23 | 0.09 | 0.34 | 0.32 | 0.11 | 0.42 | 0.73 | 0.46 | 0.53 |
| Control Delay | 58.1 | 19.2 | 0.3 | 35.9 | 20.8 | 0.4 | 38.5 | 25.9 | 40.3 | 19.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 58.1 | 19.2 | 0.3 | 35.9 | 20.8 | 0.4 | 38.5 | 25.9 | 40.3 | 19.3 |
| Queue Length 50th (ft) | 42 | 36 | 0 | 18 | 51 | 0 | 22 | 134 | 24 | 81 |
| Queue Length 95th (ft) | #110 | 71 | 0 | 47 | 98 | 0 | 50 | 175 | #57 | 120 |
| Internal Link Dist (ft) | | 2596 | | | 3194 | | | 2482 | | 1259 |
| Turn Bay Length (ft) | 100 | | 100 | 100 | | 75 | 100 | | 200 | |
| Base Capacity (vph) | 148 | 525 | 572 | 134 | 510 | 561 | 134 | 995 | 134 | 1008 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.72 | 0.23 | 0.09 | 0.34 | 0.32 | 0.11 | 0.42 | 0.73 | 0.46 | 0.53 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 2: Siskiyou Ave & Whitesbridge Ave

11/20/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 3 | 449 | 85 | 75 | 404 | 41 | 117 | 344 | 53 | 99 |
| v/c Ratio | 0.02 | 0.85 | 0.15 | 0.50 | 0.31 | 0.06 | 0.71 | 0.51 | 0.36 | 0.17 |
| Control Delay | 28.0 | 39.8 | 0.5 | 43.0 | 15.1 | 0.2 | 56.8 | 14.6 | 35.7 | 16.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.0 | 39.8 | 0.5 | 43.0 | 15.1 | 0.2 | 56.8 | 14.6 | 35.7 | 16.5 |
| Queue Length 50th (ft) | 1 | 169 | 0 | 29 | 52 | 0 | 47 | 69 | 21 | 25 |
| Queue Length 95th (ft) | 8 | #324 | 1 | #81 | 105 | 0 | #127 | 147 | 52 | 58 |
| Internal Link Dist (ft) | | 5219 | | | 2559 | | | 2531 | | 1389 |
| Turn Bay Length (ft) | 475 | | 300 | 500 | | 500 | 175 | | 150 | |
| Base Capacity (vph) | 149 | 567 | 604 | 149 | 1385 | 726 | 164 | 675 | 149 | 583 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.02 | 0.79 | 0.14 | 0.50 | 0.29 | 0.06 | 0.71 | 0.51 | 0.36 | 0.17 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 96 | 248 | 96 | 50 | 351 | 121 | 87 | 565 | 72 | 657 |
| v/c Ratio | 0.60 | 0.49 | 0.16 | 0.31 | 0.69 | 0.20 | 0.65 | 0.58 | 0.54 | 0.68 |
| Control Delay | 45.9 | 23.5 | 0.5 | 33.1 | 29.4 | 0.7 | 54.3 | 22.7 | 45.5 | 24.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 45.9 | 23.5 | 0.5 | 33.1 | 29.4 | 0.7 | 54.3 | 22.7 | 45.5 | 24.5 |
| Queue Length 50th (ft) | 38 | 82 | 0 | 19 | 124 | 0 | 34 | 98 | 28 | 117 |
| Queue Length 95th (ft) | #96 | 144 | 0 | 49 | #214 | 0 | #96 | 145 | #77 | 171 |
| Internal Link Dist (ft) |  | 2596 |  |  | 3194 |  |  | 2482 |  | 1259 |
| Turn Bay Length (ft) | 100 |  | 100 | 100 |  | 75 | 100 |  | 200 |  |
| Base Capacity (vph) | 161 | 510 | 616 | 161 | 510 | 616 | 134 | 968 | 134 | 969 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.60 | 0.49 | 0.16 | 0.31 | 0.69 | 0.20 | 0.65 | 0.58 | 0.54 | 0.68 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 2: Siskiyou Ave & Whitesbridge Ave

11/17/2023

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 16 | 587 | 84 | 171 | 501 | 39 | 34 | 170 | 32 | 75 |
| v/c Ratio | 0.12 | 1.05 | 0.14 | 0.69 | 0.29 | 0.05 | 0.25 | 0.30 | 0.23 | 0.14 |
| Control Delay | 31.8 | 78.1 | 0.7 | 44.1 | 12.0 | 0.1 | 34.5 | 9.2 | 34.1 | 18.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 31.8 | 78.1 | 0.7 | 44.1 | 12.0 | 0.1 | 34.5 | 9.2 | 34.1 | 18.0 |
| Queue Length 50th (ft) | 6 | 211 | 0 | 60 | 45 | 0 | 12 | 13 | 11 | 18 |
| Queue Length 95th (ft) | 24 | #488 | 3 | #161 | 126 | 0 | 40 | 62 | 38 | 52 |
| Internal Link Dist (ft) |  | 5219 |  |  | 2559 |  |  | 2531 |  | 1389 |
| Turn Bay Length (ft) | 475 |  | 300 | 500 |  | 500 | 175 |  | 150 |  |
| Base Capacity (vph) | 137 | 560 | 590 | 259 | 1714 | 850 | 137 | 560 | 137 | 528 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.12 | 1.05 | 0.14 | 0.66 | 0.29 | 0.05 | 0.25 | 0.30 | 0.23 | 0.14 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

11/17/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 79 | 153 | 62 | 61 | 221 | 84 | 61 | 897 | 77 | 594 |
| v/c Ratio | 0.53 | 0.29 | 0.11 | 0.46 | 0.43 | 0.15 | 0.46 | 0.90 | 0.57 | 0.60 |
| Control Delay | 43.4 | 20.0 | 0.4 | 40.3 | 22.5 | 0.6 | 40.3 | 36.6 | 48.2 | 22.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 43.4 | 20.0 | 0.4 | 40.3 | 22.5 | 0.6 | 40.3 | 36.6 | 48.2 | 22.1 |
| Queue Length 50th (ft) | 31 | 47 | 0 | 24 | 71 | 0 | 24 | 176 | 30 | 101 |
| Queue Length 95th (ft) | #81 | 91 | 0 | #62 | 129 | 0 | #62 | #285 | #84 | 149 |
| Internal Link Dist (ft) | | 2596 | | | 3194 | | | 2482 | | 1259 |
| Turn Bay Length (ft) | 100 | | 100 | 100 | | 75 | 100 | | 200 | |
| Base Capacity (vph) | 148 | 525 | 572 | 134 | 510 | 561 | 134 | 995 | 134 | 996 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.53 | 0.29 | 0.11 | 0.46 | 0.43 | 0.15 | 0.46 | 0.90 | 0.57 | 0.60 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 2: Siskiyou Ave & Whitesbridge Ave

11/20/2023

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 3 | 449 | 87 | 86 | 404 | 41 | 123 | 397 | 53 | 99 |
| v/c Ratio | 0.02 | 0.89 | 0.16 | 0.61 | 0.32 | 0.06 | 0.79 | 0.55 | 0.38 | 0.18 |
| Control Delay | 28.0 | 44.6 | 0.6 | 50.3 | 15.6 | 0.2 | 66.7 | 14.6 | 36.6 | 16.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.0 | 44.6 | 0.6 | 50.3 | 15.6 | 0.2 | 66.7 | 14.6 | 36.6 | 16.6 |
| Queue Length 50th (ft) | 1 | 169 | 0 | 34 | 52 | 0 | 49 | 78 | 21 | 25 |
| Queue Length 95th (ft) | 8 | #324 | 1 | #96 | 105 | 0 | #135 | 167 | 52 | 58 |
| Internal Link Dist (ft) |  | 5219 |  |  | 2559 |  |  | 2531 |  | 1389 |
| Turn Bay Length (ft) | 475 |  | 300 | 500 |  | 500 | 175 |  | 150 |  |
| Base Capacity (vph) | 141 | 537 | 582 | 141 | 1329 | 703 | 156 | 721 | 141 | 549 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.02 | 0.84 | 0.15 | 0.61 | 0.30 | 0.06 | 0.79 | 0.55 | 0.38 | 0.18 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 127 | 248 | 96 | 50 | 351 | 121 | 87 | 565 | 72 | 668 |
| v/c Ratio | 0.79 | 0.49 | 0.16 | 0.31 | 0.69 | 0.20 | 0.65 | 0.58 | 0.54 | 0.69 |
| Control Delay | 64.5 | 23.5 | 0.5 | 33.1 | 29.4 | 0.7 | 54.3 | 22.7 | 45.5 | 24.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 64.5 | 23.5 | 0.5 | 33.1 | 29.4 | 0.7 | 54.3 | 22.7 | 45.5 | 24.7 |
| Queue Length 50th (ft) | 50 | 82 | 0 | 19 | 124 | 0 | 34 | 98 | 28 | 120 |
| Queue Length 95th (ft) | #134 | 144 | 0 | 49 | #214 | 0 | #96 | 145 | #77 | 174 |
| Internal Link Dist (ft) |  | 2596 |  |  | 3194 |  |  | 2482 |  | 1259 |
| Turn Bay Length (ft) | 100 |  | 100 | 100 |  | 75 | 100 |  | 200 |  |
| Base Capacity (vph) | 161 | 510 | 616 | 161 | 510 | 616 | 134 | 968 | 134 | 969 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.79 | 0.49 | 0.16 | 0.31 | 0.69 | 0.20 | 0.65 | 0.58 | 0.54 | 0.69 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

## Queues
## 2: Siskiyou Ave & Whitesbridge Ave

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 16 | 587 | 89 | 209 | 501 | 39 | 37 | 203 | 32 | 75 |
| v/c Ratio | 0.12 | 1.06 | 0.15 | 0.81 | 0.29 | 0.05 | 0.27 | 0.35 | 0.24 | 0.14 |
| Control Delay | 31.9 | 80.2 | 1.0 | 55.2 | 12.0 | 0.1 | 35.1 | 8.6 | 34.2 | 18.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 31.9 | 80.2 | 1.0 | 55.2 | 12.0 | 0.1 | 35.1 | 8.6 | 34.2 | 18.0 |
| Queue Length 50th (ft) | 6 | 211 | 0 | 74 | 45 | 0 | 13 | 14 | 11 | 18 |
| Queue Length 95th (ft) | 24 | #488 | 5 | #206 | 126 | 0 | 43 | 65 | 38 | 52 |
| Internal Link Dist (ft) | | 5219 | | | 2559 | | | 2531 | | 1389 |
| Turn Bay Length (ft) | 475 | | 300 | 500 | | 500 | 175 | | 150 | |
| Base Capacity (vph) | 136 | 556 | 587 | 257 | 1723 | 854 | 136 | 576 | 136 | 524 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.12 | 1.06 | 0.15 | 0.81 | 0.29 | 0.05 | 0.27 | 0.35 | 0.24 | 0.14 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Queues
## 5: SR 145 & Kearney Blvd./Kearney Blvd

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 99 | 153 | 62 | 61 | 221 | 84 | 61 | 897 | 77 | 594 |
| v/c Ratio | 0.67 | 0.29 | 0.11 | 0.46 | 0.43 | 0.15 | 0.46 | 0.90 | 0.57 | 0.60 |
| Control Delay | 53.6 | 20.0 | 0.4 | 40.3 | 22.5 | 0.6 | 40.3 | 36.6 | 48.2 | 22.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 53.6 | 20.0 | 0.4 | 40.3 | 22.5 | 0.6 | 40.3 | 36.6 | 48.2 | 22.1 |
| Queue Length 50th (ft) | 39 | 47 | 0 | 24 | 71 | 0 | 24 | 176 | 30 | 101 |
| Queue Length 95th (ft) | #106 | 91 | 0 | #62 | 129 | 0 | #62 | #285 | #84 | 149 |
| Internal Link Dist (ft) | | 2596 | | | 3194 | | | 2482 | | 1259 |
| Turn Bay Length (ft) | 100 | | 100 | 100 | | 75 | 100 | | 200 | |
| Base Capacity (vph) | 148 | 525 | 572 | 134 | 510 | 561 | 134 | 995 | 134 | 996 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 0.29 | 0.11 | 0.46 | 0.43 | 0.15 | 0.46 | 0.90 | 0.57 | 0.60 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# Synchro Reports

# Mitigations

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 5 | 278 | 36 | 14 | 365 | 2 | 37 | 36 | 20 | 7 | 23 | 5 |
| Future Vol, veh/h | 5 | 278 | 36 | 14 | 365 | 2 | 37 | 36 | 20 | 7 | 23 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 82 | 82 | 82 | 83 | 83 | 83 | 61 | 61 | 61 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 5 | 305 | 40 | 17 | 445 | 2 | 45 | 43 | 24 | 11 | 38 | 8 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 447 | 0 | 0 | 345 | 0 | 0 | 838 | 816 | 325 | 849 | 835 | 446 |
| Stage 1 | - | - | - | - | - | - | 335 | 335 | - | 480 | 480 | - |
| Stage 2 | - | - | - | - | - | - | 503 | 481 | - | 369 | 355 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1108 | - | - | 1208 | - | - | 285 | 310 | 714 | 280 | 302 | 610 |
| Stage 1 | - | - | - | - | - | - | 677 | 641 | - | 565 | 553 | - |
| Stage 2 | - | - | - | - | - | - | 549 | 552 | - | 649 | 628 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1108 | - | - | 1208 | - | - | 250 | 304 | 714 | 238 | 296 | 610 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 250 | 304 | - | 238 | 296 | - |
| Stage 1 | - | - | - | - | - | - | 674 | 638 | - | 562 | 545 | - |
| Stage 2 | - | - | - | - | - | - | 497 | 544 | - | 582 | 625 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.3 | 18.8 | 18.4 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 250 | 382 | 1108 | - | - | 1208 | - | - | 238 | 326 |
| HCM Lane V/C Ratio | 0.178 | 0.177 | 0.005 | - | - | 0.014 | - | - | 0.048 | 0.141 |
| HCM Control Delay (s) | 22.5 | 16.4 | 8.3 | - | - | 8 | - | - | 20.9 | 17.8 |
| HCM Lane LOS | C | C | A | - | - | A | - | - | C | C |
| HCM 95th %tile Q(veh) | 0.6 | 0.6 | 0 | - | - | 0 | - | - | 0.2 | 0.5 |

# Queues
## 8: SR 145 & California Ave

11/20/2023

| | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 36 | 221 | 20 | 139 | 33 | 203 | 60 | 266 |
| v/c Ratio | 0.15 | 0.57 | 0.10 | 0.35 | 0.16 | 0.12 | 0.27 | 0.27 |
| Control Delay | 17.6 | 20.9 | 16.9 | 12.6 | 23.1 | 9.7 | 24.5 | 10.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 17.6 | 20.9 | 16.9 | 12.6 | 23.1 | 9.7 | 24.5 | 10.1 |
| Queue Length 50th (ft) | 10 | 51 | 5 | 20 | 10 | 18 | 18 | 28 |
| Queue Length 95th (ft) | 23 | 80 | 16 | 46 | 29 | 40 | 44 | 112 |
| Internal Link Dist (ft) | | 1268 | | 510 | | 2634 | | 1201 |
| Turn Bay Length (ft) | | | | | 125 | | | |
| Base Capacity (vph) | 406 | 610 | 322 | 610 | 206 | 1746 | 221 | 1000 |
| 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 | 0.09 | 0.36 | 0.06 | 0.23 | 0.16 | 0.12 | 0.27 | 0.27 |

Intersection Summary

# HCM 6th Signalized Intersection Summary
## 8: SR 145 & California Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↑↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 29 | 122 | 54 | 16 | 61 | 53 | 29 | 164 | 15 | 52 | 203 | 29 |
| Future Volume (veh/h) | 29 | 122 | 54 | 16 | 61 | 53 | 29 | 164 | 15 | 52 | 203 | 29 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 36 | 152 | 68 | 20 | 74 | 65 | 33 | 186 | 17 | 60 | 233 | 33 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.82 | 0.82 | 0.82 | 0.88 | 0.88 | 0.88 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 266 | 218 | 97 | 204 | 163 | 143 | 64 | 1687 | 153 | 97 | 850 | 120 |
| Arrive On Green | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.04 | 0.52 | 0.52 | 0.05 | 0.53 | 0.53 |
| Sat Flow, veh/h | 1240 | 1214 | 543 | 1152 | 911 | 800 | 1767 | 3269 | 296 | 1767 | 1590 | 225 |
| Grp Volume(v), veh/h | 36 | 0 | 220 | 20 | 0 | 139 | 33 | 99 | 104 | 60 | 0 | 266 |
| Grp Sat Flow(s),veh/h/ln | 1240 | 0 | 1758 | 1152 | 0 | 1711 | 1767 | 1763 | 1802 | 1767 | 0 | 1815 |
| Q Serve(g_s), s | 1.4 | 0.0 | 6.3 | 0.9 | 0.0 | 3.9 | 1.0 | 1.6 | 1.6 | 1.8 | 0.0 | 4.3 |
| Cycle Q Clear(g_c), s | 5.4 | 0.0 | 6.3 | 7.2 | 0.0 | 3.9 | 1.0 | 1.6 | 1.6 | 1.8 | 0.0 | 4.3 |
| Prop In Lane | 1.00 |  | 0.31 | 1.00 |  | 0.47 | 1.00 |  | 0.16 | 1.00 |  | 0.12 |
| Lane Grp Cap(c), veh/h | 266 | 0 | 315 | 204 | 0 | 307 | 64 | 909 | 930 | 97 | 0 | 970 |
| V/C Ratio(X) | 0.14 | 0.00 | 0.70 | 0.10 | 0.00 | 0.45 | 0.52 | 0.11 | 0.11 | 0.62 | 0.00 | 0.27 |
| Avail Cap(c_a), veh/h | 457 | 0 | 586 | 382 | 0 | 570 | 164 | 909 | 930 | 164 | 0 | 970 |
| 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 | 22.2 | 0.0 | 20.8 | 24.2 | 0.0 | 19.8 | 25.6 | 6.7 | 6.7 | 25.0 | 0.0 | 6.8 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 2.8 | 0.2 | 0.0 | 1.0 | 6.3 | 0.2 | 0.2 | 6.2 | 0.0 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.0 | 2.6 | 0.2 | 0.0 | 1.5 | 0.5 | 0.4 | 0.4 | 0.9 | 0.0 | 1.5 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 22.4 | 0.0 | 23.6 | 24.4 | 0.0 | 20.8 | 31.9 | 6.9 | 7.0 | 31.2 | 0.0 | 7.5 |
| LnGrp LOS | C | A | C | C | A | C | C | A | A | C | A | A |
| Approach Vol, veh/h |  | 256 |  |  | 159 |  |  | 236 |  |  | 326 |  |
| Approach Delay, s/veh |  | 23.4 |  |  | 21.3 |  |  | 10.4 |  |  | 11.9 |  |
| Approach LOS |  | C |  |  | C |  |  | B |  |  | B |  |
| Timer - Assigned Phs | 1 | 2 |  | 4 | 5 | 6 |  | 8 |  |  |  |  |
| Phs Duration (G+Y+Rc), s | 7.5 | 32.4 |  | 14.2 | 6.5 | 33.4 |  | 14.2 |  |  |  |  |
| Change Period (Y+Rc), s | 4.5 | 4.5 |  | 4.5 | 4.5 | 4.5 |  | 4.5 |  |  |  |  |
| Max Green Setting (Gmax), s | 5.0 | 18.0 |  | 18.0 | 5.0 | 18.0 |  | 18.0 |  |  |  |  |
| Max Q Clear Time (g_c+I1), s | 3.8 | 3.6 |  | 8.3 | 3.0 | 6.3 |  | 9.2 |  |  |  |  |
| Green Ext Time (p_c), s | 0.0 | 0.7 |  | 0.9 | 0.0 | 1.1 |  | 0.5 |  |  |  |  |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 16.1 |
| HCM 6th LOS | B |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Vol, veh/h | 10 | 421 | 22 | 27 | 346 | 3 | 45 | 31 | 21 | 3 | 22 | 7 |
| Future Vol, veh/h | 10 | 421 | 22 | 27 | 346 | 3 | 45 | 31 | 21 | 3 | 22 | 7 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 88 | 88 | 88 | 65 | 65 | 65 | 70 | 70 | 70 |
| Heavy Vehicles, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 11 | 458 | 24 | 31 | 393 | 3 | 69 | 48 | 32 | 4 | 31 | 10 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 396 | 0 | 0 | 482 | 0 | 0 | 969 | 950 | 470 | 989 | 961 | 395 |
| Stage 1 | - | - | - | - | - | - | 492 | 492 | - | 457 | 457 | - |
| Stage 2 | - | - | - | - | - | - | 477 | 458 | - | 532 | 504 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.13 | 6.53 | 6.23 | 7.13 | 6.53 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | 5.53 | - | 6.13 | 5.53 | - |
| Follow-up Hdwy | 2.227 | - | - | 2.227 | - | - | 3.527 | 4.027 | 3.327 | 3.527 | 4.027 | 3.327 |
| Pot Cap-1 Maneuver | 1157 | - | - | 1075 | - | - | 232 | 259 | 591 | 225 | 255 | 652 |
| Stage 1 | - | - | - | - | - | - | 557 | 546 | - | 581 | 566 | - |
| Stage 2 | - | - | - | - | - | - | 567 | 565 | - | 529 | 539 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1157 | - | - | 1075 | - | - | 200 | 249 | 591 | 176 | 245 | 652 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 200 | 249 | - | 176 | 245 | - |
| Stage 1 | - | - | - | - | - | - | 551 | 541 | - | 575 | 550 | - |
| Stage 2 | - | - | - | - | - | - | 511 | 549 | - | 452 | 534 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.6 | 25.5 | 20.2 |
| HCM LOS | | | D | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 200 | 325 | 1157 | - | - | 1075 | - | - | 176 | 288 |
| HCM Lane V/C Ratio | 0.346 | 0.246 | 0.009 | - | - | 0.029 | - | - | 0.024 | 0.144 |
| HCM Control Delay (s) | 32.2 | 19.7 | 8.1 | - | - | 8.4 | - | - | 26 | 19.6 |
| HCM Lane LOS | D | C | A | - | - | A | - | - | D | C |
| HCM 95th %tile Q(veh) | 1.5 | 0.9 | 0 | - | - | 0.1 | - | - | 0.1 | 0.5 |

# Queues
## 8: SR 145 & California Ave

11/20/2023

| | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 35 | 126 | 18 | 164 | 65 | 538 | 48 | 238 |
| v/c Ratio | 0.19 | 0.40 | 0.09 | 0.49 | 0.27 | 0.25 | 0.21 | 0.22 |
| Control Delay | 20.6 | 18.9 | 18.6 | 17.7 | 23.3 | 7.9 | 23.0 | 10.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.6 | 18.9 | 18.6 | 17.7 | 23.3 | 7.9 | 23.0 | 10.0 |
| Queue Length 50th (ft) | 10 | 28 | 5 | 29 | 19 | 25 | 14 | 41 |
| Queue Length 95th (ft) | 22 | 46 | 18 | 68 | 42 | 88 | 37 | 99 |
| Internal Link Dist (ft) | | 1268 | | 510 | | 2634 | | 1201 |
| Turn Bay Length (ft) | | | | | 125 | | | |
| Base Capacity (vph) | 388 | 607 | 411 | 616 | 240 | 2186 | 225 | 1058 |
| 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 | 0.09 | 0.21 | 0.04 | 0.27 | 0.27 | 0.25 | 0.21 | 0.22 |

Intersection Summary

# HCM 6th Signalized Intersection Summary
## 8: SR 145 & California Ave

11/20/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↑↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 25 | 68 | 23 | 17 | 91 | 60 | 53 | 386 | 55 | 42 | 175 | 36 |
| Future Volume (veh/h) | 25 | 68 | 23 | 17 | 91 | 60 | 53 | 386 | 55 | 42 | 175 | 36 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 35 | 94 | 32 | 18 | 99 | 65 | 65 | 471 | 67 | 48 | 199 | 39 |
| Peak Hour Factor | 0.72 | 0.72 | 0.72 | 0.92 | 0.92 | 0.92 | 0.82 | 0.82 | 0.82 | 0.88 | 0.88 | 0.92 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 221 | 212 | 72 | 254 | 167 | 110 | 102 | 1681 | 238 | 84 | 802 | 157 |
| Arrive On Green | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.06 | 0.54 | 0.54 | 0.05 | 0.53 | 0.53 |
| Sat Flow, veh/h | 1212 | 1324 | 451 | 1255 | 1046 | 686 | 1767 | 3100 | 439 | 1767 | 1507 | 295 |
| Grp Volume(v), veh/h | 35 | 0 | 126 | 18 | 0 | 164 | 65 | 267 | 271 | 48 | 0 | 238 |
| Grp Sat Flow(s),veh/h/ln | 1212 | 0 | 1774 | 1255 | 0 | 1732 | 1767 | 1763 | 1777 | 1767 | 0 | 1802 |
| Q Serve(g_s), s | 1.5 | 0.0 | 3.5 | 0.7 | 0.0 | 4.7 | 1.9 | 4.4 | 4.5 | 1.4 | 0.0 | 3.8 |
| Cycle Q Clear(g_c), s | 6.2 | 0.0 | 3.5 | 4.2 | 0.0 | 4.7 | 1.9 | 4.4 | 4.5 | 1.4 | 0.0 | 3.8 |
| Prop In Lane | 1.00 |  | 0.25 | 1.00 |  | 0.40 | 1.00 |  | 0.25 | 1.00 |  | 0.16 |
| Lane Grp Cap(c), veh/h | 221 | 0 | 284 | 254 | 0 | 277 | 102 | 956 | 963 | 84 | 0 | 959 |
| V/C Ratio(X) | 0.16 | 0.00 | 0.44 | 0.07 | 0.00 | 0.59 | 0.64 | 0.28 | 0.28 | 0.57 | 0.00 | 0.25 |
| Avail Cap(c_a), veh/h | 431 | 0 | 591 | 471 | 0 | 577 | 164 | 956 | 963 | 164 | 0 | 959 |
| 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 | 23.9 | 0.0 | 20.5 | 22.4 | 0.0 | 21.0 | 24.9 | 6.7 | 6.7 | 25.2 | 0.0 | 6.8 |
| Incr Delay (d2), s/veh | 0.3 | 0.0 | 1.1 | 0.1 | 0.0 | 2.0 | 6.5 | 0.7 | 0.7 | 6.0 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.0 | 1.4 | 0.2 | 0.0 | 1.9 | 0.9 | 1.1 | 1.1 | 0.7 | 0.0 | 1.3 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 24.3 | 0.0 | 21.6 | 22.5 | 0.0 | 23.0 | 31.4 | 7.4 | 7.4 | 31.2 | 0.0 | 7.4 |
| LnGrp LOS | C | A | C | C | A | C | C | A | A | C | A | A |
| Approach Vol, veh/h |  | 161 |  |  | 182 |  |  | 603 |  |  | 286 |  |
| Approach Delay, s/veh |  | 22.2 |  |  | 23.0 |  |  | 10.0 |  |  | 11.4 |  |
| Approach LOS |  | C |  |  | C |  |  | A |  |  | B |  |

| Timer - Assigned Phs | 1 | 2 |  | 4 | 5 | 6 |  | 8 |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.1 | 33.8 |  | 13.1 | 7.6 | 33.2 |  | 13.1 |  |  |  |  |
| Change Period (Y+Rc), s | 4.5 | 4.5 |  | 4.5 | 4.5 | 4.5 |  | 4.5 |  |  |  |  |
| Max Green Setting (Gmax), s | 5.0 | 18.0 |  | 18.0 | 5.0 | 18.0 |  | 18.0 |  |  |  |  |
| Max Q Clear Time (g_c+I1), s | 3.4 | 6.5 |  | 8.2 | 3.9 | 5.8 |  | 6.7 |  |  |  |  |
| Green Ext Time (p_c), s | 0.0 | 2.1 |  | 0.5 | 0.0 | 1.0 |  | 0.6 |  |  |  |  |

| Intersection Summary |  |  |  |
|---|---|---|---|
| HCM 6th Ctrl Delay |  |  | 13.8 |
| HCM 6th LOS |  |  | B |

# Queues
## 1: Lassen Ave & Whitesbridge Ave

11/20/2023

| | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 8 | 452 | 20 | 514 | 54 | 82 | 11 | 42 |
| v/c Ratio | 0.05 | 0.69 | 0.12 | 0.78 | 0.33 | 0.11 | 0.07 | 0.07 |
| Control Delay | 29.0 | 22.7 | 30.1 | 27.3 | 33.5 | 10.6 | 29.3 | 15.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.0 | 22.7 | 30.1 | 27.3 | 33.5 | 10.6 | 29.3 | 15.0 |
| Queue Length 50th (ft) | 3 | 126 | 7 | 154 | 19 | 10 | 4 | 9 |
| Queue Length 95th (ft) | 16 | #283 | 28 | #361 | #57 | 49 | 19 | 33 |
| Internal Link Dist (ft) | | 1952 | | 2569 | | 4093 | | 1707 |
| Turn Bay Length (ft) | 150 | | 150 | | 150 | | 150 | |
| Base Capacity (vph) | 166 | 816 | 166 | 825 | 166 | 743 | 166 | 636 |
| 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 | 0.05 | 0.55 | 0.12 | 0.62 | 0.33 | 0.11 | 0.07 | 0.07 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary
## 1: Lassen Ave & Whitesbridge Ave

11/20/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 7 | 367 | 49 | 18 | 470 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| Future Volume (veh/h) | 7 | 367 | 49 | 18 | 470 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 8 | 399 | 53 | 20 | 511 | 3 | 54 | 53 | 29 | 11 | 34 | 8 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 18 | 495 | 66 | 42 | 593 | 3 | 88 | 394 | 215 | 25 | 455 | 107 |
| Arrive On Green | 0.01 | 0.31 | 0.31 | 0.02 | 0.32 | 0.32 | 0.05 | 0.35 | 0.35 | 0.01 | 0.31 | 0.31 |
| Sat Flow, veh/h | 1767 | 1604 | 213 | 1767 | 1843 | 11 | 1767 | 1128 | 617 | 1767 | 1452 | 342 |
| Grp Volume(v), veh/h | 8 | 0 | 452 | 20 | 0 | 514 | 54 | 0 | 82 | 11 | 0 | 42 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 0 | 1817 | 1767 | 0 | 1854 | 1767 | 0 | 1744 | 1767 | 0 | 1794 |
| Q Serve(g_s), s | 0.3 | 0.0 | 13.5 | 0.7 | 0.0 | 15.4 | 1.8 | 0.0 | 1.9 | 0.4 | 0.0 | 1.0 |
| Cycle Q Clear(g_c), s | 0.3 | 0.0 | 13.5 | 0.7 | 0.0 | 15.4 | 1.8 | 0.0 | 1.9 | 0.4 | 0.0 | 1.0 |
| Prop In Lane | 1.00 |  | 0.12 | 1.00 |  | 0.01 | 1.00 |  | 0.35 | 1.00 |  | 0.19 |
| Lane Grp Cap(c), veh/h | 18 | 0 | 561 | 42 | 0 | 596 | 88 | 0 | 609 | 25 | 0 | 562 |
| V/C Ratio(X) | 0.43 | 0.00 | 0.81 | 0.48 | 0.00 | 0.86 | 0.61 | 0.00 | 0.13 | 0.45 | 0.00 | 0.07 |
| Avail Cap(c_a), veh/h | 150 | 0 | 723 | 150 | 0 | 738 | 150 | 0 | 609 | 150 | 0 | 562 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.0 | 0.0 | 18.8 | 28.5 | 0.0 | 18.8 | 27.5 | 0.0 | 13.1 | 28.9 | 0.0 | 14.3 |
| Incr Delay (d2), s/veh | 15.3 | 0.0 | 5.2 | 8.2 | 0.0 | 8.7 | 6.8 | 0.0 | 0.5 | 12.1 | 0.0 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.0 | 5.8 | 0.4 | 0.0 | 7.1 | 0.9 | 0.0 | 0.7 | 0.2 | 0.0 | 0.4 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 44.4 | 0.0 | 24.0 | 36.7 | 0.0 | 27.5 | 34.3 | 0.0 | 13.6 | 40.9 | 0.0 | 14.5 |
| LnGrp LOS | D | A | C | D | A | C | C | A | B | D | A | B |
| Approach Vol, veh/h |  | 460 |  |  | 534 |  |  | 136 |  |  | 53 |  |
| Approach Delay, s/veh |  | 24.3 |  |  | 27.8 |  |  | 21.8 |  |  | 20.0 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.3 | 25.1 | 5.9 | 22.7 | 7.4 | 23.0 | 5.1 | 23.5 |
| 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 | 18.5 | 5.0 | 23.5 | 5.0 | 18.5 | 5.0 | 23.5 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 3.9 | 2.7 | 15.5 | 3.8 | 3.0 | 2.3 | 17.4 |
| Green Ext Time (p_c), s | 0.0 | 0.3 | 0.0 | 1.7 | 0.0 | 0.1 | 0.0 | 1.6 |

| Intersection Summary |  |
|---|---|
| HCM 6th Ctrl Delay | 25.4 |
| HCM 6th LOS | C |

# Queues
## 8: SR 145 & California Ave

| | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 32 | 213 | 23 | 161 | 35 | 262 | 76 | 336 |
| v/c Ratio | 0.12 | 0.50 | 0.10 | 0.37 | 0.16 | 0.14 | 0.34 | 0.32 |
| Control Delay | 15.3 | 17.6 | 15.3 | 11.4 | 22.1 | 9.3 | 24.7 | 10.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 15.3 | 17.6 | 15.3 | 11.4 | 22.1 | 9.3 | 24.7 | 10.3 |
| Queue Length 50th (ft) | 7 | 44 | 5 | 19 | 9 | 22 | 20 | 36 |
| Queue Length 95th (ft) | 23 | 91 | 19 | 56 | 31 | 48 | 55 | 139 |
| Internal Link Dist (ft) | | 1268 | | 510 | | 2634 | | 1201 |
| Turn Bay Length (ft) | 150 | | 150 | | 125 | | | |
| Base Capacity (vph) | 506 | 762 | 439 | 762 | 220 | 1821 | 224 | 1034 |
| 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 | 0.06 | 0.28 | 0.05 | 0.21 | 0.16 | 0.14 | 0.34 | 0.32 |

Intersection Summary

# HCM 6th Signalized Intersection Summary
## 8: SR 145 & California Ave

11/20/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↑↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 29 | 148 | 48 | 21 | 77 | 71 | 32 | 221 | 20 | 70 | 273 | 36 |
| Future Volume (veh/h) | 29 | 148 | 48 | 21 | 77 | 71 | 32 | 221 | 20 | 70 | 273 | 36 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 32 | 161 | 52 | 23 | 84 | 77 | 35 | 240 | 22 | 76 | 297 | 39 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 297 | 255 | 82 | 261 | 169 | 155 | 70 | 1383 | 126 | 123 | 728 | 96 |
| Arrive On Green | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.04 | 0.42 | 0.42 | 0.07 | 0.45 | 0.45 |
| Sat Flow, veh/h | 1215 | 1344 | 434 | 1159 | 891 | 817 | 1767 | 3268 | 297 | 1767 | 1607 | 211 |
| Grp Volume(v), veh/h | 32 | 0 | 213 | 23 | 0 | 161 | 35 | 129 | 133 | 76 | 0 | 336 |
| Grp Sat Flow(s),veh/h/ln | 1215 | 0 | 1777 | 1159 | 0 | 1708 | 1767 | 1763 | 1802 | 1767 | 0 | 1818 |
| Q Serve(g_s), s | 1.0 | 0.0 | 4.7 | 0.8 | 0.0 | 3.6 | 0.8 | 1.9 | 2.0 | 1.8 | 0.0 | 5.3 |
| Cycle Q Clear(g_c), s | 4.6 | 0.0 | 4.7 | 5.5 | 0.0 | 3.6 | 0.8 | 1.9 | 2.0 | 1.8 | 0.0 | 5.3 |
| Prop In Lane | 1.00 |  | 0.24 | 1.00 |  | 0.48 | 1.00 |  | 0.16 | 1.00 |  | 0.12 |
| Lane Grp Cap(c), veh/h | 297 | 0 | 337 | 261 | 0 | 324 | 70 | 746 | 763 | 123 | 0 | 824 |
| V/C Ratio(X) | 0.11 | 0.00 | 0.63 | 0.09 | 0.00 | 0.50 | 0.50 | 0.17 | 0.17 | 0.62 | 0.00 | 0.41 |
| Avail Cap(c_a), veh/h | 581 | 0 | 752 | 532 | 0 | 723 | 224 | 746 | 763 | 229 | 0 | 824 |
| 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 | 17.5 | 0.0 | 15.9 | 18.4 | 0.0 | 15.4 | 20.0 | 7.6 | 7.6 | 19.2 | 0.0 | 7.8 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 2.0 | 0.1 | 0.0 | 1.2 | 5.3 | 0.5 | 0.5 | 5.0 | 0.0 | 1.5 |
| 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 | 0.3 | 0.0 | 1.7 | 0.2 | 0.0 | 1.3 | 0.4 | 0.5 | 0.5 | 0.8 | 0.0 | 1.8 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 17.6 | 0.0 | 17.8 | 18.5 | 0.0 | 16.6 | 25.3 | 8.1 | 8.1 | 24.2 | 0.0 | 9.3 |
| LnGrp LOS | B | A | B | B | A | B | C | A | A | C | A | A |
| Approach Vol, veh/h |  | 245 |  |  | 184 |  |  | 297 |  |  | 412 |  |
| Approach Delay, s/veh |  | 17.8 |  |  | 16.8 |  |  | 10.2 |  |  | 12.0 |  |
| Approach LOS |  | B |  |  | B |  |  | B |  |  | B |  |
| Timer - Assigned Phs | 1 | 2 |  | 4 | 5 | 6 |  | 8 |  |  |  |  |
| Phs Duration (G+Y+Rc), s | 7.5 | 22.5 |  | 12.6 | 6.2 | 23.8 |  | 12.6 |  |  |  |  |
| Change Period (Y+Rc), s | 4.5 | 4.5 |  | 4.5 | 4.5 | 4.5 |  | 4.5 |  |  |  |  |
| Max Green Setting (Gmax), s | 5.5 | 18.0 |  | 18.0 | 5.4 | 18.1 |  | 18.0 |  |  |  |  |
| Max Q Clear Time (g_c+I1), s | 3.8 | 4.0 |  | 6.7 | 2.8 | 7.3 |  | 7.5 |  |  |  |  |
| Green Ext Time (p_c), s | 0.0 | 1.0 |  | 0.9 | 0.0 | 1.5 |  | 0.6 |  |  |  |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| HCM 6th Ctrl Delay |  |  | 13.6 |  |  |  |  |  |  |  |  |  |
| HCM 6th LOS |  |  | B |  |  |  |  |  |  |  |  |  |

# Queues
## 1: Lassen Ave & Whitesbridge Ave

11/20/2023

| | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 15 | 615 | 39 | 491 | 65 | 76 | 4 | 43 |
| v/c Ratio | 0.07 | 0.87 | 0.24 | 0.69 | 0.12 | 0.10 | 0.01 | 0.06 |
| Control Delay | 9.4 | 28.8 | 13.5 | 17.6 | 9.3 | 6.4 | 8.2 | 7.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 9.4 | 28.8 | 13.5 | 17.6 | 9.3 | 6.4 | 8.2 | 7.1 |
| Queue Length 50th (ft) | 2 | 133 | 6 | 97 | 10 | 7 | 1 | 5 |
| Queue Length 95th (ft) | 11 | #296 | 24 | 178 | 28 | 25 | 4 | 18 |
| Internal Link Dist (ft) | | 1952 | | 2569 | | 4093 | | 1707 |
| Turn Bay Length (ft) | 150 | | 150 | | 150 | | 150 | |
| Base Capacity (vph) | 235 | 736 | 170 | 737 | 559 | 739 | 543 | 744 |
| 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 | 0.06 | 0.84 | 0.23 | 0.67 | 0.12 | 0.10 | 0.01 | 0.06 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↗ | ↘ | ↓ | ↙ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Volume (veh/h) | 14 | 536 | 29 | 36 | 448 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| Future Volume (veh/h) | 14 | 536 | 29 | 36 | 448 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 15 | 583 | 32 | 39 | 487 | 4 | 65 | 46 | 30 | 4 | 32 | 11 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 320 | 691 | 38 | 234 | 728 | 6 | 686 | 423 | 276 | 654 | 533 | 183 |
| Arrive On Green | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Sat Flow, veh/h | 898 | 1743 | 96 | 801 | 1838 | 15 | 1353 | 1049 | 684 | 1313 | 1320 | 454 |
| Grp Volume(v), veh/h | 15 | 0 | 615 | 39 | 0 | 491 | 65 | 0 | 76 | 4 | 0 | 43 |
| Grp Sat Flow(s),veh/h/ln | 898 | 0 | 1838 | 801 | 0 | 1853 | 1353 | 0 | 1732 | 1313 | 0 | 1774 |
| Q Serve(g_s), s | 0.6 | 0.0 | 13.7 | 2.1 | 0.0 | 9.8 | 1.4 | 0.0 | 1.2 | 0.1 | 0.0 | 0.7 |
| Cycle Q Clear(g_c), s | 10.4 | 0.0 | 13.7 | 15.7 | 0.0 | 9.8 | 2.1 | 0.0 | 1.2 | 1.3 | 0.0 | 0.7 |
| Prop In Lane | 1.00 | | 0.05 | 1.00 | | 0.01 | 1.00 | | 0.39 | 1.00 | | 0.26 |
| Lane Grp Cap(c), veh/h | 320 | 0 | 728 | 234 | 0 | 734 | 686 | 0 | 699 | 654 | 0 | 716 |
| V/C Ratio(X) | 0.05 | 0.00 | 0.84 | 0.17 | 0.00 | 0.67 | 0.09 | 0.00 | 0.11 | 0.01 | 0.00 | 0.06 |
| Avail Cap(c_a), veh/h | 324 | 0 | 735 | 237 | 0 | 741 | 686 | 0 | 699 | 654 | 0 | 716 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.4 | 0.0 | 12.3 | 19.5 | 0.0 | 11.2 | 8.8 | 0.0 | 8.4 | 8.8 | 0.0 | 8.2 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 8.8 | 0.3 | 0.0 | 2.3 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.2 |
| 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 | 0.1 | 0.0 | 5.1 | 0.3 | 0.0 | 2.8 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 15.5 | 0.0 | 21.2 | 19.8 | 0.0 | 13.5 | 9.1 | 0.0 | 8.7 | 8.8 | 0.0 | 8.4 |
| LnGrp LOS | B | A | C | B | A | B | A | A | A | A | A | A |
| Approach Vol, veh/h | | 630 | | | 530 | | | 141 | | | 47 | |
| Approach Delay, s/veh | | 21.0 | | | 13.9 | | | 8.9 | | | 8.4 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 22.7 | | 22.3 | | 22.7 | | 22.3 | | | | |
| Change Period (Y+Rc), s | | 4.5 | | 4.5 | | 4.5 | | 4.5 | | | | |
| Max Green Setting (Gmax), s | | 18.0 | | 18.0 | | 18.0 | | 18.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 4.1 | | 15.7 | | 3.3 | | 17.7 | | | | |
| Green Ext Time (p_c), s | | 0.4 | | 0.9 | | 0.1 | | 0.1 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 6th Ctrl Delay | | | 16.5 | | | | | | | | | |
| HCM 6th LOS | | | B | | | | | | | | | |

# Queues
## 8: SR 145 & California Ave

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 30 | 104 | 24 | 202 | 54 | 644 | 61 | 296 |
| v/c Ratio | 0.14 | 0.29 | 0.10 | 0.50 | 0.08 | 0.28 | 0.12 | 0.24 |
| Control Delay | 14.9 | 14.5 | 14.0 | 13.4 | 5.1 | 4.7 | 5.7 | 5.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 14.9 | 14.5 | 14.0 | 13.4 | 5.1 | 4.7 | 5.7 | 5.1 |
| Queue Length 50th (ft) | 7 | 20 | 5 | 26 | 5 | 30 | 5 | 26 |
| Queue Length 95th (ft) | 20 | 44 | 17 | 61 | 19 | 67 | 22 | 71 |
| Internal Link Dist (ft) |  | 1268 |  | 510 |  | 2634 |  | 1201 |
| Turn Bay Length (ft) | 150 |  | 150 |  | 125 |  |  |  |
| Base Capacity (vph) | 451 | 730 | 509 | 742 | 716 | 2319 | 503 | 1218 |
| 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 | 0.07 | 0.14 | 0.05 | 0.27 | 0.08 | 0.28 | 0.12 | 0.24 |

Intersection Summary

# HCM 6th Signalized Intersection Summary
## 8: SR 145 & California Ave

11/20/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↑↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 28 | 81 | 15 | 22 | 105 | 81 | 50 | 519 | 74 | 56 | 235 | 38 |
| Future Volume (veh/h) | 28 | 81 | 15 | 22 | 105 | 81 | 50 | 519 | 74 | 56 | 235 | 38 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 30 | 88 | 16 | 24 | 114 | 88 | 54 | 564 | 80 | 61 | 255 | 41 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 248 | 280 | 51 | 331 | 178 | 138 | 742 | 1912 | 270 | 574 | 962 | 155 |
| Arrive On Green | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 |
| Sat Flow, veh/h | 1171 | 1528 | 278 | 1280 | 971 | 750 | 1075 | 3101 | 439 | 780 | 1560 | 251 |
| Grp Volume(v), veh/h | 30 | 0 | 104 | 24 | 0 | 202 | 54 | 320 | 324 | 61 | 0 | 296 |
| Grp Sat Flow(s),veh/h/ln | 1171 | 0 | 1806 | 1280 | 0 | 1721 | 1075 | 1763 | 1777 | 780 | 0 | 1810 |
| Q Serve(g_s), s | 1.1 | 0.0 | 2.2 | 0.7 | 0.0 | 4.9 | 1.1 | 3.8 | 3.8 | 1.8 | 0.0 | 3.4 |
| Cycle Q Clear(g_c), s | 6.0 | 0.0 | 2.2 | 3.0 | 0.0 | 4.9 | 4.5 | 3.8 | 3.8 | 5.6 | 0.0 | 3.4 |
| Prop In Lane | 1.00 |  | 0.15 | 1.00 |  | 0.44 | 1.00 |  | 0.25 | 1.00 |  | 0.14 |
| Lane Grp Cap(c), veh/h | 248 | 0 | 331 | 331 | 0 | 316 | 742 | 1087 | 1095 | 574 | 0 | 1116 |
| V/C Ratio(X) | 0.12 | 0.00 | 0.31 | 0.07 | 0.00 | 0.64 | 0.07 | 0.29 | 0.30 | 0.11 | 0.00 | 0.27 |
| Avail Cap(c_a), veh/h | 501 | 0 | 722 | 608 | 0 | 688 | 742 | 1087 | 1095 | 574 | 0 | 1116 |
| 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 | 19.8 | 0.0 | 15.9 | 17.2 | 0.0 | 17.0 | 5.0 | 4.0 | 4.0 | 5.4 | 0.0 | 4.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.5 | 0.1 | 0.0 | 2.2 | 0.2 | 0.7 | 0.7 | 0.4 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.0 | 0.8 | 0.2 | 0.0 | 1.8 | 0.1 | 0.5 | 0.5 | 0.3 | 0.0 | 0.9 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 20.0 | 0.0 | 16.5 | 17.3 | 0.0 | 19.2 | 5.2 | 4.7 | 4.7 | 5.7 | 0.0 | 4.5 |
| LnGrp LOS | B | A | B | B | A | B | A | A | A | A | A | A |
| Approach Vol, veh/h |  | 134 |  |  | 226 |  |  | 698 |  |  | 357 |  |
| Approach Delay, s/veh |  | 17.2 |  |  | 19.0 |  |  | 4.8 |  |  | 4.7 |  |
| Approach LOS |  | B |  |  | B |  |  | A |  |  | A |  |
| Timer - Assigned Phs |  | 2 |  | 4 |  | 6 |  | 8 |  |  |  |  |
| Phs Duration (G+Y+Rc), s |  | 32.2 |  | 12.8 |  | 32.2 |  | 12.8 |  |  |  |  |
| Change Period (Y+Rc), s |  | 4.5 |  | 4.5 |  | 4.5 |  | 4.5 |  |  |  |  |
| Max Green Setting (Gmax), s |  | 18.0 |  | 18.0 |  | 18.0 |  | 18.0 |  |  |  |  |
| Max Q Clear Time (g_c+I1), s |  | 6.5 |  | 8.0 |  | 7.6 |  | 6.9 |  |  |  |  |
| Green Ext Time (p_c), s |  | 2.8 |  | 0.4 |  | 1.6 |  | 0.8 |  |  |  |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| HCM 6th Ctrl Delay |  |  | 8.2 |  |  |  |  |  |  |  |  |  |
| HCM 6th LOS |  |  | A |  |  |  |  |  |  |  |  |  |

# Queues

## 1: Lassen Ave & Whitesbridge Ave

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 8 | 453 | 20 | 519 | 54 | 82 | 11 | 42 |
| v/c Ratio | 0.05 | 0.69 | 0.12 | 0.78 | 0.33 | 0.11 | 0.07 | 0.07 |
| Control Delay | 29.0 | 22.5 | 30.1 | 27.4 | 33.6 | 10.6 | 29.3 | 15.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.0 | 22.5 | 30.1 | 27.4 | 33.6 | 10.6 | 29.3 | 15.1 |
| Queue Length 50th (ft) | 3 | 127 | 7 | 156 | 19 | 10 | 4 | 9 |
| Queue Length 95th (ft) | 16 | #297 | 28 | #367 | #57 | 49 | 19 | 33 |
| Internal Link Dist (ft) |  | 1952 |  | 2569 |  | 4093 |  | 1707 |
| Turn Bay Length (ft) | 150 |  | 150 |  | 150 |  | 150 |  |
| Base Capacity (vph) | 166 | 813 | 166 | 821 | 166 | 740 | 166 | 634 |
| 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 | 0.05 | 0.56 | 0.12 | 0.63 | 0.33 | 0.11 | 0.07 | 0.07 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary
## 1: Lassen Ave & Whitesbridge Ave

11/20/2023

| | ↗ | → | ↘ | ↙ | ← | ↖ | ↖ | ↑ | ↗ | ↘ | ↓ | ↙ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↱ | |
| Traffic Volume (veh/h) | 7 | 368 | 49 | 18 | 475 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| Future Volume (veh/h) | 7 | 368 | 49 | 18 | 475 | 3 | 50 | 49 | 27 | 10 | 31 | 7 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 8 | 400 | 53 | 20 | 516 | 3 | 54 | 53 | 29 | 11 | 34 | 8 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 18 | 498 | 66 | 42 | 597 | 3 | 88 | 392 | 215 | 25 | 453 | 107 |
| Arrive On Green | 0.01 | 0.31 | 0.31 | 0.02 | 0.32 | 0.32 | 0.05 | 0.35 | 0.35 | 0.01 | 0.31 | 0.31 |
| Sat Flow, veh/h | 1767 | 1605 | 213 | 1767 | 1843 | 11 | 1767 | 1128 | 617 | 1767 | 1452 | 342 |
| Grp Volume(v), veh/h | 8 | 0 | 453 | 20 | 0 | 519 | 54 | 0 | 82 | 11 | 0 | 42 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 0 | 1817 | 1767 | 0 | 1854 | 1767 | 0 | 1744 | 1767 | 0 | 1794 |
| Q Serve(g_s), s | 0.3 | 0.0 | 13.6 | 0.7 | 0.0 | 15.6 | 1.8 | 0.0 | 1.9 | 0.4 | 0.0 | 1.0 |
| Cycle Q Clear(g_c), s | 0.3 | 0.0 | 13.6 | 0.7 | 0.0 | 15.6 | 1.8 | 0.0 | 1.9 | 0.4 | 0.0 | 1.0 |
| Prop In Lane | 1.00 | | 0.12 | 1.00 | | 0.01 | 1.00 | | 0.35 | 1.00 | | 0.19 |
| Lane Grp Cap(c), veh/h | 18 | 0 | 565 | 42 | 0 | 600 | 88 | 0 | 607 | 25 | 0 | 560 |
| V/C Ratio(X) | 0.43 | 0.00 | 0.80 | 0.48 | 0.00 | 0.86 | 0.61 | 0.00 | 0.14 | 0.45 | 0.00 | 0.07 |
| Avail Cap(c_a), veh/h | 149 | 0 | 721 | 149 | 0 | 735 | 149 | 0 | 607 | 149 | 0 | 560 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.1 | 0.0 | 18.8 | 28.6 | 0.0 | 18.8 | 27.6 | 0.0 | 13.2 | 29.0 | 0.0 | 14.4 |
| Incr Delay (d2), s/veh | 15.3 | 0.0 | 5.1 | 8.2 | 0.0 | 9.0 | 6.8 | 0.0 | 0.5 | 12.1 | 0.0 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.0 | 5.8 | 0.4 | 0.0 | 7.3 | 0.9 | 0.0 | 0.7 | 0.2 | 0.0 | 0.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 44.5 | 0.0 | 23.9 | 36.8 | 0.0 | 27.8 | 34.4 | 0.0 | 13.7 | 41.1 | 0.0 | 14.6 |
| LnGrp LOS | D | A | C | D | A | C | C | A | B | D | A | B |
| Approach Vol, veh/h | | 461 | | | 539 | | | 136 | | | 53 | |
| Approach Delay, s/veh | | 24.2 | | | 28.1 | | | 21.9 | | | 20.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.3 | 25.1 | 5.9 | 22.9 | 7.4 | 23.0 | 5.1 | 23.7 |
| 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 | 18.5 | 5.0 | 23.5 | 5.0 | 18.5 | 5.0 | 23.5 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 3.9 | 2.7 | 15.6 | 3.8 | 3.0 | 2.3 | 17.6 |
| Green Ext Time (p_c), s | 0.0 | 0.3 | 0.0 | 1.7 | 0.0 | 0.1 | 0.0 | 1.6 |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | | 25.5 |
| HCM 6th LOS | | | C |

# Queues
## 8: SR 145 & California Ave

| | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 37 | 223 | 23 | 163 | 37 | 262 | 76 | 338 |
| v/c Ratio | 0.14 | 0.53 | 0.10 | 0.37 | 0.18 | 0.17 | 0.36 | 0.37 |
| Control Delay | 15.5 | 18.0 | 15.2 | 11.2 | 22.5 | 9.5 | 25.3 | 11.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 15.5 | 18.0 | 15.2 | 11.2 | 22.5 | 9.5 | 25.3 | 11.0 |
| Queue Length 50th (ft) | 8 | 46 | 5 | 20 | 9 | 22 | 20 | 37 |
| Queue Length 95th (ft) | 26 | 95 | 19 | 56 | 33 | 48 | 55 | 142 |
| Internal Link Dist (ft) | | 1268 | | 510 | | 2634 | | 1201 |
| Turn Bay Length (ft) | 150 | | 150 | | 125 | | | |
| Base Capacity (vph) | 484 | 732 | 418 | 733 | 211 | 1580 | 214 | 906 |
| 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 | 0.08 | 0.30 | 0.06 | 0.22 | 0.18 | 0.17 | 0.36 | 0.37 |

Intersection Summary

# HCM 6th Signalized Intersection Summary
## 8: SR 145 & California Ave

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↑↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 34 | 153 | 52 | 21 | 79 | 71 | 34 | 221 | 20 | 70 | 273 | 38 |
| Future Volume (veh/h) | 34 | 153 | 52 | 21 | 79 | 71 | 34 | 221 | 20 | 70 | 273 | 38 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 37 | 166 | 57 | 23 | 86 | 77 | 37 | 240 | 22 | 76 | 297 | 41 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 302 | 257 | 88 | 259 | 176 | 158 | 73 | 1373 | 125 | 123 | 715 | 99 |
| Arrive On Green | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.04 | 0.42 | 0.42 | 0.07 | 0.45 | 0.45 |
| Sat Flow, veh/h | 1213 | 1320 | 453 | 1149 | 902 | 808 | 1767 | 3268 | 297 | 1767 | 1596 | 220 |
| Grp Volume(v), veh/h | 37 | 0 | 223 | 23 | 0 | 163 | 37 | 129 | 133 | 76 | 0 | 338 |
| Grp Sat Flow(s),veh/h/ln | 1213 | 0 | 1774 | 1149 | 0 | 1710 | 1767 | 1763 | 1802 | 1767 | 0 | 1816 |
| Q Serve(g_s), s | 1.2 | 0.0 | 5.0 | 0.8 | 0.0 | 3.6 | 0.9 | 2.0 | 2.0 | 1.8 | 0.0 | 5.4 |
| Cycle Q Clear(g_c), s | 4.8 | 0.0 | 5.0 | 5.8 | 0.0 | 3.6 | 0.9 | 2.0 | 2.0 | 1.8 | 0.0 | 5.4 |
| Prop In Lane | 1.00 |  | 0.26 | 1.00 |  | 0.47 | 1.00 |  | 0.16 | 1.00 |  | 0.12 |
| Lane Grp Cap(c), veh/h | 302 | 0 | 346 | 259 | 0 | 333 | 73 | 741 | 757 | 123 | 0 | 814 |
| V/C Ratio(X) | 0.12 | 0.00 | 0.64 | 0.09 | 0.00 | 0.49 | 0.50 | 0.17 | 0.18 | 0.62 | 0.00 | 0.42 |
| Avail Cap(c_a), veh/h | 575 | 0 | 746 | 518 | 0 | 719 | 223 | 741 | 757 | 227 | 0 | 814 |
| 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 | 17.5 | 0.0 | 15.9 | 18.5 | 0.0 | 15.3 | 20.1 | 7.8 | 7.8 | 19.4 | 0.0 | 8.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 2.0 | 0.1 | 0.0 | 1.1 | 5.2 | 0.5 | 0.5 | 5.0 | 0.0 | 1.6 |
| 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 | 0.3 | 0.0 | 1.8 | 0.2 | 0.0 | 1.3 | 0.4 | 0.5 | 0.5 | 0.8 | 0.0 | 1.9 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 17.7 | 0.0 | 17.9 | 18.7 | 0.0 | 16.4 | 25.3 | 8.3 | 8.3 | 24.4 | 0.0 | 9.6 |
| LnGrp LOS | B | A | B | B | A | B | C | A | A | C | A | A |
| Approach Vol, veh/h |  | 260 |  |  | 186 |  |  | 299 |  |  | 414 |  |
| Approach Delay, s/veh |  | 17.9 |  |  | 16.7 |  |  | 10.4 |  |  | 12.3 |  |
| Approach LOS |  | B |  |  | B |  |  | B |  |  | B |  |

| Timer - Assigned Phs | 1 | 2 |  | 4 | 5 | 6 |  | 8 |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.5 | 22.5 |  | 12.8 | 6.3 | 23.7 |  | 12.8 |  |  |  |  |
| Change Period (Y+Rc), s | 4.5 | 4.5 |  | 4.5 | 4.5 | 4.5 |  | 4.5 |  |  |  |  |
| Max Green Setting (Gmax), s | 5.5 | 18.0 |  | 18.0 | 5.4 | 18.1 |  | 18.0 |  |  |  |  |
| Max Q Clear Time (g_c+I1), s | 3.8 | 4.0 |  | 7.0 | 2.9 | 7.4 |  | 7.8 |  |  |  |  |
| Green Ext Time (p_c), s | 0.0 | 1.0 |  | 1.0 | 0.0 | 1.5 |  | 0.6 |  |  |  |  |

| Intersection Summary |  |  |  |
|---|---|---|---|
| HCM 6th Ctrl Delay |  |  | 13.8 |
| HCM 6th LOS |  |  | B |

# Queues

## 1: Lassen Ave & Whitesbridge Ave

11/20/2023

|  | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 15 | 620 | 39 | 494 | 65 | 76 | 4 | 43 |
| v/c Ratio | 0.07 | 0.88 | 0.24 | 0.70 | 0.12 | 0.10 | 0.01 | 0.06 |
| Control Delay | 9.4 | 29.4 | 13.5 | 17.8 | 9.3 | 6.4 | 8.2 | 7.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 9.4 | 29.4 | 13.5 | 17.8 | 9.3 | 6.4 | 8.2 | 7.1 |
| Queue Length 50th (ft) | 2 | 135 | 6 | 98 | 10 | 7 | 1 | 5 |
| Queue Length 95th (ft) | 11 | #299 | 24 | #181 | 28 | 25 | 4 | 18 |
| Internal Link Dist (ft) |  | 1952 |  | 2569 |  | 4093 |  | 1707 |
| Turn Bay Length (ft) | 150 |  | 150 |  | 150 |  | 150 |  |
| Base Capacity (vph) | 233 | 736 | 170 | 737 | 558 | 738 | 542 | 743 |
| 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 | 0.06 | 0.84 | 0.23 | 0.67 | 0.12 | 0.10 | 0.01 | 0.06 |

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary
## 1: Lassen Ave & Whitesbridge Ave

11/20/2023

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↱ |  | ↰ | ↱ |  |
| Traffic Volume (veh/h) | 14 | 541 | 29 | 36 | 451 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| Future Volume (veh/h) | 14 | 541 | 29 | 36 | 451 | 4 | 60 | 42 | 28 | 4 | 29 | 10 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 15 | 588 | 32 | 39 | 490 | 4 | 65 | 46 | 30 | 4 | 32 | 11 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 321 | 694 | 38 | 233 | 732 | 6 | 683 | 421 | 275 | 651 | 530 | 182 |
| Arrive On Green | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Sat Flow, veh/h | 896 | 1744 | 95 | 797 | 1838 | 15 | 1353 | 1049 | 684 | 1313 | 1320 | 454 |
| Grp Volume(v), veh/h | 15 | 0 | 620 | 39 | 0 | 494 | 65 | 0 | 76 | 4 | 0 | 43 |
| Grp Sat Flow(s),veh/h/ln | 896 | 0 | 1838 | 797 | 0 | 1853 | 1353 | 0 | 1732 | 1313 | 0 | 1774 |
| Q Serve(g_s), s | 0.6 | 0.0 | 13.8 | 2.1 | 0.0 | 9.8 | 1.4 | 0.0 | 1.2 | 0.1 | 0.0 | 0.7 |
| Cycle Q Clear(g_c), s | 10.5 | 0.0 | 13.8 | 15.9 | 0.0 | 9.8 | 2.1 | 0.0 | 1.2 | 1.3 | 0.0 | 0.7 |
| Prop In Lane | 1.00 |  | 0.05 | 1.00 |  | 0.01 | 1.00 |  | 0.39 | 1.00 |  | 0.26 |
| Lane Grp Cap(c), veh/h | 321 | 0 | 732 | 233 | 0 | 738 | 683 | 0 | 696 | 651 | 0 | 713 |
| V/C Ratio(X) | 0.05 | 0.00 | 0.85 | 0.17 | 0.00 | 0.67 | 0.10 | 0.00 | 0.11 | 0.01 | 0.00 | 0.06 |
| Avail Cap(c_a), veh/h | 322 | 0 | 735 | 235 | 0 | 741 | 683 | 0 | 696 | 651 | 0 | 713 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.4 | 0.0 | 12.3 | 19.5 | 0.0 | 11.1 | 8.9 | 0.0 | 8.4 | 8.8 | 0.0 | 8.3 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 9.1 | 0.3 | 0.0 | 2.3 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.2 |
| 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 | 0.1 | 0.0 | 5.1 | 0.3 | 0.0 | 2.8 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 | 0.2 |
| Unsig. Movement Delay, s/veh |  |  |  |  |  |  |  |  |  |  |  |  |
| LnGrp Delay(d),s/veh | 15.5 | 0.0 | 21.4 | 19.8 | 0.0 | 13.4 | 9.2 | 0.0 | 8.7 | 8.9 | 0.0 | 8.4 |
| LnGrp LOS | B | A | C | B | A | B | A | A | A | A | A | A |
| Approach Vol, veh/h |  | 635 |  |  | 533 |  |  | 141 |  |  | 47 |  |
| Approach Delay, s/veh |  | 21.2 |  |  | 13.9 |  |  | 8.9 |  |  | 8.5 |  |
| Approach LOS |  | C |  |  | B |  |  | A |  |  | A |  |

| Timer - Assigned Phs |  | 2 |  | 4 |  | 6 |  | 8 |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s |  | 22.6 |  | 22.4 |  | 22.6 |  | 22.4 |  |  |  |  |
| Change Period (Y+Rc), s |  | 4.5 |  | 4.5 |  | 4.5 |  | 4.5 |  |  |  |  |
| Max Green Setting (Gmax), s |  | 18.0 |  | 18.0 |  | 18.0 |  | 18.0 |  |  |  |  |
| Max Q Clear Time (g_c+I1), s |  | 4.1 |  | 15.8 |  | 3.3 |  | 17.9 |  |  |  |  |
| Green Ext Time (p_c), s |  | 0.4 |  | 0.8 |  | 0.1 |  | 0.0 |  |  |  |  |

| Intersection Summary |  |  |  |
|---|---|---|---|
| HCM 6th Ctrl Delay |  |  | 16.6 |
| HCM 6th LOS |  |  | B |

# Queues
## 8: SR 145 & California Ave

| | ↗ | → | ↙ | ← | ↖ | ↑ | ↘ | ↓ |
|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 34 | 111 | 24 | 208 | 54 | 644 | 61 | 302 |
| v/c Ratio | 0.16 | 0.30 | 0.10 | 0.51 | 0.08 | 0.28 | 0.12 | 0.25 |
| Control Delay | 15.1 | 14.2 | 13.9 | 13.6 | 5.2 | 4.8 | 5.8 | 5.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 15.1 | 14.2 | 13.9 | 13.6 | 5.2 | 4.8 | 5.8 | 5.2 |
| Queue Length 50th (ft) | 7 | 20 | 5 | 27 | 5 | 31 | 5 | 26 |
| Queue Length 95th (ft) | 22 | 45 | 17 | 63 | 19 | 68 | 22 | 72 |
| Internal Link Dist (ft) | | 1268 | | 510 | | 2634 | | 1201 |
| Turn Bay Length (ft) | 150 | | 150 | | 125 | | | |
| Base Capacity (vph) | 442 | 730 | 505 | 744 | 709 | 2308 | 501 | 1211 |
| 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 | 0.08 | 0.15 | 0.05 | 0.28 | 0.08 | 0.28 | 0.12 | 0.25 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↱ | | ↰ | ↑↱ | | ↰ | ↱ | |
| Traffic Volume (veh/h) | 31 | 84 | 18 | 22 | 110 | 81 | 50 | 519 | 74 | 56 | 235 | 43 |
| Future Volume (veh/h) | 31 | 84 | 18 | 22 | 110 | 81 | 50 | 519 | 74 | 56 | 235 | 43 |
| 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 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 34 | 91 | 20 | 24 | 120 | 88 | 54 | 564 | 80 | 61 | 255 | 47 |
| 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, % | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Cap, veh/h | 252 | 281 | 62 | 334 | 189 | 139 | 728 | 1890 | 267 | 567 | 929 | 171 |
| Arrive On Green | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 |
| Sat Flow, veh/h | 1165 | 1473 | 324 | 1272 | 995 | 729 | 1069 | 3101 | 439 | 780 | 1524 | 281 |
| Grp Volume(v), veh/h | 34 | 0 | 111 | 24 | 0 | 208 | 54 | 320 | 324 | 61 | 0 | 302 |
| Grp Sat Flow(s),veh/h/ln | 1165 | 0 | 1797 | 1272 | 0 | 1724 | 1069 | 1763 | 1777 | 780 | 0 | 1805 |
| Q Serve(g_s), s | 1.2 | 0.0 | 2.4 | 0.7 | 0.0 | 5.0 | 1.1 | 3.9 | 3.9 | 1.8 | 0.0 | 3.5 |
| Cycle Q Clear(g_c), s | 6.2 | 0.0 | 2.4 | 3.1 | 0.0 | 5.0 | 4.7 | 3.9 | 3.9 | 5.7 | 0.0 | 3.5 |
| Prop In Lane | 1.00 | | 0.18 | 1.00 | | 0.42 | 1.00 | | 0.25 | 1.00 | | 0.16 |
| Lane Grp Cap(c), veh/h | 252 | 0 | 342 | 334 | 0 | 328 | 728 | 1075 | 1083 | 567 | 0 | 1100 |
| V/C Ratio(X) | 0.13 | 0.00 | 0.32 | 0.07 | 0.00 | 0.63 | 0.07 | 0.30 | 0.30 | 0.11 | 0.00 | 0.27 |
| Avail Cap(c_a), veh/h | 496 | 0 | 719 | 601 | 0 | 690 | 728 | 1075 | 1083 | 567 | 0 | 1100 |
| 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 | 19.6 | 0.0 | 15.7 | 17.1 | 0.0 | 16.8 | 5.2 | 4.2 | 4.2 | 5.6 | 0.0 | 4.1 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.5 | 0.1 | 0.0 | 2.0 | 0.2 | 0.7 | 0.7 | 0.4 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.0 | 0.9 | 0.2 | 0.0 | 1.8 | 0.1 | 0.6 | 0.6 | 0.3 | 0.0 | 0.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 19.9 | 0.0 | 16.3 | 17.2 | 0.0 | 18.8 | 5.4 | 4.9 | 4.9 | 5.9 | 0.0 | 4.7 |
| LnGrp LOS | B | A | B | B | A | B | A | A | A | A | A | A |
| Approach Vol, veh/h | | 145 | | | 232 | | | 698 | | | 363 | |
| Approach Delay, s/veh | | 17.1 | | | 18.6 | | | 4.9 | | | 4.9 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Timer - Assigned Phs | | 2 | | 4 | | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 31.9 | | 13.1 | | 31.9 | | 13.1 | | | | |
| Change Period (Y+Rc), s | | 4.5 | | 4.5 | | 4.5 | | 4.5 | | | | |
| Max Green Setting (Gmax), s | | 18.0 | | 18.0 | | 18.0 | | 18.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 6.7 | | 8.2 | | 7.7 | | 7.0 | | | | |
| Green Ext Time (p_c), s | | 2.8 | | 0.4 | | 1.6 | | 0.9 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | | 8.4 |
| HCM 6th LOS | | | A |

# Mitigation Sidra Reports

# INTERSECTION SUMMARY

## Site: 101 [SR 145 and West A Street Opening Year With Project AM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

| Intersection Performance - Hourly Values | | |
|---|---|---|
| **Performance Measure** | **Vehicles** | **Persons** |
| Travel Speed (Average) | 34.9 mph | 34.9 mph |
| Travel Distance (Total) | 570.2 veh-mi/h | 684.2 pers-mi/h |
| Travel Time (Total) | 16.3 veh-h/h | 19.6 pers-h/h |
| Desired Speed (Program) | 40.0 mph | |
| Speed Efficiency | 0.87 | |
| Travel Time Index | 8.59 | |
| Congestion Coefficient | 1.14 | |
| | | |
| Demand Flows (Total) | 899 veh/h | 1079 pers/h |
| Percent Heavy Vehicles (Demand) | 3.0 % | |
| Degree of Saturation | 0.209 | |
| Practical Spare Capacity | 306.4 % | |
| Effective Intersection Capacity | 4297 veh/h | |
| | | |
| Control Delay (Total) | 1.11 veh-h/h | 1.33 pers-h/h |
| Control Delay (Average) | 4.4 sec | 4.4 sec |
| Control Delay (Worst Lane) | 5.3 sec | |
| Control Delay (Worst Movement) | 5.3 sec | 5.3 sec |
| Geometric Delay (Average) | 0.0 sec | |
| Stop-Line Delay (Average) | 4.4 sec | |
| Idling Time (Average) | 2.6 sec | |
| Intersection Level of Service (LOS) | LOS A | |
| | | |
| 95% Back of Queue - Vehicles (Worst Lane) | 0.8 veh | |
| 95% Back of Queue - Distance (Worst Lane) | 21.7 ft | |
| Ave. Queue Storage Ratio (Worst Lane) | 0.01 | |
| Total Effective Stops | 187 veh/h | 225 pers/h |
| Effective Stop Rate | 0.21 | 0.21 |
| Proportion Queued | 0.32 | 0.32 |
| Performance Index | 21.8 | 21.8 |
| | | |
| Cost (Total) | 345.94 $/h | 345.94 $/h |
| Fuel Consumption (Total) | 22.6 gal/h | |
| Carbon Dioxide (Total) | 202.8 kg/h | |
| Hydrocarbons (Total) | 0.017 kg/h | |
| Carbon Monoxide (Total) | 0.251 kg/h | |
| NOx (Total) | 0.311 kg/h | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 89.3% 0.0%

| Intersection Performance - Annual Values | | |
|---|---|---|
| **Performance Measure** | **Vehicles** | **Persons** |
| Demand Flows (Total) | 431,478 veh/y | 517,774 pers/y |
| Delay | 531 veh-h/y | 638 pers-h/y |
| Effective Stops | 89,844 veh/y | 107,813 pers/y |
| Travel Distance | 273,689 veh-mi/y | 328,427 pers-mi/y |

| | | | | |
|---|---|---|---|---|
| Travel Time | 7,834 | veh-h/y | 9,401 | pers-h/y |
| | | | | |
| Cost | 166,053 | $/y | 166,053 | $/y |
| Fuel Consumption | 10,859 | gal/y | | |
| Carbon Dioxide | 97,339 | kg/y | | |
| Hydrocarbons | 8 | kg/y | | |
| Carbon Monoxide | 120 | kg/y | | |
| NOx | 150 | kg/y | | |

# INTERSECTION SUMMARY

## Site: 101 [SR 145 and West A Street Opening Year With Project PM - Copy (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

### Intersection Performance - Hourly Values

| Performance Measure | Vehicles | Persons |
|---|---|---|
| Travel Speed (Average) | 34.7 mph | 34.7 mph |
| Travel Distance (Total) | 710.7 veh-mi/h | 852.9 pers-mi/h |
| Travel Time (Total) | 20.5 veh-h/h | 24.6 pers-h/h |
| Desired Speed (Program) | 40.0 mph | |
| Speed Efficiency | 0.87 | |
| Travel Time Index | 8.54 | |
| Congestion Coefficient | 1.15 | |
| Demand Flows (Total) | 1121 veh/h | 1345 pers/h |
| Percent Heavy Vehicles (Demand) | 3.0 % | |
| Degree of Saturation | 0.228 | |
| Practical Spare Capacity | 272.5 % | |
| Effective Intersection Capacity | 4911 veh/h | |
| Control Delay (Total) | 1.54 veh-h/h | 1.85 pers-h/h |
| Control Delay (Average) | 4.9 sec | 4.9 sec |
| Control Delay (Worst Lane) | 6.1 sec | |
| Control Delay (Worst Movement) | 6.1 sec | 6.1 sec |
| Geometric Delay (Average) | 0.0 sec | |
| Stop-Line Delay (Average) | 4.9 sec | |
| Idling Time (Average) | 3.0 sec | |
| Intersection Level of Service (LOS) | LOS A | |
| 95% Back of Queue - Vehicles (Worst Lane) | 1.0 veh | |
| 95% Back of Queue - Distance (Worst Lane) | 25.7 ft | |
| Ave. Queue Storage Ratio (Worst Lane) | 0.01 | |
| Total Effective Stops | 261 veh/h | 313 pers/h |
| Effective Stop Rate | 0.23 | 0.23 |
| Proportion Queued | 0.34 | 0.34 |
| Performance Index | 27.2 | 27.2 |
| Cost (Total) | 433.14 $/h | 433.14 $/h |
| Fuel Consumption (Total) | 28.2 gal/h | |
| Carbon Dioxide (Total) | 253.2 kg/h | |
| Hydrocarbons (Total) | 0.022 kg/h | |
| Carbon Monoxide (Total) | 0.313 kg/h | |
| NOx (Total) | 0.389 kg/h | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 91.1% 0.0%

### Intersection Performance - Annual Values

| Performance Measure | Vehicles | Persons |
|---|---|---|
| Demand Flows (Total) | 537,913 veh/y | 645,496 pers/y |
| Delay | 739 veh-h/y | 887 pers-h/y |
| Effective Stops | 125,138 veh/y | 150,166 pers/y |
| Travel Distance | 341,145 veh-mi/y | 409,374 pers-mi/y |

|  |  |  |  |  |
|---|---|---|---|---|
| Travel Time | 9,823 | veh-h/y | 11,788 | pers-h/y |
|  |  |  |  |  |
| Cost | 207,907 | $/y | 207,907 | $/y |
| Fuel Consumption | 13,556 | gal/y |  |  |
| Carbon Dioxide | 121,518 | kg/y |  |  |
| Hydrocarbons | 10 | kg/y |  |  |
| Carbon Monoxide | 150 | kg/y |  |  |
| NOx | 187 | kg/y |  |  |

# INTERSECTION SUMMARY

## Site: 101 [SR 145 and West A Street 2040 Without Project AM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

**Intersection Performance - Hourly Values**

| Performance Measure | Vehicles | Persons |
|---|---|---|
| Travel Speed (Average) | 34.7 mph | 34.7 mph |
| Travel Distance (Total) | 722.0 veh-mi/h | 866.5 pers-mi/h |
| Travel Time (Total) | 20.8 veh-h/h | 25.0 pers-h/h |
| Desired Speed (Program) | 40.0 mph | |
| Speed Efficiency | 0.87 | |
| Travel Time Index | 8.52 | |
| Congestion Coefficient | 1.15 | |
| | | |
| Demand Flows (Total) | 1138 veh/h | 1366 pers/h |
| Percent Heavy Vehicles (Demand) | 3.0 % | |
| Degree of Saturation | 0.251 | |
| Practical Spare Capacity | 238.9 % | |
| Effective Intersection Capacity | 4537 veh/h | |
| | | |
| Control Delay (Total) | 1.59 veh-h/h | 1.90 pers-h/h |
| Control Delay (Average) | 5.0 sec | 5.0 sec |
| Control Delay (Worst Lane) | 6.2 sec | |
| Control Delay (Worst Movement) | 6.2 sec | 6.2 sec |
| Geometric Delay (Average) | 0.0 sec | |
| Stop-Line Delay (Average) | 5.0 sec | |
| Idling Time (Average) | 2.9 sec | |
| Intersection Level of Service (LOS) | LOS A | |
| | | |
| 95% Back of Queue - Vehicles (Worst Lane) | 1.0 veh | |
| 95% Back of Queue - Distance (Worst Lane) | 26.2 ft | |
| Ave. Queue Storage Ratio (Worst Lane) | 0.01 | |
| Total Effective Stops | 303 veh/h | 364 pers/h |
| Effective Stop Rate | 0.27 | 0.27 |
| Proportion Queued | 0.37 | 0.37 |
| Performance Index | 28.5 | 28.5 |
| | | |
| Cost (Total) | 441.30 $/h | 441.30 $/h |
| Fuel Consumption (Total) | 28.8 gal/h | |
| Carbon Dioxide (Total) | 258.4 kg/h | |
| Hydrocarbons (Total) | 0.022 kg/h | |
| Carbon Monoxide (Total) | 0.319 kg/h | |
| NOx (Total) | 0.397 kg/h | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 90.2% 0.0%

**Intersection Performance - Annual Values**

| Performance Measure | Vehicles | Persons |
|---|---|---|
| Demand Flows (Total) | 546,261 veh/y | 655,513 pers/y |
| Delay | 761 veh-h/y | 913 pers-h/y |
| Effective Stops | 145,569 veh/y | 174,683 pers/y |
| Travel Distance | 346,580 veh-mi/y | 415,896 pers-mi/y |

| | | | | |
|---|---|---|---|---|
| Travel Time | 9,999 | veh-h/y | 11,998 | pers-h/y |
| | | | | |
| Cost | 211,823 | $/y | 211,823 | $/y |
| Fuel Consumption | 13,837 | gal/y | | |
| Carbon Dioxide | 124,036 | kg/y | | |
| Hydrocarbons | 11 | kg/y | | |
| Carbon Monoxide | 153 | kg/y | | |
| NOx | 191 | kg/y | | |

---

Project: \\VRPA1\Users\jellard\Desktop\Shared Items on VRPA1\Project_NP\Whispering Falls\Final Report\Sidra Reports\Sidra file whispering falls.sip9

# INTERSECTION SUMMARY

## Site: 101 [SR 145 and West A Street 2040 Without Project PM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

| Intersection Performance - Hourly Values | | |
|---|---|---|
| **Performance Measure** | **Vehicles** | **Persons** |
| Travel Speed (Average) | 34.3 mph | 34.3 mph |
| Travel Distance (Total) | 898.8 veh-mi/h | 1078.6 pers-mi/h |
| Travel Time (Total) | 26.2 veh-h/h | 31.4 pers-h/h |
| Desired Speed (Program) | 40.0 mph | |
| Speed Efficiency | 0.86 | |
| Travel Time Index | 8.42 | |
| Congestion Coefficient | 1.17 | |
| | | |
| Demand Flows (Total) | 1417 veh/h | 1701 pers/h |
| Percent Heavy Vehicles (Demand) | 3.0 % | |
| Degree of Saturation | 0.306 | |
| Practical Spare Capacity | 177.8 % | |
| Effective Intersection Capacity | 4632 veh/h | |
| | | |
| Control Delay (Total) | 2.31 veh-h/h | 2.77 pers-h/h |
| Control Delay (Average) | 5.9 sec | 5.9 sec |
| Control Delay (Worst Lane) | 7.9 sec | |
| Control Delay (Worst Movement) | 7.9 sec | 7.9 sec |
| Geometric Delay (Average) | 0.0 sec | |
| Stop-Line Delay (Average) | 5.9 sec | |
| Idling Time (Average) | 3.6 sec | |
| Intersection Level of Service (LOS) | LOS A | |
| | | |
| 95% Back of Queue - Vehicles (Worst Lane) | 1.4 veh | |
| 95% Back of Queue - Distance (Worst Lane) | 36.9 ft | |
| Ave. Queue Storage Ratio (Worst Lane) | 0.01 | |
| Total Effective Stops | 417 veh/h | 501 pers/h |
| Effective Stop Rate | 0.29 | 0.29 |
| Proportion Queued | 0.39 | 0.39 |
| Performance Index | 36.0 | 36.0 |
| | | |
| Cost (Total) | 553.63 $/h | 553.63 $/h |
| Fuel Consumption (Total) | 36.0 gal/h | |
| Carbon Dioxide (Total) | 322.5 kg/h | |
| Hydrocarbons (Total) | 0.028 kg/h | |
| Carbon Monoxide (Total) | 0.398 kg/h | |
| NOx (Total) | 0.496 kg/h | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 92.2% 0.0%

| Intersection Performance - Annual Values | | |
|---|---|---|
| **Performance Measure** | **Vehicles** | **Persons** |
| Demand Flows (Total) | 680,348 veh/y | 816,417 pers/y |
| Delay | 1,107 veh-h/y | 1,329 pers-h/y |
| Effective Stops | 200,230 veh/y | 240,275 pers/y |
| Travel Distance | 431,427 veh-mi/y | 517,713 pers-mi/y |

| | | | | |
|---|---|---|---|---|
| Travel Time | 12,578 | veh-h/y | 15,094 | pers-h/y |
| | | | | |
| Cost | 265,742 | $/y | 265,742 | $/y |
| Fuel Consumption | 17,268 | gal/y | | |
| Carbon Dioxide | 154,791 | kg/y | | |
| Hydrocarbons | 13 | kg/y | | |
| Carbon Monoxide | 191 | kg/y | | |
| NOx | 238 | kg/y | | |

# INTERSECTION SUMMARY

## Site: 101 [SR 145 and West A Street 2040 Without Project PM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

### Intersection Performance - Hourly Values

| Performance Measure | Vehicles | Persons |
|---|---|---|
| Travel Speed (Average) | 34.3 mph | 34.3 mph |
| Travel Distance (Total) | 898.8 veh-mi/h | 1078.6 pers-mi/h |
| Travel Time (Total) | 26.2 veh-h/h | 31.4 pers-h/h |
| Desired Speed (Program) | 40.0 mph | |
| Speed Efficiency | 0.86 | |
| Travel Time Index | 8.42 | |
| Congestion Coefficient | 1.17 | |
| | | |
| Demand Flows (Total) | 1417 veh/h | 1701 pers/h |
| Percent Heavy Vehicles (Demand) | 3.0 % | |
| Degree of Saturation | 0.306 | |
| Practical Spare Capacity | 177.8 % | |
| Effective Intersection Capacity | 4632 veh/h | |
| | | |
| Control Delay (Total) | 2.31 veh-h/h | 2.77 pers-h/h |
| Control Delay (Average) | 5.9 sec | 5.9 sec |
| Control Delay (Worst Lane) | 7.9 sec | |
| Control Delay (Worst Movement) | 7.9 sec | 7.9 sec |
| Geometric Delay (Average) | 0.0 sec | |
| Stop-Line Delay (Average) | 5.9 sec | |
| Idling Time (Average) | 3.6 sec | |
| Intersection Level of Service (LOS) | LOS A | |
| | | |
| 95% Back of Queue - Vehicles (Worst Lane) | 1.4 veh | |
| 95% Back of Queue - Distance (Worst Lane) | 36.9 ft | |
| Ave. Queue Storage Ratio (Worst Lane) | 0.01 | |
| Total Effective Stops | 417 veh/h | 501 pers/h |
| Effective Stop Rate | 0.29 | 0.29 |
| Proportion Queued | 0.39 | 0.39 |
| Performance Index | 36.0 | 36.0 |
| | | |
| Cost (Total) | 553.63 $/h | 553.63 $/h |
| Fuel Consumption (Total) | 36.0 gal/h | |
| Carbon Dioxide (Total) | 322.5 kg/h | |
| Hydrocarbons (Total) | 0.028 kg/h | |
| Carbon Monoxide (Total) | 0.398 kg/h | |
| NOx (Total) | 0.496 kg/h | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 92.2% 0.0%

### Intersection Performance - Annual Values

| Performance Measure | Vehicles | Persons |
|---|---|---|
| Demand Flows (Total) | 680,348 veh/y | 816,417 pers/y |
| Delay | 1,107 veh-h/y | 1,329 pers-h/y |
| Effective Stops | 200,230 veh/y | 240,275 pers/y |
| Travel Distance | 431,427 veh-mi/y | 517,713 pers-mi/y |

| | | | | |
|---|---|---|---|---|
| Travel Time | 12,578 | veh-h/y | 15,094 | pers-h/y |
| | | | | |
| Cost | 265,742 | $/y | 265,742 | $/y |
| Fuel Consumption | 17,268 | gal/y | | |
| Carbon Dioxide | 154,791 | kg/y | | |
| Hydrocarbons | 13 | kg/y | | |
| Carbon Monoxide | 191 | kg/y | | |
| NOx | 238 | kg/y | | |

Organisation: VRPA TECHNOLOGIES | Licence: PLUS / 1PC | Processed: Tuesday, March 5, 2024 14:24:34
Project: \\VRPA1\Users\jellard\Desktop\Shared Items on VRPA1\Project_NP\Whispering Falls\Final Report\Sidra Reports\Sidra file whispering falls.sip9

# INTERSECTION SUMMARY

## Site: 101 [SR 145 and West A Street 2040 With Project PM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

| Intersection Performance - Hourly Values | | |
|---|---|---|
| **Performance Measure** | **Vehicles** | **Persons** |
| Travel Speed (Average) | 34.2 mph | 34.2 mph |
| Travel Distance (Total) | 915.4 veh-mi/h | 1098.4 pers-mi/h |
| Travel Time (Total) | 26.7 veh-h/h | 32.1 pers-h/h |
| Desired Speed (Program) | 40.0 mph | |
| Speed Efficiency | 0.86 | |
| Travel Time Index | 8.40 | |
| Congestion Coefficient | 1.17 | |
| | | |
| Demand Flows (Total) | 1443 veh/h | 1732 pers/h |
| Percent Heavy Vehicles (Demand) | 3.0 % | |
| Degree of Saturation | 0.310 | |
| Practical Spare Capacity | 174.0 % | |
| Effective Intersection Capacity | 4653 veh/h | |
| | | |
| Control Delay (Total) | 2.39 veh-h/h | 2.86 pers-h/h |
| Control Delay (Average) | 5.9 sec | 5.9 sec |
| Control Delay (Worst Lane) | 8.1 sec | |
| Control Delay (Worst Movement) | 8.1 sec | 8.1 sec |
| Geometric Delay (Average) | 0.0 sec | |
| Stop-Line Delay (Average) | 5.9 sec | |
| Idling Time (Average) | 3.6 sec | |
| Intersection Level of Service (LOS) | LOS A | |
| | | |
| 95% Back of Queue - Vehicles (Worst Lane) | 1.5 veh | |
| 95% Back of Queue - Distance (Worst Lane) | 37.5 ft | |
| Ave. Queue Storage Ratio (Worst Lane) | 0.01 | |
| Total Effective Stops | 438 veh/h | 526 pers/h |
| Effective Stop Rate | 0.30 | 0.30 |
| Proportion Queued | 0.40 | 0.40 |
| Performance Index | 36.9 | 36.9 |
| | | |
| Cost (Total) | 564.86 $/h | 564.86 $/h |
| Fuel Consumption (Total) | 36.7 gal/h | |
| Carbon Dioxide (Total) | 329.1 kg/h | |
| Hydrocarbons (Total) | 0.028 kg/h | |
| Carbon Monoxide (Total) | 0.406 kg/h | |
| NOx (Total) | 0.506 kg/h | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 100.0% 92.2% 0.0%

| Intersection Performance - Annual Values | | |
|---|---|---|
| **Performance Measure** | **Vehicles** | **Persons** |
| Demand Flows (Total) | 692,870 veh/y | 831,443 pers/y |
| Delay | 1,145 veh-h/y | 1,374 pers-h/y |
| Effective Stops | 210,455 veh/y | 252,546 pers/y |
| Travel Distance | 439,377 veh-mi/y | 527,253 pers-mi/y |

# QUEUE ANALYSIS

## Site: 101 [SR 145 and West A Street Opening Year With Project AM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

### Lane Queues (Distance)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (ft) | Back of Queue (ft) | | Queue at Start of Green (ft) | | Cycle Average Queue (ft) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.103 | 1.000 | 0.0 | 4.1 | 10.1 | NA | NA | 3.3 | 6.0 | 0.02 | 0.05 | NA | 0.0 | 2 |
| Lane 2 | | 0.103 | 1.000 | 0.0 | 4.0 | 9.8 | NA | NA | 3.4 | 6.1 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.103 | | | 4.1 | 10.1 | NA | NA | 3.4 | 6.1 | 0.00 | 0.01 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.127 | 1.000 | 0.0 | 5.0 | 12.3 | NA | NA | 4.3 | 7.9 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.127 | | | 5.0 | 12.3 | NA | NA | 4.3 | 7.9 | 0.00 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.127 | 1.000 | 0.0 | 5.3 | 13.1 | NA | NA | 4.4 | 8.0 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.127 | 1.000 | 0.0 | 5.1 | 12.7 | NA | NA | 4.5 | 8.1 | 0.03 | 0.06 | NA | 0.0 | 1 |
| Approach | | 0.127 | | | 5.3 | 13.1 | NA | NA | 4.5 | 8.1 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.209 | 1.000 | 0.0 | 8.7 | 21.7 | NA | NA | 8.4 | 15.3 | 0.01 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.209 | | | 8.7 | 21.7 | NA | NA | 8.4 | 15.3 | 0.01 | 0.01 | | | |
| Intersection | | 0.209 | | | 8.7 | 21.7 | NA | NA | 8.4 | 15.3 | 0.01 | 0.01 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

### Lane Queues (Vehicles)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (veh) | Back of Queue (veh) | | Queue at Start of Green (veh) | | Cycle Average Queue (veh) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.103 | 1.000 | 0.0 | 0.2 | 0.4 | NA | NA | 0.1 | 0.2 | 0.02 | 0.05 | NA | 0.0 | 2 |
| Lane 2 | | 0.103 | 1.000 | 0.0 | 0.2 | 0.4 | NA | NA | 0.1 | 0.2 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.103 | | | 0.2 | 0.4 | NA | NA | 0.1 | 0.2 | 0.00 | 0.01 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.127 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.127 | | | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.127 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.127 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.03 | 0.06 | NA | 0.0 | 1 |
| Approach | | 0.127 | | | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 0.209 | 1.000 | 0.0 | 0.3 | 0.8 | NA | NA | 0.3 | 0.6 | 0.01 | 0.01 | 0.0 | NA | NA |
| Approach | 0.209 | | | 0.3 | 0.8 | NA | NA | 0.3 | 0.6 | 0.01 | 0.01 | | | |
| Intersection | 0.209 | | | 0.3 | 0.8 | NA | NA | 0.3 | 0.6 | 0.01 | 0.01 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

## Continuous Lane Performance

| Lane Number | Deg. Satn v/c | Unint. Speed mph | Unint. Travel Delay sec | Hdwy sec | Spacing ft | Aver. Vehicle Length ft | Occup. Time sec | Space Time sec | Space Occup. Ratio % | Time Occup. Ratio % | Density veh/mi | Density pc/mi | LOS (Density Method) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| East: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| North: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| West: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |

Midblock Effective Detection Zone Length = 7 ft

# QUEUE ANALYSIS

## Site: 101 [SR 145 and West A Street Opening Year With Project PM - Copy (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

**Lane Queues (Distance)**

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (ft) | Back of Queue (ft) | | Queue at Start of Green (ft) | | Cycle Average Queue (ft) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.228 | 1.000 | 0.0 | 10.3 | 25.7 | NA | NA | 9.7 | 17.6 | 0.05 | 0.13 | NA | 0.0 | 2 |
| Lane 2 | | 0.228 | 1.000 | 0.0 | 10.1 | 25.1 | NA | NA | 9.8 | 17.8 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.228 | | | 10.3 | 25.7 | NA | NA | 9.8 | 17.8 | 0.01 | 0.02 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.206 | 1.000 | 0.0 | 8.1 | 20.2 | NA | NA | 8.0 | 14.5 | 0.01 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.206 | | | 8.1 | 20.2 | NA | NA | 8.0 | 14.5 | 0.01 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.120 | 1.000 | 0.0 | 4.8 | 12.0 | NA | NA | 4.1 | 7.4 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.120 | 1.000 | 0.0 | 4.7 | 11.8 | NA | NA | 4.1 | 7.4 | 0.02 | 0.06 | NA | 0.0 | 1 |
| Approach | | 0.120 | | | 4.8 | 12.0 | NA | NA | 4.1 | 7.4 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.114 | 1.000 | 0.0 | 4.4 | 11.0 | NA | NA | 3.8 | 6.9 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.114 | | | 4.4 | 11.0 | NA | NA | 3.8 | 6.9 | 0.00 | 0.01 | | | |
| Intersection | | 0.228 | | | 10.3 | 25.7 | NA | NA | 9.8 | 17.8 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

**Lane Queues (Vehicles)**

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (veh) | Back of Queue (veh) | | Queue at Start of Green (veh) | | Cycle Average Queue (veh) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.228 | 1.000 | 0.0 | 0.4 | 1.0 | NA | NA | 0.4 | 0.7 | 0.05 | 0.13 | NA | 0.0 | 2 |
| Lane 2 | | 0.228 | 1.000 | 0.0 | 0.4 | 1.0 | NA | NA | 0.4 | 0.7 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.228 | | | 0.4 | 1.0 | NA | NA | 0.4 | 0.7 | 0.01 | 0.02 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.206 | 1.000 | 0.0 | 0.3 | 0.8 | NA | NA | 0.3 | 0.6 | 0.01 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.206 | | | 0.3 | 0.8 | NA | NA | 0.3 | 0.6 | 0.01 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.120 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.120 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.02 | 0.06 | NA | 0.0 | 1 |
| Approach | | 0.120 | | | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 0.114 | 1.000 | 0.0 | 0.2 | 0.4 | NA | NA | 0.1 | 0.3 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | 0.114 | | | 0.2 | 0.4 | NA | NA | 0.1 | 0.3 | 0.00 | 0.01 | | | |
| Intersection | 0.228 | | | 0.4 | 1.0 | NA | NA | 0.4 | 0.7 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

### Continuous Lane Performance

| Lane Number | Deg. Satn v/c | Unint. Speed mph | Unint. Travel Delay sec | Hdwy sec | Spacing ft | Aver. Vehicle Length ft | Occup. Time sec | Space Time sec | Space Occup. Ratio % | Time Occup. Ratio % | Density veh/mi | Density pc/mi | LOS (Density Method) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| East: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| North: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| West: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |

Midblock Effective Detection Zone Length = 7 ft

# QUEUE ANALYSIS

## Site: 101 [SR 145 and West A Street 2040 Without Project AM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

### Lane Queues (Distance)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (ft) | Back of Queue (ft) | | Queue at Start of Green (ft) | | Cycle Average Queue (ft) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.141 | 1.000 | 0.0 | 5.7 | 14.2 | NA | NA | 4.9 | 9.0 | 0.03 | 0.07 | NA | 0.0 | 2 |
| Lane 2 | | 0.141 | 1.000 | 0.0 | 5.6 | 13.9 | NA | NA | 5.0 | 9.1 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.141 | | | 5.7 | 14.2 | NA | NA | 5.0 | 9.1 | 0.00 | 0.01 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.174 | 1.000 | 0.0 | 7.0 | 17.5 | NA | NA | 6.5 | 11.9 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.174 | | | 7.0 | 17.5 | NA | NA | 6.5 | 11.9 | 0.00 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.174 | 1.000 | 0.0 | 7.5 | 18.6 | NA | NA | 6.6 | 12.1 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.174 | 1.000 | 0.0 | 7.3 | 18.1 | NA | NA | 6.7 | 12.2 | 0.04 | 0.09 | NA | 0.0 | 1 |
| Approach | | 0.174 | | | 7.5 | 18.6 | NA | NA | 6.7 | 12.2 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.251 | 1.000 | 0.0 | 10.5 | 26.2 | NA | NA | 10.7 | 19.5 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.251 | | | 10.5 | 26.2 | NA | NA | 10.7 | 19.5 | 0.01 | 0.02 | | | |
| Intersection | | 0.251 | | | 10.5 | 26.2 | NA | NA | 10.7 | 19.5 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

### Lane Queues (Vehicles)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (veh) | Back of Queue (veh) | | Queue at Start of Green (veh) | | Cycle Average Queue (veh) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.141 | 1.000 | 0.0 | 0.2 | 0.6 | NA | NA | 0.2 | 0.3 | 0.03 | 0.07 | NA | 0.0 | 2 |
| Lane 2 | | 0.141 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.141 | | | 0.2 | 0.6 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.174 | 1.000 | 0.0 | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.174 | | | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.174 | 1.000 | 0.0 | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.174 | 1.000 | 0.0 | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.04 | 0.09 | NA | 0.0 | 1 |
| Approach | | 0.174 | | | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 0.251 | 1.000 | 0.0 | 0.4 | 1.0 | NA | NA | 0.4 | 0.8 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | 0.251 | | | 0.4 | 1.0 | NA | NA | 0.4 | 0.8 | 0.01 | 0.02 | | | |
| Intersection | 0.251 | | | 0.4 | 1.0 | NA | NA | 0.4 | 0.8 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

## Continuous Lane Performance

| Lane Number | Deg. Satn | Unint. Speed | Unint. Travel Delay | Hdwy | Spacing | Aver. Vehicle Length | Occup. Time | Space Time | Space Occup. Ratio | Time Occup. Ratio | Density | | LOS (Density Method) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | v/c | mph | sec | sec | ft | ft | sec | sec | % | % | veh/mi | pc/mi | |
| South: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| East: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| North: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| West: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |

Midblock Effective Detection Zone Length = 7 ft

# QUEUE ANALYSIS

## Site: 101 [SR 145 and West A Street 2040 Without Project PM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

### Lane Queues (Distance)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (ft) | Back of Queue (ft) | | Queue at Start of Green (ft) | | Cycle Average Queue (ft) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.306 | 1.000 | 0.0 | 14.9 | 36.9 | NA | NA | 15.0 | 27.1 | 0.07 | 0.18 | NA | 0.0 | 2 |
| Lane 2 | | 0.306 | 1.000 | 0.0 | 14.6 | 36.2 | NA | NA | 15.2 | 27.6 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.306 | | | 14.9 | 36.9 | NA | NA | 15.2 | 27.6 | 0.01 | 0.02 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.289 | 1.000 | 0.0 | 11.7 | 29.0 | NA | NA | 12.7 | 23.1 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.289 | | | 11.7 | 29.0 | NA | NA | 12.7 | 23.1 | 0.01 | 0.02 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.158 | 1.000 | 0.0 | 6.6 | 16.4 | NA | NA | 5.8 | 10.5 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.158 | 1.000 | 0.0 | 6.5 | 16.0 | NA | NA | 5.9 | 10.6 | 0.03 | 0.08 | NA | 0.0 | 1 |
| Approach | | 0.158 | | | 6.6 | 16.4 | NA | NA | 5.9 | 10.6 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.132 | 1.000 | 0.0 | 5.1 | 12.6 | NA | NA | 4.5 | 8.2 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.132 | | | 5.1 | 12.6 | NA | NA | 4.5 | 8.2 | 0.00 | 0.01 | | | |
| Intersection | | 0.306 | | | 14.9 | 36.9 | NA | NA | 15.2 | 27.6 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

### Lane Queues (Vehicles)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (veh) | Back of Queue (veh) | | Queue at Start of Green (veh) | | Cycle Average Queue (veh) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.306 | 1.000 | 0.0 | 0.6 | 1.4 | NA | NA | 0.6 | 1.1 | 0.07 | 0.18 | NA | 0.0 | 2 |
| Lane 2 | | 0.306 | 1.000 | 0.0 | 0.6 | 1.4 | NA | NA | 0.6 | 1.1 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.306 | | | 0.6 | 1.4 | NA | NA | 0.6 | 1.1 | 0.01 | 0.02 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.289 | 1.000 | 0.0 | 0.5 | 1.1 | NA | NA | 0.5 | 0.9 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.289 | | | 0.5 | 1.1 | NA | NA | 0.5 | 0.9 | 0.01 | 0.02 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.158 | 1.000 | 0.0 | 0.3 | 0.6 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.158 | 1.000 | 0.0 | 0.3 | 0.6 | NA | NA | 0.2 | 0.4 | 0.03 | 0.08 | NA | 0.0 | 1 |
| Approach | | 0.158 | | | 0.3 | 0.6 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 0.132 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | 0.132 | | | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | | | |
| Intersection | 0.306 | | | 0.6 | 1.4 | NA | NA | 0.6 | 1.1 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

## Continuous Lane Performance

| Lane Number | Deg. Satn v/c | Unint. Speed mph | Unint. Travel Delay sec | Hdwy sec | Spacing ft | Aver. Vehicle Length ft | Occup. Time sec | Space Time sec | Space Occup. Ratio % | Time Occup. Ratio % | Density veh/mi | Density pc/mi | LOS (Density Method) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| East: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| North: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| West: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |

Midblock Effective Detection Zone Length = 7 ft

# QUEUE ANALYSIS

## Site: 101 [SR 145 and West A Street 2040 With Project AM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

**Lane Queues (Distance)**

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (ft) | Back of Queue (ft) | | Queue at Start of Green (ft) | | Cycle Average Queue (ft) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.143 | 1.000 | 0.0 | 5.8 | 14.4 | NA | NA | 5.0 | 9.1 | 0.03 | 0.07 | NA | 0.0 | 2 |
| Lane 2 | | 0.143 | 1.000 | 0.0 | 5.7 | 14.1 | NA | NA | 5.1 | 9.2 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.143 | | | 5.8 | 14.4 | NA | NA | 5.1 | 9.2 | 0.00 | 0.01 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.177 | 1.000 | 0.0 | 7.2 | 17.8 | NA | NA | 6.7 | 12.1 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.177 | | | 7.2 | 17.8 | NA | NA | 6.7 | 12.1 | 0.00 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.176 | 1.000 | 0.0 | 7.5 | 18.7 | NA | NA | 6.7 | 12.2 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.176 | 1.000 | 0.0 | 7.4 | 18.3 | NA | NA | 6.8 | 12.3 | 0.04 | 0.09 | NA | 0.0 | 1 |
| Approach | | 0.176 | | | 7.5 | 18.7 | NA | NA | 6.8 | 12.3 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.266 | 1.000 | 0.0 | 11.3 | 28.2 | NA | NA | 11.7 | 21.3 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.266 | | | 11.3 | 28.2 | NA | NA | 11.7 | 21.3 | 0.01 | 0.02 | | | |
| Intersection | | 0.266 | | | 11.3 | 28.2 | NA | NA | 11.7 | 21.3 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

**Lane Queues (Vehicles)**

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (veh) | Back of Queue (veh) | | Queue at Start of Green (veh) | | Cycle Average Queue (veh) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.143 | 1.000 | 0.0 | 0.2 | 0.6 | NA | NA | 0.2 | 0.4 | 0.03 | 0.07 | NA | 0.0 | 2 |
| Lane 2 | | 0.143 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.143 | | | 0.2 | 0.6 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.177 | 1.000 | 0.0 | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.177 | | | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.176 | 1.000 | 0.0 | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.176 | 1.000 | 0.0 | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.04 | 0.09 | NA | 0.0 | 1 |
| Approach | | 0.176 | | | 0.3 | 0.7 | NA | NA | 0.3 | 0.5 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 0.266 | 1.000 | 0.0 | 0.4 | 1.1 | NA | NA | 0.5 | 0.8 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | 0.266 | | | 0.4 | 1.1 | NA | NA | 0.5 | 0.8 | 0.01 | 0.02 | | | |
| Intersection | 0.266 | | | 0.4 | 1.1 | NA | NA | 0.5 | 0.8 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

## Continuous Lane Performance

| Lane Number | Deg. Satn v/c | Unint. Speed mph | Unint. Travel Delay sec | Hdwy sec | Spacing ft | Aver. Vehicle Length ft | Occup. Time sec | Space Time sec | Space Occup. Ratio % | Time Occup. Ratio % | Density veh/mi | Density pc/mi | LOS (Density Method) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| East: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| North: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| West: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |

Midblock Effective Detection Zone Length = 7 ft

# QUEUE ANALYSIS

## Site: 101 [SR 145 and West A Street 2040 With Project PM (Site Folder: General)]

Whispering Falls
Site Category: (None)
Roundabout

### Lane Queues (Distance)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (ft) | Back of Queue (ft) | | Queue at Start of Green (ft) | | Cycle Average Queue (ft) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.310 | 1.000 | 0.0 | 15.1 | 37.5 | NA | NA | 15.3 | 27.7 | 0.08 | 0.19 | NA | 0.0 | 2 |
| Lane 2 | | 0.310 | 1.000 | 0.0 | 14.8 | 36.7 | NA | NA | 15.5 | 28.1 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.310 | | | 15.1 | 37.5 | NA | NA | 15.5 | 28.1 | 0.01 | 0.02 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.299 | 1.000 | 0.0 | 12.1 | 30.1 | NA | NA | 13.3 | 24.2 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.299 | | | 12.1 | 30.1 | NA | NA | 13.3 | 24.2 | 0.01 | 0.02 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.162 | 1.000 | 0.0 | 6.8 | 16.8 | NA | NA | 6.0 | 10.8 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.162 | 1.000 | 0.0 | 6.6 | 16.5 | NA | NA | 6.0 | 11.0 | 0.03 | 0.08 | NA | 0.0 | 1 |
| Approach | | 0.162 | | | 6.8 | 16.8 | NA | NA | 6.0 | 11.0 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.141 | 1.000 | 0.0 | 5.5 | 13.7 | NA | NA | 4.9 | 9.0 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | | 0.141 | | | 5.5 | 13.7 | NA | NA | 4.9 | 9.0 | 0.00 | 0.01 | | | |
| Intersection | | 0.310 | | | 15.1 | 37.5 | NA | NA | 15.5 | 28.1 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

### Lane Queues (Vehicles)

| Lane Number | Contin. Lane | Deg. Satn | Prog. Factor (Queue) | Overflow Queue (veh) | Back of Queue (veh) | | Queue at Start of Green (veh) | | Cycle Average Queue (veh) | | Queue Storage Ratio | | Prob. Block. | Prob. SL Ov. | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | v/c | | | Av. | 95% | Av. | 95% | Av. | 95% | Av. | 95% | % | % | |
| South: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.310 | 1.000 | 0.0 | 0.6 | 1.5 | NA | NA | 0.6 | 1.1 | 0.08 | 0.19 | NA | 0.0 | 2 |
| Lane 2 | | 0.310 | 1.000 | 0.0 | 0.6 | 1.4 | NA | NA | 0.6 | 1.1 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.310 | | | 0.6 | 1.5 | NA | NA | 0.6 | 1.1 | 0.01 | 0.02 | | | |
| East: West A Street | | | | | | | | | | | | | | | |
| Lane 1 | | 0.299 | 1.000 | 0.0 | 0.5 | 1.2 | NA | NA | 0.5 | 0.9 | 0.01 | 0.02 | 0.0 | NA | NA |
| Approach | | 0.299 | | | 0.5 | 1.2 | NA | NA | 0.5 | 0.9 | 0.01 | 0.02 | | | |
| North: SR 145 | | | | | | | | | | | | | | | |
| Lane 1 | | 0.162 | 1.000 | 0.0 | 0.3 | 0.7 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | 0.0 | NA | NA |
| Lane 2 | | 0.162 | 1.000 | 0.0 | 0.3 | 0.6 | NA | NA | 0.2 | 0.4 | 0.03 | 0.08 | NA | 0.0 | 1 |
| Approach | | 0.162 | | | 0.3 | 0.7 | NA | NA | 0.2 | 0.4 | 0.00 | 0.01 | | | |
| West: West A Street | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 0.141 | 1.000 | 0.0 | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | 0.0 | NA | NA |
| Approach | 0.141 | | | 0.2 | 0.5 | NA | NA | 0.2 | 0.3 | 0.00 | 0.01 | | | |
| Intersection | 0.310 | | | 0.6 | 1.5 | NA | NA | 0.6 | 1.1 | 0.01 | 0.02 | | | |

Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.

## Continuous Lane Performance

| Lane Number | Deg. Satn v/c | Unint. Speed mph | Unint. Travel Delay sec | Hdwy sec | Spacing ft | Aver. Vehicle Length ft | Occup. Time sec | Space Time sec | Space Occup. Ratio % | Time Occup. Ratio % | Density veh/mi | Density pc/mi | LOS (Density Method) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| East: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| North: SR 145 | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |
| West: West A Street | | | | | | | | | | | | | |
| This approach does not have any continuous lanes | | | | | | | | | | | | | |

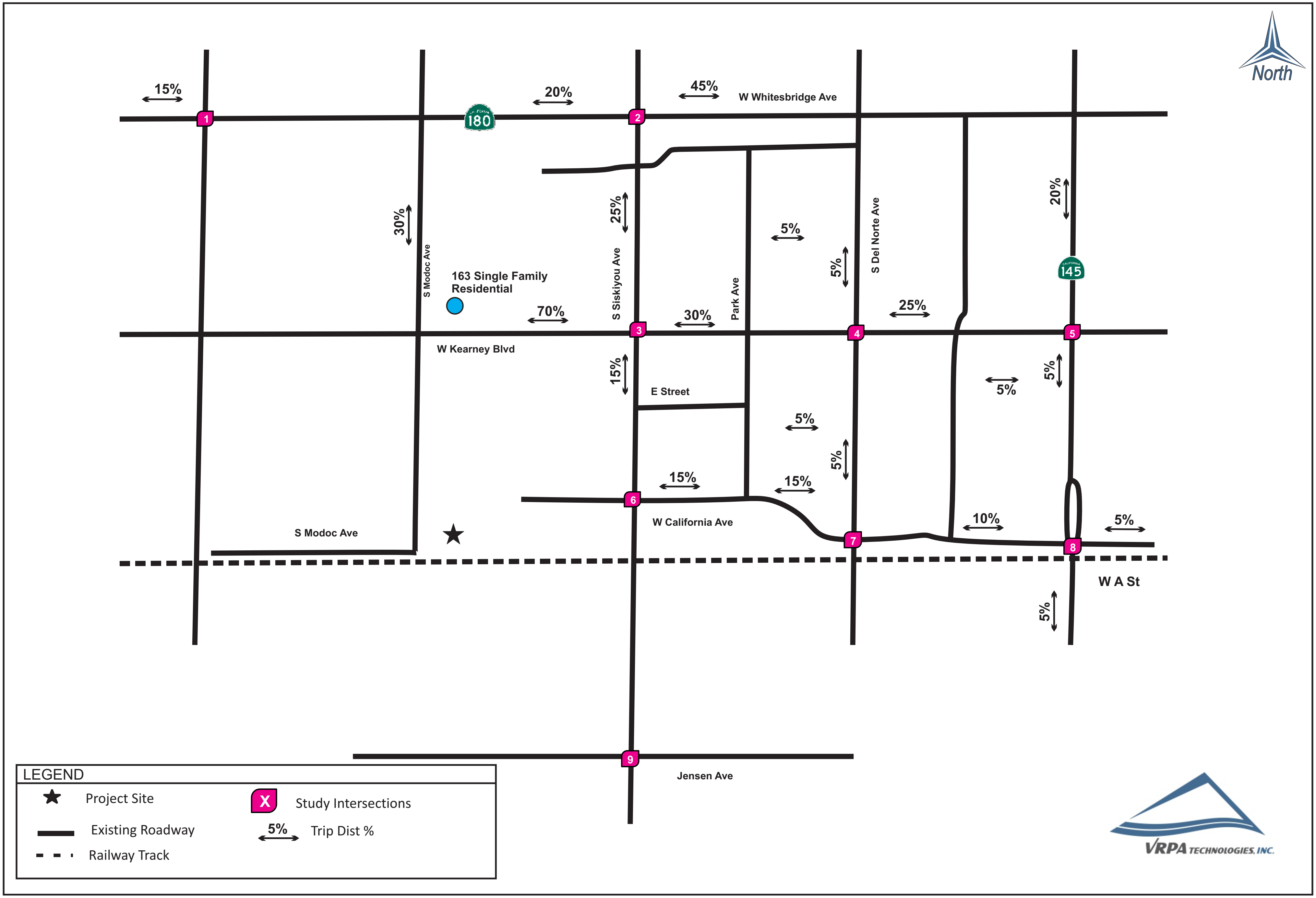
Midblock Effective Detection Zone Length = 7 ft

# Appendix-C
# Cumulative Development Trip Distribution

# Whispering Falls Project

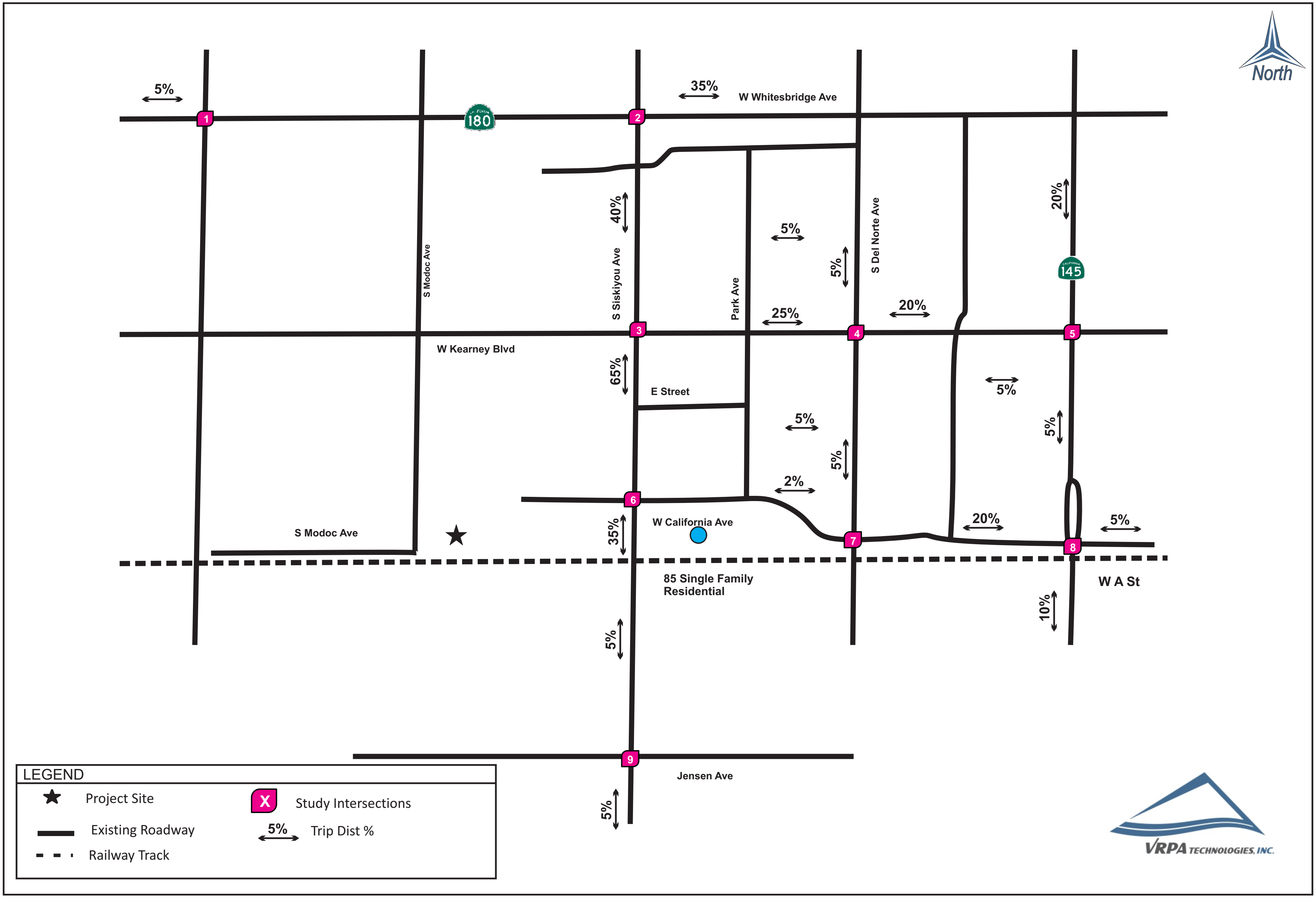
## Crown Schaad 163 Residential Cumulative Development Trip Distribution

Figure A



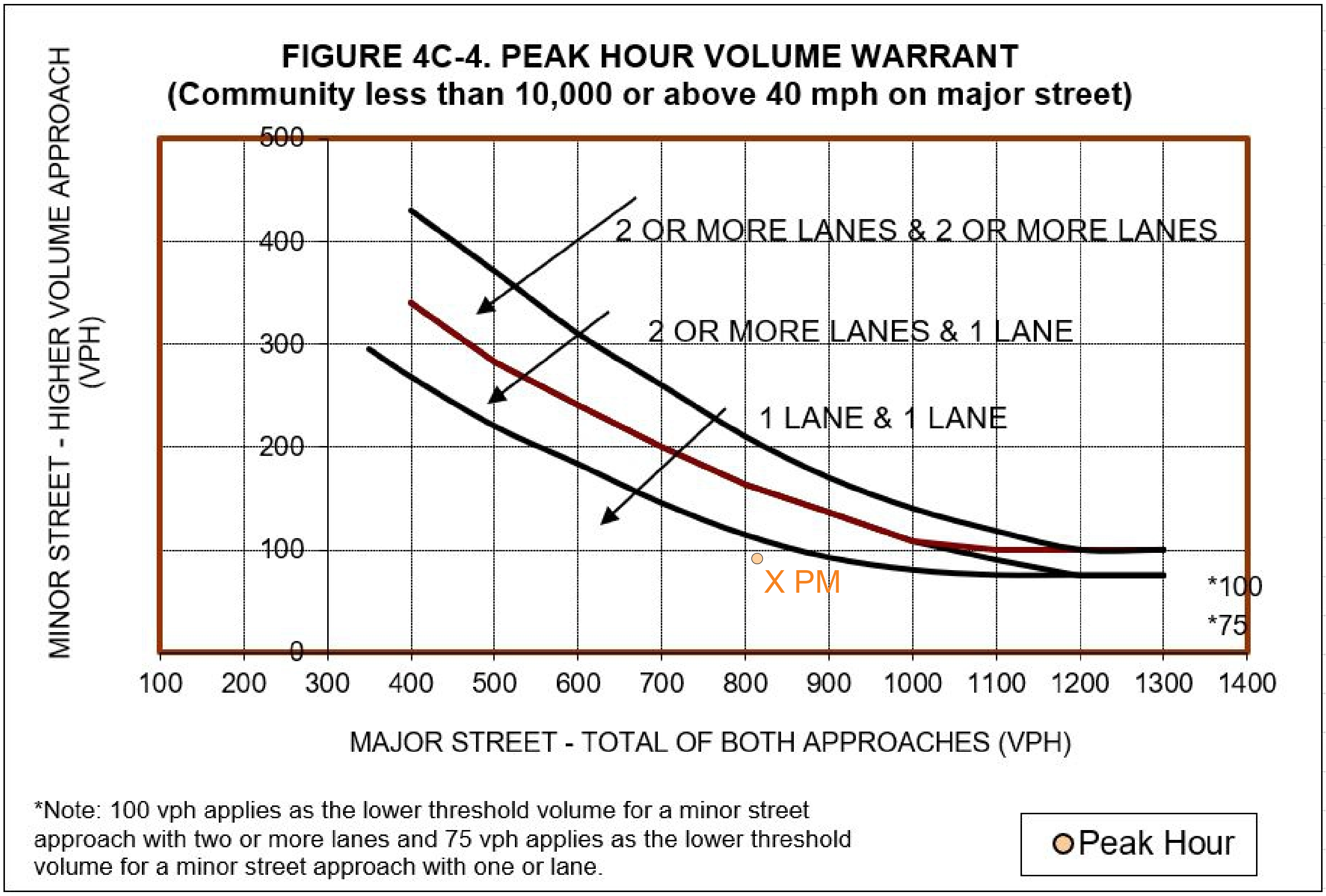
# Whispering Falls Project
## Tract 6293 - 85 residential Cumulative Development Trip Distribution

Figure
B



# Appendix-D
# Signal Warrant Analysis

# Whitesbridge Ave and Lassen Ave



*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 or lane.

***Near Term Opening Year 2025 With Project Conditions***

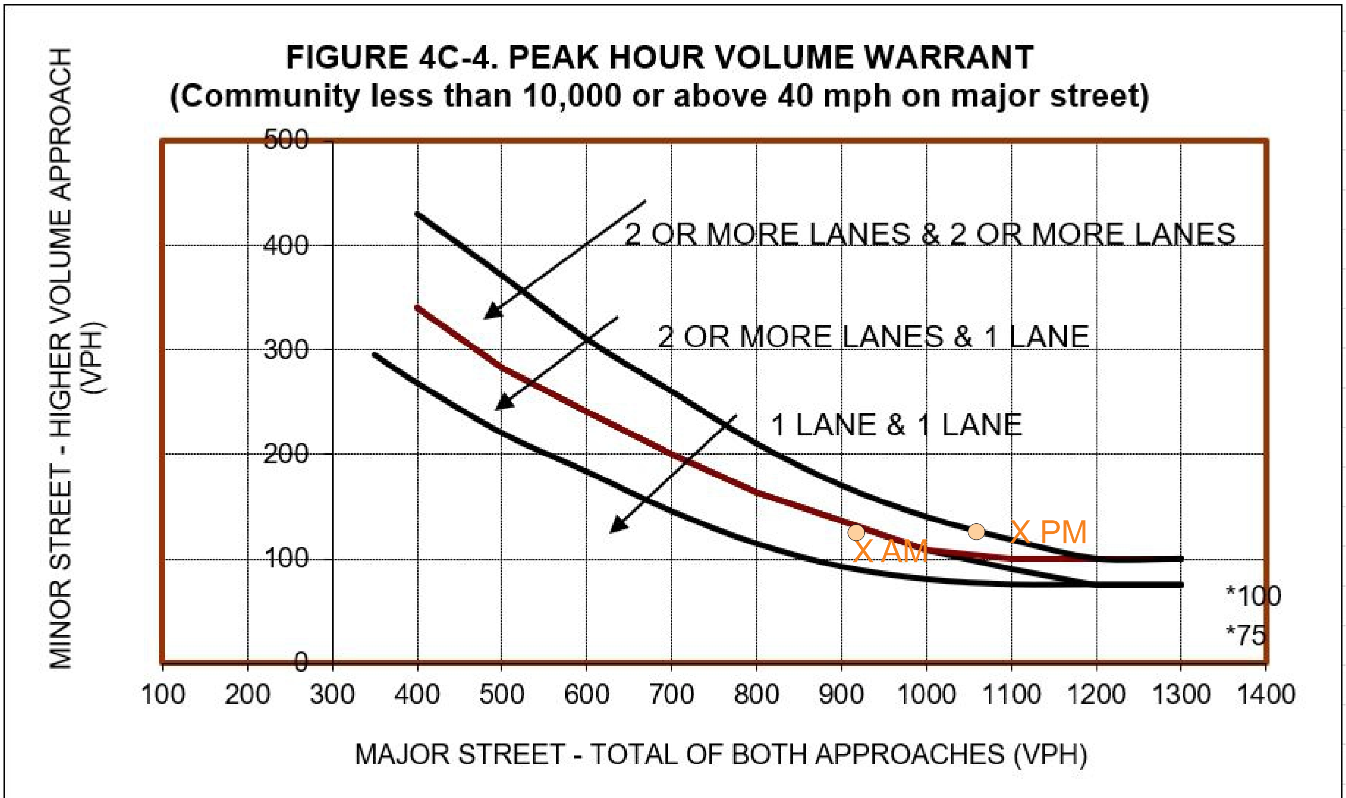
**PM Peak Hour Warrant Status: Not Met**

LEGEND

XAM AM Peak Hour

XPM PM Peak Hour

# Whitesbridge Ave and Lassen Ave



*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 or lane.

● Peak Hour

***<u>Horizon Year 2040 Without Project Conditions</u>***

**AM Peak Hour Warrant Status: Not Met**

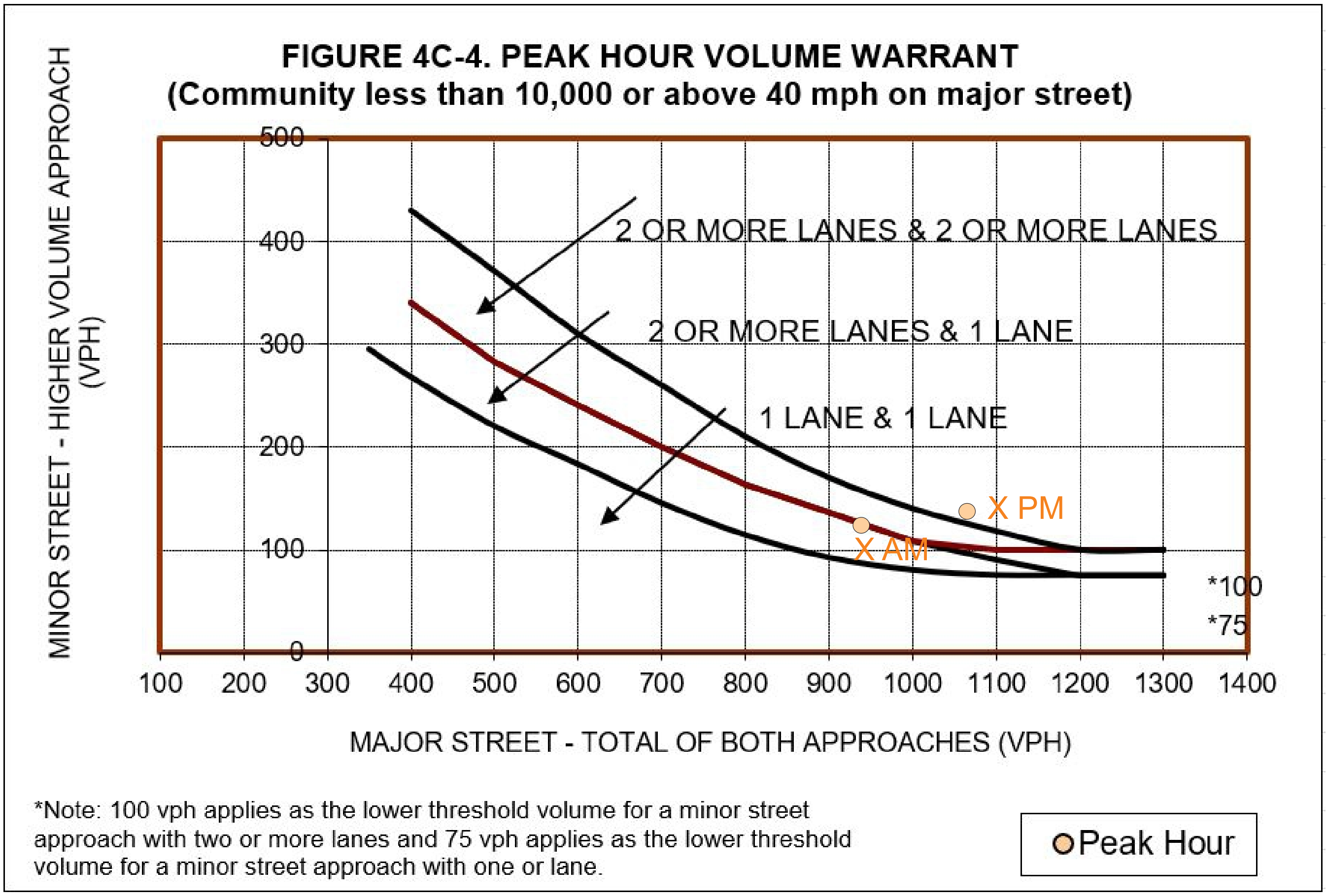
**PM Peak Hour Warrant Status: Met**

LEGEND

XAM AM Peak Hour    XPM PM Peak Hour

VRPA TECHNOLOGIES, INC.

# Whitesbridge Ave and Lassen Ave



*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 or lane.

***Horizon Year 2040 With Project  Conditions***

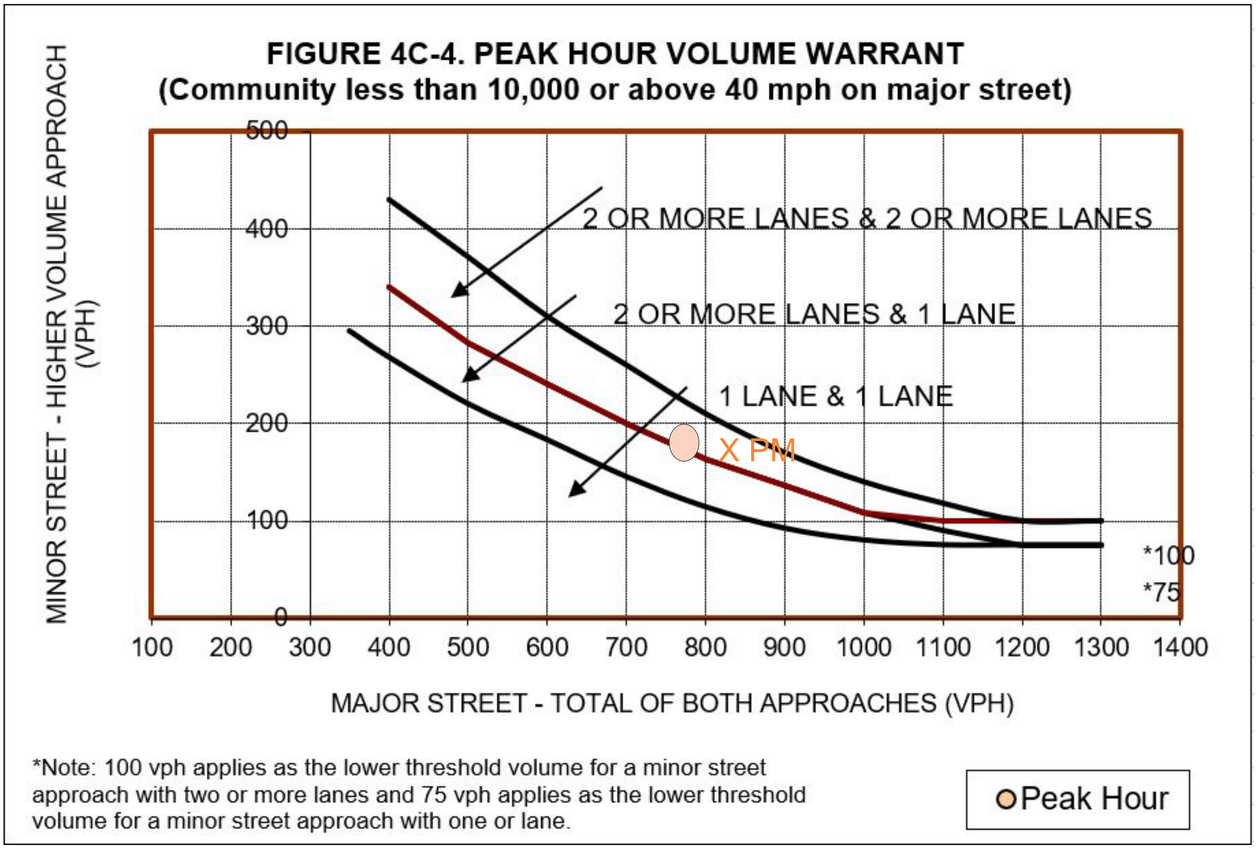
**AM Peak Hour Warrant Status: Not Met**

**PM Peak Hour Warrant Status: Met**

| LEGEND | | | |
|---|---|---|---|
| XAM | AM Peak Hour | XPM | PM Peak Hour |

VRPA TECHNOLOGIES, INC.

# SR 145 and West A Street



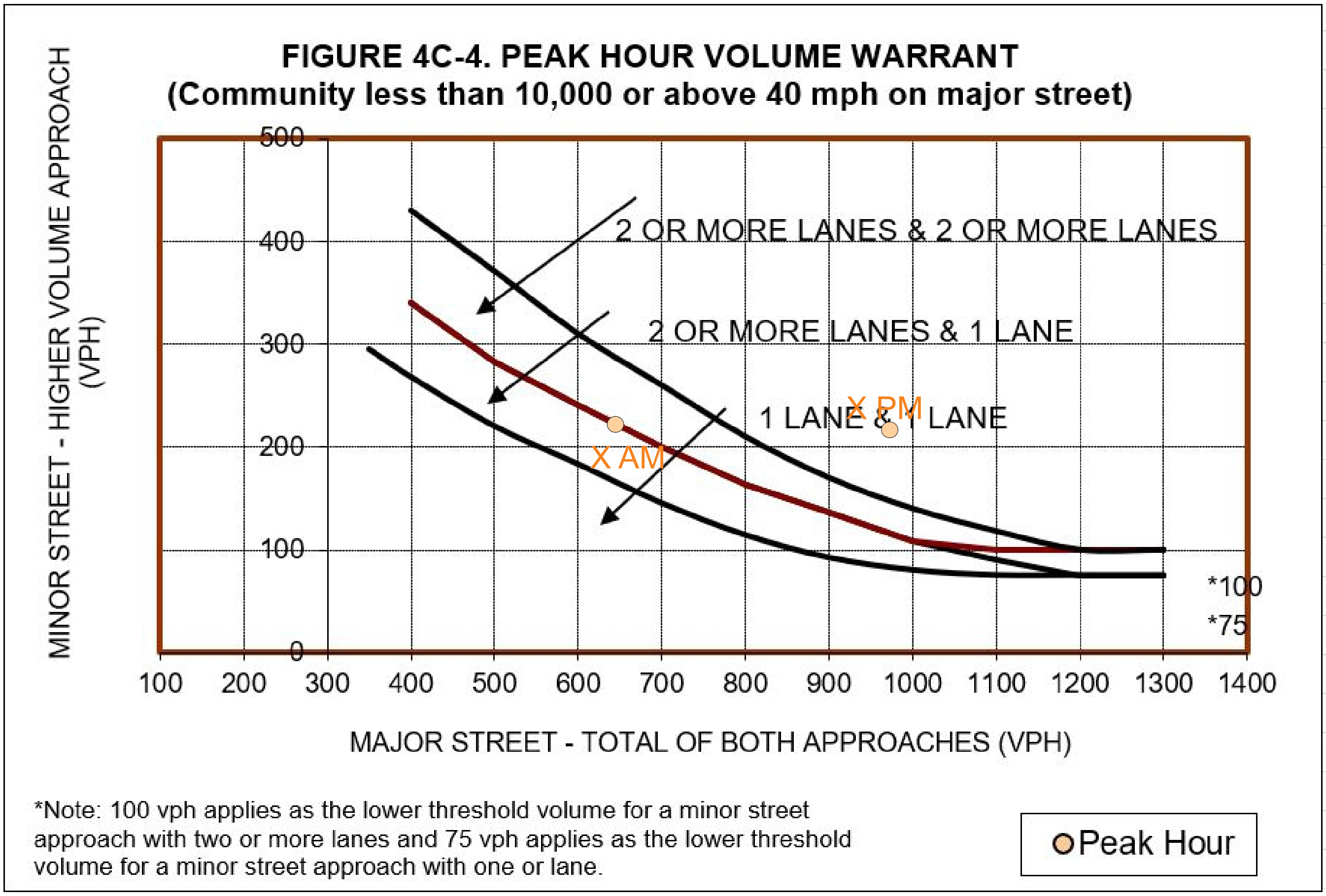
*Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one or lane.

***Near Term Opening Year 2025 With Project Conditions***

**PM Peak Hour Warrant Status: Met**

| LEGEND | | | |
|---|---|---|---|
| XAM | AM Peak Hour | XPM | PM Peak Hour |

# SR 145 and West A Street



*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 or lane.

***Horizon Year 2040 Without Project  Conditions***

**AM Peak Hour Warrant Status: Met**

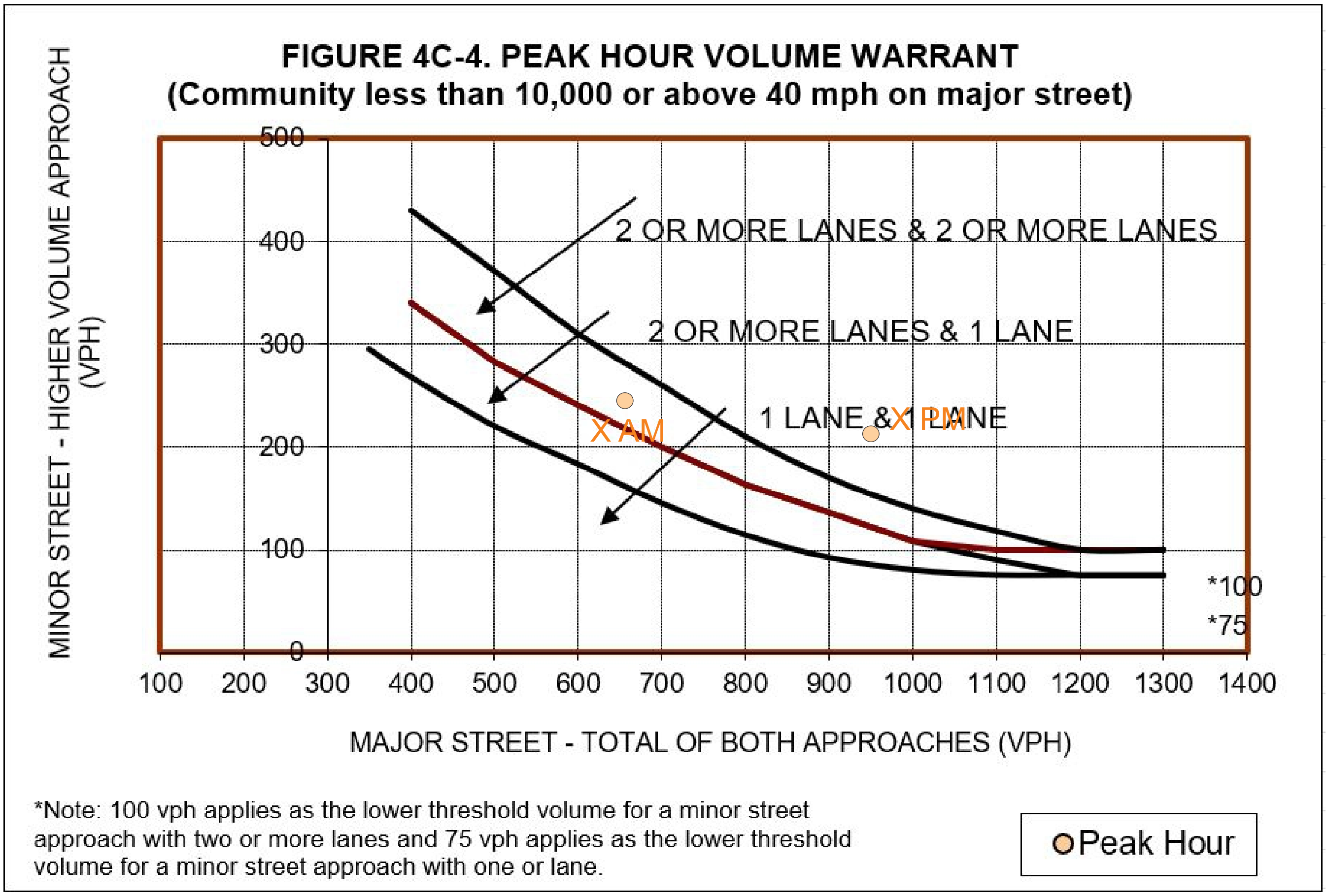
**PM Peak Hour Warrant Status: Met**

LEGEND

XAM AM Peak Hour

XPM PM Peak Hour

# SR 145 and West A Street



***Horizon Year 2040 With Project  Conditions***

**AM Peak Hour Warrant Status: Met**

**PM Peak Hour Warrant Status: Met**

| LEGEND | | | |
|---|---|---|---|
| XAM | AM Peak Hour | XPM | PM Peak Hour |

# Appendix-E
# VMT Analysis

VRPA TECHNOLOGIES, INC.
TRANSPORTATION TECHNOLOGY AND SUSTAINABLE SOLUTIONS

## MEMORANDUM

**TO:** Jenna Chillingerian, Precision Engineering

**FROM:** Erik Ruehr, VRPA Technologies
Nisha Pathak, VRPA Technologies

**DATE:** September 20, 2023

**RE:** Whispering Falls Residential Development
Vehicle Miles Traveled (VMT) Analysis

This memorandum provides a vehicle miles traveled (VMT) analysis for the proposed Whispering Falls residential development in the City of Kerman. The analysis was conducted to meet the requirements for transportation analysis under the California Environmental Quality Act (CEQA). The remainder of the memorandum includes sections describing background information, the project description, trip generation, and VMT screening analysis, VMT Analysis Methodology, VMT analysis, and a summary of results and conclusions.

## BACKGROUND INFORMATION

Per the requirements of Senate Bill 743 (SB 743), VMT is the new performance measure used in CEQA transportation analysis. VMT became the required performance measure on July 1, 2020 replacing the previous performance measure which was level of service (LOS). The VMT generated by land development projects is compared to various screening criteria and significance thresholds to determine whether the level of VMT would be considered to be significant. Additional detail on this process is provided in the sections that follow.

CEQA allows agencies to adopt formal methodologies and thresholds of significance that will be used for environmental evaluation or to use methodologies and thresholds of significance determined on a case-by-case basis. Although the City of Kerman has not formally adopted guidelines or thresholds for VMT analysis, the Fresno Council of Governments (Fresno COG) has provided regional guidance for VMT analysis (Fresno County SB 743 Implementation Regional Guidelines (Fresno COG/LSA 2021) and that guidance is used in this memorandum.

## PROJECT DESCRIPTION

The project site is located within the City of Kerman Sphere of Influence but is currently outside city limits on the east side of south Modoc Avenue between West Kearney Boulevard and West California Avenue. The proposed project consist of single family and multifamily residential units to be built in three phases. Phase I pertains to the 20-acre parcel identified as APN 020-160-36S; Phase II and Phase III will be built later each on 20 acres of land. Phase I if the project proposes following development:

- ✓ 118-unit Single Family Residential Units
- ✓ 56 Units Multifamily Residential Units

## TRIP GENERATION

The first step in the VMT analysis is to determine project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition). The considerations described above led to the recommended trip generation for weekday AM (7:00-9:00am) and PM (4:00-6:00pm) peak hours shown in Exhibit 1.

## VMT SCREENING ANALYSIS

According to the Fresno County SB 743 guidelines, residential developments may be screened if they generate less than 500 daily trips or if they are in a low VMT area per the Fresno COG regional travel model. Following is analysis of these two issues:

- ✓ The project is expected to generate 1,608 trips per Exhibit 1. Therefore, it is not screened due to generation of less than 500 daily trips.

- ✓ According to Fresno COG's VMT Screening Application available on Fresno COG's website and based on data from the regional travel model, the project site is located in a Traffic Analysis Zone (TAZ) that has a medium level of VMT generation. Therefore, the project is not screened out due to location in a low VMT area.

## VMT ANALYSIS METHODOLOGY

Fresno COG's VMT screening process recommends that land developments that generate less than 500 daily trips be screened out of requiring a VMT analysis. This threshold was based on analysis of GHG emissions which are highly correlated to VMT. The methodology used to determine Fresno COG's screening threshold was applied to the proposed project to determine whether it would have a less than significant VMT impact using the methodology that Fresno COG used in developing the screening threshold.

The determination of the screening threshold for which detailed VMT analysis is not required is based on the analysis on page 11 of the Fresno County SB 743 Implementation Regional Guidelines (Fresno COG 2021). The Fresno COG screening guidelines reference a GHG emission threshold of 3,000 metric tons of carbon dioxide equivalent per year. Fresno COG then uses a generalized assumption that 50% of the GHG emissions from a land development result from vehicle emissions. This allows Fresno COG to relate the threshold of 3,000 metric tons of carbon dioxide per year to size expressed in terms of VMT generated per day and daily trip generation.

For the project, the GHG threshold of 3,000 metric tons of carbon dioxide per year from the Fresno COG guidance was used, but instead of using a generalized assumption that 50% of GHG emissions from a land development result from vehicle emissions, the CalEEMod air quality analysis model was used to determine VMT generation specific to the residential portion of the Project. This analysis is described in the section that follows.

**VMT ANALYSIS**

The VMT analysis was conducted as follows:

- ✓ A GHG emission threshold of significance of 3,000 was used as the starting point of the analysis.

- ✓ The CalEEMod air quality analysis model was run for the project, resulting in an estimate that 1,470 metric tons of carbon dioxide would be produced by vehicle trips associated with this project (see Section 4.1 of the attached CalEEMod report). In addition, it was estimated and that this would account for 75% of residential GHG (see Section 2.2 of the attached CalEEMod report).

- ✓ Since project GHG emissions produced by vehicles are 1,460 metric tons per year, residential GHG emissions would be 1,960 metric tons per year (1,460 divided by 0.75).

- ✓ With estimated annual GHG emissions of 1,960 metric tons per year, the project falls below the threshold of 3,000 metric tons per that would cause a VMT impact.

The project can be presumed to have a less than significant VMT impact. No further analysis is needed and no mitigation measures are required.

**SUMMARY OF RESULTS AND CONCLUSIONS**

Following is a summary of results and conclusions:

- ✓ The VMT analysis was conducted per Fresno COG’s SB 743 guidelines.

- ✓ A screening process was conducted and it was determined that the project was not screened out of the requirement to do a VMT analysis.

- ✓ A VMT analysis was conducted for the residential portion of the project and it was found to generate 1,970 metric tons of GHG emissions per year as compared to a threshold value used by Fresno COG of 3,000 metric tons per year. The project was therefore presumed to have a less than significant VMT impact.

- ✓ No mitigation measures are required.

Please contact me if you have any questions. I can be reached by email at eruehr@vrpatechnologies.com or by phone at 858/361-7151.

# Table 3-1

## Whispering Falls Residential Development

### Trip generation

| LAND USE (ITE LAND USE CODE) | QUANTITY (DWELLING UNITS OR 1,000 | DAILY TRIP ENDS (ADT) | | WEEKDAY AM PEAK HOUR | | | | | WEEKDAY PM PEAK HOUR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RATE | VOLUME | RATE | IN:OUT SPLIT | VOLUME | | | RATE | IN:OUT SPLIT | VOLUME | | |
| | | | | | | IN | OUT | TOTAL | | | IN | OUT | TOTAL |
| Single Family Residential Residential (210) | 118 | 9.94 | 1,175 | 0.73 | 25:75 | 22 | 65 | 87 | 0.98 | 63:37 | 73 | 43 | 116 |
| Multi Family Residential (Low Rise) (220) | 56.0 | 7.75 | 434 | 0.78 | 24:76 | 10 | 33 | 44 | 1.03 | 63:37 | 36 | 22 | 58 |
| **SUBTOTAL TRIP GENERATION** | | | **1,608** | | | **32** | **99** | **132** | | | **109** | **65** | **173** |

Note: Trip generation rates are based on ITE Trip Generation Manual 11th edition fitted curve trip end volumes.

# ATTACHMENT

## CALEEMOD MODEL RUN RESULTS

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

# Whispering Falls Project

## San Joaquin Valley Unified APCD Air District, Annual

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Mid Rise | 56.00 | Dwelling Unit | 10.00 | 56,000.00 | 178 |
| Single Family Housing | 118.00 | Dwelling Unit | 50.00 | 212,400.00 | 374 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.7 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2025 |
| **Utility Company** | Pacific Gas and Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 203.98 | **CH4 Intensity (lb/MWhr)** | 0.033 | **N2O Intensity (lb/MWhr)** | 0.004 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot Acreage as per Project Description

Road Dust -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 1.47 | 10.00 |
| tblLandUse | LotAcreage | 38.31 | 50.00 |
| tblWoodstoves | NumberCatalytic | 10.00 | 0.00 |
| tblWoodstoves | NumberNoncatalytic | 10.00 | 0.00 |

## 2.0 Emissions Summary

## 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2023 | 0.0851 | 0.7944 | 0.7286 | 1.4500e-003 | 0.0633 | 0.0368 | 0.1002 | 0.0195 | 0.0343 | 0.0538 | 0.0000 | 127.5635 | 127.5635 | 0.0351 | 1.0000e-004 | 128.4708 |
| 2024 | 0.3300 | 3.1163 | 2.9508 | 6.3000e-003 | 0.9291 | 0.1320 | 1.0611 | 0.4034 | 0.1222 | 0.5256 | 0.0000 | 555.0161 | 555.0161 | 0.1497 | 4.1900e-003 | 560.0071 |
| 2025 | 0.2101 | 1.7545 | 2.3624 | 4.7100e-003 | 0.1030 | 0.0700 | 0.1730 | 0.0278 | 0.0658 | 0.0936 | 0.0000 | 415.6714 | 415.6714 | 0.0731 | 8.6700e-003 | 420.0823 |
| 2026 | 0.2081 | 1.7520 | 2.3479 | 4.6800e-003 | 0.1030 | 0.0700 | 0.1730 | 0.0278 | 0.0658 | 0.0936 | 0.0000 | 413.2870 | 413.2870 | 0.0729 | 8.4200e-003 | 417.6205 |
| 2027 | 0.2063 | 1.7498 | 2.3347 | 4.6500e-003 | 0.1030 | 0.0699 | 0.1730 | 0.0278 | 0.0658 | 0.0936 | 0.0000 | 410.9204 | 410.9204 | 0.0728 | 8.1900e-003 | 415.1799 |
| 2028 | 0.1889 | 1.6262 | 2.2439 | 4.3200e-003 | 0.0866 | 0.0668 | 0.1534 | 0.0233 | 0.0627 | 0.0860 | 0.0000 | 382.1401 | 382.1401 | 0.0746 | 6.5300e-003 | 385.9497 |
| 2029 | 2.5397 | 0.1598 | 0.2790 | 4.7000e-004 | 6.7200e-003 | 7.6100e-003 | 0.0143 | 1.7800e-003 | 7.1500e-003 | 8.9400e-003 | 0.0000 | 41.3580 | 41.3580 | 9.3600e-003 | 1.1000e-004 | 41.6246 |
| **Maximum** | **2.5397** | **3.1163** | **2.9508** | **6.3000e-003** | **0.9291** | **0.1320** | **1.0611** | **0.4034** | **0.1222** | **0.5256** | **0.0000** | **555.0161** | **555.0161** | **0.1497** | **8.6700e-003** | **560.0071** |

## 2.1 Overall Construction

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2023 | 0.0851 | 0.7944 | 0.7286 | 1.4500e-003 | 0.0633 | 0.0368 | 0.1002 | 0.0195 | 0.0343 | 0.0538 | 0.0000 | 127.5634 | 127.5634 | 0.0351 | 1.0000e-004 | 128.4707 |
| 2024 | 0.3300 | 3.1163 | 2.9508 | 6.3000e-003 | 0.9291 | 0.1320 | 1.0611 | 0.4034 | 0.1222 | 0.5256 | 0.0000 | 555.0155 | 555.0155 | 0.1497 | 4.1900e-003 | 560.0065 |
| 2025 | 0.2101 | 1.7544 | 2.3624 | 4.7100e-003 | 0.1030 | 0.0700 | 0.1730 | 0.0278 | 0.0658 | 0.0936 | 0.0000 | 415.6710 | 415.6710 | 0.0731 | 8.6700e-003 | 420.0819 |
| 2026 | 0.2081 | 1.7520 | 2.3479 | 4.6800e-003 | 0.1030 | 0.0700 | 0.1730 | 0.0278 | 0.0658 | 0.0936 | 0.0000 | 413.2867 | 413.2867 | 0.0729 | 8.4200e-003 | 417.6201 |
| 2027 | 0.2063 | 1.7498 | 2.3347 | 4.6500e-003 | 0.1030 | 0.0699 | 0.1730 | 0.0278 | 0.0658 | 0.0936 | 0.0000 | 410.9200 | 410.9200 | 0.0728 | 8.1900e-003 | 415.1795 |
| 2028 | 0.1889 | 1.6262 | 2.2439 | 4.3200e-003 | 0.0866 | 0.0668 | 0.1534 | 0.0233 | 0.0627 | 0.0860 | 0.0000 | 382.1398 | 382.1398 | 0.0746 | 6.5300e-003 | 385.9494 |
| 2029 | 2.5397 | 0.1598 | 0.2790 | 4.7000e-004 | 6.7200e-003 | 7.6100e-003 | 0.0143 | 1.7800e-003 | 7.1500e-003 | 8.9400e-003 | 0.0000 | 41.3580 | 41.3580 | 9.3600e-003 | 1.1000e-004 | 41.6245 |
| **Maximum** | **2.5397** | **3.1163** | **2.9508** | **6.3000e-003** | **0.9291** | **0.1320** | **1.0611** | **0.4034** | **0.1222** | **0.5256** | **0.0000** | **555.0155** | **555.0155** | **0.1497** | **8.6700e-003** | **560.0065** |

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

| **Quarter** | **Start Date** | **End Date** | **Maximum Unmitigated ROG + NOX (tons/quarter)** | **Maximum Mitigated ROG + NOX (tons/quarter)** |
|---|---|---|---|---|
| **1** | **9-20-2023** | **12-19-2023** | 0.7747 | 0.7747 |
| **2** | **12-20-2023** | **3-19-2024** | 1.0157 | 1.0157 |
| **3** | **3-20-2024** | **6-19-2024** | 1.1729 | 1.1729 |
| **4** | **6-20-2024** | **9-19-2024** | 0.7682 | 0.7682 |

## EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

| | | | | |
|---|---|---|---|---|
| **5** | **9-20-2024** | **12-19-2024** | 0.5267 | 0.5267 |
| **6** | **12-20-2024** | **3-19-2025** | 0.4900 | 0.4900 |
| **7** | **3-20-2025** | **6-19-2025** | 0.4945 | 0.4945 |
| **8** | **6-20-2025** | **9-19-2025** | 0.4943 | 0.4943 |
| **9** | **9-20-2025** | **12-19-2025** | 0.4904 | 0.4904 |
| **10** | **12-20-2025** | **3-19-2026** | 0.4842 | 0.4842 |
| **11** | **3-20-2026** | **6-19-2026** | 0.4933 | 0.4933 |
| **12** | **6-20-2026** | **9-19-2026** | 0.4931 | 0.4931 |
| **13** | **9-20-2026** | **12-19-2026** | 0.4892 | 0.4892 |
| **14** | **12-20-2026** | **3-19-2027** | 0.4831 | 0.4831 |
| **15** | **3-20-2027** | **6-19-2027** | 0.4922 | 0.4922 |
| **16** | **6-20-2027** | **9-19-2027** | 0.4920 | 0.4920 |
| **17** | **9-20-2027** | **12-19-2027** | 0.4881 | 0.4881 |
| **18** | **12-20-2027** | **3-19-2028** | 0.4876 | 0.4876 |
| **19** | **3-20-2028** | **6-19-2028** | 0.4913 | 0.4913 |
| **20** | **6-20-2028** | **9-19-2028** | 0.4911 | 0.4911 |
| **21** | **9-20-2028** | **12-19-2028** | 0.3783 | 0.3783 |
| **22** | **12-20-2028** | **3-19-2029** | 1.1709 | 1.1709 |
| **23** | **3-20-2029** | **6-19-2029** | 1.5669 | 1.5669 |
| | | **Highest** | 1.5669 | 1.5669 |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 1.4668 | 0.0978 | 2.4104 | 4.0500e-003 | | 0.1906 | 0.1906 | | 0.1906 | 0.1906 | 23.8521 | 77.4885 | 101.3406 | 0.1150 | 1.3800e-003 | 104.6266 |
| Energy | 0.0189 | 0.1611 | 0.0686 | 1.0300e-003 | | 0.0130 | 0.0130 | | 0.0130 | 0.0130 | 0.0000 | 294.0647 | 294.0647 | 0.0210 | 5.5300e-003 | 296.2363 |
| Mobile | 0.6670 | 1.1913 | 6.2855 | 0.0153 | 1.5116 | 0.0137 | 1.5252 | 0.4045 | 0.0128 | 0.4173 | 0.0000 | 1,444.5450 | 1,444.5450 | 0.0734 | 0.0796 | 1,470.0909 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 33.7939 | 0.0000 | 33.7939 | 1.9972 | 0.0000 | 83.7230 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 3.5966 | 7.9902 | 11.5868 | 0.3707 | 8.8800e-003 | 23.5004 |
| **Total** | **2.1526** | **1.4502** | **8.7644** | **0.0203** | **1.5116** | **0.2172** | **1.7288** | **0.4045** | **0.2164** | **0.6209** | **61.2427** | **1,824.0884** | **1,885.3310** | **2.5772** | **0.0954** | **1,978.1772** |

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 1.4668 | 0.0978 | 2.4104 | 4.0500e-003 | | 0.1906 | 0.1906 | | 0.1906 | 0.1906 | 23.8521 | 77.4885 | 101.3406 | 0.1150 | 1.3800e-003 | 104.6266 |
| Energy | 0.0189 | 0.1611 | 0.0686 | 1.0300e-003 | | 0.0130 | 0.0130 | | 0.0130 | 0.0130 | 0.0000 | 294.0647 | 294.0647 | 0.0210 | 5.5300e-003 | 296.2363 |
| Mobile | 0.6670 | 1.1913 | 6.2855 | 0.0153 | 1.5116 | 0.0137 | 1.5252 | 0.4045 | 0.0128 | 0.4173 | 0.0000 | 1,444.5450 | 1,444.5450 | 0.0734 | 0.0796 | 1,470.0909 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 33.7939 | 0.0000 | 33.7939 | 1.9972 | 0.0000 | 83.7230 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 3.5966 | 7.9902 | 11.5868 | 0.3707 | 8.8800e-003 | 23.5004 |
| **Total** | **2.1526** | **1.4502** | **8.7644** | **0.0203** | **1.5116** | **0.2172** | **1.7288** | **0.4045** | **0.2164** | **0.6209** | **61.2427** | **1,824.0884** | **1,885.3310** | **2.5772** | **0.0954** | **1,978.1772** |

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

# 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 9/20/2023 | 12/26/2023 | 5 | 70 | |
| 2 | Site Preparation | Site Preparation | 12/27/2023 | 2/20/2024 | 5 | 40 | |
| 3 | Grading | Grading | 2/21/2024 | 7/23/2024 | 5 | 110 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | Building Construction | Building Construction | 7/24/2024 | 10/24/2028 | 5 | 1110 | |
| 5 | Paving | Paving | 10/25/2028 | 2/6/2029 | 5 | 75 | |
| 6 | Architectural Coating | Architectural Coating | 2/7/2029 | 5/22/2029 | 5 | 75 | |

**Acres of Grading (Site Preparation Phase): 60**

**Acres of Grading (Grading Phase): 330**

**Acres of Paving: 0**

**Residential Indoor: 543,510; Residential Outdoor: 181,170; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

## OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Building Construction | Cranes | 1 | 7.00 | 231 | 0.29 |
| Demolition | Excavators | 3 | 8.00 | 158 | 0.38 |
| Grading | Excavators | 2 | 8.00 | 158 | 0.38 |
| Building Construction | Forklifts | 3 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 2 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 2 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Demolition | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 247 | 0.40 |
| Grading | Scrapers | 2 | 8.00 | 367 | 0.48 |
| Building Construction | Tractors/Loaders/Backhoes | 3 | 7.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |

| | | | | | |
|---|---|---|---|---|---|
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Building Construction | Welders | 1 | 8.00 | 46 | 0.45 |

## Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 8 | 20.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 9 | 83.00 | 19.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 17.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2023

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0794 | 0.7520 | 0.6875 | 1.3600e-003 | | 0.0349 | 0.0349 | | 0.0325 | 0.0325 | 0.0000 | 118.9722 | 118.9722 | 0.0333 | 0.0000 | 119.8052 |
| **Total** | **0.0794** | **0.7520** | **0.6875** | **1.3600e-003** | | **0.0349** | **0.0349** | | **0.0325** | **0.0325** | **0.0000** | **118.9722** | **118.9722** | **0.0333** | **0.0000** | **119.8052** |

## 3.2 Demolition - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.6500e-003 | 1.1100e-003 | 0.0131 | 4.0000e-005 | 4.2000e-003 | 2.0000e-005 | 4.2200e-003 | 1.1200e-003 | 2.0000e-005 | 1.1400e-003 | 0.0000 | 3.3989 | 3.3989 | 1.1000e-004 | 1.0000e-004 | 3.4310 |
| **Total** | **1.6500e-003** | **1.1100e-003** | **0.0131** | **4.0000e-005** | **4.2000e-003** | **2.0000e-005** | **4.2200e-003** | **1.1200e-003** | **2.0000e-005** | **1.1400e-003** | **0.0000** | **3.3989** | **3.3989** | **1.1000e-004** | **1.0000e-004** | **3.4310** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0794 | 0.7520 | 0.6875 | 1.3600e-003 | | 0.0349 | 0.0349 | | 0.0325 | 0.0325 | 0.0000 | 118.9721 | 118.9721 | 0.0333 | 0.0000 | 119.8051 |
| **Total** | **0.0794** | **0.7520** | **0.6875** | **1.3600e-003** | | **0.0349** | **0.0349** | | **0.0325** | **0.0325** | **0.0000** | **118.9721** | **118.9721** | **0.0333** | **0.0000** | **119.8051** |

## 3.2 Demolition - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.6500e-003 | 1.1100e-003 | 0.0131 | 4.0000e-005 | 4.2000e-003 | 2.0000e-005 | 4.2200e-003 | 1.1200e-003 | 2.0000e-005 | 1.1400e-003 | 0.0000 | 3.3989 | 3.3989 | 1.1000e-004 | 1.0000e-004 | 3.4310 |
| **Total** | **1.6500e-003** | **1.1100e-003** | **0.0131** | **4.0000e-005** | **4.2000e-003** | **2.0000e-005** | **4.2200e-003** | **1.1200e-003** | **2.0000e-005** | **1.1400e-003** | **0.0000** | **3.3989** | **3.3989** | **1.1000e-004** | **1.0000e-004** | **3.4310** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0589 | 0.0000 | 0.0589 | 0.0183 | 0.0000 | 0.0183 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.9900e-003 | 0.0413 | 0.0274 | 6.0000e-005 | | 1.9000e-003 | 1.9000e-003 | | 1.7500e-003 | 1.7500e-003 | 0.0000 | 5.0176 | 5.0176 | 1.6200e-003 | 0.0000 | 5.0582 |
| **Total** | **3.9900e-003** | **0.0413** | **0.0274** | **6.0000e-005** | **0.0589** | **1.9000e-003** | **0.0608** | **0.0183** | **1.7500e-003** | **0.0201** | **0.0000** | **5.0176** | **5.0176** | **1.6200e-003** | **0.0000** | **5.0582** |

## 3.3 Site Preparation - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.0000e-005 | 6.0000e-005 | 6.7000e-004 | 0.0000 | 2.2000e-004 | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.1748 | 0.1748 | 1.0000e-005 | 1.0000e-005 | 0.1765 |
| **Total** | **8.0000e-005** | **6.0000e-005** | **6.7000e-004** | **0.0000** | **2.2000e-004** | **0.0000** | **2.2000e-004** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **0.0000** | **0.1748** | **0.1748** | **1.0000e-005** | **1.0000e-005** | **0.1765** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0589 | 0.0000 | 0.0589 | 0.0183 | 0.0000 | 0.0183 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.9900e-003 | 0.0413 | 0.0274 | 6.0000e-005 | | 1.9000e-003 | 1.9000e-003 | | 1.7500e-003 | 1.7500e-003 | 0.0000 | 5.0176 | 5.0176 | 1.6200e-003 | 0.0000 | 5.0582 |
| **Total** | **3.9900e-003** | **0.0413** | **0.0274** | **6.0000e-005** | **0.0589** | **1.9000e-003** | **0.0608** | **0.0183** | **1.7500e-003** | **0.0201** | **0.0000** | **5.0176** | **5.0176** | **1.6200e-003** | **0.0000** | **5.0582** |

## 3.3 Site Preparation - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.0000e-005 | 6.0000e-005 | 6.7000e-004 | 0.0000 | 2.2000e-004 | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.1748 | 0.1748 | 1.0000e-005 | 1.0000e-005 | 0.1765 |
| **Total** | **8.0000e-005** | **6.0000e-005** | **6.7000e-004** | **0.0000** | **2.2000e-004** | **0.0000** | **2.2000e-004** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **0.0000** | **0.1748** | **0.1748** | **1.0000e-005** | **1.0000e-005** | **0.1765** |

## 3.3 Site Preparation - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.3660 | 0.0000 | 0.3660 | 0.1872 | 0.0000 | 0.1872 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0492 | 0.5028 | 0.3392 | 7.0000e-004 | | 0.0227 | 0.0227 | | 0.0209 | 0.0209 | 0.0000 | 61.8956 | 61.8956 | 0.0200 | 0.0000 | 62.3960 |
| **Total** | **0.0492** | **0.5028** | **0.3392** | **7.0000e-004** | **0.3660** | **0.0227** | **0.3888** | **0.1872** | **0.0209** | **0.2081** | **0.0000** | **61.8956** | **61.8956** | **0.0200** | **0.0000** | **62.3960** |

## 3.3 Site Preparation - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.6000e-004 | 6.2000e-004 | 7.6600e-003 | 2.0000e-005 | 2.6600e-003 | 1.0000e-005 | 2.6800e-003 | 7.1000e-004 | 1.0000e-005 | 7.2000e-004 | 0.0000 | 2.1018 | 2.1018 | 6.0000e-005 | 6.0000e-005 | 2.1206 |
| **Total** | **9.6000e-004** | **6.2000e-004** | **7.6600e-003** | **2.0000e-005** | **2.6600e-003** | **1.0000e-005** | **2.6800e-003** | **7.1000e-004** | **1.0000e-005** | **7.2000e-004** | **0.0000** | **2.1018** | **2.1018** | **6.0000e-005** | **6.0000e-005** | **2.1206** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.3660 | 0.0000 | 0.3660 | 0.1872 | 0.0000 | 0.1872 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0492 | 0.5028 | 0.3392 | 7.0000e-004 | | 0.0227 | 0.0227 | | 0.0209 | 0.0209 | 0.0000 | 61.8955 | 61.8955 | 0.0200 | 0.0000 | 62.3960 |
| **Total** | **0.0492** | **0.5028** | **0.3392** | **7.0000e-004** | **0.3660** | **0.0227** | **0.3888** | **0.1872** | **0.0209** | **0.2081** | **0.0000** | **61.8955** | **61.8955** | **0.0200** | **0.0000** | **62.3960** |

### 3.3 Site Preparation - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.6000e-004 | 6.2000e-004 | 7.6600e-003 | 2.0000e-005 | 2.6600e-003 | 1.0000e-005 | 2.6800e-003 | 7.1000e-004 | 1.0000e-005 | 7.2000e-004 | 0.0000 | 2.1018 | 2.1018 | 6.0000e-005 | 6.0000e-005 | 2.1206 |
| **Total** | **9.6000e-004** | **6.2000e-004** | **7.6600e-003** | **2.0000e-005** | **2.6600e-003** | **1.0000e-005** | **2.6800e-003** | **7.1000e-004** | **1.0000e-005** | **7.2000e-004** | **0.0000** | **2.1018** | **2.1018** | **6.0000e-005** | **6.0000e-005** | **2.1206** |

### 3.4 Grading - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.5062 | 0.0000 | 0.5062 | 0.2010 | 0.0000 | 0.2010 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.1770 | 1.7807 | 1.5248 | 3.4100e-003 | | 0.0735 | 0.0735 | | 0.0676 | 0.0676 | 0.0000 | 299.8574 | 299.8574 | 0.0970 | 0.0000 | 302.2819 |
| **Total** | **0.1770** | **1.7807** | **1.5248** | **3.4100e-003** | **0.5062** | **0.0735** | **0.5797** | **0.2010** | **0.0676** | **0.2685** | **0.0000** | **299.8574** | **299.8574** | **0.0970** | **0.0000** | **302.2819** |

## 3.4 Grading - 2024

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.1800e-003 | 2.0400e-003 | 0.0253 | 7.0000e-005 | 8.7900e-003 | 4.0000e-005 | 8.8400e-003 | 2.3400e-003 | 4.0000e-005 | 2.3800e-003 | 0.0000 | 6.9429 | 6.9429 | 2.0000e-004 | 1.9000e-004 | 7.0049 |
| **Total** | **3.1800e-003** | **2.0400e-003** | **0.0253** | **7.0000e-005** | **8.7900e-003** | **4.0000e-005** | **8.8400e-003** | **2.3400e-003** | **4.0000e-005** | **2.3800e-003** | **0.0000** | **6.9429** | **6.9429** | **2.0000e-004** | **1.9000e-004** | **7.0049** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.5062 | 0.0000 | 0.5062 | 0.2010 | 0.0000 | 0.2010 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.1770 | 1.7807 | 1.5248 | 3.4100e-003 | | 0.0735 | 0.0735 | | 0.0676 | 0.0676 | 0.0000 | 299.8570 | 299.8570 | 0.0970 | 0.0000 | 302.2815 |
| **Total** | **0.1770** | **1.7807** | **1.5248** | **3.4100e-003** | **0.5062** | **0.0735** | **0.5797** | **0.2010** | **0.0676** | **0.2685** | **0.0000** | **299.8570** | **299.8570** | **0.0970** | **0.0000** | **302.2815** |

## 3.4 Grading - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.1800e-003 | 2.0400e-003 | 0.0253 | 7.0000e-005 | 8.7900e-003 | 4.0000e-005 | 8.8400e-003 | 2.3400e-003 | 4.0000e-005 | 2.3800e-003 | 0.0000 | 6.9429 | 6.9429 | 2.0000e-004 | 1.9000e-004 | 7.0049 |
| **Total** | **3.1800e-003** | **2.0400e-003** | **0.0253** | **7.0000e-005** | **8.7900e-003** | **4.0000e-005** | **8.8400e-003** | **2.3400e-003** | **4.0000e-005** | **2.3800e-003** | **0.0000** | **6.9429** | **6.9429** | **2.0000e-004** | **1.9000e-004** | **7.0049** |

## 3.5 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0846 | 0.7730 | 0.9296 | 1.5500e-003 | | 0.0353 | 0.0353 | | 0.0332 | 0.0332 | 0.0000 | 133.3132 | 133.3132 | 0.0315 | 0.0000 | 134.1014 |
| **Total** | **0.0846** | **0.7730** | **0.9296** | **1.5500e-003** | | **0.0353** | **0.0353** | | **0.0332** | **0.0332** | **0.0000** | **133.3132** | **133.3132** | **0.0315** | **0.0000** | **134.1014** |

## 3.5 Building Construction - 2024

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.1700e-003 | 0.0483 | 0.0144 | 2.2000e-004 | 7.2400e-003 | 3.1000e-004 | 7.5600e-003 | 2.0900e-003 | 3.0000e-004 | 2.3900e-003 | 0.0000 | 20.7824 | 20.7824 | 9.0000e-005 | 3.1100e-003 | 21.7107 |
| Worker | 0.0138 | 8.8500e-003 | 0.1098 | 3.2000e-004 | 0.0382 | 1.9000e-004 | 0.0384 | 0.0101 | 1.8000e-004 | 0.0103 | 0.0000 | 30.1228 | 30.1228 | 8.6000e-004 | 8.3000e-004 | 30.3917 |
| **Total** | **0.0150** | **0.0572** | **0.1242** | **5.4000e-004** | **0.0454** | **5.0000e-004** | **0.0459** | **0.0122** | **4.8000e-004** | **0.0127** | **0.0000** | **50.9052** | **50.9052** | **9.5000e-004** | **3.9400e-003** | **52.1024** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0846 | 0.7730 | 0.9296 | 1.5500e-003 | | 0.0353 | 0.0353 | | 0.0332 | 0.0332 | 0.0000 | 133.3131 | 133.3131 | 0.0315 | 0.0000 | 134.1012 |
| **Total** | **0.0846** | **0.7730** | **0.9296** | **1.5500e-003** | | **0.0353** | **0.0353** | | **0.0332** | **0.0332** | **0.0000** | **133.3131** | **133.3131** | **0.0315** | **0.0000** | **134.1012** |

## 3.5 Building Construction - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 1.1700e-003 | 0.0483 | 0.0144 | 2.2000e-004 | 7.2400e-003 | 3.1000e-004 | 7.5600e-003 | 2.0900e-003 | 3.0000e-004 | 2.3900e-003 | 0.0000 | 20.7824 | 20.7824 | 9.0000e-005 | 3.1100e-003 | 21.7107 |
| Worker | 0.0138 | 8.8500e-003 | 0.1098 | 3.2000e-004 | 0.0382 | 1.9000e-004 | 0.0384 | 0.0101 | 1.8000e-004 | 0.0103 | 0.0000 | 30.1228 | 30.1228 | 8.6000e-004 | 8.3000e-004 | 30.3917 |
| **Total** | **0.0150** | **0.0572** | **0.1242** | **5.4000e-004** | **0.0454** | **5.0000e-004** | **0.0459** | **0.0122** | **4.8000e-004** | **0.0127** | **0.0000** | **50.9052** | **50.9052** | **9.5000e-004** | **3.9400e-003** | **52.1024** |

## 3.5 Building Construction - 2025

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1785 | 1.6273 | 2.0991 | 3.5200e-003 | | 0.0689 | 0.0689 | | 0.0648 | 0.0648 | 0.0000 | 302.6549 | 302.6549 | 0.0711 | 0.0000 | 304.4335 |
| **Total** | **0.1785** | **1.6273** | **2.0991** | **3.5200e-003** | | **0.0689** | **0.0689** | | **0.0648** | **0.0648** | **0.0000** | **302.6549** | **302.6549** | **0.0711** | **0.0000** | **304.4335** |

## 3.5 Building Construction - 2025

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.6000e-003 | 0.1093 | 0.0321 | 4.8000e-004 | 0.0164 | 7.1000e-004 | 0.0172 | 4.7500e-003 | 6.8000e-004 | 5.4300e-003 | 0.0000 | 46.3083 | 46.3083 | 1.9000e-004 | 6.9200e-003 | 48.3749 |
| Worker | 0.0291 | 0.0179 | 0.2313 | 7.1000e-004 | 0.0866 | 4.1000e-004 | 0.0870 | 0.0230 | 3.8000e-004 | 0.0234 | 0.0000 | 66.7082 | 66.7082 | 1.7700e-003 | 1.7500e-003 | 67.2739 |
| **Total** | **0.0317** | **0.1272** | **0.2633** | **1.1900e-003** | **0.1030** | **1.1200e-003** | **0.1042** | **0.0278** | **1.0600e-003** | **0.0288** | **0.0000** | **113.0165** | **113.0165** | **1.9600e-003** | **8.6700e-003** | **115.6488** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1784 | 1.6273 | 2.0991 | 3.5200e-003 | | 0.0689 | 0.0689 | | 0.0648 | 0.0648 | 0.0000 | 302.6545 | 302.6545 | 0.0711 | 0.0000 | 304.4331 |
| **Total** | **0.1784** | **1.6273** | **2.0991** | **3.5200e-003** | | **0.0689** | **0.0689** | | **0.0648** | **0.0648** | **0.0000** | **302.6545** | **302.6545** | **0.0711** | **0.0000** | **304.4331** |

## 3.5 Building Construction - 2025

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.6000e-003 | 0.1093 | 0.0321 | 4.8000e-004 | 0.0164 | 7.1000e-004 | 0.0172 | 4.7500e-003 | 6.8000e-004 | 5.4300e-003 | 0.0000 | 46.3083 | 46.3083 | 1.9000e-004 | 6.9200e-003 | 48.3749 |
| Worker | 0.0291 | 0.0179 | 0.2313 | 7.1000e-004 | 0.0866 | 4.1000e-004 | 0.0870 | 0.0230 | 3.8000e-004 | 0.0234 | 0.0000 | 66.7082 | 66.7082 | 1.7700e-003 | 1.7500e-003 | 67.2739 |
| **Total** | **0.0317** | **0.1272** | **0.2633** | **1.1900e-003** | **0.1030** | **1.1200e-003** | **0.1042** | **0.0278** | **1.0600e-003** | **0.0288** | **0.0000** | **113.0165** | **113.0165** | **1.9600e-003** | **8.6700e-003** | **115.6488** |

## 3.5 Building Construction - 2026

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1785 | 1.6273 | 2.0991 | 3.5200e-003 | | 0.0689 | 0.0689 | | 0.0648 | 0.0648 | 0.0000 | 302.6549 | 302.6549 | 0.0711 | 0.0000 | 304.4335 |
| **Total** | **0.1785** | **1.6273** | **2.0991** | **3.5200e-003** | | **0.0689** | **0.0689** | | **0.0648** | **0.0648** | **0.0000** | **302.6549** | **302.6549** | **0.0711** | **0.0000** | **304.4335** |

## 3.5 Building Construction - 2026

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.5500e-003 | 0.1087 | 0.0315 | 4.7000e-004 | 0.0164 | 7.1000e-004 | 0.0172 | 4.7500e-003 | 6.8000e-004 | 5.4300e-003 | 0.0000 | 45.4378 | 45.4378 | 1.8000e-004 | 6.7800e-003 | 47.4636 |
| Worker | 0.0271 | 0.0160 | 0.2174 | 6.8000e-004 | 0.0866 | 4.0000e-004 | 0.0870 | 0.0230 | 3.6000e-004 | 0.0234 | 0.0000 | 65.1943 | 65.1943 | 1.6000e-003 | 1.6400e-003 | 65.7234 |
| **Total** | **0.0296** | **0.1247** | **0.2489** | **1.1500e-003** | **0.1030** | **1.1100e-003** | **0.1041** | **0.0278** | **1.0400e-003** | **0.0288** | **0.0000** | **110.6322** | **110.6322** | **1.7800e-003** | **8.4200e-003** | **113.1870** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1784 | 1.6273 | 2.0991 | 3.5200e-003 | | 0.0689 | 0.0689 | | 0.0648 | 0.0648 | 0.0000 | 302.6545 | 302.6545 | 0.0711 | 0.0000 | 304.4331 |
| **Total** | **0.1784** | **1.6273** | **2.0991** | **3.5200e-003** | | **0.0689** | **0.0689** | | **0.0648** | **0.0648** | **0.0000** | **302.6545** | **302.6545** | **0.0711** | **0.0000** | **304.4331** |

## 3.5 Building Construction - 2026

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.5500e-003 | 0.1087 | 0.0315 | 4.7000e-004 | 0.0164 | 7.1000e-004 | 0.0172 | 4.7500e-003 | 6.8000e-004 | 5.4300e-003 | 0.0000 | 45.4378 | 45.4378 | 1.8000e-004 | 6.7800e-003 | 47.4636 |
| Worker | 0.0271 | 0.0160 | 0.2174 | 6.8000e-004 | 0.0866 | 4.0000e-004 | 0.0870 | 0.0230 | 3.6000e-004 | 0.0234 | 0.0000 | 65.1943 | 65.1943 | 1.6000e-003 | 1.6400e-003 | 65.7234 |
| **Total** | **0.0296** | **0.1247** | **0.2489** | **1.1500e-003** | **0.1030** | **1.1100e-003** | **0.1041** | **0.0278** | **1.0400e-003** | **0.0288** | **0.0000** | **110.6322** | **110.6322** | **1.7800e-003** | **8.4200e-003** | **113.1870** |

## 3.5 Building Construction - 2027

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1785 | 1.6273 | 2.0991 | 3.5200e-003 | | 0.0689 | 0.0689 | | 0.0648 | 0.0648 | 0.0000 | 302.6549 | 302.6549 | 0.0711 | 0.0000 | 304.4335 |
| **Total** | **0.1785** | **1.6273** | **2.0991** | **3.5200e-003** | | **0.0689** | **0.0689** | | **0.0648** | **0.0648** | **0.0000** | **302.6549** | **302.6549** | **0.0711** | **0.0000** | **304.4335** |

## 3.5 Building Construction - 2027

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.5000e-003 | 0.1080 | 0.0310 | 4.6000e-004 | 0.0164 | 7.1000e-004 | 0.0172 | 4.7500e-003 | 6.8000e-004 | 5.4300e-003 | 0.0000 | 44.5079 | 44.5079 | 1.7000e-004 | 6.6400e-003 | 46.4905 |
| Worker | 0.0253 | 0.0145 | 0.2046 | 6.6000e-004 | 0.0866 | 3.7000e-004 | 0.0870 | 0.0230 | 3.4000e-004 | 0.0234 | 0.0000 | 63.7576 | 63.7576 | 1.4600e-003 | 1.5500e-003 | 64.2558 |
| **Total** | **0.0278** | **0.1225** | **0.2357** | **1.1200e-003** | **0.1030** | **1.0800e-003** | **0.1041** | **0.0278** | **1.0200e-003** | **0.0288** | **0.0000** | **108.2655** | **108.2655** | **1.6300e-003** | **8.1900e-003** | **110.7464** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1784 | 1.6273 | 2.0991 | 3.5200e-003 | | 0.0689 | 0.0689 | | 0.0648 | 0.0648 | 0.0000 | 302.6545 | 302.6545 | 0.0711 | 0.0000 | 304.4331 |
| **Total** | **0.1784** | **1.6273** | **2.0991** | **3.5200e-003** | | **0.0689** | **0.0689** | | **0.0648** | **0.0648** | **0.0000** | **302.6545** | **302.6545** | **0.0711** | **0.0000** | **304.4331** |

## 3.5 Building Construction - 2027

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.5000e-003 | 0.1080 | 0.0310 | 4.6000e-004 | 0.0164 | 7.1000e-004 | 0.0172 | 4.7500e-003 | 6.8000e-004 | 5.4300e-003 | 0.0000 | 44.5079 | 44.5079 | 1.7000e-004 | 6.6400e-003 | 46.4905 |
| Worker | 0.0253 | 0.0145 | 0.2046 | 6.6000e-004 | 0.0866 | 3.7000e-004 | 0.0870 | 0.0230 | 3.4000e-004 | 0.0234 | 0.0000 | 63.7576 | 63.7576 | 1.4600e-003 | 1.5500e-003 | 64.2558 |
| **Total** | **0.0278** | **0.1225** | **0.2357** | **1.1200e-003** | **0.1030** | **1.0800e-003** | **0.1041** | **0.0278** | **1.0200e-003** | **0.0288** | **0.0000** | **108.2655** | **108.2655** | **1.6300e-003** | **8.1900e-003** | **110.7464** |

## 3.5 Building Construction - 2028

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1449 | 1.3218 | 1.7050 | 2.8600e-003 | | 0.0559 | 0.0559 | | 0.0526 | 0.0526 | 0.0000 | 245.8346 | 245.8346 | 0.0578 | 0.0000 | 247.2793 |
| **Total** | **0.1449** | **1.3218** | **1.7050** | **2.8600e-003** | | **0.0559** | **0.0559** | | **0.0526** | **0.0526** | **0.0000** | **245.8346** | **245.8346** | **0.0578** | **0.0000** | **247.2793** |

## 3.5 Building Construction - 2028

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.0000e-003 | 0.0873 | 0.0249 | 3.7000e-004 | 0.0134 | 5.7000e-004 | 0.0139 | 3.8600e-003 | 5.4000e-004 | 4.4000e-003 | 0.0000 | 35.4306 | 35.4306 | 1.4000e-004 | 5.2800e-003 | 37.0075 |
| Worker | 0.0192 | 0.0108 | 0.1577 | 5.2000e-004 | 0.0703 | 2.8000e-004 | 0.0706 | 0.0187 | 2.6000e-004 | 0.0190 | 0.0000 | 50.7520 | 50.7520 | 1.0900e-003 | 1.2000e-003 | 51.1358 |
| **Total** | **0.0212** | **0.0980** | **0.1826** | **8.9000e-004** | **0.0837** | **8.5000e-004** | **0.0845** | **0.0226** | **8.0000e-004** | **0.0234** | **0.0000** | **86.1826** | **86.1826** | **1.2300e-003** | **6.4800e-003** | **88.1433** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1449 | 1.3218 | 1.7050 | 2.8600e-003 | | 0.0559 | 0.0559 | | 0.0526 | 0.0526 | 0.0000 | 245.8343 | 245.8343 | 0.0578 | 0.0000 | 247.2790 |
| **Total** | **0.1449** | **1.3218** | **1.7050** | **2.8600e-003** | | **0.0559** | **0.0559** | | **0.0526** | **0.0526** | **0.0000** | **245.8343** | **245.8343** | **0.0578** | **0.0000** | **247.2790** |

## 3.5 Building Construction - 2028

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 2.0000e-003 | 0.0873 | 0.0249 | 3.7000e-004 | 0.0134 | 5.7000e-004 | 0.0139 | 3.8600e-003 | 5.4000e-004 | 4.4000e-003 | 0.0000 | 35.4306 | 35.4306 | 1.4000e-004 | 5.2800e-003 | 37.0075 |
| Worker | 0.0192 | 0.0108 | 0.1577 | 5.2000e-004 | 0.0703 | 2.8000e-004 | 0.0706 | 0.0187 | 2.6000e-004 | 0.0190 | 0.0000 | 50.7520 | 50.7520 | 1.0900e-003 | 1.2000e-003 | 51.1358 |
| **Total** | **0.0212** | **0.0980** | **0.1826** | **8.9000e-004** | **0.0837** | **8.5000e-004** | **0.0845** | **0.0226** | **8.0000e-004** | **0.0234** | **0.0000** | **86.1826** | **86.1826** | **1.2300e-003** | **6.4800e-003** | **88.1433** |

## 3.6 Paving - 2028

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0220 | 0.2060 | 0.3499 | 5.5000e-004 | | 0.0100 | 0.0100 | | 9.2400e-003 | 9.2400e-003 | 0.0000 | 48.0462 | 48.0462 | 0.0155 | 0.0000 | 48.4347 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0220** | **0.2060** | **0.3499** | **5.5000e-004** | | **0.0100** | **0.0100** | | **9.2400e-003** | **9.2400e-003** | **0.0000** | **48.0462** | **48.0462** | **0.0155** | **0.0000** | **48.4347** |

### 3.6 Paving - 2028

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 7.9000e-004 | 4.4000e-004 | 6.4500e-003 | 2.0000e-005 | 2.8800e-003 | 1.0000e-005 | 2.8900e-003 | 7.6000e-004 | 1.0000e-005 | 7.8000e-004 | 0.0000 | 2.0767 | 2.0767 | 4.0000e-005 | 5.0000e-005 | 2.0924 |
| **Total** | **7.9000e-004** | **4.4000e-004** | **6.4500e-003** | **2.0000e-005** | **2.8800e-003** | **1.0000e-005** | **2.8900e-003** | **7.6000e-004** | **1.0000e-005** | **7.8000e-004** | **0.0000** | **2.0767** | **2.0767** | **4.0000e-005** | **5.0000e-005** | **2.0924** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0220 | 0.2060 | 0.3499 | 5.5000e-004 | | 0.0100 | 0.0100 | | 9.2400e-003 | 9.2400e-003 | 0.0000 | 48.0462 | 48.0462 | 0.0155 | 0.0000 | 48.4346 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0220** | **0.2060** | **0.3499** | **5.5000e-004** | | **0.0100** | **0.0100** | | **9.2400e-003** | **9.2400e-003** | **0.0000** | **48.0462** | **48.0462** | **0.0155** | **0.0000** | **48.4346** |

## 3.6 Paving - 2028

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 7.9000e-004 | 4.4000e-004 | 6.4500e-003 | 2.0000e-005 | 2.8800e-003 | 1.0000e-005 | 2.8900e-003 | 7.6000e-004 | 1.0000e-005 | 7.8000e-004 | 0.0000 | 2.0767 | 2.0767 | 4.0000e-005 | 5.0000e-005 | 2.0924 |
| **Total** | **7.9000e-004** | **4.4000e-004** | **6.4500e-003** | **2.0000e-005** | **2.8800e-003** | **1.0000e-005** | **2.8900e-003** | **7.6000e-004** | **1.0000e-005** | **7.8000e-004** | **0.0000** | **2.0767** | **2.0767** | **4.0000e-005** | **5.0000e-005** | **2.0924** |

## 3.6 Paving - 2029

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0124 | 0.1159 | 0.1968 | 3.1000e-004 | | 5.6500e-003 | 5.6500e-003 | | 5.2000e-003 | 5.2000e-003 | 0.0000 | 27.0260 | 27.0260 | 8.7400e-003 | 0.0000 | 27.2445 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0124** | **0.1159** | **0.1968** | **3.1000e-004** | | **5.6500e-003** | **5.6500e-003** | | **5.2000e-003** | **5.2000e-003** | **0.0000** | **27.0260** | **27.0260** | **8.7400e-003** | **0.0000** | **27.2445** |

## 3.6 Paving - 2029

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.1000e-004 | 2.3000e-004 | 3.4600e-003 | 1.0000e-005 | 1.6200e-003 | 1.0000e-005 | 1.6300e-003 | 4.3000e-004 | 1.0000e-005 | 4.4000e-004 | 0.0000 | 1.1469 | 1.1469 | 2.0000e-005 | 3.0000e-005 | 1.1553 |
| **Total** | **4.1000e-004** | **2.3000e-004** | **3.4600e-003** | **1.0000e-005** | **1.6200e-003** | **1.0000e-005** | **1.6300e-003** | **4.3000e-004** | **1.0000e-005** | **4.4000e-004** | **0.0000** | **1.1469** | **1.1469** | **2.0000e-005** | **3.0000e-005** | **1.1553** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0124 | 0.1159 | 0.1968 | 3.1000e-004 | | 5.6500e-003 | 5.6500e-003 | | 5.2000e-003 | 5.2000e-003 | 0.0000 | 27.0260 | 27.0260 | 8.7400e-003 | 0.0000 | 27.2445 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0124** | **0.1159** | **0.1968** | **3.1000e-004** | | **5.6500e-003** | **5.6500e-003** | | **5.2000e-003** | **5.2000e-003** | **0.0000** | **27.0260** | **27.0260** | **8.7400e-003** | **0.0000** | **27.2445** |

## 3.6 Paving - 2029

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.1000e-004 | 2.3000e-004 | 3.4600e-003 | 1.0000e-005 | 1.6200e-003 | 1.0000e-005 | 1.6300e-003 | 4.3000e-004 | 1.0000e-005 | 4.4000e-004 | 0.0000 | 1.1469 | 1.1469 | 2.0000e-005 | 3.0000e-005 | 1.1553 |
| **Total** | **4.1000e-004** | **2.3000e-004** | **3.4600e-003** | **1.0000e-005** | **1.6200e-003** | **1.0000e-005** | **1.6300e-003** | **4.3000e-004** | **1.0000e-005** | **4.4000e-004** | **0.0000** | **1.1469** | **1.1469** | **2.0000e-005** | **3.0000e-005** | **1.1553** |

## 3.7 Architectural Coating - 2029

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 2.5192 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.4100e-003 | 0.0430 | 0.0678 | 1.1000e-004 | | 1.9300e-003 | 1.9300e-003 | | 1.9300e-003 | 1.9300e-003 | 0.0000 | 9.5747 | 9.5747 | 5.2000e-004 | 0.0000 | 9.5878 |
| **Total** | **2.5256** | **0.0430** | **0.0678** | **1.1000e-004** | | **1.9300e-003** | **1.9300e-003** | | **1.9300e-003** | **1.9300e-003** | **0.0000** | **9.5747** | **9.5747** | **5.2000e-004** | **0.0000** | **9.5878** |

## 3.7 Architectural Coating - 2029

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.3000e-003 | 7.2000e-004 | 0.0109 | 4.0000e-005 | 5.1000e-003 | 2.0000e-005 | 5.1200e-003 | 1.3500e-003 | 2.0000e-005 | 1.3700e-003 | 0.0000 | 3.6105 | 3.6105 | 7.0000e-005 | 8.0000e-005 | 3.6370 |
| **Total** | **1.3000e-003** | **7.2000e-004** | **0.0109** | **4.0000e-005** | **5.1000e-003** | **2.0000e-005** | **5.1200e-003** | **1.3500e-003** | **2.0000e-005** | **1.3700e-003** | **0.0000** | **3.6105** | **3.6105** | **7.0000e-005** | **8.0000e-005** | **3.6370** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 2.5192 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 6.4100e-003 | 0.0430 | 0.0678 | 1.1000e-004 | | 1.9300e-003 | 1.9300e-003 | | 1.9300e-003 | 1.9300e-003 | 0.0000 | 9.5747 | 9.5747 | 5.2000e-004 | 0.0000 | 9.5878 |
| **Total** | **2.5256** | **0.0430** | **0.0678** | **1.1000e-004** | | **1.9300e-003** | **1.9300e-003** | | **1.9300e-003** | **1.9300e-003** | **0.0000** | **9.5747** | **9.5747** | **5.2000e-004** | **0.0000** | **9.5878** |

## 3.7 Architectural Coating - 2029

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.3000e-003 | 7.2000e-004 | 0.0109 | 4.0000e-005 | 5.1000e-003 | 2.0000e-005 | 5.1200e-003 | 1.3500e-003 | 2.0000e-005 | 1.3700e-003 | 0.0000 | 3.6105 | 3.6105 | 7.0000e-005 | 8.0000e-005 | 3.6370 |
| **Total** | **1.3000e-003** | **7.2000e-004** | **0.0109** | **4.0000e-005** | **5.1000e-003** | **2.0000e-005** | **5.1200e-003** | **1.3500e-003** | **2.0000e-005** | **1.3700e-003** | **0.0000** | **3.6105** | **3.6105** | **7.0000e-005** | **8.0000e-005** | **3.6370** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.6670 | 1.1913 | 6.2855 | 0.0153 | 1.5116 | 0.0137 | 1.5252 | 0.4045 | 0.0128 | 0.4173 | 0.0000 | 1,444.5450 | 1,444.5450 | 0.0734 | 0.0796 | 1,470.0909 |
| Unmitigated | 0.6670 | 1.1913 | 6.2855 | 0.0153 | 1.5116 | 0.0137 | 1.5252 | 0.4045 | 0.0128 | 0.4173 | 0.0000 | 1,444.5450 | 1,444.5450 | 0.0734 | 0.0796 | 1,470.0909 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Mid Rise | 304.64 | 274.96 | 229.04 | 839,208 | 839,208 |
| Single Family Housing | 1,113.92 | 1,125.72 | 1008.90 | 3,189,345 | 3,189,345 |
| Total | 1,418.56 | 1,400.68 | 1,237.94 | 4,028,553 | 4,028,553 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Apartments Mid Rise | 10.80 | 7.30 | 7.50 | 45.60 | 19.00 | 35.40 | 86 | 11 | 3 |
| Single Family Housing | 10.80 | 7.30 | 7.50 | 45.60 | 19.00 | 35.40 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Mid Rise | 0.517111 | 0.052324 | 0.170980 | 0.155671 | 0.027786 | 0.007423 | 0.013424 | 0.026160 | 0.000649 | 0.000313 | 0.023324 | 0.001439 | 0.003395 |
| Single Family Housing | 0.517111 | 0.052324 | 0.170980 | 0.155671 | 0.027786 | 0.007423 | 0.013424 | 0.026160 | 0.000649 | 0.000313 | 0.023324 | 0.001439 | 0.003395 |

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

---

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 107.4974 | 107.4974 | 0.0174 | 2.1100e-003 | 108.5604 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 107.4974 | 107.4974 | 0.0174 | 2.1100e-003 | 108.5604 |
| NaturalGas Mitigated | 0.0189 | 0.1611 | 0.0686 | 1.0300e-003 | | 0.0130 | 0.0130 | | 0.0130 | 0.0130 | 0.0000 | 186.5673 | 186.5673 | 3.5800e-003 | 3.4200e-003 | 187.6759 |
| NaturalGas Unmitigated | 0.0189 | 0.1611 | 0.0686 | 1.0300e-003 | | 0.0130 | 0.0130 | | 0.0130 | 0.0130 | 0.0000 | 186.5673 | 186.5673 | 3.5800e-003 | 3.4200e-003 | 187.6759 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Apartments Mid Rise | 659707 | 3.5600e-003 | 0.0304 | 0.0129 | 1.9000e-004 | | 2.4600e-003 | 2.4600e-003 | | 2.4600e-003 | 2.4600e-003 | 0.0000 | 35.2045 | 35.2045 | 6.7000e-004 | 6.5000e-004 | 35.4137 |
| Single Family Housing | 2.83643e+006 | 0.0153 | 0.1307 | 0.0556 | 8.3000e-004 | | 0.0106 | 0.0106 | | 0.0106 | 0.0106 | 0.0000 | 151.3628 | 151.3628 | 2.9000e-003 | 2.7700e-003 | 152.2622 |
| **Total** | | **0.0189** | **0.1611** | **0.0686** | **1.0200e-003** | | **0.0130** | **0.0130** | | **0.0130** | **0.0130** | **0.0000** | **186.5673** | **186.5673** | **3.5700e-003** | **3.4200e-003** | **187.6759** |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Apartments Mid Rise | 659707 | 3.5600e-003 | 0.0304 | 0.0129 | 1.9000e-004 | | 2.4600e-003 | 2.4600e-003 | | 2.4600e-003 | 2.4600e-003 | 0.0000 | 35.2045 | 35.2045 | 6.7000e-004 | 6.5000e-004 | 35.4137 |
| Single Family Housing | 2.83643e+006 | 0.0153 | 0.1307 | 0.0556 | 8.3000e-004 | | 0.0106 | 0.0106 | | 0.0106 | 0.0106 | 0.0000 | 151.3628 | 151.3628 | 2.9000e-003 | 2.7700e-003 | 152.2622 |
| **Total** | | **0.0189** | **0.1611** | **0.0686** | **1.0200e-003** | | **0.0130** | **0.0130** | | **0.0130** | **0.0130** | **0.0000** | **186.5673** | **186.5673** | **3.5700e-003** | **3.4200e-003** | **187.6759** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments Mid Rise | 220908 | 20.4393 | 3.3100e-003 | 4.0000e-004 | 20.6414 |
| Single Family Housing | 940927 | 87.0581 | 0.0141 | 1.7100e-003 | 87.9190 |
| **Total** | | **107.4974** | **0.0174** | **2.1100e-003** | **108.5604** |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments Mid Rise | 220908 | 20.4393 | 3.3100e-003 | 4.0000e-004 | 20.6414 |
| Single Family Housing | 940927 | 87.0581 | 0.0141 | 1.7100e-003 | 87.9190 |
| **Total** | | **107.4974** | **0.0174** | **2.1100e-003** | **108.5604** |

## 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 1.4668 | 0.0978 | 2.4104 | 4.0500e-003 | | 0.1906 | 0.1906 | | 0.1906 | 0.1906 | 23.8521 | 77.4885 | 101.3406 | 0.1150 | 1.3800e-003 | 104.6266 |
| Unmitigated | 1.4668 | 0.0978 | 2.4104 | 4.0500e-003 | | 0.1906 | 0.1906 | | 0.1906 | 0.1906 | 23.8521 | 77.4885 | 101.3406 | 0.1150 | 1.3800e-003 | 104.6266 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.2519 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 1.0482 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.1279 | 0.0829 | 1.1197 | 3.9800e-003 | | 0.1834 | 0.1834 | | 0.1834 | 0.1834 | 23.8521 | 75.3781 | 99.2302 | 0.1130 | 1.3800e-003 | 102.4657 |
| Landscaping | 0.0388 | 0.0149 | 1.2908 | 7.0000e-005 | | 7.1600e-003 | 7.1600e-003 | | 7.1600e-003 | 7.1600e-003 | 0.0000 | 2.1104 | 2.1104 | 2.0200e-003 | 0.0000 | 2.1609 |
| **Total** | **1.4668** | **0.0978** | **2.4104** | **4.0500e-003** | | **0.1906** | **0.1906** | | **0.1906** | **0.1906** | **23.8521** | **77.4885** | **101.3406** | **0.1150** | **1.3800e-003** | **104.6266** |

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.2519 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 1.0482 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.1279 | 0.0829 | 1.1197 | 3.9800e-003 | | 0.1834 | 0.1834 | | 0.1834 | 0.1834 | 23.8521 | 75.3781 | 99.2302 | 0.1130 | 1.3800e-003 | 102.4657 |
| Landscaping | 0.0388 | 0.0149 | 1.2908 | 7.0000e-005 | | 7.1600e-003 | 7.1600e-003 | | 7.1600e-003 | 7.1600e-003 | 0.0000 | 2.1104 | 2.1104 | 2.0200e-003 | 0.0000 | 2.1609 |
| **Total** | **1.4668** | **0.0978** | **2.4104** | **4.0500e-003** | | **0.1906** | **0.1906** | | **0.1906** | **0.1906** | **23.8521** | **77.4885** | **101.3406** | **0.1150** | **1.3800e-003** | **104.6266** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 11.5868 | 0.3707 | 8.8800e-003 | 23.5004 |
| Unmitigated | 11.5868 | 0.3707 | 8.8800e-003 | 23.5004 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments Mid Rise | 3.64863 / 2.30022 | 3.7291 | 0.1193 | 2.8600e-003 | 7.5634 |
| Single Family Housing | 7.68818 / 4.84689 | 7.8577 | 0.2514 | 6.0200e-003 | 15.9371 |
| **Total** | | **11.5868** | **0.3707** | **8.8800e-003** | **23.5004** |

## 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments Mid Rise | 3.64863 / 2.30022 | 3.7291 | 0.1193 | 2.8600e-003 | 7.5634 |
| Single Family Housing | 7.68818 / 4.84689 | 7.8577 | 0.2514 | 6.0200e-003 | 15.9371 |
| **Total** | | **11.5868** | **0.3707** | **8.8800e-003** | **23.5004** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 33.7939 | 1.9972 | 0.0000 | 83.7230 |
| Unmitigated | 33.7939 | 1.9972 | 0.0000 | 83.7230 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments Mid Rise | 25.76 | 5.2291 | 0.3090 | 0.0000 | 12.9547 |
| Single Family Housing | 140.72 | 28.5649 | 1.6881 | 0.0000 | 70.7683 |
| **Total** | | **33.7939** | **1.9972** | **0.0000** | **83.7230** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments Mid Rise | 25.76 | 5.2291 | 0.3090 | 0.0000 | 12.9547 |
| Single Family Housing | 140.72 | 28.5649 | 1.6881 | 0.0000 | 70.7683 |
| **Total** | | **33.7939** | **1.9972** | **0.0000** | **83.7230** |

# 9.0 Operational Offroad

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

## 10.0 Stationary Equipment

### Fire Pumps and Emergency Generators

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

### Boilers

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

### User Defined Equipment

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

## 11.0 Vegetation

## 7.7 Appendix G: Phase I Environmental Site Assessment

Prepared by RMA GeoScience dated June 2, 2023.

RMA GeoScience
Every Project Matters | www.rmacompanies.com

# PHASE I ENVIRONMENTAL SITE ASSESSMENT
FOR
CITY OF KERMAN – WHISPERING FALLS DEVELOPMENT
APN: 020-160-36S
870 SOUTH MODOC AVENUE
KERMAN, CALIFORNIA 93630

for

Precision Civil Engineering, Inc.
1234 O Street
Fresno, California 93721

June 2, 2023

Project Number 07-230182-0

**RMA GeoScience**
Every *Project* **Matters** | *www.rmacompanies.com*

June 2, 2023 Project No. 07-230182-0

**Precision Civil Engineering, Inc.**
1234 O Street
Fresno, California 93721

Attention: Ms. Jenna Chiligerian
*jchilingerian@precisioneng.net*

**Subject:** **Phase I Environmental Site Assessment**
City of Kerman – Whispering Falls Development
APN: 020-160-36S
870 South Modoc Avenue
Kerman, California 93630

Dear Ms. Chilingerian;

Pursuant to your request and authorization, a Phase I Environmental Site Assessment has been performed at the subject property in accordance with the current Standard of Practice for Phase I Environmental Site Assessments per the ASTM: E1527-21 guidelines. This report is presented for the sole use of Precision Civil Engineering, Inc. and their representatives and/or associates to use as an indication whether hazardous materials and or soil contamination may be present on the subject property. This report may not contain sufficient information for other uses.

If you have any questions regarding the information presented in this report, please do not hesitate to contact our office. We appreciate the opportunity to be of service to you.

Sincerely,
RMA GeoScience, Inc.

REGISTERED PROFESSIONAL ENGINEER
JOSUE A. MONTES, JR.
No. GE2904
Exp. 12-31-24
GEOTECHNICAL
STATE OF CALIFORNIA

Jim Vue, GIT
Staff Geologist

Josue A. Montes, GE 2904
Principal Engineer

Distribution: Addressee (1 pdf copy to *jchilingerian@precisioneng.net)*

## TABLE OF CONTENTS

Figures:

Enclosures:

# 1.0 INTRODUCTION

## 1.1 Purpose

A Phase I Environmental Site Assessment (ESA) was performed for a parcel of fallow land that is located approximately 0.37 miles south of the intersection of South Modoc Avenue and West Kearney Boulevard in Kerman, California (subject property). The purpose of the assessment was to identify to the extent feasible any recognized environmental conditions in connection with the aforementioned property. The American Society for Testing and Materials (ASTM) E1527-21 defines recognized environmental conditions as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions. De minimis conditions generally do not present a material risk of harm to public health or the environment and generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

## 1.2 Site Location and Description

The subject property is located approximately 0.37 miles south of the intersection of South Modoc Avenue and West Kearney Boulevard in Kerman, California (Figure 1). The subject property is comprised of one parcel and has a total area of approximately 20 acres (Figure 2). The subject property is at or near street grade. The subject property is currently occupied by fallow land.

Its central geographic position is 36.7211° north latitude and 120.0853° west longitude.

| APN | Acreage | Address |
|---|---|---|
| 020-160-36S | 19.41 | 870 South Modoc Avenue |

## 1.3 Scope of Work

Our work was performed in conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) E:1527-21. In order to complete this report, the following scope of work was completed.

a. A visual reconnaissance of the subject property and surrounding area to visually evaluate the potential for site contamination and to identify the current land use

b. A review of the regional geologic maps and geologic references pertinent to the subject property

c. A review of historical aerial photographs and topographic maps to assess the subject property's historical land use, and for indications of potential contamination or sources of contamination

d. A database search of federal, state, and local regulatory agencies obtained by Environmental Data Resource (EDR), which is included with this report

e. Review of local governmental databases and files

f. Identify key personnel, local officials, and current owners of the subject property to conduct interviews with persons knowledgeable of the subject property and surrounding areas

g. Preparation of this report

### 1.4 General Limitations and Exceptions

This report was completed in substantial conformance with the scope and practice set forth by the ASTM Standard E1527-21 with a level of care and skill ordinarily exercised by members of our profession currently practicing in California. No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions. This assessment is not, and should not be construed as, a warranty or guarantee concerning the presence or not of hazardous substances which may affect the subject property. All information presented in this report is based on visual observations, research of publicly available information, review of maps and literature, experience, and professional judgment. The ASTM standard defines reasonably ascertainable information as information that is publicly available with reasonable time and cost constraints and yields relevant information without the need for extraordinary analysis of irrelevant data.

The subject property was accessible on foot.

The following are considered non-scope items and are not included in the scope of this report:

- Asbestos Containing Building Materials
- Biological Agents
- Cultural and Historical Resources
- Ecological Resources
- Endangered Species
- Health and Safety
- Indoor Air Quality
- Industrial Hygiene
- Lead-Based Paint
- Lead in Drinking Water
- Mold or Microbial Growth Conditions
- PCB Containing Building Materials
- Naturally Occurring Radon
- Regulatory Compliance
- Substances not defined as hazardous substances (including some substances sometime generally referred to as emerging contaminants) unless or until such substances are classified as a CERCLA hazardous substance
- Wetlands

## 1.5 Special Terms and Conditions

This report is intended for the sole use of Precision Civil Engineering, Inc. (User). Its contents are considered to be privileged and confidential. The contents should not be relied upon by any party other than the aforementioned without the express written consent of RMA GeoScience, Inc. and Precision Civil Engineering, Inc.

An environmental liens and activity and use limitations (AULs) search was not included with the scope of this report, as per the direction of the User. In order to satisfy the ASTM E1527-21 requirements for a Phase I ESA, a search for environmental liens and AULs must be appended.

## 1.6 User Provided Information

A User Questionnaire was sent to Mr. Jesus R. Orozco, the representative of the City of Kerman, identified users or party seeking to complete an environmental site assessment of the subject property. The User Questionnaire serves to assist the environmental professional in gathering information from the user that may be material to identifying recognized environmental conditions. The questionnaire completed by Mr. Jesus R. Orozco is included with this report.

## 2.0 SITE OVERVIEW

### 2.1 Site Observations

Our visual site reconnaissance was conducted on April 27, 2023. The purpose of our reconnaissance was to visually assess the subject property and surrounding area for any recognized environmental conditions. Photographs of the subject property during site reconnaissance are included with this report.

### 2.1.1 Observations

| Item | Observed or Suspected | Not Observed or Suspected |
|---|---|---|
| Hazardous substances & Petroleum products | | X |
| Above Ground Storage Tanks | | X |
| Underground Storage Tanks | | X |
| Odors | | X |
| Standing water or pools of liquids | | X |
| Drums, hazardous substance, or petroleum containers | | X |
| Unidentified substance containers | | X |
| Electrical or hydraulic equipment known or likely to contain PCBs | X | |
| Pits, ponds, or lagoons | | X |
| Stained soil or pavement | | X |
| Stresses vegetation (other than from insufficient water) | | X |
| Solid waste, mounds or depressions suggesting trash or soil waste disposal | X | |
| Wastewater or storm water discharge into a drain, ditch, stream, or adjacent property | | X |
| Wells (active, inactive, or abandoned) | X | |
| Sewage disposal system | | X |
| Roads | | X |
| Railroad lines or spurs | | X |

### 2.2 Hazardous Substances & Petroleum Containers/Products

Hazardous substances or petroleum products containers for liquids are generally less than 5 gallons and may be made of metal, glass, or plastic. Containers may also contain solids and gasses and may be made of paper, plastic, cardboard, or metal. Hazardous substances or petroleum products can be contained in equipment such as elevator and hoist pistons, machinery, forklifts, and other equipment.

During our site reconnaissance, no hazardous substances and petroleum containers or products were observed on the subject property.

## 2.3 Aboveground Storage Tanks (ASTs)

During our site reconnaissance, no features associated with ASTs were observed on the subject property.

## 2.4 Underground Storage Tanks (USTs)

During our site reconnaissance, no features associated with USTs were observed on the subject property.

## 2.5 Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyl’s (PCBs) were once widely used in dielectric and coolant oils in transformers and capacitors. PCB production was banned in the US in 1979 but some older transformers and electrical equipment may still contain PCBs. Many fluorescent light ballasts manufactured before 1979 also contained small quantities of PCBs. An inventory and inspection of fluorescent light ballasts was not conducted as part of this investigation.

During our site reconnaissance, two pole-mounted transformers were observed on the northeast portion of the subject property. No stains were observed in the vicinity of the transformers.

## 2.6 Stressed Vegetation, Pits, Ponds and Lagoons and Standing Water

During our site reconnaissance, no stressed vegetation, pits, ponds, or lagoons were observed on the subject property.

## 2.7 Solid Waste, Mounds, or Depressions Suggesting Trash or Solid Waste Disposal

During our site reconnaissance, no depressions suggesting trash or solid waste disposal were observed on the subject property. However, a mound of debris was observed on the western portion of the subject property.

## 2.8 Wastewater or Stormwater

During our site reconnaissance, no stormwater retention basins are on or adjacent to the subject property. No industrial wastewater exists on the subject property and there are no wastewater treatment facilities located on or near the subject property.

## 2.9 Existing or Abandoned Oil and Water Wells

According to the database maintained by the Department of Oil, Gas, and Geothermal Resources there are no oil wells located at or in the near vicinity of the subject property. During our site reconnaissance, one irrigation well was observed on the northeast portion of the subject property.

## 2.10 Septic Systems

During our site reconnaissance, no features associated with a septic system were observed on the subject property.

### 2.11 Railroad Lines or Spurs

During our site reconnaissance, no railroad lines or spurs were observed on the subject property. An active Union Pacific Railroad track was observed approximately 100 feet to the south of the subject property.

### 2.12 Site Reconnaissance of Adjacent Properties

Properties immediately adjacent to the subject property consist of the following:

- To the north – almond orchard
- To the east – residential development
- To the south – almond orchard / Southern Pacific Railroad
- To the west –almond orchard

### 2.13 Current Site Use

Fallow land currently occupies the subject property.

### 2.14 Drains and Sumps

During our site reconnaissance, no drains were observed on the subject property.

## 3.0 GEOLOGY AND HYDROGEOLOGY

### 3.1 Geology

The subject property is located in the east-central San Joaquin Valley, which comprises the southern half of the Great Valley geomorphic province. The valley is a westward-tilting trough which forms a broad alluvial fan, approximately 200 miles long and 50 to 70 miles wide, were the eastern flank is broad and gently inclined, as opposed to the western flank which is relatively narrow (Bartow, 1991; Page, 1968). The Central Valley consists of the Great Valley Sequence, overlain by Cenozoic alluvium. Underlying the Great Valley Sequence are the Franciscan Assemblage to the west and the Sierra Nevada batholith to the east (Bailey, Irwin, and Jones, 1964).

The Franciscan Assemblage, made up of deformed and high pressure and low temperature metamorphosed mafic and ultramafic rocks, was formed around the Late Jurassic through the Miocene (160 to about 20 million years ago) by the offscraping of rocks from a subducting plate dipping to the east (Wakabayashi, 1992; Wakabayashi, 2010).

The Sierra Nevada started to form during the Early Jurassic (around 200 million years ago) when the Farallon Plate began subducting under the North American Plate. This subduction resulted in several orogenies, or mountain building events, that created the granitic Sierra Nevada Batholith deep below the surface. During the Miocene (around 10 million years ago), vertical movement along the Sierra Nevada Frontal Fault Zone (part of the Eastern California Shear Zone) began to uplift the Sierra Nevada. This uplift and erosion exposed the batholiths to the surface. From the Pleistocene (commonly known as the last Ice Age) to the present, glaciers have been carving out many parts of the Sierras. The current uplift of the Sierra Nevada is 1 - 2mm per year (Hammond, et al. 2012).

The Great Valley Sequence is a 40,000-foot sequence of marine shale, sandstone, and conglomerate beds, deposited in a deep marine environment during the Late Jurassic through the Cretaceous (150 – 65 million years ago). Overlying the Great Valley Sequence is several thousand feet of Cenozoic alluvium, deposited by: streams and rivers draining from the mountains and creating alluvial fans; by lakes that covered parts of the valley floor from time to time; flooding; and marsh environments (Page, 1986). In some places, it is thousands of feet thick, and more than half of this thickness is composed of fine grained fluvial and lacustrine deposits. Holocene deposition consists mainly of episodic deposition of alluvial sediments (Bartow, 1991; Page, 1986). The subject property is situated on Quaternary fan deposits that are several hundred feet deep.

### 3.2 Hydrogeology

The subject property is located within the Kings Subbasin within the San Joaquin Valley Groundwater Basin. The Kings Subbasin is bounded by the Madera Subbasin at the north, by the Kaweah and Tulare Lake Subbasins at the south, by the granite Sierra Nevada at the east, and Delta-Mendota and Westside Subbasins at the west. Groundwater recharge occurs from river and stream seepage, deep percolation of irrigation water, canal seepage, and intentional recharge (Groundwater Bulletin 118, 2003).

According to Groundwater Contour Maps available at California Department of Water Resources website, depth to groundwater in Spring 2022 was at 140 feet below ground surface and direction of groundwater in Spring 2022 flowed to the southwest in the vicinity of the subject property. Groundwater as shallow as 40 feet below ground surface was recorded in 1957 in a well located approximately 0.94-miles northeast of the subject property.

The subject property is located within an area zoned by FEMA to be outside of the 0.2% annual chance floodplain.

## 4.0 RESULTS OF RECORDS SEARCH

### 4.1 Aerial Photograph Review

**1937**
**Subject property:**

The subject property appears to be vacant land.

**Surrounding properties:**

The surrounding properties to the north, east, south, and west appear to be vacant land. What appears to be a Southern Pacific railroad is visible to the south of the subject property.

**1946**
**Subject property:**

There is no significant change to the subject property from the 1937 photograph.

**Surrounding properties:**

The surrounding properties to the north and south appear to be vacant land. The surrounding properties to the east and west appear to be occupied by agricultural land for row crops. Some structures appear on the east side of the eastern property.

**1950**

**Subject property:**

What appears to a structure is visible on the west end of the subject property. The remainder of the subject property appears to be vacant.

**Surrounding properties:**

All surrounding properties appear to be occupied by agricultural land for row crops. Some structures appear on the northeast corner of the northern property.

**1957**

**Subject property:**

Several additional structures appear on the west end of the subject property. Several new structures appear on the southeast corner of the subject property. The remainder of the subject property appears to be vacant.

**Surrounding properties:**

Several additional structures appear on the northeast corner of the northern property. The remainder of the surrounding properties appear to have no significant change from the 1950 photograph.

**1962**

**Subject property and surrounding properties:**

There is no significant change to the subject property and surrounding properties from the 1957 photograph.

**1967**

**Subject property and surrounding properties:**

There is no significant change to the subject property and surrounding properties from the 1962 photograph.

**1973**

**Subject property:**

The formerly vacant portions of the subject property appear to be occupied by agricultural land for row crops.

**Surrounding properties:**

There is no significant change to the surrounding properties from the 1967 photograph.

**1979**

**Subject property:**

The southern half of the subject property formerly occupied by row crops appears to be vacant once again.

**Surrounding properties:**

There is no significant change to the surrounding properties from the 1973 photograph.

**1981**

**Subject property:**

There is no significant change to the subject property from the 1979 photograph.

**Surrounding properties:**

The structures occupying the northeast corner of the northern property appear to have been removed.

**1998**

**Subject property:**

The structures are no longer visible on the southeast corner of the subject property. The remainder of the parcel appears to be occupied by agricultural land for row crops, other than the structures located on the far west side of the property.

**Surrounding properties:**

Agricultural land use to the north, east, and south of the subject property has changed from row crops to almond tree orchards.

**2006**

**Subject property:**

There is no significant change to the subject property from the 1998 photograph.

**Surrounding properties:**

The surrounding property to the east has been cleared for subdivision development. The surrounding property to the northeast appears to be occupied by a subdivision.

**2009**

**Subject property and Surrounding properties:**

There is no significant change to the subject property and surrounding properties from the 2006 photograph.

**2012**

**Subject property and Surrounding properties:**

There is no significant change to the subject property and surrounding properties from the 2009 photograph.

**2016**

**Subject property:**

There is no significant change to the subject property from the 2012 photograph.

**Surrounding properties:**

The surrounding property to the west has changed its agricultural use from row crops to almond tree orchards.

**2020**

**Subject property:**

The structures are no longer visible on the west side of the subject property. The portions of the subject property formerly occupied by agricultural land for row crops have gone fallow.

**Surrounding properties:**

The surrounding property to the east is now occupied by a subdivision. There is no significant change to the remainder of the surrounding properties from the 2016 photograph.

Copies of the aerial photographs are included with this report.

### 4.2 Sanborn Map Review

The Sanborn Library collection was searched by EDR. No maps covering the subject property were found.

### 4.3 Topographic Map Review

**1922**

**Subject property:**

There are no structures on the subject property.

**Surrounding properties:**

There are no structures on the surrounding properties. A Southern Pacific railroad is present running east-west, south of the subject property.

**1947**

**Subject property:**

There are no structures on the subject property.

**Surrounding properties:**

There are no structures on the surrounding properties. What appears to be a dirt road labelled as Modoc Avenue runs north-south, immediately west of the subject property.

**1948**

**Subject property and Surrounding properties:**

There is no significant change to the subject property and surrounding properties from the 1947 photograph.

**1963**

**Subject property:**

What appears to be a structure is visible on the west side and southeast corner of the subject property.

**Surrounding properties:**

There is no significant change to the surrounding properties from the 1948 photograph.

**1981**

**Subject property and Surrounding properties:**

There is no significant change to the subject property and surrounding properties from the 1963 photograph.

**2012**

**Subject property and Surrounding properties:**

The 2012 topographic map does not reveal any structures on the subject property or surrounding properties.

**2015**

**Subject property and Surrounding properties:**

The 2015 topographic map does not reveal any structures on the subject property or surrounding properties.

**2018**

**Subject property and Surrounding properties:**

The 2018 topographic map does not reveal any structures on the subject property or surrounding properties.

Copies of the topographic maps are included with this report.

### 4.4 Governmental Agency Database Review

A search of available government databases was conducted for RMA GeoScience, Inc. by EDR, an information retrieval service which identifies current and historical environmental risk management information for a specific site (Target Property) and surrounding area. The search included the area within a one-mile radius of the subject property. The search radius used meets or exceeds the standard search distance adopted by ASTM-E:1527-21. Copies of the EDR reports are included with this report. The following is an abridged list of environmental databases that were searched by EDR:

Federal

* Proposed National Priorities List (NPL)
* Delisted National Priorities List (DNPL)
* Federal Superfund Liens
* Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)
* Federal Facility Site Information listing

- * CERCLIS No Further Remedial Action Planned (CERCLIS-NFRAP)
- * Corrective Action Report (CORRACTS)
- * RCRA Treatment Storage and Disposal
- * RCRA-LQG RCRA - Large Quantity Generators
- * RCRA-CESQG RCRA - Conditionally Exempt Small Quantity Generator
- * US ENG CONTROLS Engineering Controls Sites List
- * US INST CONTROL Sites with Institutional Controls
- * LUCIS Land Use Control Information System
- * US BROWNFIELDS A Listing of Brownfields Sites
- * Emergency Response Notification System (ERNSCA)
- * National Pollutant Discharge Elimination System-Region 9 (NPDSR09)
- * PCB Activity Database
- * Open Dump Inventory (ODI)
- * Toxics Release Inventory (TRI)

State

- * Above Ground Storage Tanks (ABST)
- * INDIAN LUST Leaking Underground Storage Tanks on Indian Land
- * INDIAN UST Underground Storage Tanks on Indian Land
- * FEMA UST Underground Storage Tank Listing
- * RESPONSE State Response Sites
- * Solid Waste Information System (SWIS)
- * VCP Voluntary Cleanup Program Properties
- * INDIAN VCP Voluntary Cleanup Priority Listing
- * Clandestine Drug Labs (CDL)
- * State Brownfields Properties Calsites Database
- * California Hazardous Material Incident Report System (CHMIRS)
- * Dry Cleaner Facilities
- * State Cortese List
- * California Dept. of Toxic Substances Control Deed Restrictions (DTSCDR)
- * California Department of Toxic Substances Control - Envirostor

Local

- * Well Investigation Program Case List
- * CDEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
- * ODI Open Dump Inventory
- * WMUDS/SWAT Waste Management Unit Database
- * HAULERS Registered Waste Tire Haulers Listing
- * INDIAN ODI Report on the Status of Open Dumps on Indian Lands
- * HIST Cal-Sites Historical Calsites Database
- * SCH School Property Evaluation Program
- * Toxic Pits Toxic Pits Cleanup Act Sites
- * CDL Clandestine Drug Labs
- * US HIST CDL National Clandestine Laboratory Register

- * LIENS 2 CERCLA Lien Information
- * LIENS Environmental Liens Listing
- * DEED Deed Restriction Listing

### 4.4.1 Target Property Search Results

The subject property was not listed in the databases reviewed.

### 4.4.2 Surrounding Facilities Search Results

The following facility listed by EDR within a half mile radius of the subject property that have or have had known releases of contaminants to the environment is listed in the table below.

| Facility Name | Address | Databases | Distance (miles) |
|---|---|---|---|
| John E Chernekoff | 909 South Siskiyou Avenue | SWEEPS UST and HIST UST | 0.247 |

<u>John E Chernekoff, 909 South Siskiyou Avenue</u>

This facility was located approximately 0.247 east of the subject property and listed in the SWEEPS UST and HIST UST databases. According to the records obtained, one 350-gallon diesel underground storage tank (UST) is registered to this facility. There are no records of the UST being removed from this facility. Due to this information and the distance from this facility and the subject property, we therefore conclude that this facility is not a REC with respect to the subject property.

### 4.5 City Directory Review

A search of available city directories at five-year intervals from 1973 to 2020 was conducted for RMA GeoScience, Inc. by EDR, an information retrieval service which identifies current and historical environmental risk management information for a specific site (Target Property) and surrounding area. The following listings for the subject property and adjacent properties addresses are identified and listed below.

**<u>Subject property address:</u>**
<u>870 South Modoc Avenue</u>

| | |
|---|---|
| 2017 – 2020 | Not listed |
| 2010 – 2014 | Garcia, Blanca |
| 2005 | Occupant Unknown |
| 1992 – 2000 | Biggs, Kenneth |
| 1973 – 1990 | Not listed |

**<u>Adjacent property addresses:</u>**
<u>1233 South Siskiyou Avenue</u>

| | |
|---|---|
| 2020 | Jamie Watts |
| 2017 | Not listed |

- 1985 – 2014 Edwards Jamie
- 1980 Edwards Dale
- 1973 – 1975 Not listed

736 South Lassen Avenue

- 2020 Not listed
- 2017 Miller, Aaron
- 2014 Lozano, Virginia E
- 1975 – 2010 Barcelos Diego
- 1973 Not listed

855, 869, 871, 883, 897, 911, 925, 939, and 953 South Kenneth Avenue

- 2010 – 2020 Residential listings
- 1973 – 2005 Not listed

## 4.6 State and Local Agencies

California Department of Conservation Division of Oil and Gas and Geothermal Resources

We searched the online databases that are maintained by the California Department of Conservation - Division of Oil and Gas regarding any current or abandoned oil wells located on or near the subject property. There are no oil wells listed at the subject property.

Fresno County Department of Public Health, Division of Environmental Health

On April 20, 2023, RMA searched for any available records for the subject property and numerous facilities within a half mile of the subject property on Fresno County Department of Public Health, Division of Environmental Health’s website. According to the website, there were no records for the subject property or facilities within half a mile of the subject property.

City of Kerman City Clerk

A request to review available records for the subject property address was submitted to this agency on March 30, 2023. We specified that we were looking for building records, permits, and/or applications. According to the city clerk, the subject property is not within the City of Kerman city limits.

Fresno County Public Works & Planning

A request to review available records for the subject property address was submitted to this agency on March 30, 2023. We specified that we were looking for building records, permits, and/or applications. According to the County Official, a new service permit (March 24, 1971) was listed under the subject property address.

## 5.0 INTERVIEWS

### 5.1 Present Owner

An interview questionnaire was sent to Mr. Ken Boyd, the property owner, with questions pertaining to his knowledge of the subject property. Mr. Boyd indicated that there were former structures on the subject property. Mr. Boyd indicated that "farming pesticides for grapes approved by Farm Bureau" was used on the subject property. A copy of the questionnaire with Mr. Boyd's response is included with this report.

## 6.0 FINDINGS

### 6.1 Recognized Environmental Conditions

ASTM E1527-21 defines recognized environmental conditions (RECs) as "(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment."

This assessment has revealed no evidence of RECs in connection with the subject property.

### 6.2 Controlled Recognized Environmental Conditions

ASTM E1527-21 defines controlled recognized environmental conditions (CRECs) as "a recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitation or other property use limitations)."

This assessment has revealed no evidence of CRECs in connection with the subject property.

### 6.3 Historical Recognized Environmental Conditions

ASTM E1527-21 defines historical recognized environmental conditions (HRECs) as "a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations)."

This assessment has revealed no evidence of HRECs in connection with the subject property.

### 6.4 Business Environmental Risk

ASTM E1527-21 defines business environmental risks (BERs) as "a risk which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of commercial real estate and is not necessarily an issue required to be investigated under this practice. A BER may include one or more of the non-scope issues that were indicated in Section 1.4 of this report.

This assessment has revealed the following BERs in connection with the subject property.

- The former structures located on the western and eastern portions of the subject property were constructed before the 1978 ban on the manufacture of friable asbestos containing materials. Therefore, asbestos-containing construction materials may be present in the building materials used for their construction. An asbestos survey was not conducted as part of this investigation, but it is recommended.

- The Consumer Products Safety Commission limited lead content in residential paint in 1978. The use of paint containing lead was also prohibited in areas where consumers have direct access to painted surfaces. Based on the estimated construction dates of the former structures located on the western and eastern portions of the subject property, lead-based paint may be present in or on original building materials. An assessment of lead-based paint in building materials was not conducted as part of this investigation, but it is recommended.

- Much of the subject property has been used for agricultural purposes sometime prior to 1973. It is recommended that prior to development, the subject property be tested for agricultural pesticides.

### 6.5 De minimis Conditions

ASTM E1527-21 defines de minimis conditions as “a condition related to a release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a de minimis condition is not a REC nor a CREC.”

This assessment revealed no evidence of de minimis conditions in connection with the subject property.

### 6.6 Data Gap and Data Failure

ASTM E1527-21 defines data gaps as “a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to, site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.).”

ASTM E1527-21 defines data failures as “failure to achieve the historical research objectives even after reviewing standard historical sources that are reasonably attainable and likely to be useful. Data failure is one type of data gap. Data failures can occur when the use of the property was unable to be identified at approximately five-year intervals back to the first use or 1940, whichever is earlier.”

This assessment has revealed the following data gaps or data failures in connection with the subject property.

- Records of ownership of the subject property may be incomplete. The ownership record obtained during this assessment is based on reasonably attainable information and does not constitute a title search.

- Data gaps in excess of five years were encountered during the review of the standard historical sources.

- Interviews were not conducted with past owners, past operators, or past occupants.

## 7.0 CONCLUSIONS

### 7.1 Conclusions

RMA GeoScience, Inc. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-21 of 870 South Modoc Avenue in Kerman, California, the subject property. Any exceptions to, or deletions from, this practice are described in Section 1 of this report.

| Environmental Concern | Number of Findings |
|---|---|
| Recognized Environmental Conditions (RECs) | 0 |
| Controlled Recognized Environmental Conditions (CRECs) | 0 |
| Historical Recognized Environmental Conditions (HRECs) | 0 |
| Business Environmental Risks (BERs) | 3 |
| De minimis Conditions | 0 |
| Data Gap / Data Failure | 3 |

This assessment has revealed no evidence of RECs, CRECs, HRECs, or de minimis in connection with the subject property.

This assessment has revealed the following BERs in connection with the subject property.

- The former structures located on the western and eastern portions of the subject property were constructed before the 1978 ban on the manufacture of friable asbestos containing materials. Therefore, asbestos-containing construction materials may be present in the building materials used for their construction. An asbestos survey was not conducted as part of this investigation, but it is recommended.

- The Consumer Products Safety Commission limited lead content in residential paint in 1978. The use of paint containing lead was also prohibited in areas where consumers have direct access to painted surfaces. Based on the estimated construction dates of the former structures located on the western and eastern portions of the subject property, lead-based paint may be present in or on original building materials. An assessment of lead-based paint in building materials was not conducted as part of this investigation, but it is recommended.

- Much of the subject property has been used for agricultural purposes sometime prior to 1973. It is recommended that prior to development, the subject property be tested for agricultural pesticides.

This assessment has also revealed the following data gaps or data failures in connection with the subject property.

- Records of ownership of the subject property may be incomplete. The ownership record obtained during this assessment is based on reasonably attainable information and does not constitute a title search.

- Data gaps in excess of five years were encountered during the review of the standard historical sources.

- Interviews were not conducted with past owners, past operators, or past occupants.

Based on our findings, no further environmental investigation is warranted at this time.

## 8.0 QUALIFICATIONS

The following statements are provided as specified by ASTM E1527-21 and 40 CFE 312.21(d):

> "We declare that, to the best of my professional knowledge and belief, we meet the definition of Environmental professional as defined by §312.10 of 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all the appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312."

## 9.0 LIMITATIONS

This Phase I Environmental Site Assessment was completed in accordance with generally accepted industry practice for determining the likelihood of the presence of hazardous substances at or beneath the subject property. Information presented in this report is based on visual observations, limited research, review of maps and literature, experience, and professional judgment. This assessment is not, and should not be construed as, a warranty or guarantee concerning the presence or not of hazardous substances which may affect the property. All discovered information has been disclosed and a good faith effort has been made to consult pertinent sources.

This study and report have been prepared on behalf and for the exclusive use of Precision Civil Engineering, Inc., and solely for use in an environmental evaluation of the subject property. This report and its findings shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without prior written consent of RMA GeoScience, Inc. and Precision Civil Engineering, Inc. However, RMA GeoScience, Inc. acknowledges and agrees that the report may be conveyed to the Buyer, Seller and Lender associated with the financing of the property.

## 10.0 REFERENCES

Bartow, J.A., 1991, The Cenozoic Evolution of the San Joaquin Valley, California, USGS Professional Paper 1501.

California Department of Water Resources Website**:** http://www.water.ca.gov/waterdatalibrary

California Department of Water Resources, 1980, updated 2003, Groundwater Bulletin 118
http//www.water.ca.gov/pubs/groundwater/bulletin_118

California Department of Toxic Substance Control Website:
http://www.envirostor.dtsc.ca.gov

Federal Emergency Management Agency, Flood Hazard Mapping Website, http://www.fema.gov/

Page, R.W., 1986, Geology of the Fresh Ground-Water Basin of the Central Valley, California, U.S. Geological Survey Professional Paper 1401-C.

State Water Resources Control Board Website,
http://geotracker.swrcb.ca.gov/

State of California Department of Conservation Division of Oil, Gas and Geothermal Website:
http://www.conservation.ca.gov/dog/.

United States Environmental Protection Agency,
Risk Management for Per- and Polyfluoroalkyl Substances (PFAS) under TSCA | US EPA

FIGURES

References: Google Earth

Approximate Scale: 1" ≈ 909'

## FIGURE 1

### SITE VICINITY MAP

City of Kerman - Whispering Falls Development
APN: 020-160-36S
870 South Modoc Avenue
Kerman, California 93630
Project # 07-230182-0

▭ Approximate Limits of the Subject Property

**RMA GeoScience**
Every *Project* **Matters** | www.rmacompanies.com

Reference: Google Earth

Approximate Scale: 1" ≈ 147'

**FIGURE 2**

**SITE MAP EAST PARCEL**

City of Kerman - Whispering Falls Development
APN: 020-160-36S
870 South Modoc Avenue
Kerman, California 93630
Project # 07-230182-0

🟥 Approximate Limits of the Subject Property

**RMA GeoScience**
Every *Project* **Matters** | www.rmacompanies.com

# SITE PHOTOGRAPHS

Photograph 1: View of the northwest portion of the subject property.

Photograph 2: View of a mound of debris located on the western portion of the subject property.

Photograph 3: View of a small pile of debris and a railroad located to the south of the subject property.

Photograph 4: View of two pole-mounted transformers and an irrigation well located on the northeast corner of the subject property.

Photograph 5: View of the adjacent residential development and the southeast corner of the subject property.

Photograph 6: A cabinet filled with numerous cleaning chemicals and bottles of motor oil was observed in the storage area of the office building. No oil stains were observed in the vicinity of this cabinet.

EDR RADIUS REPORT

**City of Kerman - Whispering Falls Development**
870 S MODOC AVE
KERMAN, CA  93630

Inquiry Number: 7295445.2s
March 30, 2023

# The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# TABLE OF CONTENTS

**SECTION** **PAGE**

## GEOCHECK ADDENDUM

***Thank you for your business.***
Please contact EDR at 1-800-352-0050
with any questions or comments.

# EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

## TARGET PROPERTY INFORMATION

### ADDRESS

870 S MODOC AVE
KERMAN, CA 93630

### COORDINATES

| | |
|---|---|
| Latitude (North): | 36.7211760 - 36˚ 43' 16.23'' |
| Longitude (West): | 120.0852490 - 120˚ 5' 6.89'' |
| Universal Tranverse Mercator: | Zone 10 |
| UTM X (Meters): | 760325.6 |
| UTM Y (Meters): | 4067701.0 |
| Elevation: | 209 ft. above sea level |

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

| | |
|---|---|
| Target Property Map: | 12002684 KERMAN, CA |
| Version Date: | 2018 |

### AERIAL PHOTOGRAPHY IN THIS REPORT

| | |
|---|---|
| Portions of Photo from: | 20140627 |
| Source: | USDA |

# MAPPED SITES SUMMARY

Target Property Address:
870 S MODOC AVE
KERMAN, CA  93630

Click on Map ID to see full detail.

| MAP ID | SITE NAME | ADDRESS | DATABASE ACRONYMS | RELATIVE ELEVATION | DIST (ft. & mi.) DIRECTION |
|---|---|---|---|---|---|
| 1 | JOHN E CHERNEKOFF | 909 S SISKIYOU | SWEEPS UST, HIST UST | Higher | 1302, 0.247, East |

# EXECUTIVE SUMMARY

## TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

## DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

## STANDARD ENVIRONMENTAL RECORDS

### *Lists of Federal NPL (Superfund) sites*

| | |
|---|---|
| NPL | National Priority List |
| Proposed NPL | Proposed National Priority List Sites |
| NPL LIENS | Federal Superfund Liens |

### *Lists of Federal Delisted NPL sites*

| | |
|---|---|
| Delisted NPL | National Priority List Deletions |

### *Lists of Federal sites subject to CERCLA removals and CERCLA orders*

| | |
|---|---|
| FEDERAL FACILITY | Federal Facility Site Information listing |
| SEMS | Superfund Enterprise Management System |

### *Lists of Federal CERCLA sites with NFRAP*

| | |
|---|---|
| SEMS-ARCHIVE | Superfund Enterprise Management System Archive |

### *Lists of Federal RCRA facilities undergoing Corrective Action*

| | |
|---|---|
| CORRACTS | Corrective Action Report |

### *Lists of Federal RCRA TSD facilities*

| | |
|---|---|
| RCRA-TSDF | RCRA - Treatment, Storage and Disposal |

### *Lists of Federal RCRA generators*

| | |
|---|---|
| RCRA-LQG | RCRA - Large Quantity Generators |
| RCRA-SQG | RCRA - Small Quantity Generators |
| RCRA-VSQG | RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators) |

### *Federal institutional controls / engineering controls registries*

| | |
|---|---|
| LUCIS | Land Use Control Information System |

# EXECUTIVE SUMMARY

| | |
|---|---|
| US ENG CONTROLS | Engineering Controls Sites List |
| US INST CONTROLS | Institutional Controls Sites List |

***Federal ERNS list***

| | |
|---|---|
| ERNS | Emergency Response Notification System |

***Lists of state- and tribal (Superfund) equivalent sites***

| | |
|---|---|
| RESPONSE | State Response Sites |

***Lists of state- and tribal hazardous waste facilities***

| | |
|---|---|
| ENVIROSTOR | EnviroStor Database |

***Lists of state and tribal landfills and solid waste disposal facilities***

| | |
|---|---|
| SWF/LF | Solid Waste Information System |

***Lists of state and tribal leaking storage tanks***

| | |
|---|---|
| LUST | Geotracker's Leaking Underground Fuel Tank Report |
| INDIAN LUST | Leaking Underground Storage Tanks on Indian Land |
| CPS-SLIC | Statewide SLIC Cases |

***Lists of state and tribal registered storage tanks***

| | |
|---|---|
| FEMA UST | Underground Storage Tank Listing |
| UST | Active UST Facilities |
| AST | Aboveground Petroleum Storage Tank Facilities |
| INDIAN UST | Underground Storage Tanks on Indian Land |

***Lists of state and tribal voluntary cleanup sites***

| | |
|---|---|
| INDIAN VCP | Voluntary Cleanup Priority Listing |
| VCP | Voluntary Cleanup Program Properties |

***Lists of state and tribal brownfield sites***

| | |
|---|---|
| BROWNFIELDS | Considered Brownfieds Sites Listing |

## ADDITIONAL ENVIRONMENTAL RECORDS

***Local Brownfield lists***

| | |
|---|---|
| US BROWNFIELDS | A Listing of Brownfields Sites |

***Local Lists of Landfill / Solid Waste Disposal Sites***

| | |
|---|---|
| WMUDS/SWAT | Waste Management Unit Database |
| SWRCY | Recycler Database |
| HAULERS | Registered Waste Tire Haulers Listing |
| INDIAN ODI | Report on the Status of Open Dumps on Indian Lands |
| ODI | Open Dump Inventory |

# EXECUTIVE SUMMARY

| | |
|---|---|
| DEBRIS REGION 9 | Torres Martinez Reservation Illegal Dump Site Locations |
| IHS OPEN DUMPS | Open Dumps on Indian Land |

### *Local Lists of Hazardous waste / Contaminated Sites*

| | |
|---|---|
| US HIST CDL | Delisted National Clandestine Laboratory Register |
| HIST Cal-Sites | Historical Calsites Database |
| SCH | School Property Evaluation Program |
| CDL | Clandestine Drug Labs |
| CERS HAZ WASTE | CERS HAZ WASTE |
| Toxic Pits | Toxic Pits Cleanup Act Sites |
| US CDL | National Clandestine Laboratory Register |

### *Local Lists of Registered Storage Tanks*

| | |
|---|---|
| CERS TANKS | California Environmental Reporting System (CERS) Tanks |
| CA FID UST | Facility Inventory Database |

### *Local Land Records*

| | |
|---|---|
| LIENS | Environmental Liens Listing |
| LIENS 2 | CERCLA Lien Information |
| DEED | Deed Restriction Listing |

### *Records of Emergency Release Reports*

| | |
|---|---|
| HMIRS | Hazardous Materials Information Reporting System |
| CHMIRS | California Hazardous Material Incident Report System |
| LDS | Land Disposal Sites Listing |
| MCS | Military Cleanup Sites Listing |
| SPILLS 90 | SPILLS 90 data from FirstSearch |

### *Other Ascertainable Records*

| | |
|---|---|
| RCRA NonGen / NLR | RCRA - Non Generators / No Longer Regulated |
| FUDS | Formerly Used Defense Sites |
| DOD | Department of Defense Sites |
| SCRD DRYCLEANERS | State Coalition for Remediation of Drycleaners Listing |
| US FIN ASSUR | Financial Assurance Information |
| EPA WATCH LIST | EPA WATCH LIST |
| 2020 COR ACTION | 2020 Corrective Action Program List |
| TSCA | Toxic Substances Control Act |
| TRIS | Toxic Chemical Release Inventory System |
| SSTS | Section 7 Tracking Systems |
| ROD | Records Of Decision |
| RMP | Risk Management Plans |
| RAATS | RCRA Administrative Action Tracking System |
| PRP | Potentially Responsible Parties |
| PADS | PCB Activity Database System |
| ICIS | Integrated Compliance Information System |
| FTTS | FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) |
| MLTS | Material Licensing Tracking System |
| COAL ASH DOE | Steam-Electric Plant Operation Data |
| COAL ASH EPA | Coal Combustion Residues Surface Impoundments List |

# EXECUTIVE SUMMARY

| | |
|---|---|
| PCB TRANSFORMER | PCB Transformer Registration Database |
| RADINFO | Radiation Information Database |
| HIST FTTS | FIFRA/TSCA Tracking System Administrative Case Listing |
| DOT OPS | Incident and Accident Data |
| CONSENT | Superfund (CERCLA) Consent Decrees |
| INDIAN RESERV | Indian Reservations |
| FUSRAP | Formerly Utilized Sites Remedial Action Program |
| UMTRA | Uranium Mill Tailings Sites |
| LEAD SMELTERS | Lead Smelter Sites |
| US AIRS | Aerometric Information Retrieval System Facility Subsystem |
| US MINES | Mines Master Index File |
| ABANDONED MINES | Abandoned Mines |
| FINDS | Facility Index System/Facility Registry System |
| DOCKET HWC | Hazardous Waste Compliance Docket Listing |
| ECHO | Enforcement & Compliance History Information |
| UXO | Unexploded Ordnance Sites |
| FUELS PROGRAM | EPA Fuels Program Registered Listing |
| PFAS NPL | Superfund Sites with PFAS Detections Information |
| PFAS FEDERAL SITES | Federal Sites PFAS Information |
| PFAS TSCA | PFAS Manufacture and Imports Information |
| PFAS RCRA MANIFEST | PFAS Transfers Identified In the RCRA Database Listing |
| PFAS ATSDR | PFAS Contamination Site Location Listing |
| PFAS WQP | Ambient Environmental Sampling for PFAS |
| PFAS NPDES | Clean Water Act Discharge Monitoring Information |
| PFAS ECHO | Facilities in Industries that May Be Handling PFAS Listing |
| PFAS ECHO FIRE TRAINING | Facilities in Industries that May Be Handling PFAS Listing |
| PFAS PART 139 AIRPORT | All Certified Part 139 Airports PFAS Information Listing |
| AQUEOUS FOAM NRC | Aqueous Foam Related Incidents Listing |
| PFAS | PFAS Contamination Site Location Listing |
| AQUEOUS FOAM | Former Fire Training Facility Assessments Listing |
| CA BOND EXP. PLAN | Bond Expenditure Plan |
| Cortese | "Cortese" Hazardous Waste & Substances Sites List |
| CUPA Listings | CUPA Resources List |
| DRYCLEANERS | Cleaner Facilities |
| EMI | Emissions Inventory Data |
| ENF | Enforcement Action Listing |
| Financial Assurance | Financial Assurance Information Listing |
| ICE | ICE |
| HIST CORTESE | Hazardous Waste & Substance Site List |
| HWP | EnviroStor Permitted Facilities Listing |
| HWT | Registered Hazardous Waste Transporter Database |
| HAZNET | Facility and Manifest Data |
| MINES | Mines Site Location Listing |
| MWMP | Medical Waste Management Program Listing |
| NPDES | NPDES Permits Listing |
| PEST LIC | Pesticide Regulation Licenses Listing |
| PROC | Certified Processors Database |
| Notify 65 | Proposition 65 Records |
| HAZMAT | Hazardous Material Facilities |
| UIC | UIC Listing |
| UIC GEO | UIC GEO (GEOTRACKER) |
| WASTEWATER PITS | Oil Wastewater Pits Listing |
| WDS | Waste Discharge System |
| WIP | Well Investigation Program Case List |
| MILITARY PRIV SITES | MILITARY PRIV SITES (GEOTRACKER) |

| | |
|---|---|
| PROJECT | PROJECT (GEOTRACKER) |
| WDR | Waste Discharge Requirements Listing |
| CIWQS | California Integrated Water Quality System |
| CERS | CERS |
| NON-CASE INFO | NON-CASE INFO (GEOTRACKER) |
| OTHER OIL GAS | OTHER OIL & GAS (GEOTRACKER) |
| PROD WATER PONDS | PROD WATER PONDS (GEOTRACKER) |
| SAMPLING POINT | SAMPLING POINT (GEOTRACKER) |
| WELL STIM PROJ | Well Stimulation Project (GEOTRACKER) |
| PFAS TRIS | List of PFAS Added to the TRI |
| HWTS | Hazardous Waste Tracking System |
| MINES MRDS | Mineral Resources Data System |

## EDR HIGH RISK HISTORICAL RECORDS

### *EDR Exclusive Records*

| | |
|---|---|
| EDR MGP | EDR Proprietary Manufactured Gas Plants |
| EDR Hist Auto | EDR Exclusive Historical Auto Stations |
| EDR Hist Cleaner | EDR Exclusive Historical Cleaners |

## EDR RECOVERED GOVERNMENT ARCHIVES

### *Exclusive Recovered Govt. Archives*

| | |
|---|---|
| RGA LF | Recovered Government Archive Solid Waste Facilities List |
| RGA LUST | Recovered Government Archive Leaking Underground Storage Tank |

## SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

## ADDITIONAL ENVIRONMENTAL RECORDS

### *Local Lists of Registered Storage Tanks*

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is

# EXECUTIVE SUMMARY

1 SWEEPS UST site within approximately 0.25 miles of the target property.

| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***JOHN E CHERNEKOFF***<br>Status: A<br>Tank Status: A<br>Comp Number: 30453 | ***909 S SISKIYOU*** | ***E 1/8 - 1/4 (0.247 mi.)*** | ***1*** | ***9*** |

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property.

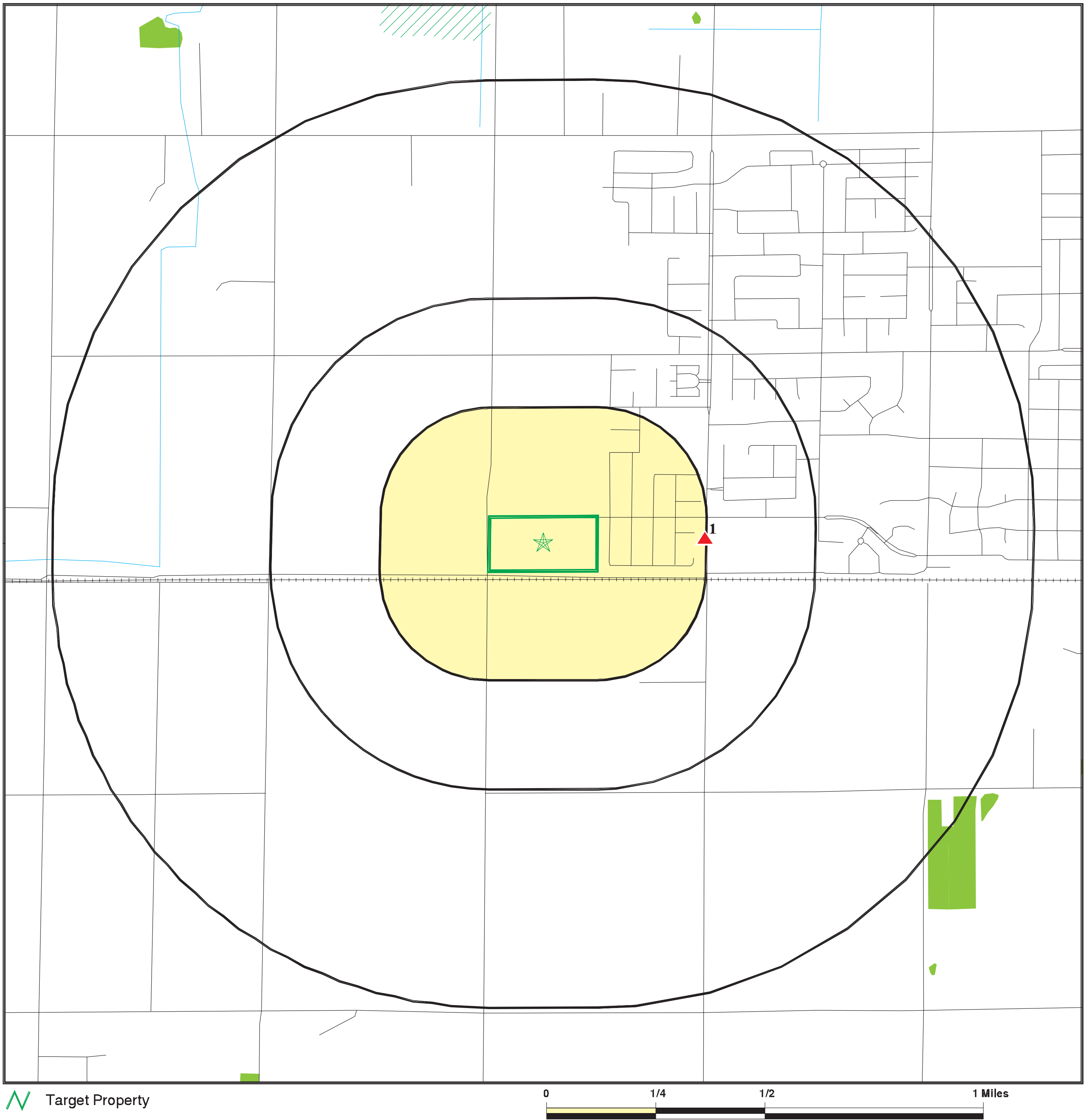
| Equal/Higher Elevation | Address | Direction / Distance | Map ID | Page |
|---|---|---|---|---|
| ***JOHN E CHERNEKOFF***<br>Facility Id: 00000030453 | ***909 S SISKIYOU*** | ***E 1/8 - 1/4 (0.247 mi.)*** | ***1*** | ***9*** |

# EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

| Site Name | Database(s) |
|---|---|
| KERMAN CITY DUMPSITE #2 | ENVIROSTOR |

# OVERVIEW MAP - 7295445.2S



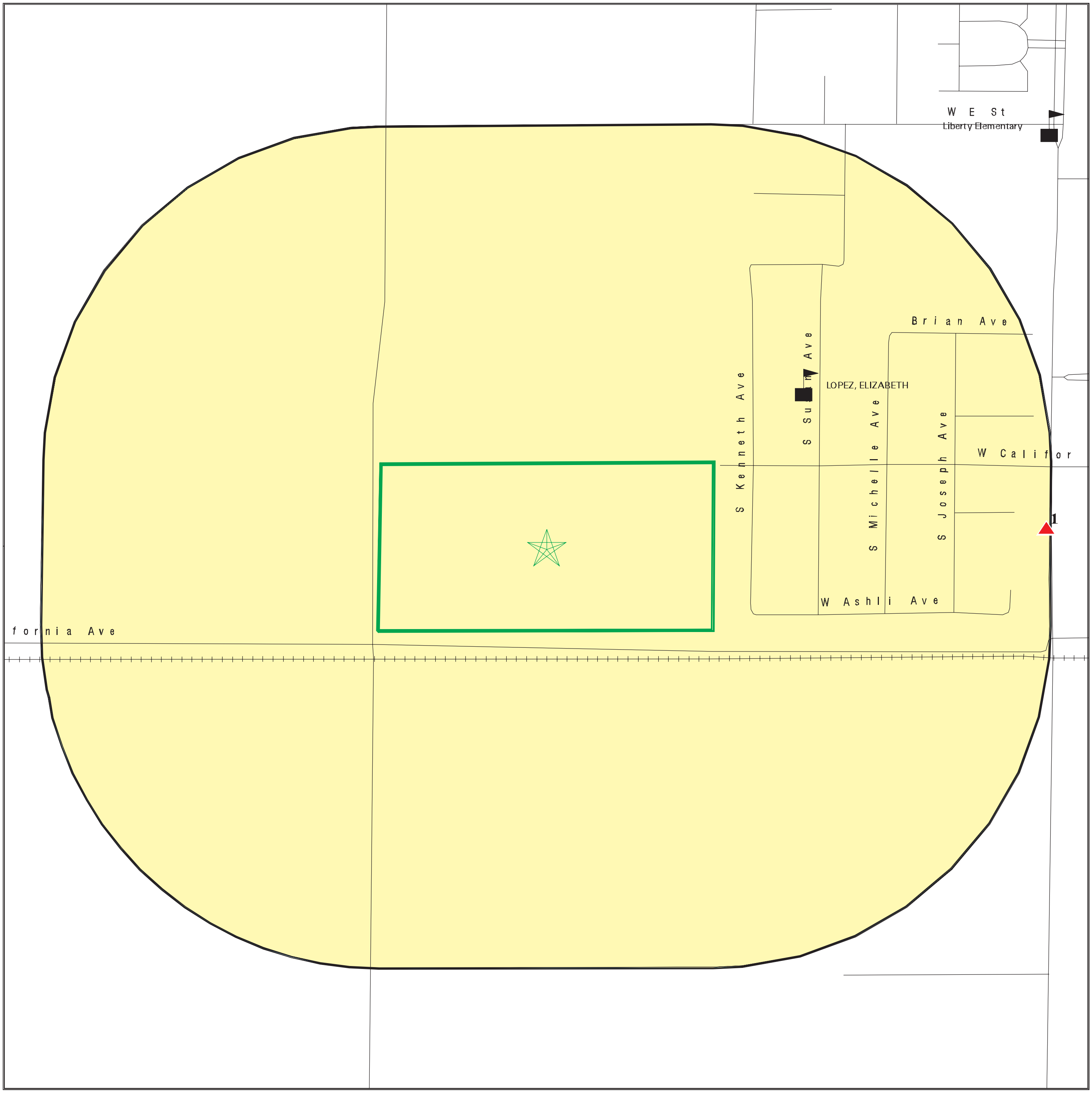
- Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Manufactured Gas Plants
- ▨ National Priority List Sites
- ▨ Dept. Defense Sites
- ▨ Indian Reservations BIA
- ▨ Special Flood Hazard Area (1%)
- ▨ 0.2% Annual Chance Flood Hazard
- 🟩 National Wetland Inventory
- 🟩 State Wetlands
- ▦ Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: City of Kerman - Whispering Falls Development
ADDRESS: 870 S MODOC AVE
KERMAN CA 93630
LAT/LONG: 36.721176 / 120.085249

CLIENT: RMA Geoscience
CONTACT: Jim Vue
INQUIRY #: 7295445.2s
DATE: March 30, 2023 6:43 pm

# DETAIL MAP - 7295445.2S



- Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- ▨ National Priority List Sites
- ▨ Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- ▨ Indian Reservations BIA
- ▨ Special Flood Hazard Area (1%)
- ▨ 0.2% Annual Chance Flood Hazard
- ▦ Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

| | | | |
|---|---|---|---|
| SITE NAME: | City of Kerman - Whispering Falls Development | CLIENT: | RMA Geoscience |
| ADDRESS: | 870 S MODOC AVE<br>KERMAN CA 93630 | CONTACT: | Jim Vue |
| | | INQUIRY #: | 7295445.2s |
| LAT/LONG: | 36.721176 / 120.085249 | DATE: | March 30, 2023 6:43 pm |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| **STANDARD ENVIRONMENTAL RECORDS** | | | | | | | | |
| ***Lists of Federal NPL (Superfund) sites*** | | | | | | | | |
| NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Proposed NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| NPL LIENS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Lists of Federal Delisted NPL sites*** | | | | | | | | |
| Delisted NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Lists of Federal sites subject to CERCLA removals and CERCLA orders*** | | | | | | | | |
| FEDERAL FACILITY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SEMS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Lists of Federal CERCLA sites with NFRAP*** | | | | | | | | |
| SEMS-ARCHIVE | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Lists of Federal RCRA facilities undergoing Corrective Action*** | | | | | | | | |
| CORRACTS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Lists of Federal RCRA TSD facilities*** | | | | | | | | |
| RCRA-TSDF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Lists of Federal RCRA generators*** | | | | | | | | |
| RCRA-LQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-SQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-VSQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***Federal institutional controls / engineering controls registries*** | | | | | | | | |
| LUCIS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US ENG CONTROLS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US INST CONTROLS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Federal ERNS list*** | | | | | | | | |
| ERNS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ***Lists of state- and tribal (Superfund) equivalent sites*** | | | | | | | | |
| RESPONSE | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Lists of state- and tribal hazardous waste facilities*** | | | | | | | | |
| ENVIROSTOR | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ***Lists of state and tribal landfills and solid waste disposal facilities*** | | | | | | | | |
| SWF/LF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| ***Lists of state and tribal leaking storage tanks*** | | | | | | | | |
| LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| INDIAN LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| CPS-SLIC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Lists of state and tribal registered storage tanks*** | | | | | | | | |
| FEMA UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| AST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| INDIAN UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***Lists of state and tribal voluntary cleanup sites*** | | | | | | | | |
| INDIAN VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Lists of state and tribal brownfield sites*** | | | | | | | | |
| BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| **ADDITIONAL ENVIRONMENTAL RECORDS** | | | | | | | | |
| ***Local Brownfield lists*** | | | | | | | | |
| US BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Local Lists of Landfill / Solid Waste Disposal Sites*** | | | | | | | | |
| WMUDS/SWAT | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SWRCY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HAULERS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| INDIAN ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| DEBRIS REGION 9 | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| IHS OPEN DUMPS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Local Lists of Hazardous waste / Contaminated Sites*** | | | | | | | | |
| US HIST CDL | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| HIST Cal-Sites | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCH | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| CDL | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| CERS HAZ WASTE | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| Toxic Pits | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| US CDL | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ***Local Lists of Registered Storage Tanks*** | | | | | | | | |
| SWEEPS UST | 0.250 | | 0 | 1 | NR | NR | NR | 1 |
| HIST UST | 0.250 | | 0 | 1 | NR | NR | NR | 1 |
| CERS TANKS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| CA FID UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ***Local Land Records*** | | | | | | | | |
| LIENS | 0.001 | | 0 | NR | NR | NR | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| LIENS 2 | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| DEED | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ***Records of Emergency Release Reports*** | | | | | | | | |
| HMIRS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| CHMIRS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| LDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| MCS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| SPILLS 90 | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ***Other Ascertainable Records*** | | | | | | | | |
| RCRA NonGen / NLR | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FUDS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| DOD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCRD DRYCLEANERS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US FIN ASSUR | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| EPA WATCH LIST | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| 2020 COR ACTION | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| TSCA | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| TRIS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| SSTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ROD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| RMP | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| RAATS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PRP | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PADS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ICIS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| FTTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| MLTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| COAL ASH DOE | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| COAL ASH EPA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| PCB TRANSFORMER | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| RADINFO | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| HIST FTTS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| DOT OPS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| CONSENT | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| INDIAN RESERV | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| FUSRAP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| UMTRA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| LEAD SMELTERS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| US AIRS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| US MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ABANDONED MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FINDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| DOCKET HWC | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ECHO | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| UXO | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| FUELS PROGRAM | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS NPL | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS FEDERAL SITES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS TSCA | 0.250 | | 0 | 0 | NR | NR | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| PFAS RCRA MANIFEST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS ATSDR | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS WQP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS NPDES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS ECHO | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS ECHO FIRE TRAINING | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS PART 139 AIRPORT | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| AQUEOUS FOAM NRC | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| PFAS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| AQUEOUS FOAM | TP | | NR | NR | NR | NR | NR | 0 |
| CA BOND EXP. PLAN | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Cortese | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| CUPA Listings | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| DRYCLEANERS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| EMI | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ENF | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| Financial Assurance | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| ICE | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| HIST CORTESE | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HWP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| HWT | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| HAZNET | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| MWMP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| NPDES | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PEST LIC | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PROC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Notify 65 | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| HAZMAT | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| UIC | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| UIC GEO | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| WASTEWATER PITS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| WDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| WIP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| MILITARY PRIV SITES | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PROJECT | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| WDR | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| CIWQS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| CERS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| NON-CASE INFO | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| OTHER OIL GAS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PROD WATER PONDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| SAMPLING POINT | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| WELL STIM PROJ | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| PFAS TRIS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| HWTS | TP | | NR | NR | NR | NR | NR | 0 |
| MINES MRDS | 0.001 | | 0 | NR | NR | NR | NR | 0 |

## EDR HIGH RISK HISTORICAL RECORDS

### *EDR Exclusive Records*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EDR MGP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |

# MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|---|---|---|---|---|---|---|---|
| EDR Hist Auto | 0.125 | | 0 | NR | NR | NR | NR | 0 |
| EDR Hist Cleaner | 0.125 | | 0 | NR | NR | NR | NR | 0 |
| **EDR RECOVERED GOVERNMENT ARCHIVES** | | | | | | | | |
| ***Exclusive Recovered Govt. Archives*** | | | | | | | | |
| RGA LF | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| RGA LUST | 0.001 | | 0 | NR | NR | NR | NR | 0 |
| - Totals -- | | 0 | 0 | 2 | 0 | 0 | 0 | 2 |

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

| | | | |
|---|---|---|---|
| **1**<br>**East**<br>**1/8-1/4**<br>**0.247 mi.**<br>**1302 ft.** | **JOHN E CHERNEKOFF**<br>**909 S SISKIYOU**<br>**KERMAN, CA 93630** | **SWEEPS UST**<br>**HIST UST** | **U001588562**<br>**N/A** |

**Relative:**
**Higher**

**Actual:**
**214 ft.**

SWEEPS UST:

| | |
|---|---|
| Name: | JOHN E. CHERNEKOFF |
| Address: | 909 S SISKIYOU |
| City: | KERMAN |
| Status: | Active |
| Comp Number: | 30453 |
| Number: | 9 |
| Board Of Equalization: | Not reported |
| Referral Date: | 07-01-85 |
| Action Date: | Not reported |
| Created Date: | 02-29-88 |
| Owner Tank Id: | 1 |
| SWRCB Tank Id: | 10-000-030453-000001 |
| Tank Status: | A |
| Capacity: | 350 |
| Active Date: | 07-01-85 |
| Tank Use: | M.V. FUEL |
| STG: | P |
| Content: | DIESEL |
| Number Of Tanks: | 1 |

HIST UST:

| | |
|---|---|
| Name: | JOHN E CHERNEKOFF |
| Address: | 909 S SISKIYOU |
| City,State,Zip: | KERMAN, CA 93630 |
| File Number: | 00024772 |
| URL: | https://documents.geotracker.waterboards.ca.gov/ustpdfs/pdf/00024772.pdf |
| Region: | STATE |
| Facility ID: | 00000030453 |
| Facility Type: | Other |
| Other Type: | FARM |
| Contact Name: | MICHAEL J. CHERNEKOFF |
| Telephone: | 2098469522 |
| Owner Name: | JOHN E. CHERNEKOFF |
| Owner Address: | 16540 W. MCKINLEY |
| Owner City,St,Zip: | KERMAN, CA 93630 |
| Total Tanks: | 0001 |

| | |
|---|---|
| Tank Num: | 001 |
| Container Num: | 1 |
| Year Installed: | Not reported |
| Tank Capacity: | 00000350 |
| Tank Used for: | PRODUCT |
| Type of Fuel: | DIESEL |
| Container Construction Thickness: | 12 |
| Leak Detection: | None |

Click here for Geo Tracker PDF:

Count: 1 records.

## ORPHAN SUMMARY

| City | EDR ID | Site Name | Site Address | Zip | Database(s) |
|---|---|---|---|---|---|
| KERMAN | S101480241 | KERMAN CITY DUMPSITE #2 | NEAR LASSEN & JENSEN | 93630 | ENVIROSTOR |

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## STANDARD ENVIRONMENTAL RECORDS

### *Lists of Federal NPL (Superfund) sites*

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA’s Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 25

Source: EPA
Telephone: N/A
Last EDR Contact: 03/01/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA’s Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 03/01/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

### *Lists of Federal Delisted NPL sites*

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 03/01/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

### *Lists of Federal sites subject to CERCLA removals and CERCLA orders*

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 03/28/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/01/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Quarterly

### *Lists of Federal CERCLA sites with NFRAP*

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

| | |
|---|---|
| Date of Government Version: 01/25/2023 | Source: EPA |
| Date Data Arrived at EDR: 02/02/2023 | Telephone: 800-424-9346 |
| Date Made Active in Reports: 02/28/2023 | Last EDR Contact: 03/01/2023 |
| Number of Days to Update: 26 | Next Scheduled EDR Contact: 04/24/2023 |
| | Data Release Frequency: Quarterly |

***Lists of Federal RCRA facilities undergoing Corrective Action***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

| | |
|---|---|
| Date of Government Version: 03/06/2023 | Source: EPA |
| Date Data Arrived at EDR: 03/09/2023 | Telephone: 800-424-9346 |
| Date Made Active in Reports: 03/20/2023 | Last EDR Contact: 03/09/2023 |
| Number of Days to Update: 11 | Next Scheduled EDR Contact: 07/03/2023 |
| | Data Release Frequency: Quarterly |

***Lists of Federal RCRA TSD facilities***

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

| | |
|---|---|
| Date of Government Version: 03/06/2023 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 03/09/2023 | Telephone: (415) 495-8895 |
| Date Made Active in Reports: 03/20/2023 | Last EDR Contact: 03/09/2023 |
| Number of Days to Update: 11 | Next Scheduled EDR Contact: 07/03/2023 |
| | Data Release Frequency: Quarterly |

***Lists of Federal RCRA generators***

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

| | |
|---|---|
| Date of Government Version: 03/06/2023 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 03/09/2023 | Telephone: (415) 495-8895 |
| Date Made Active in Reports: 03/20/2023 | Last EDR Contact: 03/09/2023 |
| Number of Days to Update: 11 | Next Scheduled EDR Contact: 07/03/2023 |
| | Data Release Frequency: Quarterly |

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

### ***Federal institutional controls / engineering controls registries***

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/02/2022
Date Data Arrived at EDR: 11/08/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/03/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/21/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

***Federal ERNS list***

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 12/19/2022
Number of Days to Update: 5

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

***Lists of state- and tribal (Superfund) equivalent sites***

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

***Lists of state- and tribal hazardous waste facilities***

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control’s (DTSC’s) Site Mitigation and Brownfields Reuse Program’s (SMBRP’s) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

***Lists of state and tribal landfills and solid waste disposal facilities***

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/03/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 83

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/07/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: Quarterly

***Lists of state and tribal leaking storage tanks***

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/26/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L:  SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source:  California Regional Water Quality Control Board, Lahontan Region
Telephone:  530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7:  SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source:  California Regional Quality Control Board, Colorado River Basin Region
Telephone:  760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8:  Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source:  California Region Water Quality Control Board Santa Ana Region (8)
Telephone:  951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9:  Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source:  California Regional Water Quality Control Board San Diego Region (9)
Telephone:  858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

***Lists of state and tribal registered storage tanks***

FEMA UST:  Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source:  FEMA
Telephone:  202-646-5797
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Varies

MILITARY UST SITES:  Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source:  State Water Resources Control Board
Telephone:  866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/19/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/23/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/14/2022
Date Data Arrived at EDR: 12/06/2022
Date Made Active in Reports: 03/03/2023
Number of Days to Update: 87

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

### *Lists of state and tribal voluntary cleanup sites*

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC’s costs.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/17/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

### *Lists of state and tribal brownfield sites*

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/14/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

## ADDITIONAL ENVIRONMENTAL RECORDS

### *Local Brownfield lists*

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/14/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Semi-Annually

### *Local Lists of Landfill / Solid Waste Disposal Sites*

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/22/2023
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 83

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

***Local Lists of Hazardous waste / Contaminated Sites***

US HIST CDL:  National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8

Source:  Drug Enforcement Administration
Telephone:  202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

HIST CAL-SITES:  Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source:  Department of Toxic Substance Control
Telephone:  916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH:  School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source:  Department of Toxic Substances Control
Telephone:  916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

CDL:  Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 71

Source:  Department of Toxic Substances Control
Telephone:  916-255-6504
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

TOXIC PITS:  Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source:  State Water Resources Control Board
Telephone:  916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE:  CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/11/2023
Number of Days to Update: 5

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 8

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Quarterly

***Local Lists of Registered Storage Tanks***

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990’s. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/24/2023
Number of Days to Update: 78

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

| | |
|---|---|
| Date of Government Version: 01/06/2023 | Source: California Environmental Protection Agency |
| Date Data Arrived at EDR: 01/06/2023 | Telephone: 916-323-2514 |
| Date Made Active in Reports: 01/11/2023 | Last EDR Contact: 10/17/2022 |
| Number of Days to Update: 5 | Next Scheduled EDR Contact: 05/01/2023 |
| | Data Release Frequency: Quarterly |

***Local Land Records***

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

| | |
|---|---|
| Date of Government Version: 02/23/2023 | Source: Department of Toxic Substances Control |
| Date Data Arrived at EDR: 02/24/2023 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 03/23/2023 | Last EDR Contact: 02/23/2023 |
| Number of Days to Update: 27 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: Varies |

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

| | |
|---|---|
| Date of Government Version: 01/25/2023 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 02/02/2023 | Telephone: 202-564-6023 |
| Date Made Active in Reports: 02/28/2023 | Last EDR Contact: 03/01/2023 |
| Number of Days to Update: 26 | Next Scheduled EDR Contact: 04/10/2023 |
| | Data Release Frequency: Semi-Annually |

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

| | |
|---|---|
| Date of Government Version: 11/28/2022 | Source: DTSC and SWRCB |
| Date Data Arrived at EDR: 11/29/2022 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 02/13/2023 | Last EDR Contact: 02/28/2023 |
| Number of Days to Update: 76 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: Semi-Annually |

***Records of Emergency Release Reports***

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

| | |
|---|---|
| Date of Government Version: 12/13/2022 | Source: U.S. Department of Transportation |
| Date Data Arrived at EDR: 12/14/2022 | Telephone: 202-366-4555 |
| Date Made Active in Reports: 03/10/2023 | Last EDR Contact: 03/21/2023 |
| Number of Days to Update: 86 | Next Scheduled EDR Contact: 07/03/2023 |
| | Data Release Frequency: Quarterly |

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 08/02/2022
Date Data Arrived at EDR: 10/17/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

***Other Ascertainable Records***

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/06/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 11/01/2022
Date Data Arrived at EDR: 11/10/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 91

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 01/30/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/03/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/13/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 100

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/16/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 10/17/2022
Date Data Arrived at EDR: 10/18/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 84

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/18/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/25/2023
Date Data Arrived at EDR: 02/02/2023
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 26

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/01/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 03/01/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB’s who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/04/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/26/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 13

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/03/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/27/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/03/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/23/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2022
Date Data Arrived at EDR: 10/21/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 81

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

| | |
|---|---|
| Date of Government Version: 12/31/2014 | Source: USGS |
| Date Data Arrived at EDR: 07/14/2015 | Telephone: 202-208-3710 |
| Date Made Active in Reports: 01/10/2017 | Last EDR Contact: 01/06/2023 |
| Number of Days to Update: 546 | Next Scheduled EDR Contact: 04/17/2023 |
| | Data Release Frequency: Semi-Annually |

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

| | |
|---|---|
| Date of Government Version: 07/26/2021 | Source: Department of Energy |
| Date Data Arrived at EDR: 07/27/2021 | Telephone: 202-586-3559 |
| Date Made Active in Reports: 10/22/2021 | Last EDR Contact: 01/30/2023 |
| Number of Days to Update: 87 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Varies |

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

| | |
|---|---|
| Date of Government Version: 08/30/2019 | Source: Department of Energy |
| Date Data Arrived at EDR: 11/15/2019 | Telephone: 505-845-0011 |
| Date Made Active in Reports: 01/28/2020 | Last EDR Contact: 02/13/2023 |
| Number of Days to Update: 74 | Next Scheduled EDR Contact: 05/29/2023 |
| | Data Release Frequency: Varies |

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

| | |
|---|---|
| Date of Government Version: 01/25/2023 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 02/02/2023 | Telephone: 703-603-8787 |
| Date Made Active in Reports: 02/28/2023 | Last EDR Contact: 03/01/2023 |
| Number of Days to Update: 26 | Next Scheduled EDR Contact: 04/10/2023 |
| | Data Release Frequency: Varies |

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

| | |
|---|---|
| Date of Government Version: 04/05/2001 | Source: American Journal of Public Health |
| Date Data Arrived at EDR: 10/27/2010 | Telephone: 703-305-6451 |
| Date Made Active in Reports: 12/02/2010 | Last EDR Contact: 12/02/2009 |
| Number of Days to Update: 36 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

| | |
|---|---|
| Date of Government Version: 10/12/2016 | Source: EPA |
| Date Data Arrived at EDR: 10/26/2016 | Telephone: 202-564-2496 |
| Date Made Active in Reports: 02/03/2017 | Last EDR Contact: 09/26/2017 |
| Number of Days to Update: 100 | Next Scheduled EDR Contact: 01/08/2018 |
| | Data Release Frequency: Annually |

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

| | |
|---|---|
| Date of Government Version: 10/12/2016 | Source: EPA |
| Date Data Arrived at EDR: 10/26/2016 | Telephone: 202-564-2496 |
| Date Made Active in Reports: 02/03/2017 | Last EDR Contact: 09/26/2017 |
| Number of Days to Update: 100 | Next Scheduled EDR Contact: 01/08/2018 |
| | Data Release Frequency: Annually |

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

| | |
|---|---|
| Date of Government Version: 11/07/2022 | Source: Department of Labor, Mine Safety and Health Administration |
| Date Data Arrived at EDR: 11/17/2022 | Telephone: 303-231-5959 |
| Date Made Active in Reports: 02/10/2023 | Last EDR Contact: 02/22/2023 |
| Number of Days to Update: 85 | Next Scheduled EDR Contact: 06/05/2023 |
| | Data Release Frequency: Semi-Annually |

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

| | |
|---|---|
| Date of Government Version: 02/27/2023 | Source: DOL, Mine Safety & Health Admi |
| Date Data Arrived at EDR: 03/01/2023 | Telephone: 202-693-9424 |
| Date Made Active in Reports: 03/24/2023 | Last EDR Contact: 02/23/2023 |
| Number of Days to Update: 23 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: Quarterly |

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

| | |
|---|---|
| Date of Government Version: 05/06/2020 | Source: USGS |
| Date Data Arrived at EDR: 05/27/2020 | Telephone: 703-648-7709 |
| Date Made Active in Reports: 08/13/2020 | Last EDR Contact: 02/24/2023 |
| Number of Days to Update: 78 | Next Scheduled EDR Contact: 06/05/2023 |
| | Data Release Frequency: Varies |

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

| | |
|---|---|
| Date of Government Version: 04/14/2011 | Source: USGS |
| Date Data Arrived at EDR: 06/08/2011 | Telephone: 703-648-7709 |
| Date Made Active in Reports: 09/13/2011 | Last EDR Contact: 02/24/2023 |
| Number of Days to Update: 97 | Next Scheduled EDR Contact: 06/05/2023 |
| | Data Release Frequency: Varies |

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/20/2022
Date Data Arrived at EDR: 12/20/2022
Date Made Active in Reports: 03/10/2023
Number of Days to Update: 80

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/02/2023
Date Data Arrived at EDR: 02/28/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 24

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/25/2022
Date Data Arrived at EDR: 09/30/2022
Date Made Active in Reports: 12/22/2022
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/04/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/09/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/10/2022
Date Data Arrived at EDR: 11/10/2022
Date Made Active in Reports: 02/09/2023
Number of Days to Update: 91

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 123

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 01/10/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 01/23/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 10/26/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 09/06/2022
Date Data Arrived at EDR: 09/06/2022
Date Made Active in Reports: 10/26/2022
Number of Days to Update: 50

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/14/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/21/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 02/10/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 11/14/2022
Date Data Arrived at EDR: 11/14/2022
Date Made Active in Reports: 02/01/2023
Number of Days to Update: 79

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner’s agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 11/17/2022
Date Data Arrived at EDR: 11/30/2022
Date Made Active in Reports: 02/14/2023
Number of Days to Update: 76

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 10/17/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/18/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 10/12/2022
Date Data Arrived at EDR: 10/12/2022
Date Made Active in Reports: 12/29/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/08/2022
Date Data Arrived at EDR: 11/23/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 82

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/03/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: Varies

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/10/2022
Date Data Arrived at EDR: 11/10/2022
Date Made Active in Reports: 02/01/2023
Number of Days to Update: 83

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/10/2022
Date Data Arrived at EDR: 11/10/2022
Date Made Active in Reports: 02/01/2023
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/14/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/03/2023
Date Data Arrived at EDR: 01/04/2023
Date Made Active in Reports: 03/21/2023
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/04/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

| | |
|---|---|
| Date of Government Version: 12/02/2022 | Source: Department of Conservation |
| Date Data Arrived at EDR: 12/02/2022 | Telephone: 916-322-1080 |
| Date Made Active in Reports: 02/22/2023 | Last EDR Contact: 03/07/2023 |
| Number of Days to Update: 82 | Next Scheduled EDR Contact: 06/19/2023 |
| | Data Release Frequency: Quarterly |

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

| | |
|---|---|
| Date of Government Version: 10/31/2022 | Source: Department of Public Health |
| Date Data Arrived at EDR: 11/29/2022 | Telephone: 916-558-1784 |
| Date Made Active in Reports: 02/14/2023 | Last EDR Contact: 02/28/2023 |
| Number of Days to Update: 77 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: Varies |

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

| | |
|---|---|
| Date of Government Version: 11/03/2022 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 11/03/2022 | Telephone: 916-445-9379 |
| Date Made Active in Reports: 01/25/2023 | Last EDR Contact: 02/07/2023 |
| Number of Days to Update: 83 | Next Scheduled EDR Contact: 05/22/2023 |
| | Data Release Frequency: Quarterly |

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

| | |
|---|---|
| Date of Government Version: 11/28/2022 | Source: Department of Pesticide Regulation |
| Date Data Arrived at EDR: 11/29/2022 | Telephone: 916-445-4038 |
| Date Made Active in Reports: 02/14/2023 | Last EDR Contact: 02/28/2023 |
| Number of Days to Update: 77 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: Quarterly |

PROC: Certified Processors Database

A listing of certified processors.

| | |
|---|---|
| Date of Government Version: 12/02/2022 | Source: Department of Conservation |
| Date Data Arrived at EDR: 12/02/2022 | Telephone: 916-323-3836 |
| Date Made Active in Reports: 02/22/2023 | Last EDR Contact: 03/07/2023 |
| Number of Days to Update: 82 | Next Scheduled EDR Contact: 06/19/2023 |
| | Data Release Frequency: Quarterly |

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

| | |
|---|---|
| Date of Government Version: 12/07/2022 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 12/07/2022 | Telephone: 916-445-3846 |
| Date Made Active in Reports: 03/01/2023 | Last EDR Contact: 03/09/2023 |
| Number of Days to Update: 84 | Next Scheduled EDR Contact: 06/26/2023 |
| | Data Release Frequency: No Update Planned |

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

| | |
|---|---|
| Date of Government Version: 11/03/2020 | Source: City of San Jose Fire Department |
| Date Data Arrived at EDR: 11/05/2020 | Telephone: 408-535-7694 |
| Date Made Active in Reports: 01/26/2021 | Last EDR Contact: 01/27/2023 |
| Number of Days to Update: 82 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Annually |

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

| | |
|---|---|
| Date of Government Version: 12/02/2022 | Source: Deaprtment of Conservation |
| Date Data Arrived at EDR: 12/02/2022 | Telephone: 916-445-2408 |
| Date Made Active in Reports: 02/22/2023 | Last EDR Contact: 03/07/2023 |
| Number of Days to Update: 82 | Next Scheduled EDR Contact: 06/19/2023 |
| | Data Release Frequency: Varies |

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

| | |
|---|---|
| Date of Government Version: 12/02/2022 | Source: State Water Resource Control Board |
| Date Data Arrived at EDR: 12/02/2022 | Telephone: 866-480-1028 |
| Date Made Active in Reports: 02/21/2023 | Last EDR Contact: 03/07/2023 |
| Number of Days to Update: 81 | Next Scheduled EDR Contact: 06/19/2023 |
| | Data Release Frequency: Varies |

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region’s active disposal pits are operating without permission.

| | |
|---|---|
| Date of Government Version: 02/11/2021 | Source: RWQCB, Central Valley Region |
| Date Data Arrived at EDR: 07/01/2021 | Telephone: 559-445-5577 |
| Date Made Active in Reports: 09/29/2021 | Last EDR Contact: 01/06/2023 |
| Number of Days to Update: 90 | Next Scheduled EDR Contact: 04/17/2023 |
| | Data Release Frequency: Varies |

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

| | |
|---|---|
| Date of Government Version: 06/19/2007 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 06/20/2007 | Telephone: 916-341-5227 |
| Date Made Active in Reports: 06/29/2007 | Last EDR Contact: 02/13/2023 |
| Number of Days to Update: 9 | Next Scheduled EDR Contact: 05/29/2023 |
| | Data Release Frequency: No Update Planned |

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

| | |
|---|---|
| Date of Government Version: 07/03/2009 | Source: Los Angeles Water Quality Control Board |
| Date Data Arrived at EDR: 07/21/2009 | Telephone: 213-576-6726 |
| Date Made Active in Reports: 08/03/2009 | Last EDR Contact: 03/16/2023 |
| Number of Days to Update: 13 | Next Scheduled EDR Contact: 07/03/2023 |
| | Data Release Frequency: No Update Planned |

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System
The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 11/29/2022
Date Made Active in Reports: 02/13/2023
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 02/28/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data
The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 4

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)
Non-Case Information sites

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)
Other Oil & Gas Projects sites

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 12/02/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/21/2023
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI
Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 03/07/2023
Date Data Arrived at EDR: 03/07/2023
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/24/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

## EDR HIGH RISK HISTORICAL RECORDS

### *EDR Exclusive Records*

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

## EDR RECOVERED GOVERNMENT ARCHIVES

### *Exclusive Recovered Govt. Archives*

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

## COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/29/2023
Next Scheduled EDR Contact: 07/17/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks
Underground storage tank sites located in Alameda county.

| | |
|---|---|
| Date of Government Version: 12/28/2022 | Source: Alameda County Environmental Health Services |
| Date Data Arrived at EDR: 12/28/2022 | Telephone: 510-567-6700 |
| Date Made Active in Reports: 03/17/2023 | Last EDR Contact: 03/29/2023 |
| Number of Days to Update: 79 | Next Scheduled EDR Contact: 07/17/2023 |
| | Data Release Frequency: Semi-Annually |

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

| | |
|---|---|
| Date of Government Version: 07/22/2022 | Source: Amador County Environmental Health |
| Date Data Arrived at EDR: 07/27/2022 | Telephone: 209-223-6439 |
| Date Made Active in Reports: 08/01/2022 | Last EDR Contact: 01/27/2023 |
| Number of Days to Update: 5 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Varies |

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

| | |
|---|---|
| Date of Government Version: 04/21/2017 | Source: Public Health Department |
| Date Data Arrived at EDR: 04/25/2017 | Telephone: 530-538-7149 |
| Date Made Active in Reports: 08/09/2017 | Last EDR Contact: 03/29/2023 |
| Number of Days to Update: 106 | Next Scheduled EDR Contact: 07/17/2023 |
| | Data Release Frequency: No Update Planned |

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

| | |
|---|---|
| Date of Government Version: 12/13/2022 | Source: Calveras County Environmental Health |
| Date Data Arrived at EDR: 12/15/2022 | Telephone: 209-754-6399 |
| Date Made Active in Reports: 12/21/2022 | Last EDR Contact: 03/16/2023 |
| Number of Days to Update: 6 | Next Scheduled EDR Contact: 07/03/2023 |
| | Data Release Frequency: Quarterly |

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

| | |
|---|---|
| Date of Government Version: 04/06/2020 | Source: Health & Human Services |
| Date Data Arrived at EDR: 04/23/2020 | Telephone: 530-458-0396 |
| Date Made Active in Reports: 07/10/2020 | Last EDR Contact: 01/17/2023 |
| Number of Days to Update: 78 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Semi-Annually |

CONTRA COSTA COUNTY:

SL CONTRA COSTA:  Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 10/20/2022
Date Data Arrived at EDR: 10/21/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 81

Source:  Contra Costa Health Services Department
Telephone:  925-646-2286
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE:  CUPA Facility List

Cupa Facility list

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source:  Del Norte County Environmental Health Division
Telephone:  707-465-0426
Last EDR Contact: 02/03/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO:  CUPA Facility List

CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source:  El Dorado County Environmental Management Department
Telephone:  530-621-6623
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO:  CUPA Resources List

Certified Unified Program Agency. CUPA’s are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source:  Dept. of Community Health
Telephone:  559-445-3271
Last EDR Contact: 12/29/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN:  CUPA Facility List

Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source:  Glenn County Air Pollution Control District
Telephone:  830-934-6500
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/12/2022
Date Made Active in Reports: 12/29/2022
Number of Days to Update: 78

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/05/2022
Date Made Active in Reports: 12/16/2022
Number of Days to Update: 72

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/05/2022
Date Made Active in Reports: 12/16/2022
Number of Days to Update: 72

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county’s Certified Unified Program Agency database. California’s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

| | |
|---|---|
| Date of Government Version: 12/03/2020 | Source: Kings County Department of Public Health |
| Date Data Arrived at EDR: 01/26/2021 | Telephone: 559-584-1411 |
| Date Made Active in Reports: 04/14/2021 | Last EDR Contact: 02/09/2023 |
| Number of Days to Update: 78 | Next Scheduled EDR Contact: 05/29/2023 |
| | Data Release Frequency: Varies |

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

| | |
|---|---|
| Date of Government Version: 11/04/2022 | Source: Lake County Environmental Health |
| Date Data Arrived at EDR: 11/07/2022 | Telephone: 707-263-1164 |
| Date Made Active in Reports: 01/25/2023 | Last EDR Contact: 03/10/2023 |
| Number of Days to Update: 79 | Next Scheduled EDR Contact: 04/24/2023 |
| | Data Release Frequency: Varies |

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

| | |
|---|---|
| Date of Government Version: 07/31/2020 | Source: Lassen County Environmental Health |
| Date Data Arrived at EDR: 08/21/2020 | Telephone: 530-251-8528 |
| Date Made Active in Reports: 11/09/2020 | Last EDR Contact: 01/13/2023 |
| Number of Days to Update: 80 | Next Scheduled EDR Contact: 05/01/2023 |
| | Data Release Frequency: Varies |

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

| | |
|---|---|
| Date of Government Version: 03/30/2009 | Source: N/A |
| Date Data Arrived at EDR: 03/31/2009 | Telephone: N/A |
| Date Made Active in Reports: 10/23/2009 | Last EDR Contact: 03/09/2023 |
| Number of Days to Update: 206 | Next Scheduled EDR Contact: 06/26/2023 |
| | Data Release Frequency: No Update Planned |

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

| | |
|---|---|
| Date of Government Version: 01/09/2023 | Source: Department of Public Works |
| Date Data Arrived at EDR: 01/12/2023 | Telephone: 626-458-3517 |
| Date Made Active in Reports: 03/29/2023 | Last EDR Contact: 03/29/2023 |
| Number of Days to Update: 76 | Next Scheduled EDR Contact: 07/17/2023 |
| | Data Release Frequency: Semi-Annually |

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

| | |
|---|---|
| Date of Government Version: 01/09/2023 | Source: La County Department of Public Works |
| Date Data Arrived at EDR: 01/10/2023 | Telephone: 818-458-5185 |
| Date Made Active in Reports: 03/23/2023 | Last EDR Contact: 01/10/2023 |
| Number of Days to Update: 72 | Next Scheduled EDR Contact: 04/24/2023 |
| | Data Release Frequency: Varies |

LF LOS ANGELES CITY: City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 11/01/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/24/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 11/01/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 03/07/2023
Number of Days to Update: 83

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/24/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/18/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List

A listing of sites included in the county’s Certified Unified Program Agency database. California’s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List

CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 01/31/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List

CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

NEVADA COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA NEVADA:  CUPA Facility List
CUPA facility list.

| | |
|---|---|
| Date of Government Version: 10/27/2022 | Source:  Community Development Agency |
| Date Data Arrived at EDR: 10/27/2022 | Telephone:  530-265-1467 |
| Date Made Active in Reports: 01/18/2023 | Last EDR Contact: 01/20/2023 |
| Number of Days to Update: 83 | Next Scheduled EDR Contact: 05/08/2023 |
| | Data Release Frequency: Varies |

ORANGE COUNTY:

IND_SITE ORANGE:  List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

| | |
|---|---|
| Date of Government Version: 05/24/2022 | Source:  Health Care Agency |
| Date Data Arrived at EDR: 08/09/2022 | Telephone:  714-834-3446 |
| Date Made Active in Reports: 10/28/2022 | Last EDR Contact: 01/31/2023 |
| Number of Days to Update: 80 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Annually |

LUST ORANGE:  List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

| | |
|---|---|
| Date of Government Version: 04/08/2022 | Source:  Health Care Agency |
| Date Data Arrived at EDR: 05/18/2022 | Telephone:  714-834-3446 |
| Date Made Active in Reports: 08/03/2022 | Last EDR Contact: 01/31/2023 |
| Number of Days to Update: 77 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Quarterly |

UST ORANGE:  List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

| | |
|---|---|
| Date of Government Version: 05/24/2022 | Source:  Health Care Agency |
| Date Data Arrived at EDR: 08/01/2022 | Telephone:  714-834-3446 |
| Date Made Active in Reports: 10/20/2022 | Last EDR Contact: 01/31/2023 |
| Number of Days to Update: 80 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Quarterly |

PLACER COUNTY:

MS PLACER:  Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

| | |
|---|---|
| Date of Government Version: 08/26/2022 | Source:  Placer County Health and Human Services |
| Date Data Arrived at EDR: 08/29/2022 | Telephone:  530-745-2363 |
| Date Made Active in Reports: 11/15/2022 | Last EDR Contact: 02/13/2023 |
| Number of Days to Update: 78 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: Semi-Annually |

PLUMAS COUNTY:

CUPA PLUMAS:  CUPA Facility List
Plumas County CUPA Program facilities.

| | |
|---|---|
| Date of Government Version: 03/31/2019 | Source:  Plumas County Environmental Health |
| Date Data Arrived at EDR: 04/23/2019 | Telephone:  530-283-6355 |
| Date Made Active in Reports: 06/26/2019 | Last EDR Contact: 01/13/2023 |
| Number of Days to Update: 64 | Next Scheduled EDR Contact: 05/01/2023 |
| | Data Release Frequency: Varies |

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 09/22/2022
Date Data Arrived at EDR: 09/26/2022
Date Made Active in Reports: 12/09/2022
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 09/22/2022
Date Data Arrived at EDR: 09/26/2022
Date Made Active in Reports: 12/09/2022
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/16/2023
Number of Days to Update: 85

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/09/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 82

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/09/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 10/28/2022
Date Made Active in Reports: 01/18/2023
Number of Days to Update: 82

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

| | |
|---|---|
| Date of Government Version: 11/18/2022 | Source: San Bernardino County Fire Department Hazardous Materials Division |
| Date Data Arrived at EDR: 11/21/2022 | Telephone: 909-387-3041 |
| Date Made Active in Reports: 02/09/2023 | Last EDR Contact: 01/30/2023 |
| Number of Days to Update: 80 | Next Scheduled EDR Contact: 05/15/2023 |
| | Data Release Frequency: Quarterly |

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

| | |
|---|---|
| Date of Government Version: 11/28/2022 | Source: Hazardous Materials Management Division |
| Date Data Arrived at EDR: 11/29/2022 | Telephone: 619-338-2268 |
| Date Made Active in Reports: 02/14/2023 | Last EDR Contact: 02/28/2023 |
| Number of Days to Update: 77 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: Quarterly |

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

| | |
|---|---|
| Date of Government Version: 10/27/2021 | Source: Department of Health Services |
| Date Data Arrived at EDR: 03/04/2022 | Telephone: 619-338-2209 |
| Date Made Active in Reports: 05/31/2022 | Last EDR Contact: 01/13/2023 |
| Number of Days to Update: 88 | Next Scheduled EDR Contact: 05/01/2023 |
| | Data Release Frequency: Varies |

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

| | |
|---|---|
| Date of Government Version: 07/22/2021 | Source: Department of Environmental Health |
| Date Data Arrived at EDR: 10/19/2021 | Telephone: 858-505-6874 |
| Date Made Active in Reports: 01/13/2022 | Last EDR Contact: 01/13/2023 |
| Number of Days to Update: 86 | Next Scheduled EDR Contact: 05/01/2023 |
| | Data Release Frequency: Varies |

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

| | |
|---|---|
| Date of Government Version: 03/23/2010 | Source: San Diego County Department of Environmental Health |
| Date Data Arrived at EDR: 06/15/2010 | Telephone: 619-338-2371 |
| Date Made Active in Reports: 07/09/2010 | Last EDR Contact: 02/23/2023 |
| Number of Days to Update: 24 | Next Scheduled EDR Contact: 06/12/2023 |
| | Data Release Frequency: No Update Planned |

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 79

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/24/2023
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/14/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 82

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/09/2023
Next Scheduled EDR Contact: 06/26/2023
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/08/2022
Date Data Arrived at EDR: 11/09/2022
Date Made Active in Reports: 02/01/2023
Number of Days to Update: 84

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/10/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/02/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List

Cupa facility list

Date of Government Version: 10/28/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 01/20/2023
Number of Days to Update: 80

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/15/2023
Next Scheduled EDR Contact: 06/05/2023
Data Release Frequency: No Update Planned

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/09/2023
Next Scheduled EDR Contact: 05/29/2023
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List

Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/28/2021
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/16/2023
Next Scheduled EDR Contact: 07/03/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/09/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 02/23/2023
Next Scheduled EDR Contact: 06/12/2023
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 11/17/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 81

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/12/2022
Date Made Active in Reports: 12/29/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List

Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/02/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2022
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2022
Date Data Arrived at EDR: 12/02/2022
Date Made Active in Reports: 02/23/2023
Number of Days to Update: 83

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/07/2023
Next Scheduled EDR Contact: 06/19/2023
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/19/2022
Date Data Arrived at EDR: 12/27/2022
Date Made Active in Reports: 03/17/2023
Number of Days to Update: 80

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/22/2023
Next Scheduled EDR Contact: 07/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/25/2022
Date Data Arrived at EDR: 10/26/2022
Date Made Active in Reports: 10/31/2022
Number of Days to Update: 5

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/16/2022
Date Data Arrived at EDR: 11/16/2022
Date Made Active in Reports: 02/06/2023
Number of Days to Update: 82

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/10/2023
Next Scheduled EDR Contact: 05/22/2023
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

| | |
|---|---|
| Date of Government Version: 06/30/2018 | Source: Department of Environmental Protection |
| Date Data Arrived at EDR: 07/19/2019 | Telephone: 717-783-8990 |
| Date Made Active in Reports: 09/10/2019 | Last EDR Contact: 01/06/2023 |
| Number of Days to Update: 53 | Next Scheduled EDR Contact: 04/24/2023 |
| | Data Release Frequency: Annually |

RI MANIFEST: Manifest information
Hazardous waste manifest information

| | |
|---|---|
| Date of Government Version: 12/31/2020 | Source: Department of Environmental Management |
| Date Data Arrived at EDR: 11/30/2021 | Telephone: 401-222-2797 |
| Date Made Active in Reports: 02/18/2022 | Last EDR Contact: 02/13/2022 |
| Number of Days to Update: 80 | Next Scheduled EDR Contact: 05/29/2023 |
| | Data Release Frequency: Annually |

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

| | |
|---|---|
| Date of Government Version: 05/31/2018 | Source: Department of Natural Resources |
| Date Data Arrived at EDR: 06/19/2019 | Telephone: N/A |
| Date Made Active in Reports: 09/03/2019 | Last EDR Contact: 03/06/2023 |
| Number of Days to Update: 76 | Next Scheduled EDR Contact: 06/19/2023 |
| | Data Release Frequency: Annually |

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association’s annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics’ primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

**STREET AND ADDRESS INFORMATION**

# GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

**TARGET PROPERTY ADDRESS**

CITY OF KERMAN - WHISPERING FALLS DEVELOPMENT
870 S MODOC AVE
KERMAN, CA 93630

**TARGET PROPERTY COORDINATES**

| | |
|---|---|
| Latitude (North): | 36.721176 - 36˚ 43’ 16.23’’ |
| Longitude (West): | 120.085249 - 120˚ 5’ 6.90’’ |
| Universal Tranverse Mercator: | Zone 10 |
| UTM X (Meters): | 760325.6 |
| UTM Y (Meters): | 4067701.0 |
| Elevation: | 209 ft. above sea level |

**USGS TOPOGRAPHIC MAP**

| | |
|---|---|
| Target Property Map: | 12002684 KERMAN, CA |
| Version Date: | 2018 |

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

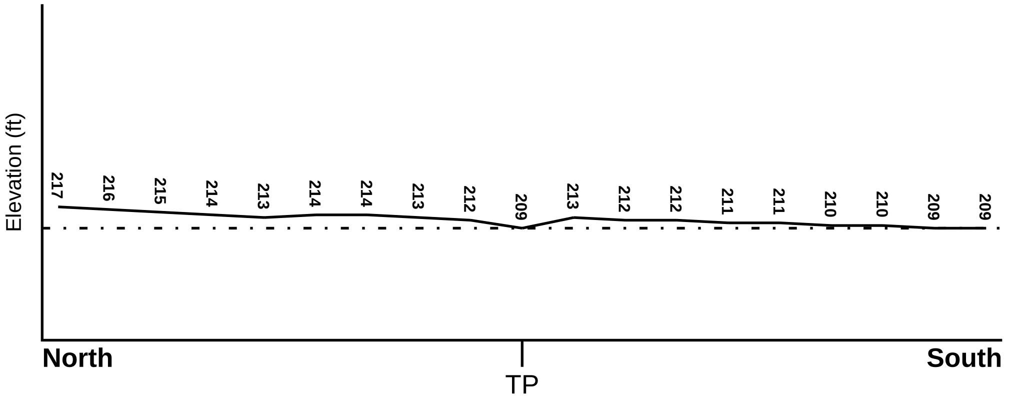
## TOPOGRAPHIC INFORMATION

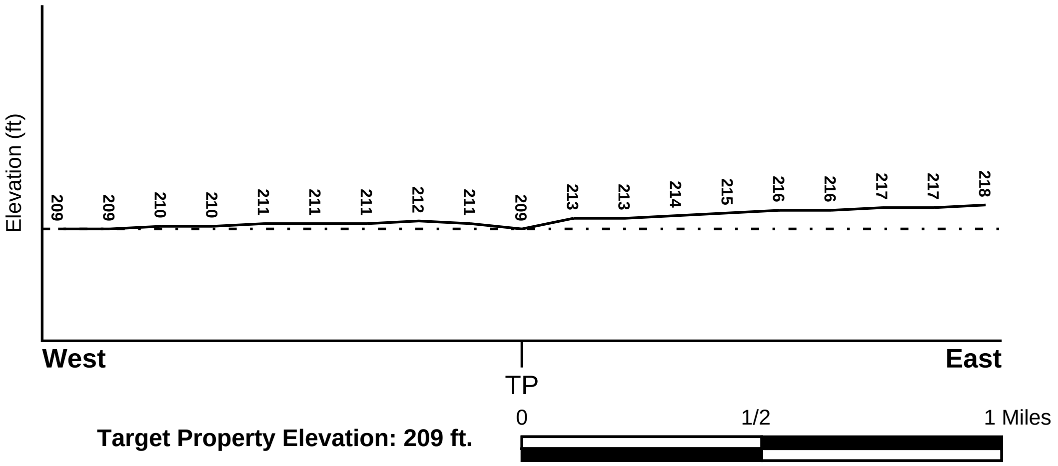
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WSW

### SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





**Target Property Elevation: 209 ft.**

Source: Topography has been determined from the USGS 7.5’ Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

### FEMA FLOOD ZONE

| Flood Plain Panel at Target Property | FEMA Source Type |
|---|---|
| 06019C2075H | FEMA FIRM Flood data |

| Additional Panels in search area: | FEMA Source Type |
|---|---|
| Not Reported | |

### NATIONAL WETLAND INVENTORY

| NWI Quad at Target Property | NWI Electronic Data Coverage |
|---|---|
| KERMAN | YES - refer to the Overview Map and Detail Map |

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

***Site-Specific Hydrogeological Data*:***

| | |
|---|---|
| Search Radius: | 1.25 miles |
| Status: | Not found |

## AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

| MAP ID | LOCATION FROM TP | GENERAL DIRECTION GROUNDWATER FLOW |
|---|---|---|
| Not Reported | | |

---

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

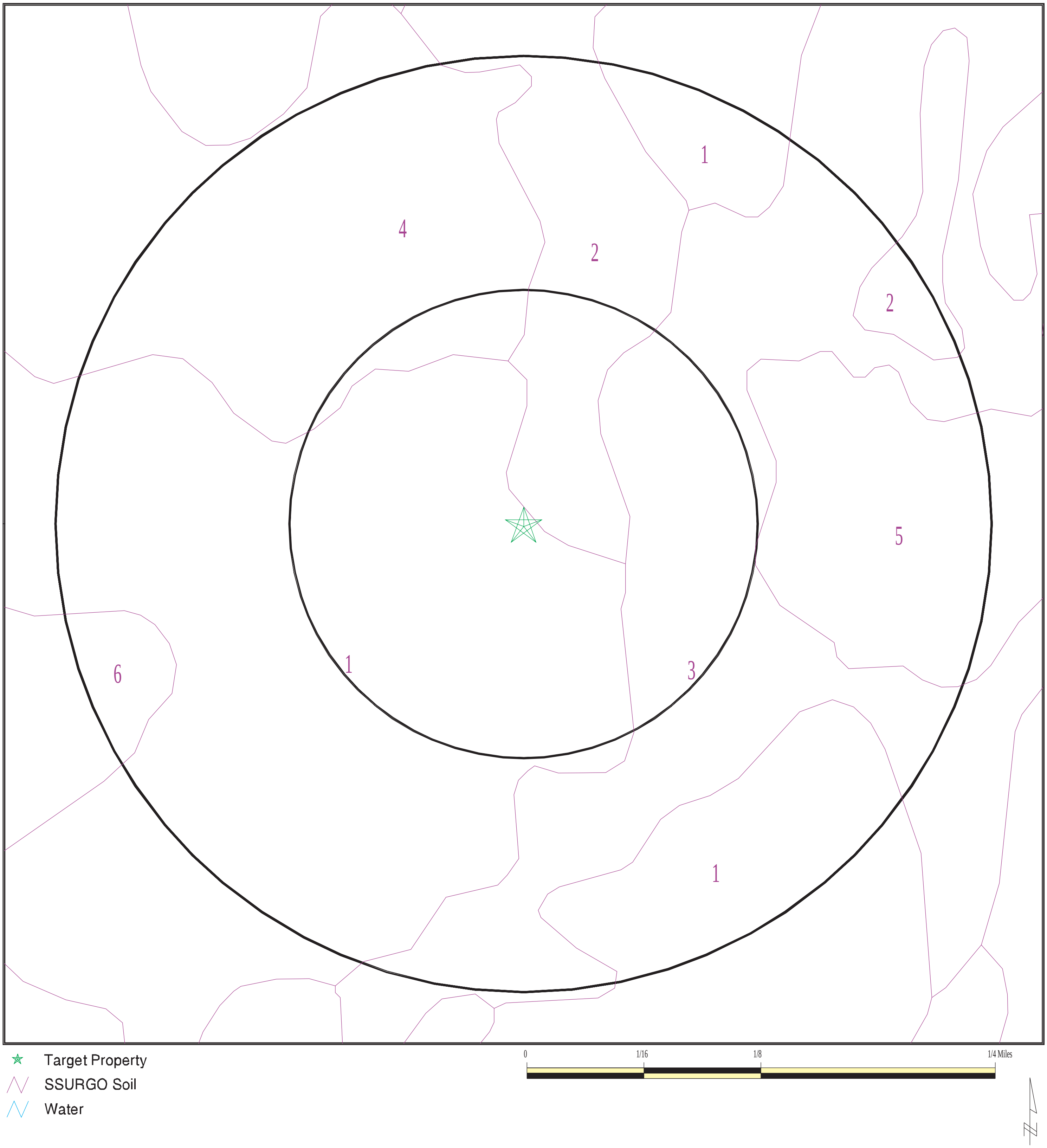
## GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

| **ROCK STRATIGRAPHIC UNIT** | | **GEOLOGIC AGE IDENTIFICATION** | |
|---|---|---|---|
| Era: | Cenozoic | Category: | Stratifed Sequence |
| System: | Quaternary | | |
| Series: | Quaternary | | |
| Code: | Q *(decoded above as Era, System & Series)* | | |

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 7295445.2s



SITE NAME: City of Kerman - Whispering Falls Development
ADDRESS: 870 S MODOC AVE
KERMAN CA 93630
LAT/LONG: 36.721176 / 120.085249

CLIENT: RMA Geoscience
CONTACT: Jim Vue
INQUIRY #: 7295445.2s
DATE: March 30, 2023 6:44 pm

## DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

---

**Soil Map ID: 1**

| | |
|---|---|
| Soil Component Name: | HESPERIA |
| Soil Surface Texture: | sandy loam |
| Hydrologic Group: | Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures. |
| Soil Drainage Class: | Well drained |
| Hydric Status: Partially hydric | |
| Corrosion Potential - Uncoated Steel: | High |
| Depth to Bedrock Min: | > 0 inches |
| Depth to Watertable Min: | > 0 inches |

**Soil Layer Information**

| | Boundary | | | Classification | | | |
|---|---|---|---|---|---|---|---|
| **Layer** | **Upper** | **Lower** | **Soil Texture Class** | **AASHTO Group** | **Unified Soil** | **Saturated hydraulic conductivity micro m/sec** | **Soil Reaction (pH)** |
| 1 | 0 inches | 11 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 8.4<br>Min: 7.4 |
| 2 | 11 inches | 31 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 8.4<br>Min: 7.4 |
| 3 | 31 inches | 42 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 8.4<br>Min: 7.4 |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 4 | 42 inches | 59 inches | silt | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 8.4<br>Min: 7.4 |

---

**Soil Map ID: 2**

| | |
|---|---|
| Soil Component Name: | TRAVER |
| Soil Surface Texture: | sandy loam |
| Hydrologic Group: | Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer. |
| Soil Drainage Class: | Well drained |

Hydric Status: Partially hydric

| | |
|---|---|
| Corrosion Potential - Uncoated Steel: | High |
| Depth to Bedrock Min: | > 0 inches |
| Depth to Watertable Min: | > 0 inches |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 9 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 7.8 |
| 2 | 9 inches | 22 inches | sandy clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 7.8 |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 3 | 22 inches | 35 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 7.8 |
| 4 | 35 inches | 59 inches | silt | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 7.8 |

---

**Soil Map ID: 3**

| | |
|---|---|
| Soil Component Name: | HANFORD |
| Soil Surface Texture: | coarse sandy loam |
| Hydrologic Group: | Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures. |
| Soil Drainage Class: | Well drained |

Hydric Status: Not hydric

| | |
|---|---|
| Corrosion Potential - Uncoated Steel: | Moderate |
| Depth to Bedrock Min: | > 0 inches |
| Depth to Watertable Min: | > 0 inches |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 16 inches | coarse sandy loam | Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand. | COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 42<br>Min: 14 | Max: 7.3<br>Min: 6.1 |

**Soil Layer Information**

|  | Boundary |  |  | Classification |  | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
|---|---|---|---|---|---|---|---|
| **Layer** | **Upper** | **Lower** | **Soil Texture Class** | **AASHTO Group** | **Unified Soil** |  |  |
| 2 | 16 inches | 72 inches | coarse sandy loam | Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand. | COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 42<br>Min: 14 | Max: 7.3<br>Min: 6.1 |

---

**Soil Map ID: 4**

Soil Component Name: EL PECO

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

**Soil Layer Information**

|  | Boundary |  |  | Classification |  | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
|---|---|---|---|---|---|---|---|
| **Layer** | **Upper** | **Lower** | **Soil Texture Class** | **AASHTO Group** | **Unified Soil** |  |  |
| 1 | 0 inches | 9 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 8.4 |
| 2 | 9 inches | 22 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 8.4 |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | | |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| 3 | 22 inches | 33 inches | cemented | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 8.4 |
| 4 | 33 inches | 59 inches | stratified silt to silt loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 9.6<br>Min: 8.4 |

---

**Soil Map ID: 5**

| | |
|---|---|
| Soil Component Name: | HESPERIA |
| Soil Surface Texture: | sandy loam |
| Hydrologic Group: | Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures. |
| Soil Drainage Class: | Well drained |
| Hydric Status: Not hydric | |
| Corrosion Potential - Uncoated Steel: | High |
| Depth to Bedrock Min: | > 0 inches |
| Depth to Watertable Min: | > 0 inches |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | | |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| 1 | 0 inches | 11 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 8.4<br>Min: 7.4 |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 2 | 11 inches | 18 inches | sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 8.4<br>Min: 7.4 |
| 3 | 18 inches | 59 inches | silt | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt. | Max: 1.4<br>Min: 0.42 | Max: 8.4<br>Min: 7.4 |

---

**Soil Map ID: 6**

| | |
|---|---|
| Soil Component Name: | FRESNO |
| Soil Surface Texture: | fine sandy loam |
| Hydrologic Group: | Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures. |
| Soil Drainage Class: | Somewhat poorly drained |

Hydric Status: Partially hydric

| | |
|---|---|
| Corrosion Potential - Uncoated Steel: | High |
| Depth to Bedrock Min: | > 0 inches |
| Depth to Watertable Min: | > 0 inches |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 1 | 0 inches | 5 inches | fine sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 4<br>Min: 1.4 | Max: 9.6<br>Min: 7.8 |

| Soil Layer Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Boundary | | | Classification | | Saturated hydraulic conductivity micro m/sec | Soil Reaction (pH) |
| Layer | Upper | Lower | Soil Texture Class | AASHTO Group | Unified Soil | | |
| 2 | 5 inches | 20 inches | clay loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 4<br>Min: 1.4 | Max: 9.6<br>Min: 7.8 |
| 3 | 20 inches | 27 inches | cemented | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 4<br>Min: 1.4 | Max: 9.6<br>Min: 7.8 |
| 4 | 38 inches | 62 inches | stratified fine sand to sandy loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 4<br>Min: 1.4 | Max: 9.6<br>Min: 7.8 |
| 5 | 27 inches | 38 inches | stratified sandy loam to loam | Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils. | COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand. | Max: 4<br>Min: 1.4 | Max: 9.6<br>Min: 7.8 |

## LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

## WELL SEARCH DISTANCE INFORMATION

| DATABASE | SEARCH DISTANCE (miles) |
|---|---|
| Federal USGS | 1.000 |
| Federal FRDS PWS | Nearest PWS within 1 mile |
| State Database | 1.000 |

## FEDERAL USGS WELL INFORMATION

| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## FEDERAL USGS WELL INFORMATION

| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|
| A2 | USGS40000176904 | 1/8 - 1/4 Mile NNW |
| 4 | USGS40000176755 | 1/2 - 1 Mile SSW |
| 6 | USGS40000176966 | 1/2 - 1 Mile North |
| 16 | USGS40000176987 | 1/2 - 1 Mile NNE |

## FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

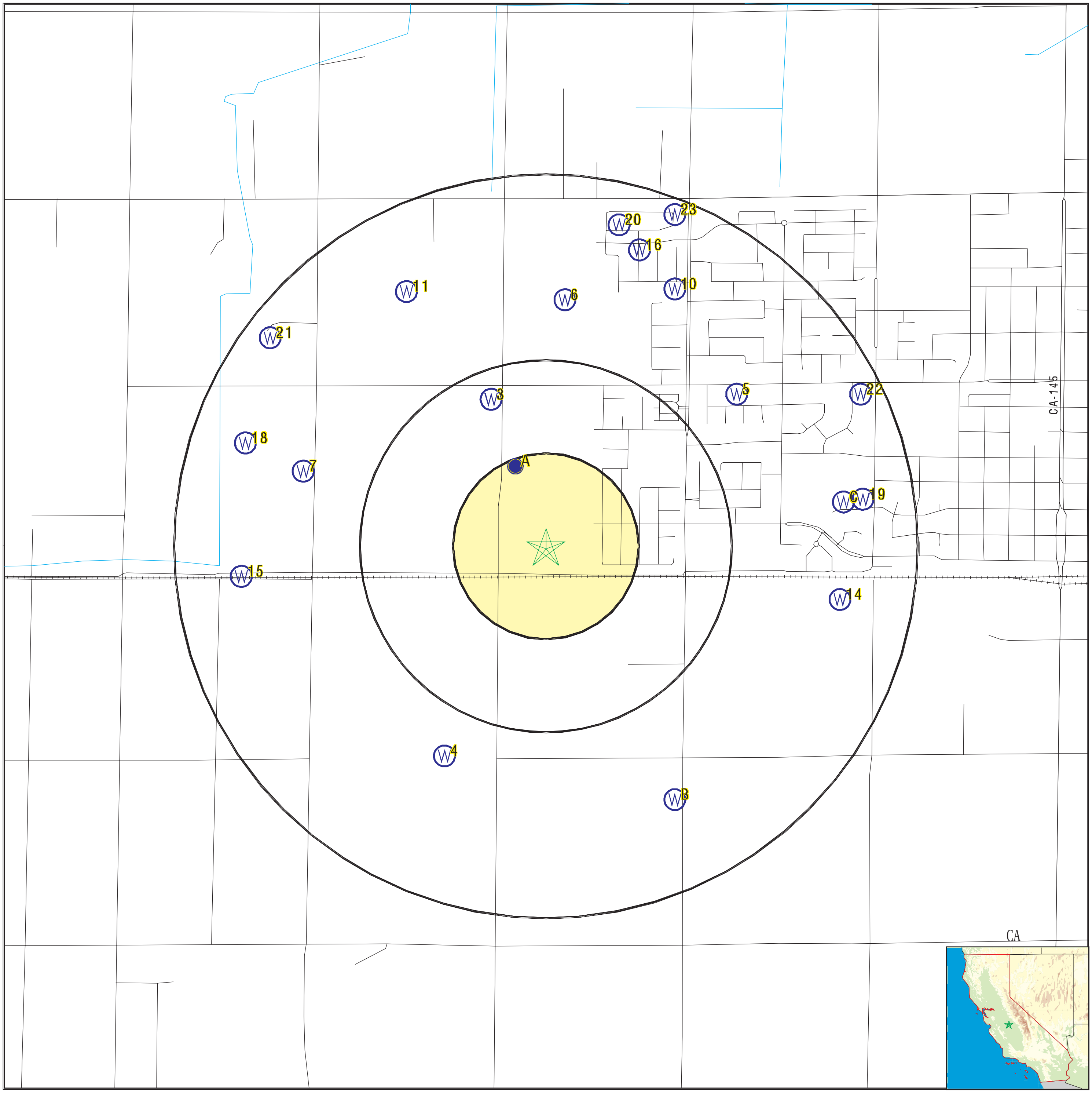
| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|
| No PWS System Found | | |

Note: PWS System location is not always the same as well location.

## STATE DATABASE WELL INFORMATION

| MAP ID | WELL ID | LOCATION FROM TP |
|---|---|---|
| A1 | CAEDF0000026065 | 1/8 - 1/4 Mile NNW |
| 3 | CADPR0000002068 | 1/4 - 1/2 Mile NNW |
| 5 | CADWR9000029818 | 1/2 - 1 Mile NE |
| 7 | CADWR9000029800 | 1/2 - 1 Mile WNW |
| B8 | CADWR9000029662 | 1/2 - 1 Mile SSE |
| B9 | CADWR0000034372 | 1/2 - 1 Mile SSE |
| 10 | CADWR9000029847 | 1/2 - 1 Mile NNE |
| 11 | CADPR0000001594 | 1/2 - 1 Mile NNW |
| C12 | CADDW0000008854 | 1/2 - 1 Mile East |
| C13 | CADWR0000001400 | 1/2 - 1 Mile East |
| 14 | CADWR0000007111 | 1/2 - 1 Mile East |
| 15 | CADWR9000029733 | 1/2 - 1 Mile West |
| C17 | CADDW0000009216 | 1/2 - 1 Mile East |
| 18 | CADPR0000002482 | 1/2 - 1 Mile WNW |
| 19 | 12117 | 1/2 - 1 Mile East |
| 20 | CADPR0000001368 | 1/2 - 1 Mile NNE |
| 21 | CAEDF0000027893 | 1/2 - 1 Mile NW |
| 22 | CADWR9000029817 | 1/2 - 1 Mile ENE |
| 23 | CADWR9000029870 | 1/2 - 1 Mile NNE |

# PHYSICAL SETTING SOURCE MAP - 7295445.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- ◎ Earthquake epicenter, Richter 5 or greater
- Ⓦ Water Wells
- Ⓟ Public Water Supply Wells
- ● Cluster of Multiple Icons

- ↑ Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- ● Oil, gas or related wells

No contour lines were detected within this map area.

SITE NAME: City of Kerman - Whispering Falls Development
ADDRESS: 870 S MODOC AVE
KERMAN CA 93630
LAT/LONG: 36.721176 / 120.085249

CLIENT: RMA Geoscience
CONTACT: Jim Vue
INQUIRY #: 7295445.2s
DATE: March 30, 2023 6:44 pm

| Map ID<br>Direction<br>Distance<br>Elevation | Database | EDR ID Number |
|---|---|---|
| **A1**<br>**NNW**<br>**1/8 - 1/4 Mile**<br>**Higher** | **CA WELLS** | **CAEDF0000026065** |

| | | | |
|---|---|---|---|
| Well ID: | AGW080013214-HOUSE_WELL | Well Type: | MONITORING |
| Source: | Agricultural Lands | Other Name: | HOUSE_WELL |
| GAMA PFAS Testing: | Not Reported | | |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=AGLAND&samp_date=&global_id=AGW080013214&assigned_name=HOUSE_WELL&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

| | | |
|---|---|---|
| **A2**<br>**NNW**<br>**1/8 - 1/4 Mile**<br>**Higher** | **FED USGS** | **USGS40000176904** |

| | | | |
|---|---|---|---|
| Organization ID: | USGS-CA | | |
| Organization Name: | USGS California Water Science Center | | |
| Monitor Location: | 014S017E10J001M | Type: | Well |
| Description: | Not Reported | HUC: | 18030012 |
| Drainage Area: | Not Reported | Drainage Area Units: | Not Reported |
| Contrib Drainage Area: | Not Reported | Contrib Drainage Area Unts: | Not Reported |
| Aquifer: | Central Valley aquifer system | | |
| Formation Type: | Not Reported | Aquifer Type: | Not Reported |
| Construction Date: | 19541104 | Well Depth: | 100 |
| Well Depth Units: | ft | Well Hole Depth: | 127 |
| Well Hole Depth Units: | ft | | |

| | | | |
|---|---|---|---|
| Ground water levels,Number of Measurements: | 1 | Level reading date: | 1963-10-07 |
| Feet below surface: | 79.00 | Feet to sea level: | Not Reported |
| Note: | Not Reported | | |

---

| | | |
|---|---|---|
| **3**<br>**NNW**<br>**1/4 - 1/2 Mile**<br>**Higher** | **CA WELLS** | **CADPR0000002068** |

| | | | |
|---|---|---|---|
| Well ID: | 98809 | Well Type: | UNK |
| Source: | Department of Pesticide Regulation | | |
| Other Name: | 98809 | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=98809&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

| | | |
|---|---|---|
| **4**<br>**SSW**<br>**1/2 - 1 Mile**<br>**Higher** | **FED USGS** | **USGS40000176755** |

| | | | |
|---|---|---|---|
| Organization ID: | USGS-CA | | |
| Organization Name: | USGS California Water Science Center | | |
| Monitor Location: | 014S017E15J001M | Type: | Well |
| Description: | Not Reported | HUC: | 18030012 |

| | | | |
|---|---|---|---|
| Drainage Area: | Not Reported | Drainage Area Units: | Not Reported |
| Contrib Drainage Area: | Not Reported | Contrib Drainage Area Unts: | Not Reported |
| Aquifer: | Central Valley aquifer system | | |
| Formation Type: | Not Reported | Aquifer Type: | Not Reported |
| Construction Date: | 19590508 | Well Depth: | 110 |
| Well Depth Units: | ft | Well Hole Depth: | 172 |
| Well Hole Depth Units: | ft | | |

| | | | |
|---|---|---|---|
| Ground water levels,Number of Measurements: | 1 | Level reading date: | 1962-10-01 |
| Feet below surface: | 78.13 | Feet to sea level: | Not Reported |
| Note: | Not Reported | | |

---

**5**
**NE**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADWR9000029818**

| | | | |
|---|---|---|---|
| State Well #: | 14S17E12M001M | Station ID: | 14426 |
| Well Name: | Not Reported | Basin Name: | Kings |
| Well Use: | Unknown | Well Type: | Unknown |
| Well Depth: | 0 | Well Completion Rpt #: | Not Reported |

---

**6**
**North**
**1/2 - 1 Mile**
**Higher**

**FED USGS** **USGS40000176966**

| | | | |
|---|---|---|---|
| Organization ID: | USGS-CA | | |
| Organization Name: | USGS California Water Science Center | | |
| Monitor Location: | 014S017E11D001M | Type: | Well |
| Description: | Not Reported | HUC: | 18030012 |
| Drainage Area: | Not Reported | Drainage Area Units: | Not Reported |
| Contrib Drainage Area: | Not Reported | Contrib Drainage Area Unts: | Not Reported |
| Aquifer: | Central Valley aquifer system | | |
| Formation Type: | Not Reported | Aquifer Type: | Not Reported |
| Construction Date: | 1947 | Well Depth: | 176 |
| Well Depth Units: | ft | Well Hole Depth: | Not Reported |
| Well Hole Depth Units: | Not Reported | | |

| | | | |
|---|---|---|---|
| Ground water levels,Number of Measurements: | 1 | Level reading date: | 1962-11-01 |
| Feet below surface: | 69.35 | Feet to sea level: | Not Reported |
| Note: | Not Reported | | |

---

**7**
**WNW**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADWR9000029800**

| | | | |
|---|---|---|---|
| State Well #: | 14S17E10J001M | Station ID: | 14424 |
| Well Name: | Not Reported | Basin Name: | Kings |
| Well Use: | Unknown | Well Type: | Unknown |
| Well Depth: | 0 | Well Completion Rpt #: | Not Reported |

| Map ID<br>Direction<br>Distance<br>Elevation | Database | EDR ID Number |
|---|---|---|
| **B8**<br>**SSE**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADWR9000029662** |

| | | | |
|---|---|---|---|
| State Well #: | 14S17E14J001M | Station ID: | 14427 |
| Well Name: | 14S17E14J001M | Basin Name: | Kings |
| Well Use: | Unknown | Well Type: | Single Well |
| Well Depth: | 0 | Well Completion Rpt #: | Not Reported |

---

| | | |
|---|---|---|
| **B9**<br>**SSE**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADWR0000034372** |

| | | | |
|---|---|---|---|
| Well ID: | 14S17E14J001M | Well Type: | UNK |
| Source: | Department of Water Resources | | |
| Other Name: | 14S17E14J001M | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=14S17E14J001M&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

| | | |
|---|---|---|
| **10**<br>**NNE**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADWR9000029847** |

| | | | |
|---|---|---|---|
| State Well #: | 14S17E11H001M | Station ID: | 24968 |
| Well Name: | FD11H1 | Basin Name: | Kings |
| Well Use: | Irrigation | Well Type: | Unknown |
| Well Depth: | 0 | Well Completion Rpt #: | Not Reported |

---

| | | |
|---|---|---|
| **11**<br>**NNW**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADPR0000001594** |

| | | | |
|---|---|---|---|
| Well ID: | 82383 | Well Type: | UNK |
| Source: | Department of Pesticide Regulation | | |
| Other Name: | 82383 | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=82383&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

| | | |
|---|---|---|
| **C12**<br>**East**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADDW0000008854** |

| | | | |
|---|---|---|---|
| Well ID: | 1010018-015 | Well Type: | MUNICIPAL |
| Source: | Department of Health Services | | |
| Other Name: | WELL 15 - RAW | GAMA PFAS Testing: | Not Reported |

| | |
|---|---|
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=1010018-015&store_num= |
| GeoTracker Data: | Not Reported |

---

**C13**
**East**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADWR0000001400**

| | | | |
|---|---|---|---|
| Well ID: | 14S17E12J001M | Well Type: | UNK |
| Source: | Department of Water Resources | | |
| Other Name: | 14S17E12J001M | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=14S17E12J001M&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

**14**
**East**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADWR0000007111**

| | | | |
|---|---|---|---|
| Well ID: | 14S17E12R001M | Well Type: | UNK |
| Source: | Department of Water Resources | | |
| Other Name: | 14S17E12R001M | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=14S17E12R001M&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

**15**
**West**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADWR9000029733**

| | | | |
|---|---|---|---|
| State Well #: | Not Reported | Station ID: | 48445 |
| Well Name: | KRCDA13 | Basin Name: | Kings |
| Well Use: | Irrigation | Well Type: | Single Well |
| Well Depth: | 0 | Well Completion Rpt #: | Not Reported |

---

**16**
**NNE**
**1/2 - 1 Mile**
**Higher**

**FED USGS** **USGS40000176987**

| | | | |
|---|---|---|---|
| Organization ID: | USGS-CA | | |
| Organization Name: | USGS California Water Science Center | | |
| Monitor Location: | 014S017E11C001M | Type: | Well |
| Description: | Not Reported | HUC: | 18030012 |
| Drainage Area: | Not Reported | Drainage Area Units: | Not Reported |
| Contrib Drainage Area: | Not Reported | Contrib Drainage Area Unts: | Not Reported |
| Aquifer: | Central Valley aquifer system | | |
| Formation Type: | Not Reported | Aquifer Type: | Not Reported |
| Construction Date: | 1937 | Well Depth: | 124 |
| Well Depth Units: | ft | Well Hole Depth: | Not Reported |
| Well Hole Depth Units: | Not Reported | | |

| Map ID<br>Direction<br>Distance<br>Elevation | Database | EDR ID Number |
|---|---|---|
| **C17**<br>**East**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADDW0000009216** |

| | | | |
|---|---|---|---|
| Well ID: | 1010018-009 | Well Type: | MUNICIPAL |
| Source: | Department of Health Services | | |
| Other Name: | WELL 11 - INACTIVE | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=1010018-009&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

| | Database | EDR ID Number |
|---|---|---|
| **18**<br>**WNW**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADPR0000002482** |

| | | | |
|---|---|---|---|
| Well ID: | 82380 | Well Type: | UNK |
| Source: | Department of Pesticide Regulation | | |
| Other Name: | 82380 | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=82380&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

| | Database | EDR ID Number |
|---|---|---|
| **19**<br>**East**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **12117** |

| | | | |
|---|---|---|---|
| Seq: | 12117 | Prim sta c: | 14S/17E-12P01 M |
| Frds no: | 1010018010 | County: | 10 |
| District: | 11 | User id: | AGE |
| System no: | 1010018 | Water type: | G |
| Source nam: | WELL 09 | Station ty: | WELL/AMBNT/MUN/INTAKE |
| Latitude: | 364323.0 | Longitude: | 1200408.0 |
| Precision: | 3 | Status: | AU |
| Comment 1: | Not Reported | Comment 2: | Not Reported |
| Comment 3: | Not Reported | Comment 4: | Not Reported |
| Comment 5: | Not Reported | Comment 6: | Not Reported |
| Comment 7: | Not Reported | | |

| | | | |
|---|---|---|---|
| System no: | 1010018 | System nam: | City Of Kerman |
| Hqname: | Not Reported | Address: | 850 S MADERA AVENUE |
| City: | KERMAN | State: | Not Reported |
| Zip: | 93630 | Zip ext: | Not Reported |
| Pop serv: | 6050 | Connection: | 1287 |
| Area serve: | KERMAN CITY | | |

---

| | Database | EDR ID Number |
|---|---|---|
| **20**<br>**NNE**<br>**1/2 - 1 Mile**<br>**Higher** | **CA WELLS** | **CADPR0000001368** |

| | | | |
|---|---|---|---|
| Well ID: | 82382 | Well Type: | UNK |
| Source: | Department of Pesticide Regulation | | |

| | | | |
|---|---|---|---|
| Other Name: | 82382 | GAMA PFAS Testing: | Not Reported |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=82382&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

**21**
**NW**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CAEDF0000027893**

| | | | |
|---|---|---|---|
| Well ID: | AGW080011374-BETT_1 | Well Type: | MONITORING |
| Source: | Agricultural Lands | Other Name: | BETT_1 |
| GAMA PFAS Testing: | Not Reported | | |
| Groundwater Quality Data: | https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=AGLAND&samp_date=&global_id=AGW080011374&assigned_name=BETT_1&store_num= | | |
| GeoTracker Data: | Not Reported | | |

---

**22**
**ENE**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADWR9000029817**

| | | | |
|---|---|---|---|
| State Well #: | 14S17E12L001M | Station ID: | 32253 |
| Well Name: | Not Reported | Basin Name: | Kings |
| Well Use: | Unknown | Well Type: | Unknown |
| Well Depth: | 0 | Well Completion Rpt #: | Not Reported |

---

**23**
**NNE**
**1/2 - 1 Mile**
**Higher**

**CA WELLS** **CADWR9000029870**

| | | | |
|---|---|---|---|
| State Well #: | 14S17E11A001M | Station ID: | 14425 |
| Well Name: | 14S17E11A001M | Basin Name: | Kings |
| Well Use: | Unknown | Well Type: | Single Well |
| Well Depth: | 0 | Well Completion Rpt #: | Not Reported |

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
# RADON

## AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

| Zipcode | Num Tests | > 4 pCi/L |
|---|---|---|
| 93630 | 38 | 16 |

Federal EPA Radon Zone for FRESNO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

---

Federal Area Radon Information for Zip Code: 93630

Number of sites tested: 1

| Area | Average Activity | % <4 pCi/L | % 4-20 pCi/L | % >20 pCi/L |
|---|---|---|---|---|
| Living Area - 1st Floor | 0.900 pCi/L | 100% | 0% | 0% |
| Living Area - 2nd Floor | Not Reported | Not Reported | Not Reported | Not Reported |
| Basement | Not Reported | Not Reported | Not Reported | Not Reported |

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

USGS 7.5’ Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5’ Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

## HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

## HYDROGEOLOGIC INFORMATION

AQUIFLOW$^R$ Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

## OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR’s Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California’s Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR’s Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California’s Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

## STREET AND ADDRESS INFORMATION

# AERIAL PHOTOGRAPHS

**City of Kerman - Whispering Falls Development**

870 S MODOC AVE
KERMAN, CA 93630

Inquiry Number: 7295445.8
March 30, 2023

# The EDR Aerial Photo Decade Package

EDR®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# EDR Aerial Photo Decade Package

03/30/23

| **Site Name:** | **Client Name:** |
|---|---|
| City of Kerman - Whispering Fa | RMA Geoscience |
| 870 S MODOC AVE | 9854 Glenoaks Blvd |
| KERMAN, CA 93630 | Sun Valley, CA 91352 |
| EDR Inquiry # 7295445.8 | Contact: Jim Vue |

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

## *Search Results:*

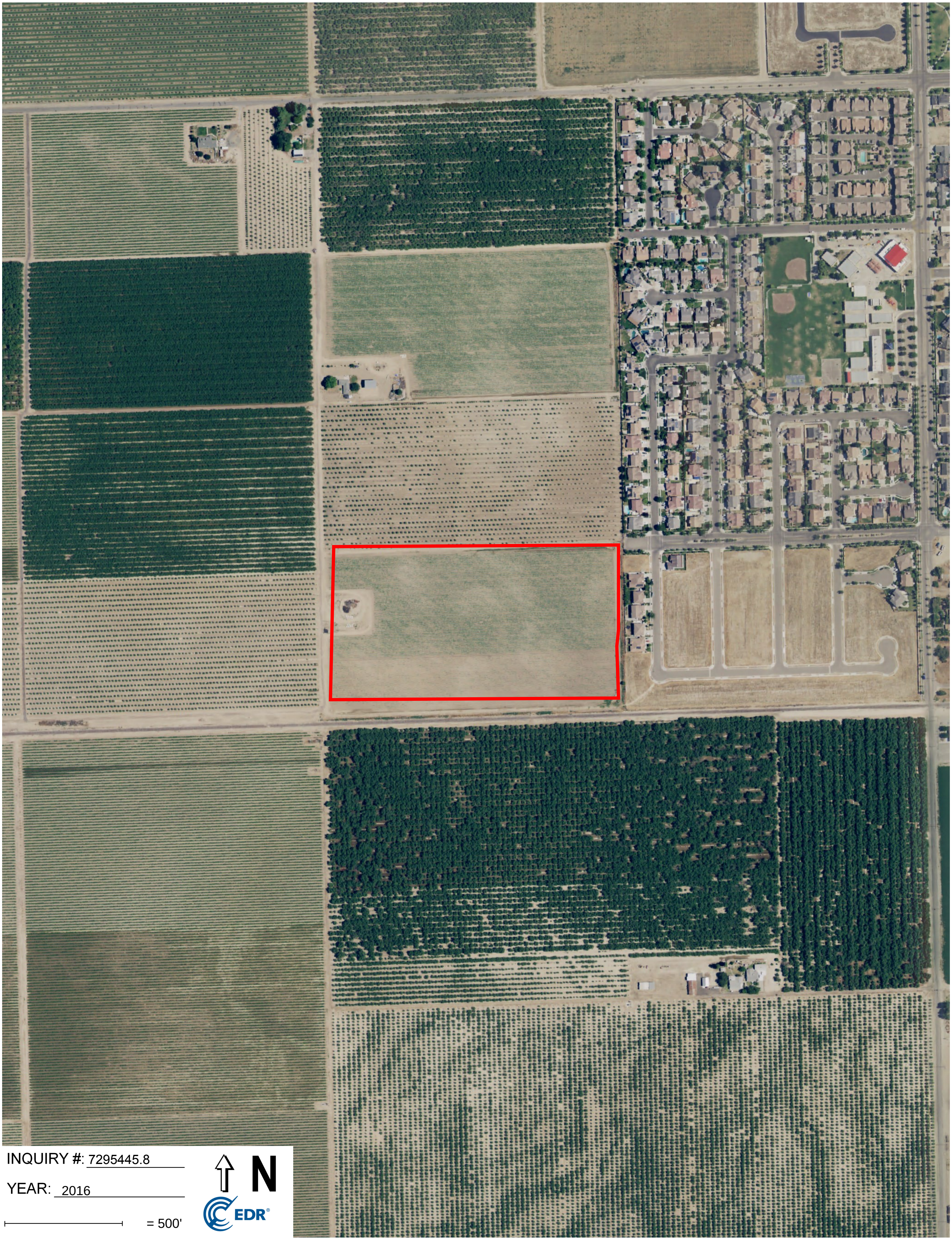
| *Year* | *Scale* | *Details* | *Source* |
|---|---|---|---|
| 2020 | 1"=500' | Flight Year: 2020 | USDA/NAIP |
| 2016 | 1"=500' | Flight Year: 2016 | USDA/NAIP |
| 2012 | 1"=500' | Flight Year: 2012 | USDA/NAIP |
| 2009 | 1"=500' | Flight Year: 2009 | USDA/NAIP |
| 2006 | 1"=500' | Flight Year: 2006 | USDA/NAIP |
| 1998 | 1"=500' | Acquisition Date: August 18, 1998 | USGS/DOQQ |
| 1981 | 1"=500' | Flight Date: September 20, 1981 | USDA |
| 1979 | 1"=500' | Flight Date: September 04, 1979 | USDA |
| 1973 | 1"=500' | Flight Date: May 08, 1973 | USDA |
| 1967 | 1"=500' | Flight Date: May 02, 1967 | USDA |
| 1962 | 1"=500' | Flight Date: August 09, 1962 | USGS |
| 1957 | 1"=500' | Flight Date: June 18, 1957 | USGS |
| 1950 | 1"=500' | Flight Date: February 07, 1950 | USDA |
| 1946 | 1"=500' | Flight Date: April 26, 1946 | USGS |
| 1937 | 1"=500' | Flight Date: September 30, 1937 | USDA |

**When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.**

INQUIRY #: 7295445.8

YEAR: 2020

= 500'



INQUIRY #: 7295445.8

YEAR: 2016

= 500'

INQUIRY #: 7295445.8

YEAR: 2012

= 500'

INQUIRY #: 7295445.8

YEAR: 2009

= 500'

INQUIRY #: 7295445.8

YEAR: 2006

= 500'

INQUIRY #: 7295445.8

YEAR: 1998

= 500'

INQUIRY #: 7295445.8

YEAR: 1981

= 500'

INQUIRY #: 7295445.8

YEAR: 1979

= 500'


INQUIRY #: 7295445.8
YEAR: 1973
= 500'
N
EDR

INQUIRY #: 7295445.8

YEAR: 1967

= 500'

INQUIRY #: 7295445.8

YEAR: 1962

= 500'

N

INQUIRY #: 7295445.8

YEAR: 1957

= 500'

N

EDR

INQUIRY #: 7295445.8

YEAR: 1950

= 500'

INQUIRY #: 7295445.8

YEAR: 1946

= 500'

N

INQUIRY #: 7295445.8

YEAR: 1937

= 500'

TOPOGRAPHIC MAPS

City of Kerman - Whispering Falls Development
870 S MODOC AVE
KERMAN, CA 93630

Inquiry Number: 7295445.4
March 30, 2023

# EDR Historical Topo Map Report

## with QuadMatch™

EDR®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# EDR Historical Topo Map Report

03/30/23

| **Site Name:** | **Client Name:** |
|---|---|
| City of Kerman - Whispering Fa | RMA Geoscience |
| 870 S MODOC AVE | 9854 Glenoaks Blvd |
| KERMAN, CA 93630 | Sun Valley, CA 91352 |
| EDR Inquiry # 7295445.4 | Contact: Jim Vue |

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by RMA Geoscience were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

| ***Search Results:*** | | ***Coordinates:*** | |
|---|---|---|---|
| **P.O.#** | 07-230182-0/01 | **Latitude:** | 36.721176 36° 43' 16" North |
| **Project:** | Whispering Falls Development | **Longitude:** | -120.085249 -120° 5' 7" West |
| | | **UTM Zone:** | Zone 10 North |
| | | **UTM X Meters:** | 760319.24 |
| | | **UTM Y Meters:** | 4067903.34 |
| | | **Elevation:** | 208.77' above sea level |

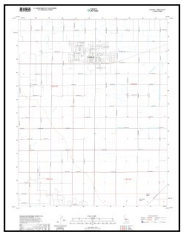
**Maps Provided:**

2018
2015
2012
1981
1963
1948
1947
1922

## *Topo Sheet Key*

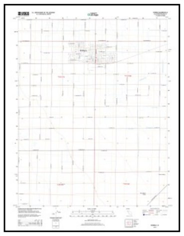
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### 2018 Source Sheets



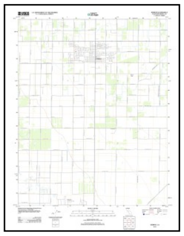
Kerman
2018
7.5-minute, 24000

### 2015 Source Sheets



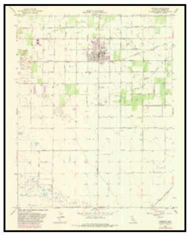
Kerman
2015
7.5-minute, 24000

### 2012 Source Sheets



Kerman
2012
7.5-minute, 24000

### 1981 Source Sheets

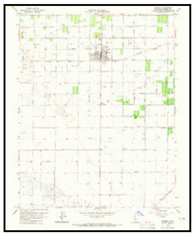


Kerman
1981
7.5-minute, 24000
Aerial Photo Revised 1978

## *Topo Sheet Key*

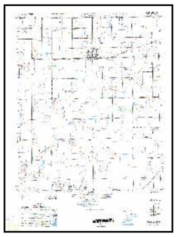
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### 1963 Source Sheets



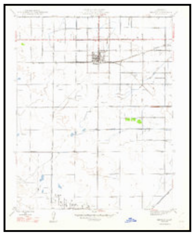
Kerman
1963
7.5-minute, 24000
Aerial Photo Revised 1962

### 1948 Source Sheets



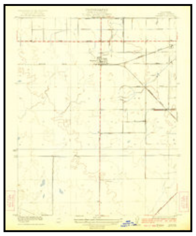
KERMAN
1948
7.5-minute, 25000

### 1947 Source Sheets



Kerman
1947
7.5-minute, 24000

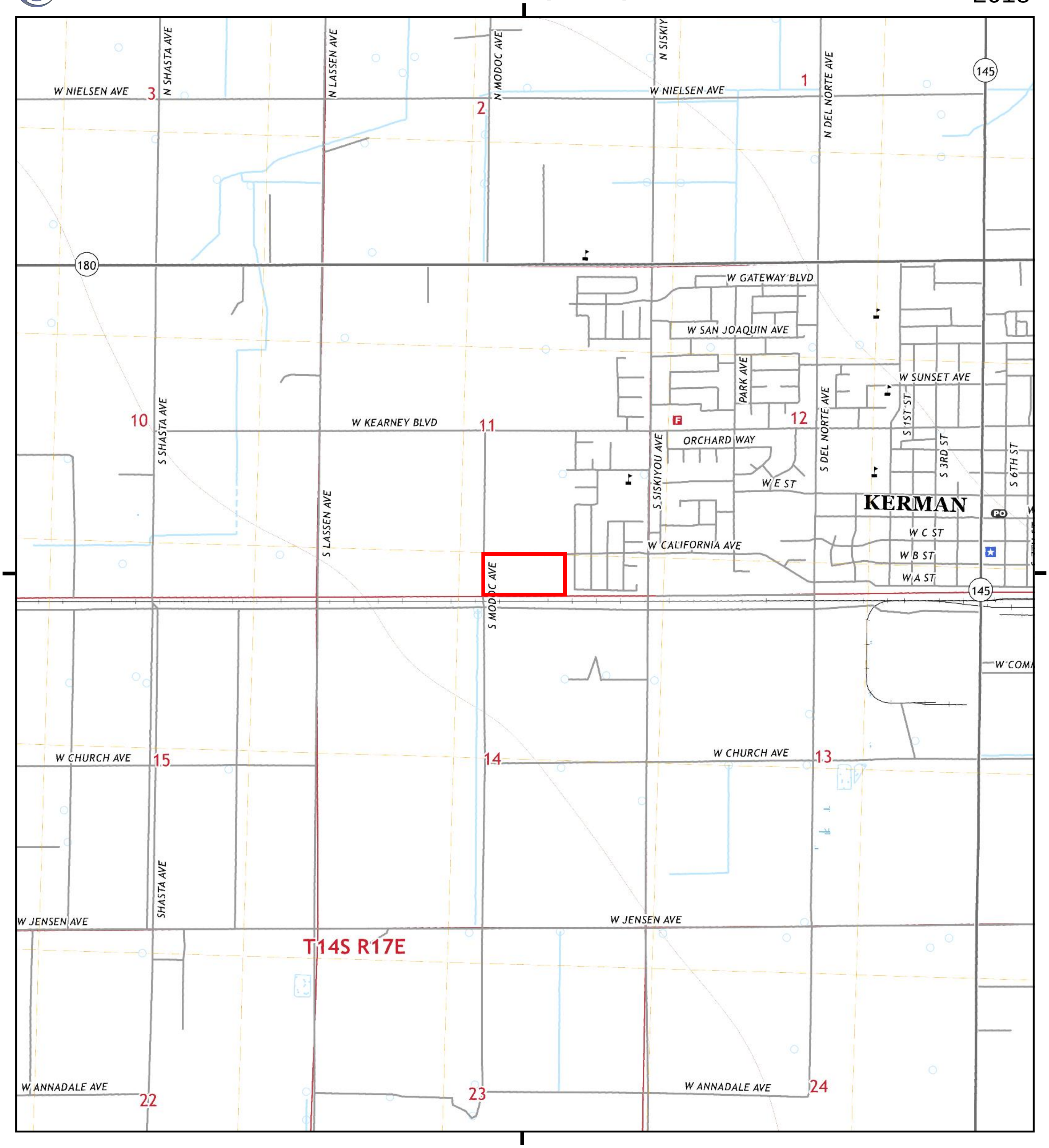
### 1922 Source Sheets



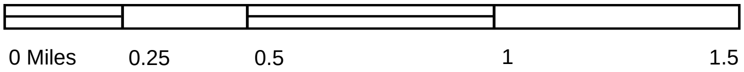
Kerman
1922
7.5-minute, 31680

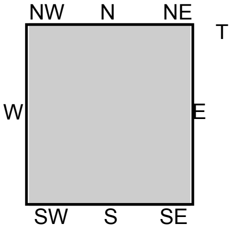
## Historical Topo Map

2018



This report includes information from the following map sheet(s).



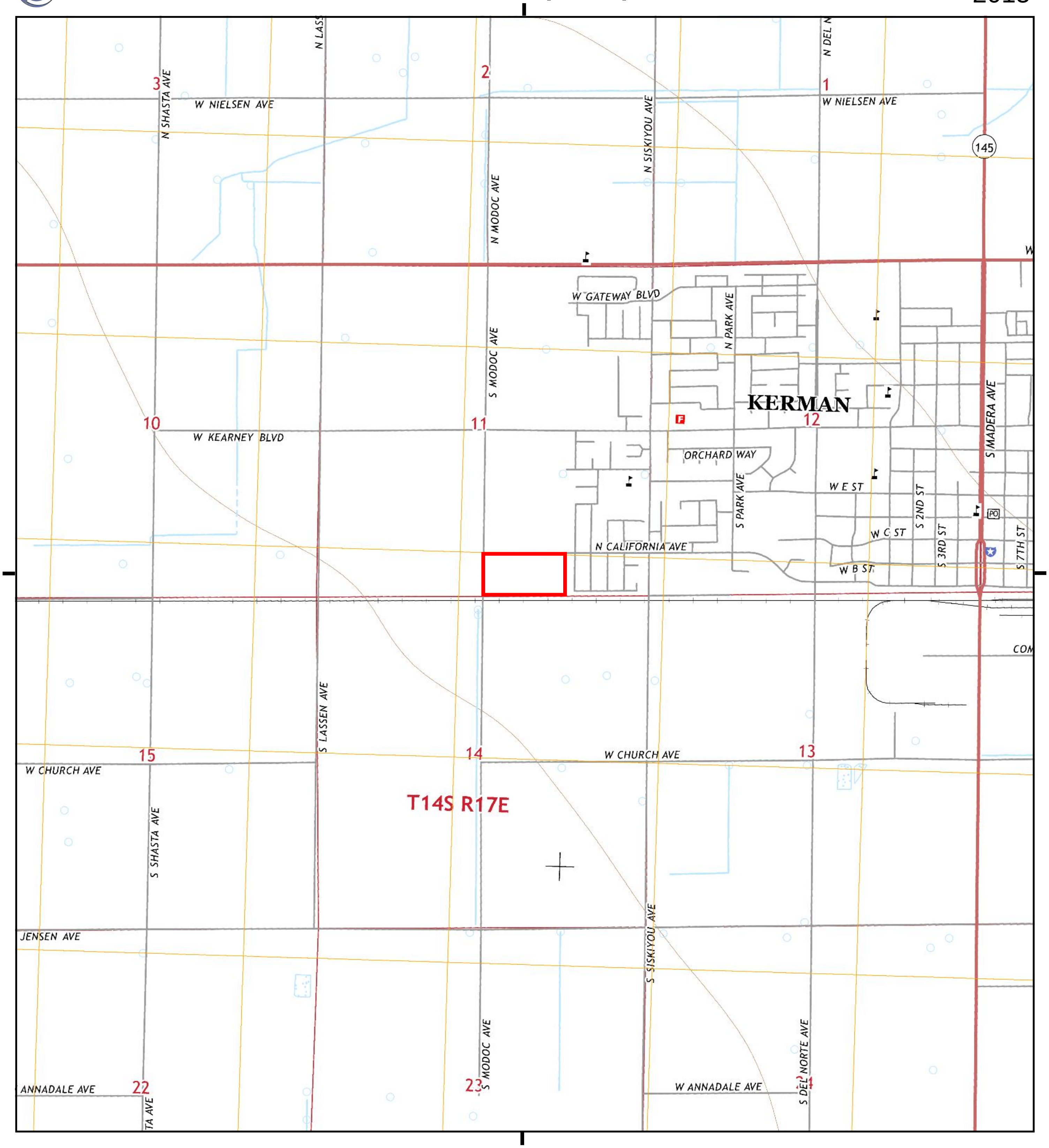


TP, Kerman, 2018, 7.5-minute

SITE NAME: City of Kerman - Whispering Falls Develo
ADDRESS: 870 S MODOC AVE
KERMAN, CA 93630
CLIENT: RMA Geoscience

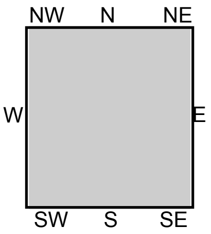
# Historical Topo Map

2015



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

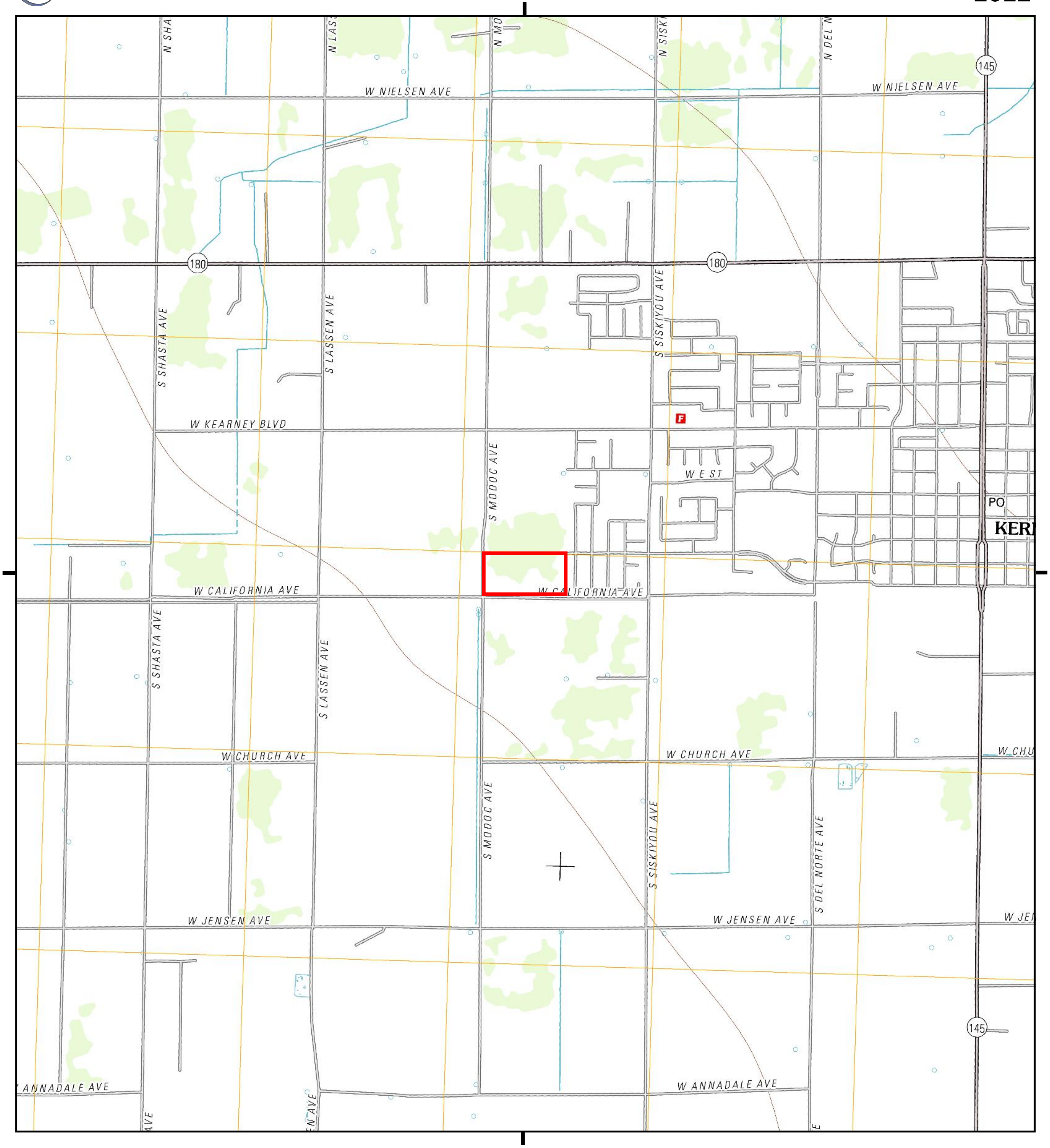


TP, Kerman, 2015, 7.5-minute

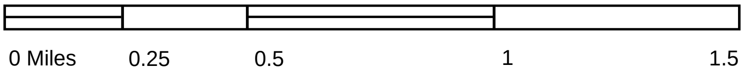
| | |
|---|---|
| SITE NAME: | City of Kerman - Whispering Falls Develo |
| ADDRESS: | 870 S MODOC AVE<br>KERMAN, CA 93630 |
| CLIENT: | RMA Geoscience |

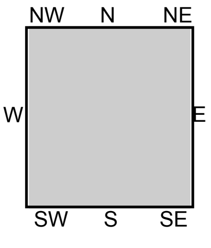
# Historical Topo Map

2012



This report includes information from the following map sheet(s).





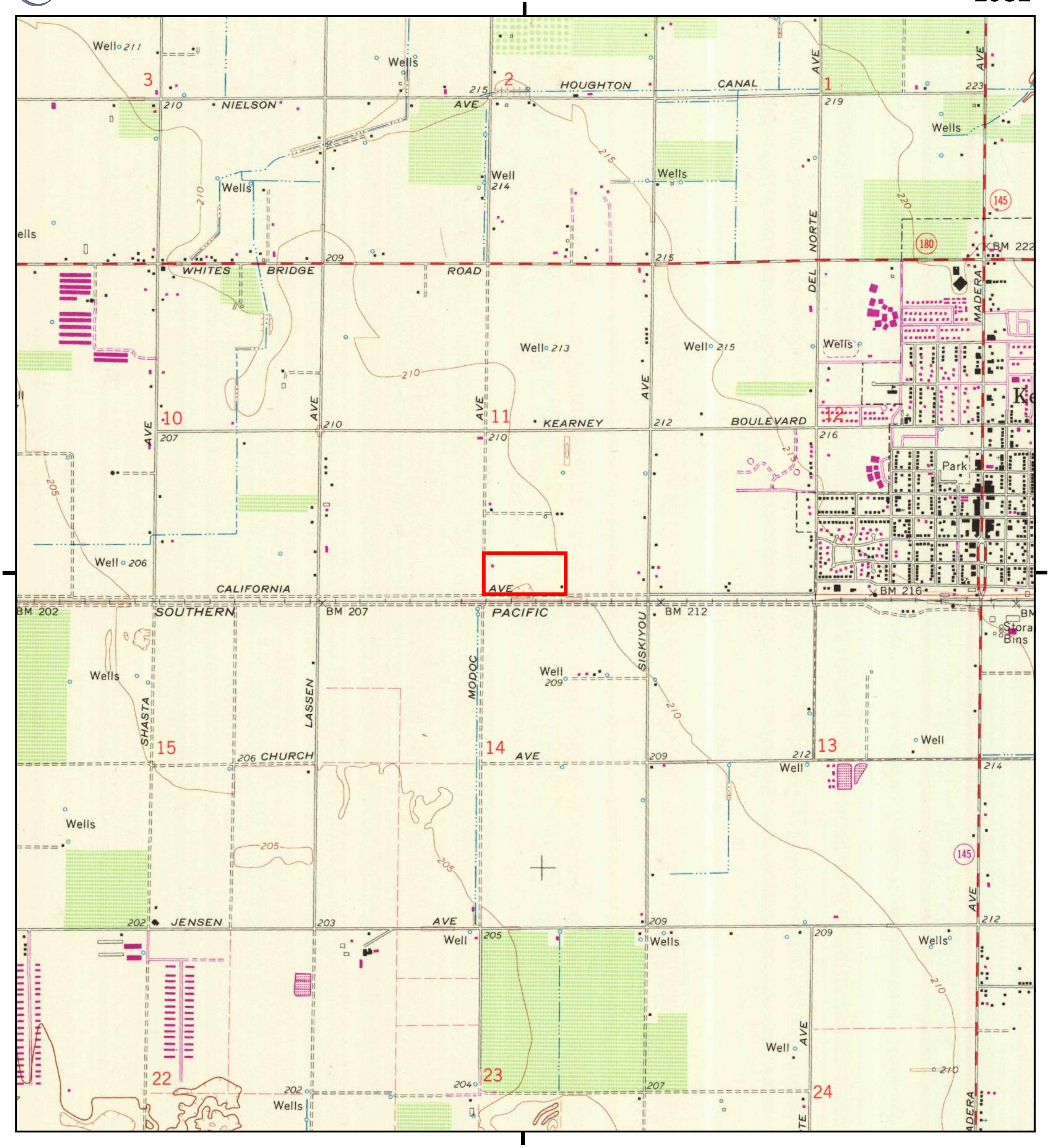
TP, Kerman, 2012, 7.5-minute

SITE NAME: City of Kerman - Whispering Falls Develo
ADDRESS: 870 S MODOC AVE
KERMAN, CA 93630
CLIENT: RMA Geoscience

EDR

# Historical Topo Map

1981



This report includes information from the following map sheet(s).

NW N NE
W E
SW S SE

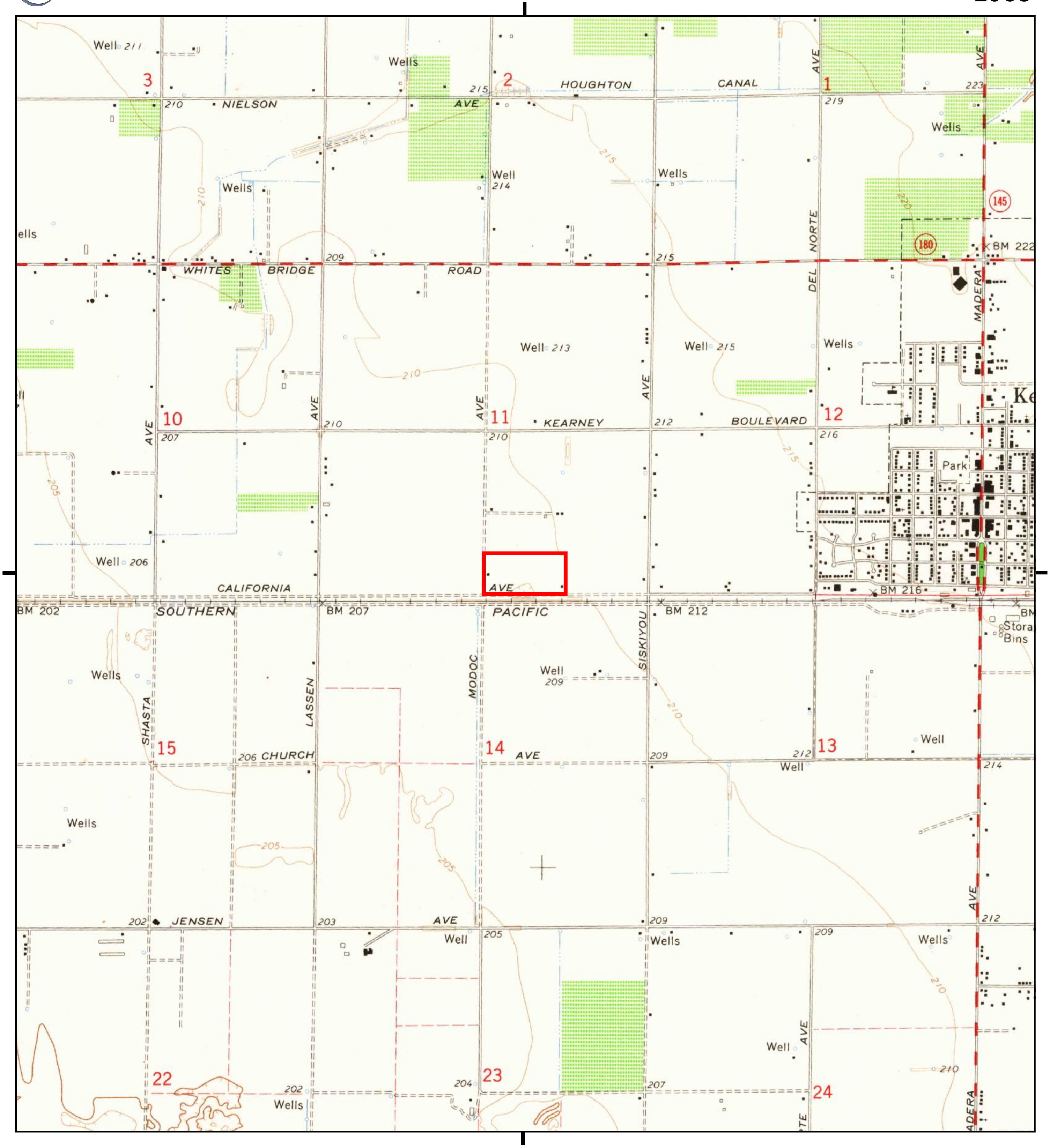
TP, Kerman, 1981, 7.5-minute

SITE NAME: City of Kerman - Whispering Falls Develo
ADDRESS: 870 S MODOC AVE
KERMAN, CA 93630
CLIENT: RMA Geoscience

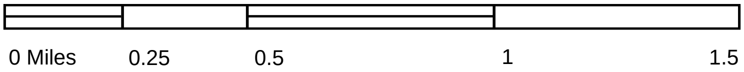
N

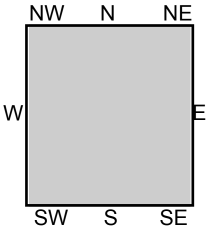
# Historical Topo Map

1963



This report includes information from the following map sheet(s).



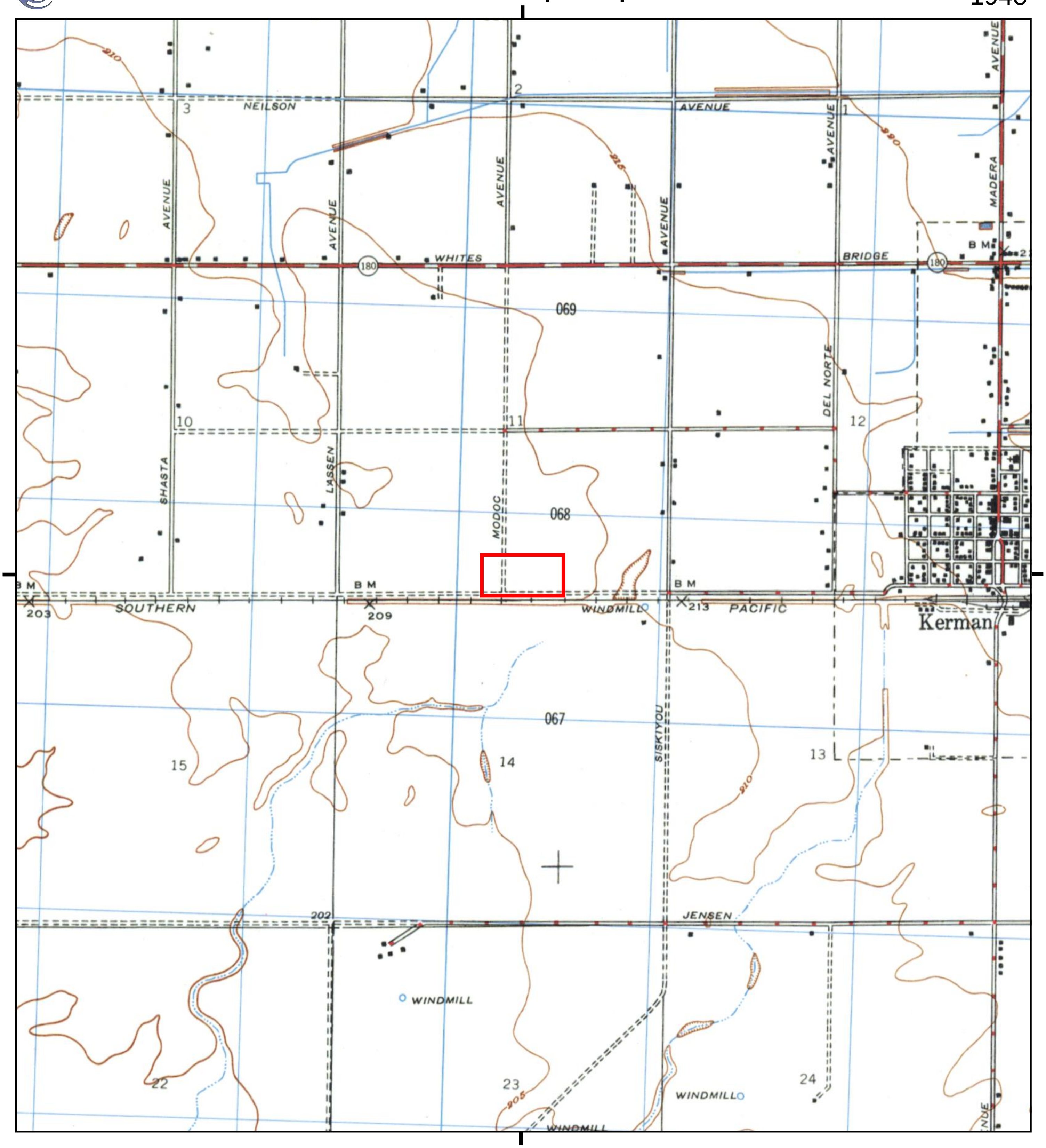


TP, Kerman, 1963, 7.5-minute

SITE NAME: City of Kerman - Whispering Falls Develo
ADDRESS: 870 S MODOC AVE
KERMAN, CA 93630
CLIENT: RMA Geoscience

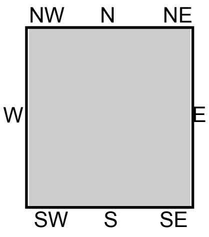
# Historical Topo Map

1948



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



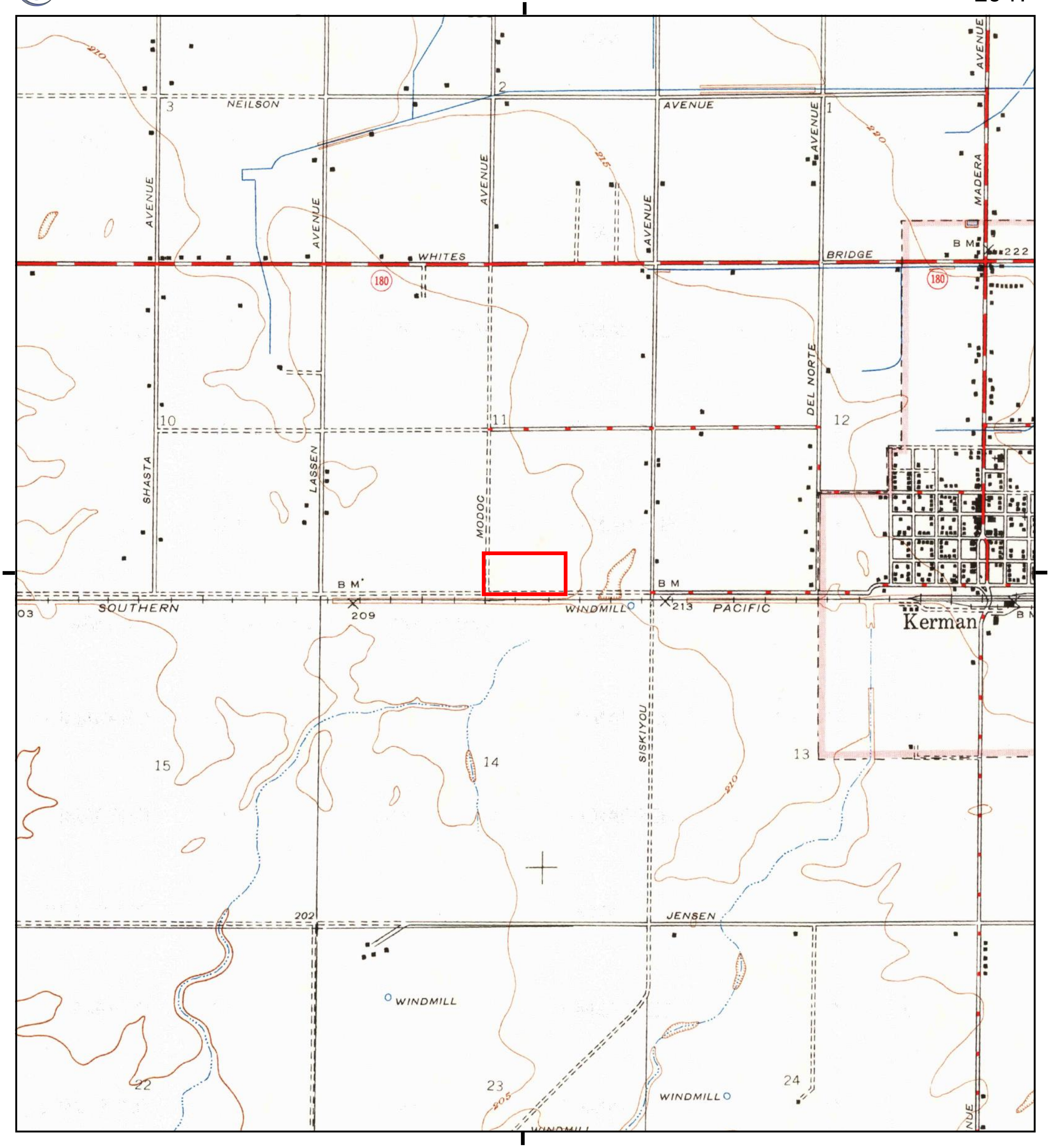
TP, KERMAN, 1948, 7.5-minute

SITE NAME: City of Kerman - Whispering Falls Develo
ADDRESS: 870 S MODOC AVE
KERMAN, CA 93630
CLIENT: RMA Geoscience

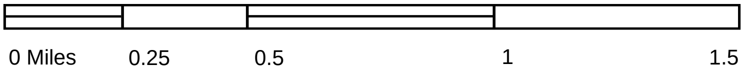
N

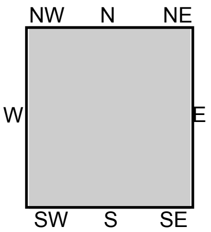
# Historical Topo Map

1947



This report includes information from the following map sheet(s).



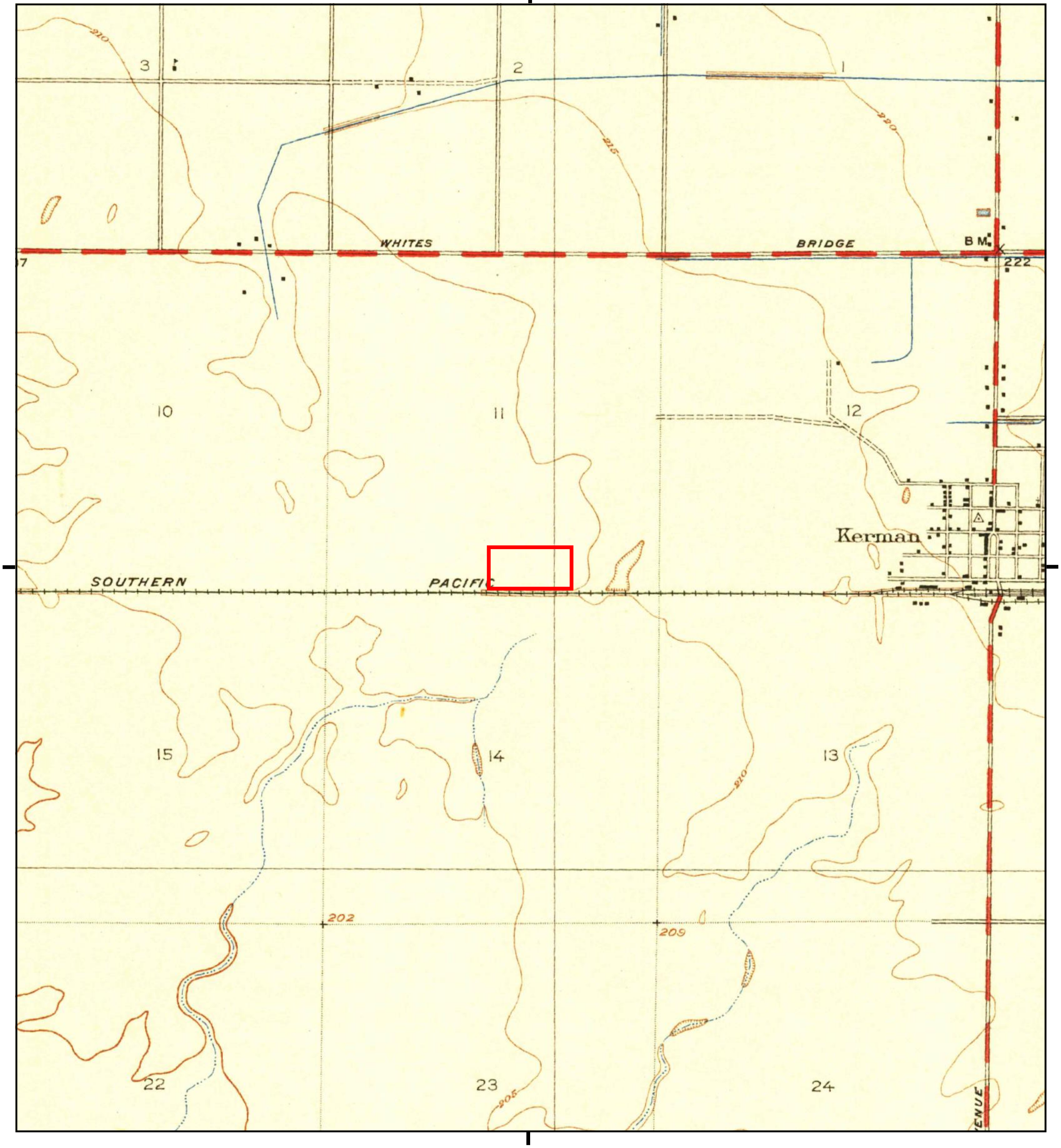


TP, Kerman, 1947, 7.5-minute

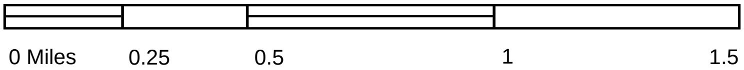
SITE NAME: City of Kerman - Whispering Falls Develo
ADDRESS: 870 S MODOC AVE
KERMAN, CA 93630
CLIENT: RMA Geoscience

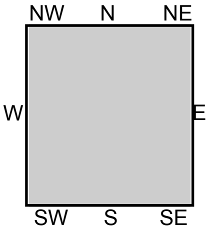
# Historical Topo Map

1922



This report includes information from the following map sheet(s).





TP, Kerman, 1922, 7.5-minute

SITE NAME: City of Kerman - Whispering Falls Develo
ADDRESS: 870 S MODOC AVE
KERMAN, CA 93630
CLIENT: RMA Geoscience

# SANBORN REPORT

City of Kerman - Whispering Falls Development
870 S MODOC AVE
KERMAN, CA 93630

Inquiry Number: 7295445.3
March 30, 2023

# Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

# Certified Sanborn® Map Report

03/30/23

**Site Name:**

City of Kerman - Whispering Fa
870 S MODOC AVE
KERMAN, CA 93630
EDR Inquiry # 7295445.3

**Client Name:**

RMA Geoscience
9854 Glenoaks Blvd
Sun Valley, CA 91352
Contact: Jim Vue

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by RMA Geoscience were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

## *Certified Sanborn Results:*

**Certification #** 8A72-4FEC-8D9D

**PO #** 07-230182-0/01

**Project** Whispering Falls Development

### UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 8A72-4FEC-8D9D

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

*The Sanborn Library LLC Since 1866™*

### Limited Permission To Make Copies

RMA Geoscience (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

# CITY DIRECTORY

**City of Kerman - Whispering Falls Development**
870 S MODOC AVE
KERMAN, CA 93630

Inquiry Number: 7295445.5
April 25, 2023

# The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

# TABLE OF CONTENTS

## SECTION

***Thank you for your business.***
Please contact EDR at 1-800-352-0050
with any questions or comments.

# EXECUTIVE SUMMARY

## DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

## RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer.

## RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

| ***Year*** | ***Target Street*** | ***Cross Street*** | ***Source*** |
|---|---|---|---|
| 2020 | ☐ | ☑ | EDR Digital Archive |
| 2017 | ☑ | ☑ | Cole Information |
| 2014 | ☑ | ☑ | Cole Information |
| 2010 | ☑ | ☑ | Cole Information |
| 2005 | ☑ | ☑ | Cole Information |
| 2000 | ☑ | ☑ | Cole Information |
| 1995 | ☑ | ☑ | Cole Information |
| 1992 | ☑ | ☑ | Cole Information |
| 1990 | ☑ | ☑ | Haines Criss-Cross Directory |
| 1985 | ☑ | ☑ | Haines Criss-Cross Directory |
| 1980 | ☑ | ☑ | Haines Criss-Cross Directory |
| 1975 | ☑ | ☑ | Haines Criss-Cross Directory |
| 1973 | ☑ | ☑ | Haines Criss-Cross Directory |

# FINDINGS

## TARGET PROPERTY STREET

870 S MODOC AVE
KERMAN, CA 93630

| *Year* | *CD Image* | *Source* | |
|---|---|---|---|
| **MODOC AVE** | | | |
| 1995 | pg A30 | Cole Information | |
| 1992 | pg A33 | Cole Information | |
| **S LASSEN AVE** | | | |
| 1990 | pg A36 | Haines Criss-Cross Directory | |
| 1985 | pg A39 | Haines Criss-Cross Directory | |
| 1980 | pg A42 | Haines Criss-Cross Directory | |
| 1975 | pg A44 | Haines Criss-Cross Directory | |
| 1973 | pg A47 | Haines Criss-Cross Directory | |
| **S MODOC AVE** | | | |
| 2020 | - | EDR Digital Archive | Target and Adjoining not listed in Source |
| 2017 | pg A10 | Cole Information | |
| 2014 | pg A15 | Cole Information | |
| 2010 | pg A21 | Cole Information | |
| 2005 | pg A25 | Cole Information | |
| 2000 | pg A28 | Cole Information | |
| 1990 | pg A37 | Haines Criss-Cross Directory | |
| 1985 | - | Haines Criss-Cross Directory | Street not listed in Source |
| 1980 | - | Haines Criss-Cross Directory | Street not listed in Source |
| 1975 | - | Haines Criss-Cross Directory | Street not listed in Source |
| 1973 | - | Haines Criss-Cross Directory | Street not listed in Source |

# FINDINGS

## CROSS STREETS

| *Year* | *CD Image* | *Source* | |
|---|---|---|---|

### S KENNETH AVE

| Year | CD Image | Source | |
|---|---|---|---|
| 2020 | pg. A2 | EDR Digital Archive | |
| 2017 | pg. A8 | Cole Information | |
| 2014 | pg. A12 | Cole Information | |
| 2010 | pg. A18 | Cole Information | |
| 2005 | pg. A23 | Cole Information | |
| 2000 | - | Cole Information | Target and Adjoining not listed in Source |
| 1995 | - | Cole Information | Target and Adjoining not listed in Source |
| 1992 | - | Cole Information | Target and Adjoining not listed in Source |
| 1990 | - | Haines Criss-Cross Directory | Street not listed in Source |
| 1985 | - | Haines Criss-Cross Directory | Street not listed in Source |
| 1980 | - | Haines Criss-Cross Directory | Street not listed in Source |
| 1975 | - | Haines Criss-Cross Directory | Street not listed in Source |
| 1973 | - | Haines Criss-Cross Directory | Street not listed in Source |

### S LASSEN AVE

| Year | CD Image | Source |
|---|---|---|
| 2020 | pg. A5 | EDR Digital Archive |
| 2017 | pg. A9 | Cole Information |
| 2014 | pg. A14 | Cole Information |
| 2010 | pg. A20 | Cole Information |
| 2005 | pg. A24 | Cole Information |
| 2000 | pg. A27 | Cole Information |
| 1995 | pg. A31 | Cole Information |
| 1992 | pg. A34 | Cole Information |

### S SISKIYOU AVE

| Year | CD Image | Source |
|---|---|---|
| 2020 | pg. A6 | EDR Digital Archive |
| 2017 | pg. A11 | Cole Information |
| 2014 | pg. A16 | Cole Information |

# FINDINGS

| ***Year*** | ***CD Image*** | ***Source*** |
|---|---|---|
| 2010 | pg. A22 | Cole Information |
| 2005 | pg. A26 | Cole Information |
| 2000 | pg. A29 | Cole Information |
| 1995 | pg. A32 | Cole Information |
| 1992 | pg. A35 | Cole Information |
| 1990 | pg. A38 | Haines Criss-Cross Directory |
| 1985 | pg. A40 | Haines Criss-Cross Directory |
| 1985 | pg. A41 | Haines Criss-Cross Directory |
| 1980 | pg. A43 | Haines Criss-Cross Directory |
| 1975 | pg. A45 | Haines Criss-Cross Directory |
| 1975 | pg. A46 | Haines Criss-Cross Directory |
| 1973 | pg. A48 | Haines Criss-Cross Directory |

# City Directory Images

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | EDR Digital Archive |

## S KENNETH AVE 2020

| | |
|---|---|
| 197 | LAURA BORREGO |
| 201 | MONICA CRUZ |
| | MONICA PLASCENCIA |
| 205 | MONICA BUELNA |
| 209 | JOSE AGUILERA |
| | SUSAN AGUILERA |
| 213 | MIKE CASTRO |
| | NORA CASTRO |
| 217 | PEDRO GONZALEZ |
| 227 | GLENDA CURBOW |
| | JAMES CURBOW |
| 228 | JAIME ESQUIVEL |
| 231 | LADONNA APODACA |
| 237 | JOSE CASTELLANOS |
| 240 | PATRICIA BARRIOS |
| 260 | CHAD HILL |
| | KRISTEN HILL |
| 264 | JORGE ANDRADE |
| | MIGUEL AGUILAR |
| | ROBERTO CASTELLANOS |
| | YANCI ANDRADE |
| 268 | JOSE MIGUEL RODRIGUEZ |
| | JUAN GARCIA |
| 276 | CODI GUIDRY |
| | RICHARD NEWMAN |
| | SHANNON CATTUZO |
| | SHANNON GUIDRY |
| | TEENA CATTUZO |
| | TINA CATTUZO |
| 280 | ANA RUIZ |
| | EDWARD RUIZ |
| 511 | JERRY GALVAN |
| 521 | DAISY JUAREZ |
| | OSCAR GARCIA |
| 531 | NARISSA ARREDONDO |
| | RICHARD ARREDONDO |
| 541 | RUPERTO LOYA |
| | SANDRA LOYA |
| 551 | KARYNA CARBAJAL |
| | PHILLIP CARBAJAL |
| 552 | CRYSTAL MEDRANO |
| | PATRICIA MORA |
| | RUBEN MORA |
| 561 | ANN BABSHOFF |
| | JOSEPH BOYD |
| 562 | ANNE SISSOV |
| | MARIE SISSOV |
| | WILLIAM SISSOU |
| 571 | DANIEL BIGGS |
| | KENNETH BIGGS |

## S KENNETH AVE 2020 (Cont'd)

| | |
|---|---|
| 572 | ERIC FLORES |
| 581 | CHRISTOPHER SCARR |
| | DE L MARIA |
| | GREGORY SCARR |
| | LOURDES SCARR |
| | THOMAS SCARR |
| 582 | AKAYLA RUIZ |
| | MELISSA RUIZ |
| | RENEE RUIZ |
| | RICHARD RUIZ |
| 711 | MARICELA ANGEL |
| | RAUL ANGEL |
| 721 | ALEXANDRA ROSARIO |
| | FERNANDO ROSARIO |
| 731 | GLORIA GONZALES |
| 732 | ANN DUNGAN |
| | KEITH DUNGAN |
| | SAVANNAH DUNGAN |
| 751 | DENISE MECHEKOFF |
| | MICHAEL MECHEKOFF |
| 752 | ASHLEY GONZALES |
| | DOMINIC GONZALES |
| | PATRICIA GONZALES |
| | ROBERT GONZALES |
| 762 | MARICELA SALCEDO |
| | VIRGILIO SALCEDO |
| 763 | HERMELINDA SOLORIO |
| | MOSES RAMIREZ |
| 774 | MOHAMMAD IHSANULHAQ |
| 775 | AURELIANO RAMIREZ |
| | LAURA RAMIREZ |
| | MARCO RAMIREZ |
| | NAVJOT GILL |
| | STEPHANIE RAMIREZ |
| 786 | CHRISTOPHER OROZCO |
| | JUAN LARA |
| | SOFIA OROZCO LARA |
| 787 | JENEA COX |
| | JUAN GONZALEZ |
| | JULENE COX |
| | KENT COX |
| 798 | BERTHA SOLIS |
| | DIANA SOLIS |
| | JORGE SOLIS |
| 799 | DILBER NIJJER |
| | HARMANDEEP DEOL |
| 810 | ALEJANDRO CARBAJAL |
| | ALYSSA MONTEJAR |
| | ANTONIO ANGULO |
| | EILEEN ANGULO |

## S KENNETH AVE 2020 (Cont'd)

| | |
|---|---|
| 811 | MARICELA AMARO |
| 824 | JAIME SMITH |
| | MATTHEW SMITH |
| 825 | PUSHPINDERJI SINGH |
| | RAJVINDER KAUR |
| 838 | GURMAT SRAN |
| | GURPRIET SRAN |
| | JASMAIL SRAN |
| | JASWINDER SRAN |
| 839 | CHERL CRUZ |
| | DEREK CRUZ |
| | TOSHIA BLUNT |
| | TOSHIA FOTH |
| | TOSHIA SILVA |
| 854 | IZKRA PEREZ |
| | LUIS PEREZ |
| | MARIA GUTIERREZ |
| | RAMON CHAVEZ |
| 855 | DAWN ANNINO |
| | MARK HAIST |
| 868 | CLAIRE GOOSEV |
| | NICK GOOSEV |
| 869 | ANGELA MENDOZA |
| | ANTONIO MENDOZA |
| | KYLE DAVIS |
| 871 | HEATHER ROBERTSON |
| | NORMA DELGADO |
| 883 | ADRIAN GONZALEZ |
| | ERICA GONZALEZ |
| | HERIBERTO GONZALEZ |
| | SANTA GONZALEZ |
| 896 | EFREN HERNANDEZ |
| | GERARDO HERNANDEZ |
| | GILBERTO HERNANDEZ |
| | NORMA HERNANDEZ |
| | STEPHANIE HERNANDEZ |
| 897 | GURCHARAN DHALIWAL |
| | RAGHBIR SINGH |
| | SIMARDEEP DHALIWAL |
| | SUKHWINDER DHALIWAL |
| 910 | OLIVAREZ GUTIERREZ |
| 911 | HAILA HUSSEIN |
| 925 | CAROLYN SCOTT |
| | LESLIE SCOTT |
| | MICHELLE SCOTT |
| | PATRICK SCOTT |
| 938 | JORGE CORRALES |
| 939 | ROSALVINA CASTRO |
| | SUSIE RIVERA |
| 953 | JUDY URENA |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | EDR Digital Archive |

## S LASSEN AVE 2020

| | |
|---|---|
| 317 | GERALD BETTINSOLI |
| 570 | GOERGE BARCELOS |
| 610 | KRISTIN MCKENNA |
| | ROBERT HELMUTH |
| 753 | ANTONIA GARCIA |
| | BIANCA GARCIA |
| 1171 | HARDY FARMS LLP |
| | JEANETTE HARDY |
| | MATTHEW HARDY |
| | NEAL HARDY |
| 1582 | PHYLLIS BOTELHO |
| | RAYMOND BOTELHO |
| | ROBERT BOTELHO |
| 1690 | SHANNON LEMM |
| | SHANNON RAGSDALE |
| | STEPHEN LEMM |
| 1852 | KENNETH RAGSDALE |
| | MICHAEL RAGSDALE |
| | REBECCA RAGSDALE |

## S SISKIYOU AVE 2020

| | |
|---|---|
| 95 | RICARDO LIRA |
| 266 | PATRICIA REYES |
| | RUBEN REYES |
| 276 | JESUS BARRAGAN |
| | JESUS VALENCIA |
| 281 | LARA FERNANDO |
| 286 | GEORGE GARCIA |
| 298 | ALFREDO NUNEZ |
| | STEPHANIE SIERRAS |
| 302 | DORA OCHOA |
| | JAIME SANDOVAL |
| 322 | KARAN SINGH |
| | SURJIT SINGH |
| 342 | MINDY HURT |
| | TIMOTHY HURT |
| 362 | DANIEL ALVAREZ |
| 382 | ALEXIS CEJA |
| | BEATRIZ ALEJANDRE |
| | GUILLERMO CEJA |
| | MIGUEL CEJA |
| 402 | DELIA RAMON |
| | JOSE PENALOZA |
| | PATTYS DAY CARE |
| | SARA PENALOZA |
| 422 | BERNABE LARA |
| | CHRISTINA LARA |
| | YOLANDA LARA |
| 442 | MAXINE BOTELHO |
| | SILVENO BOTELHO |
| 515 | ARTHUR FLORES |
| 529 | BRENDA GUTIERREZ |
| 530 | CEASAR SIERRAS |
| | MELISSA SIERRAS |
| | VINCENT SIERRAS |
| 546 | MARIA PICASSO |
| 566 | GUADALUPE PUENTES |
| | JUDITH CAMACHO |
| | LUZ CAMACHO |
| 570 | BERDIE HORN |
| 574 | BERDIE HORN |
| 578 | BEVERLY WEATHERSON |
| | BRITTANY WEATHERSON |
| | RANDALL WEATHERSON |
| 579 | DAVE ACOSTA |
| | GABRIELLE ACOSTA |
| | GILBERT ACOSTA |
| | MARY ACOSTA |
| 585 | AMY CONTRERAS |
| 593 | EMILY CARDENAS |
| 595 | DIANA BARRERA |

| **Target Street** | **Cross Street** | **Source** |
|---|---|---|
| - | ✓ | EDR Digital Archive |

## S SISKIYOU AVE 2020 (Cont'd)

| | |
|---|---|
| 606 | ERIC FONSECA |
| | VENESA FLORES |
| 610 | JAIME ALEJANDRE |
| 930 | JOSE DIAZ-ANGULANO |
| 1020 | VETERANS MEMORIAL BUILDING |
| 1233 | JAMIE WATTS |
| 1235 | GLORIA MAY |
| 1504 | CHRISTOPHER STILSON |
| | FRANCISCO HERNANDEZ |
| | GABRIELA OCHOA |
| | MICHELLE STILSON |
| 1651 | ERNESTO MONTOY |
| | JONI MONTOY |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

## S KENNETH AVE 2017

| | |
|---|---|
| 197 | BORREGO, LAURA |
| 201 | PLASCENCIA, CARLOS |
| 205 | BUELNA, MONICA |
| 209 | AGUILERA, JOSE A |
| 213 | CASTRO, MIKE |
| 221 | SAMARIN, JENNIFER |
| 231 | SANCHEZ, LADONNA M |
| 237 | CASTELLANOS, JOSE L |
| 260 | HILL, CHAD M |
| 264 | AGUILAR, MIGUEL A |
| 268 | RODRIGUEZ, NOWA |
| 272 | LOPEZ, ANGELICA E |
| 280 | RUIZ, EDWARD P |
| 511 | GALVAN, JERRY P |
| 521 | GARCIA, OSCAR D |
| 531 | ARREDONDO, RICHARD H |
| 541 | LOYA, RUPERT N |
| 551 | CARBAJAL, PHILLIP C |
| 561 | BOYD, JOSEPH D |
| 562 | SISSOV, WILLIAM W |
| 571 | BIGGS, DANIEL G |
| 581 | SCARR, GREGORY L |
| 582 | NESS, LEE D |
| 711 | ANGEL, RAUL E |
| 721 | SAPIEN, FRANCISCO |
| 731 | GONZALES, TERENCE G |
| 752 | GONZALES, ROBERT D |
| 762 | SALCEDO, MARICELA |
| 763 | SOLORIO, HERMELINDA |
| 774 | MOHAMMAD, IHSANULHAQ |
| 775 | NIJJER GURTIRTH SINGH |
| | NIJJER, SURINDER K |
| 786 | OROZCO, JUAN E |
| 787 | GONZALES, MIGUEL M |
| 798 | SOLIS, ROBERTO H |
| 799 | DEOL, HARMANDEEP K |
| 810 | ANGULO, EILEEN |
| 811 | AMARO, ARTHUR |
| 824 | REYES, RUBEN R |
| 825 | DAUTRICH, ROBERT J |
| 854 | GUTIERREZ, EFRAIN |
| 855 | HAIST, MARK B |
| 868 | GOOSEV, NICK C |
| 871 | ROBERTSON, HEATHER M |
| 883 | GONZALEZ, HERIBERTO |
| 925 | SCOTT, LESLIE M |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

# S LASSEN AVE 2017

| | |
|---|---|
| 317 | BETTINSOLI, LOUIS R |
| 379 | BETTINSOLI, JONATHAN |
| 610 | HELMUTH, ROBERT |
| 736 | MILLER, AARON |
| 827 | RODRIGUEZ, GUADALUPE |
| 1171 | HANSON, HARDY |
| 1582 | BOTELHO TRUCKING & HAY CUBING |
| | BOTELHO, RAYMOND M |
| 1690 | LEMM, STEPHEN J |
| 1852 | RAGSDALE, KEN R |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information |

# S MODOC AVE 2017

2501 VELOZ, FLORENTINO

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

## S SISKIYOU AVE 2017

| | |
|---|---|
| 95 | GARCIA, RICHY |
| 256 | ANGEL, BALTAZAR |
| 276 | BARRAGAN, JESUS |
| 286 | GARCIA, GEORGE J |
| 298 | NUNEZ, ALFREDO |
| 322 | SINGH, BALJIT |
| 342 | HURT, TIMOTHY L |
| 382 | ALEJANDRE, BEATRIZ |
| 402 | PENALOZA, JOSE M |
| 422 | LARA, BERNABE R |
| 442 | BOTELHO, SILVENO R |
| 509 | AGUILAR, IGNACIO G |
| 529 | MEDRANO, JAIME A |
| 530 | SIERRAS, CEASAR |
| 539 | HUERTA, RUBEN O |
| 546 | ROMO, SERGIO A |
| 566 | CAMACHO, CARLOS |
| 568 | HENDRIX, PATRICIA J |
| 574 | HORN, JEFFREY |
| 578 | WEATHERSON, RANDY L |
| 585 | LEE, NICOLE F |
| 589 | FLORES, CRISTAL |
| 593 | CARDENAS, EMILY V |
| 595 | HUDZIETZ, MARGARET L |
| 606 | FONSECA, ERIC |
| 909 | CAMARENA, ARMANDO |
| 910 | MEZA, DAVID V |
| 1235 | MAY, GLORIA L |
| 1260 | TORRES, ANTONIO |
| 1504 | STILSON, CHRISTOPHER |
| 1651 | MONTOY, ERNEST L |
| 1800 | GLENN, CHARLES W |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

# S KENNETH AVE 2014

| | |
|---|---|
| 197 | BORREGO, LAURA |
| 201 | CRUZ, MONICA N |
| 205 | BUELNA, MONICA |
| 209 | AGUILERA, JOSE A |
| 213 | CASTRO, MIKE |
| 217 | GONZALEZ, PEDRO |
| 221 | RABADAN, CARLOS |
| 227 | CURBOW, JAMES M |
| 231 | SANCHEZ, LADONNA M |
| 237 | CASTELLANOS, JOSE L |
| 240 | GUTIERREZ, MARK P |
| 254 | GUTIERREZ, ANA |
| 260 | HILL, CHAD |
| 264 | AGUILAR, MIGUEL A |
| 268 | GARCIA, JUAN P |
| 272 | LOPEZ, ANGELICA E |
| 276 | OCCUPANT UNKNOWN, |
| 280 | RUIZ, EDWARD P |
| 511 | BEAULIEU, JOHN |
| 521 | GARCIA, OSCAR D |
| 531 | ARREDONDO, RICHARD H |
| 541 | OCCUPANT UNKNOWN, |
| 551 | CARBAJAL, PHILLIP C |
| 552 | COVARRUBIA, RENE |
| 561 | BOYD, JOSEPH D |
| 562 | SISSOV, WILLIAM W |
| 571 | BIGGS, DANIEL G |
| 581 | SCARR, GREGORY L |
| 582 | NESS, LEE D |
| 711 | ANGEL, RAUL E |
| 721 | SAPIEN, FRANCISCO |
| 731 | GARCIA, TERESA S |
| 732 | DUNGAN, KEITH W |
| 751 | MECHEKOFF, MICHAEL M |
| 752 | GONZALES, ROBERT D |
| 762 | SALCEDO, MARICELA |
| 763 | OCCUPANT UNKNOWN, |
| 774 | MOHAMMAD, IHSANULHAQ |
| 775 | GILL, NAVJOT K |
| 786 | OROZCO, JUAN E |
| 787 | GONZALES, MIGUEL M |
| 798 | SOLIS, ROBERTO H |
| 799 | DEOL, HARMANDEEP K |
| 810 | ANGULO, ANTONIO |
| 811 | BOYER, TABYTHA |
| 824 | OCCUPANT UNKNOWN, |
| 825 | OCCUPANT UNKNOWN, |
| 838 | SRAN, GURMAT S |
| 839 | BLUNT, AARON M |
| 854 | IZKRA, PEREZ |

## S KENNETH AVE 2014 (Cont'd)

| | |
|---|---|
| 855 | HAIST, MARK B |
| 868 | OCCUPANT UNKNOWN, |
| 869 | OCCUPANT UNKNOWN, |
| 871 | ROBERTSON, HEATHER M |
| 883 | GONZALEZ, HERIBERTO |
| 897 | OCCUPANT UNKNOWN, |
| 911 | HUSSEIN, ABDULGALIL F |
| 925 | SCOTT, LESLIE M |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

# S LASSEN AVE 2014

| | |
|---|---|
| 166 | PAYNE, RUTH |
| 317 | BETTINSOLI, RON |
| 379 | BOYD, AARON |
| 570 | BARCELOS, GEORGE A |
| 610 | WHITE, MATT L |
| 705 | OCCUPANT UNKNOWN, |
| 728 | BARCELOS, JOE M |
| 736 | LOZANO, VIRGINIA E |
| 753 | OCCUPANT UNKNOWN, |
| 827 | OROZCO, LYDIA A |
| 1171 | HANSON, HARDY |
| 1582 | BOTELHO TRUCKING & HAY CUBING |
| | BOTELHO, ROBERT A |
| 1690 | LEMM, STEPHEN J |
| 1852 | RAGSDALE, KEN R |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information |

# S MODOC AVE 2014

| | |
|---|---|
| 870 | GARCIA, BLANCA |
| 2501 | OCCUPANT UNKNOWN, |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

## S SISKIYOU AVE 2014

| | |
|---|---|
| 95 | ESCALANTE, DELMY |
| 193 | OCCUPANT UNKNOWN, |
| 205 | OCCUPANT UNKNOWN, |
| 219 | OCCUPANT UNKNOWN, |
| 251 | OCCUPANT UNKNOWN, |
| 256 | ANGEL, BALTAZAR |
| 266 | REYES, RUBEN R |
| 276 | BARRAGAN, JESUS |
| 286 | GARCIA, GEORGE J |
| 298 | OCCUPANT UNKNOWN, |
| 302 | SANDOVAL, JAIME J |
| 322 | OCCUPANT UNKNOWN, |
| 342 | HURT, TIMOTHY L |
| 362 | GAILEY, MATTHEW P |
| 382 | ALEJANDRE, SAMUEL |
| 402 | PENALOZA, JOSE M |
| 422 | LARA, BERN |
| 442 | BOTELHO, SILVENO R |
| 505 | OCCUPANT UNKNOWN, |
| 509 | OCCUPANT UNKNOWN, |
| 515 | THOMAS, JENNIFER N |
| 519 | CARR, CALVIN |
| 525 | OCCUPANT UNKNOWN, |
| 529 | OCCUPANT UNKNOWN, |
| 530 | SIERRAS, CEASAR |
| 535 | OCCUPANT UNKNOWN, |
| 539 | OCCUPANT UNKNOWN, |
| 545 | BELTRAN, LETICIA |
| 546 | PICASSO, FRANCISCO L |
| 549 | OCCUPANT UNKNOWN, |
| 565 | OCCUPANT UNKNOWN, |
| 566 | CAMACHO, LUZ M |
| 568 | HENDRIX, PATRICIA J |
| 569 | MAHONEY, DEDE M |
| 574 | HORN, J |
| 575 | OCCUPANT UNKNOWN, |
| 578 | WEATHERSON, RANDY L |
| 579 | OCCUPANT UNKNOWN, |
| 585 | OCCUPANT UNKNOWN, |
| 589 | FLORES, CRISTAL |
| 591 | OCCUPANT UNKNOWN, |
| 593 | SMELCER, COREY |
| 595 | OCCUPANT UNKNOWN, |
| 597 | OCCUPANT UNKNOWN, |
| 602 | OCCUPANT UNKNOWN, |
| 606 | FONSECA, ERIC |
| 610 | GONZALEZ, OSCAR F |
| 876 | OCCUPANT UNKNOWN, |
| 909 | CAMARENA, ARMANDO |
| 910 | BANUELOS, WILLIAM M |

## S SISKIYOU AVE 2014 (Cont'd)

| | |
|---|---|
| 930 | OCCUPANT UNKNOWN, |
| 1233 | EDWARDS, JAMIE L |
| 1235 | MAY, GLORIA L |
| 1260 | TORRES, ANTONIO |
| 1504 | STILSON, CHRISTOPHER |
| 1651 | MONTOY, ERNEST L |
| 1800 | GLENN, CHARLES W |

# S KENNETH AVE 2010

| | |
|---|---|
| 197 | BORREGO, LAURA |
| 201 | GARCIA, JOSE A |
| 205 | BUELNA, MONICA |
| 209 | AGUILERA, JOSE A |
| 213 | CASTRO, MIKE |
| 217 | GARCIA, RALPH |
| 221 | OCCUPANT UNKNOWN, |
| 227 | CURBOW, JAMES M |
| 231 | INFANTE, CAESAR |
| 237 | CASTELLANOS, JOSE L |
| 240 | GUTIERREZ, MARK P |
| 260 | HILL, CHAD |
| 264 | CASTELLANOS, ROBERTO |
| 268 | GARCIA, JUAN P |
| 272 | LOPEZ, ANGELICA |
| 276 | OCCUPANT UNKNOWN, |
| 280 | RUIZ, EDWARD P |
| 511 | EZERNACK, BILLY W |
| 521 | OCCUPANT UNKNOWN, |
| 531 | OCCUPANT UNKNOWN, |
| 541 | LOYA, RUPERT N |
| 551 | CARBAJAL, PHILLIP C |
| 552 | BIGGS, DIGGER |
| 561 | OCCUPANT UNKNOWN, |
| 562 | SISSOV, WILLIAM W |
| 571 | BIGGS, KENNETH G |
| 572 | FLORES, DANIEL A |
| 581 | SCARR, GREGORY L |
| 582 | LUNA, ELIAZAR S |
| 711 | ANGEL, RAUL E |
| 721 | QUINTO, JORGE |
| 731 | GONZALES, GLORIA D |
| 732 | GREEN, TRAVIS L |
| 751 | MECHEKOFF, MICHAEL M |
| 752 | GONZALES, ROBERT A |
| 762 | SALCEDO, MARICELA |
| 763 | OCCUPANT UNKNOWN, |
| 774 | BAUTISTA, JOSE A |
| 775 | GILL, NAVJOT K |
| 786 | OROZCO, JUAN E |
| 787 | COX, KENT A |
| 798 | OCCUPANT UNKNOWN, |
| 799 | DEOL, HARMANDEEP K |
| 810 | ANGULO, ANTONIO |
| 811 | GOOSEV, TIMOTHY P |
| 824 | RIAR, HARBHAJAN K |
| 825 | MORALES, GILDARDO T |
| 838 | SRAN, GURMAT S |
| 839 | ZARO, JASON |
| 854 | GUTIERREZ, EFRAIN |

## S KENNETH AVE 2010 (Cont'd)

| | |
|---|---|
| 855 | LEWIS, DAWN M |
| 868 | OCCUPANT UNKNOWN, |
| 869 | OCCUPANT UNKNOWN, |
| 871 | ROBERTSON, HEATHER M |
| 883 | GONZALEZ, HERIBERTO |
| 897 | OCCUPANT UNKNOWN, |
| 911 | ALAQAWARI, GAMAL |
| 925 | SCOTT, LESLIE M |
| 955 | HAIST, MARK |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

# S LASSEN AVE 2010

| | |
|---|---|
| 317 | BETTINSOLI, LOUIS R |
| 379 | BETTINSOLI, JERRY S |
| 570 | BARCELOS, GEORGE A |
| 610 | WHITE, MATT L |
| 705 | OCCUPANT UNKNOWN, |
| 728 | BARCELOS, KIM J |
| 736 | BARCELOS, DIEGO J |
| 827 | OROZCO, HERACLIO A |
| 1171 | HARDY FARMS LLP<br>HARDY, JEAN J |
| 1582 | BOTELHO TRUCKING & HAY CUBING<br>BOTELHO, RAYMOND M |
| 1690 | OCCUPANT UNKNOWN, |
| 1852 | RAGSDALE, KEN R |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information |

## S MODOC AVE 2010

| | |
|---|---|
| 870 | GARCIA, BLANCA |
| 2501 | OCCUPANT UNKNOWN, |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

# S SISKIYOU AVE 2010

| | |
|---|---|
| 73 | JARRETT, MARY E |
| 95 | GARCIA, RICHY |
| 193 | POLANCO, RICHARD J |
| 205 | OCCUPANT UNKNOWN, |
| 219 | OCCUPANT UNKNOWN, |
| 251 | OCCUPANT UNKNOWN, |
| 256 | OCCUPANT UNKNOWN, |
| 266 | OCCUPANT UNKNOWN, |
| 276 | VALENCIA, JESUS B |
| 281 | LARA, LEOPOLD |
| 286 | GARCIA, GEORGE J |
| 298 | NUNEZ, ALFREDO |
| 302 | OCHOA, DORA R |
| 322 | SINGH, KAREN |
| 342 | HURT, TIMOTHY L |
| 362 | GAILEY, MATTHEW P |
| 382 | ALEJANDRE, SAMUEL |
| 402 | PENALOZA, JOSE M |
| 422 | LARA, BERNABE |
| 442 | BOTELHO, SILVENO R |
| 505 | GUTIERREZ, SUZANNA |
| 519 | OCCUPANT UNKNOWN, |
| 530 | SIERRAS, CEASAR |
| 535 | OCCUPANT UNKNOWN, |
| 539 | OCCUPANT UNKNOWN, |
| 546 | OCCUPANT UNKNOWN, |
| 549 | GARCIA, RINA |
| 566 | ANGEL, BALTAZAR |
| 568 | HENDRIX, PATRICIA J |
| 569 | MAHONEY, DEDE M |
| 574 | HENDRIX, J |
| 578 | WEATHERSON, RANDY L |
| 591 | OCCUPANT UNKNOWN, |
| 593 | ERRECART, TIMOTHY B |
| 602 | OCCUPANT UNKNOWN, |
| 606 | FONSECA, ERIC |
| 610 | CLARK, KURTIS |
| 876 | OCCUPANT UNKNOWN, |
| 909 | CAMARENA, ARMANDO |
| 910 | BANUELOS, WILLIAM |
| 930 | OCCUPANT UNKNOWN, |
| 941 | GULIAN, RICARD B |
| 1020 | RICE, FRED W |
| 1233 | EDWARDS, JAMIE L |
| 1235 | MAY, VERNON A |
| 1260 | GLENN, JENNIFER |
| 1504 | STILSON, CHRISTOPHER L |
| 1651 | MONTOY, ERNEST L |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

# S KENNETH AVE 2005

| | |
|---|---|
| 721 | LLAMAS, VERONICA |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

## S LASSEN AVE 2005

| | |
|---|---|
| 317 | BETTINSOLI, LOUIS R |
| 379 | BETTINSOLI, JERRY S |
| 570 | GEORGE BARCELOS |
| | OCCUPANT UNKNOWN, |
| 610 | OCCUPANT UNKNOWN, |
| 705 | MONTOYA, CARLOS G |
| 728 | BARCELOS, KEVIN G |
| 736 | BARCELOS, DIEGO J |
| 1171 | HARDY, JEAN J |
| | L HARDY FARMS |
| 1582 | BOTELHO TRUCKING |
| | BOTELHO, RAYMOND M |
| 1852 | RAGSDALE, KEN R |
| 7588 | MAGALLON, ISAAC |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information |

# S MODOC AVE 2005

| | |
|---|---|
| 870 | OCCUPANT UNKNOWN, |
| 2501 | DURAN, NIDIA |

## S SISKIYOU AVE 2005

| | |
|---|---|
| 95 | OCCUPANT UNKNOWN, |
| 193 | POLANCO, RICHARD J |
| 205 | ALBARRAN, YOLANDA C |
| 219 | VILLA, JOSE A |
| 251 | OCCUPANT UNKNOWN, |
| 281 | LARA, MARTHA |
| 530 | SIERRAS, CEASAR |
| 546 | OCCUPANT UNKNOWN, |
| 566 | OCCUPANT UNKNOWN, |
| 568 | HENDRIX, PATRICIA J |
| 574 | HORN, BERDIE J |
| 578 | WEATHERSON, RANDY L |
| 602 | VALLEJO, ANGEL D |
| 606 | ECHEVERRIA, ERNESTO |
| 610 | CLARK, KURTIS |
| 731 | NAZAROFF, TIMOTHY A |
| 811 | BOYD, KENNETH R |
| 876 | OCCUPANT UNKNOWN, |
| 909 | CAMARENA, ARMANDO |
| 910 | MEZA, CHARLES A |
| 930 | VALLES, JOHN R |
| 1020 | RICE, FRED W |
| 1233 | EDWARDS, JAMIE L |
| 1235 | MAY, VERNON A |
| 1260 | TORRES, ANTONIO |
| 1504 | STILSON, JOANNE E |

# S LASSEN AVE 2000

| | |
|---|---|
| 317 | BETTINSOLI, GABRIEL |
| 379 | BETTINSOLI, JERRY |
| 610 | BARCELOS, KENDRA |
| 728 | OCCUPANT UNKNOWN, |
| 736 | BARCELOS, DIEGO |
| 753 | OROZCO, EUGENE |
| 827 | OROZCO, TRINIDA A |
| 901 | OCCUPANT UNKNOWN, |
| 1171 | HARDY, LEROY |
| 1582 | BOTELHO TRUCKING & HAY CUBING |
| | BOTELHO, RAY |
| 1760 | OCCUPANT UNKNOWN, |
| 1852 | OCCUPANT UNKNOWN, |

| **Target Street** | **Cross Street** | **Source** |
|---|---|---|
| ✓ | - | Cole Information |

## S MODOC AVE 2000

| | |
|---|---|
| 870 | BIGGS, KENNETH |
| 2073 | OCCUPANT UNKNOWN, |
| 2501 | DURAN, LUIS |

# S SISKIYOU AVE 2000

| | |
|---|---|
| 95 | GENTRY, NATALIE G |
| 193 | POLANCO, RICHARD |
| 219 | OCCUPANT UNKNOWN, |
| 281 | LARA, LEOPOLD |
| 462 | OCCUPANT UNKNOWN, |
| 574 | HORN, CAROLL D |
| 578 | WEATHERSON, RANDY |
| 602 | OCCUPANT UNKNOWN, |
| 606 | OCCUPANT UNKNOWN, |
| 610 | OCCUPANT UNKNOWN, |
| 731 | OCCUPANT UNKNOWN, |
| 811 | OCCUPANT UNKNOWN, |
| 876 | OCCUPANT UNKNOWN, |
| 909 | OCCUPANT UNKNOWN, |
| 910 | HERNANDEZ, FELICIA |
| | MEZA, CHARLES |
| 930 | FEES, C M |
| 1020 | RICE, L F |
| 1233 | EDWARDS, JAMIE |
| 1235 | MAY, VERNON A |
| 1260 | OCCUPANT UNKNOWN, |
| 1504 | STILSON, F E |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information |

# MODOC AVE 1995

| | |
|---|---|
| 870 | BIGGS, KENNETH |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Cole Information |

# S LASSEN AVE 1995

| | |
|---|---|
| 317 | BETTINSOLI, GABRIEL |
| 379 | BETTINSOLI, JERRY |
| 610 | OCCUPANT UNKNOWNN |
| 705 | OCCUPANT UNKNOWNN |
| 728 | BARCELOS, JOE |
| 736 | BARCELOS, DIEGO |
| 753 | OROZCO, HOPE A |
| 827 | OROZCO, TRINID A |
| 1171 | HARDY, LEROY |
| 1582 | BOTELHO TRUCKING & HAY CUBING |
| | BOTELHO, RAY |
| 1852 | RAGSDALE, KEN |

| **Target Street** | **Cross Street** | **Source** |
|---|---|---|
| - | ✓ | Cole Information |

## S SISKIYOU AVE 1995

| | |
|---|---|
| 73 | OCCUPANT UNKNOWNN |
| 95 | ROSE, WILLIE J |
| 193 | POLANCO, RICHARD |
| 253 | LAUER, CONRAD |
| 281 | LARA, LEOPOLD |
| 578 | WEATHERSON, RANDY |
| 602 | OCCUPANT UNKNOWNN |
| 606 | OCCUPANT UNKNOWNN |
| 610 | VALDEZ, PAUL |
| 731 | NAZAROFF, TIM |
| 812 | NEWMAN, OTHEL W |
| 909 | VELAZQUEZ, E |
| 910 | MEZA, CHARLES SR |
| 930 | VALLES, FRANCES T |
| 1020 | RICE, LLOYD F |
| 1233 | EDWARDS, JAMIE |
| 1235 | MAY, VERNON A |
| 1260 | FURTADO, NORMAN |
| 1504 | DEWISE, DEBORAH |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Cole Information |

## MODOC AVE 1992

| | |
|---|---|
| 870 | BIGGS, KENNETH |
| 2551 | BELL, HOMER M |

## S LASSEN AVE 1992

| | |
|---|---|
| 317 | BETTINSOLI, GABRIEL |
| 379 | BETTINSOLI, JERRY |
| 610 | BEDWELL, JUDY |
| 728 | BARCELOS, JOE |
| 736 | BARCELOS, DIEGO |
| 753 | OROZCO, EUGENE |
| 827 | OROZCO, TRINID A |
| 1171 | HARDY, LEROY |
| 1582 | BOTELHO TRUCKING |
| | BOTELHO, RAY |
| 1852 | RAGSDALE, KEN |
| 7948 | ANDERSON, RAYMOND H |

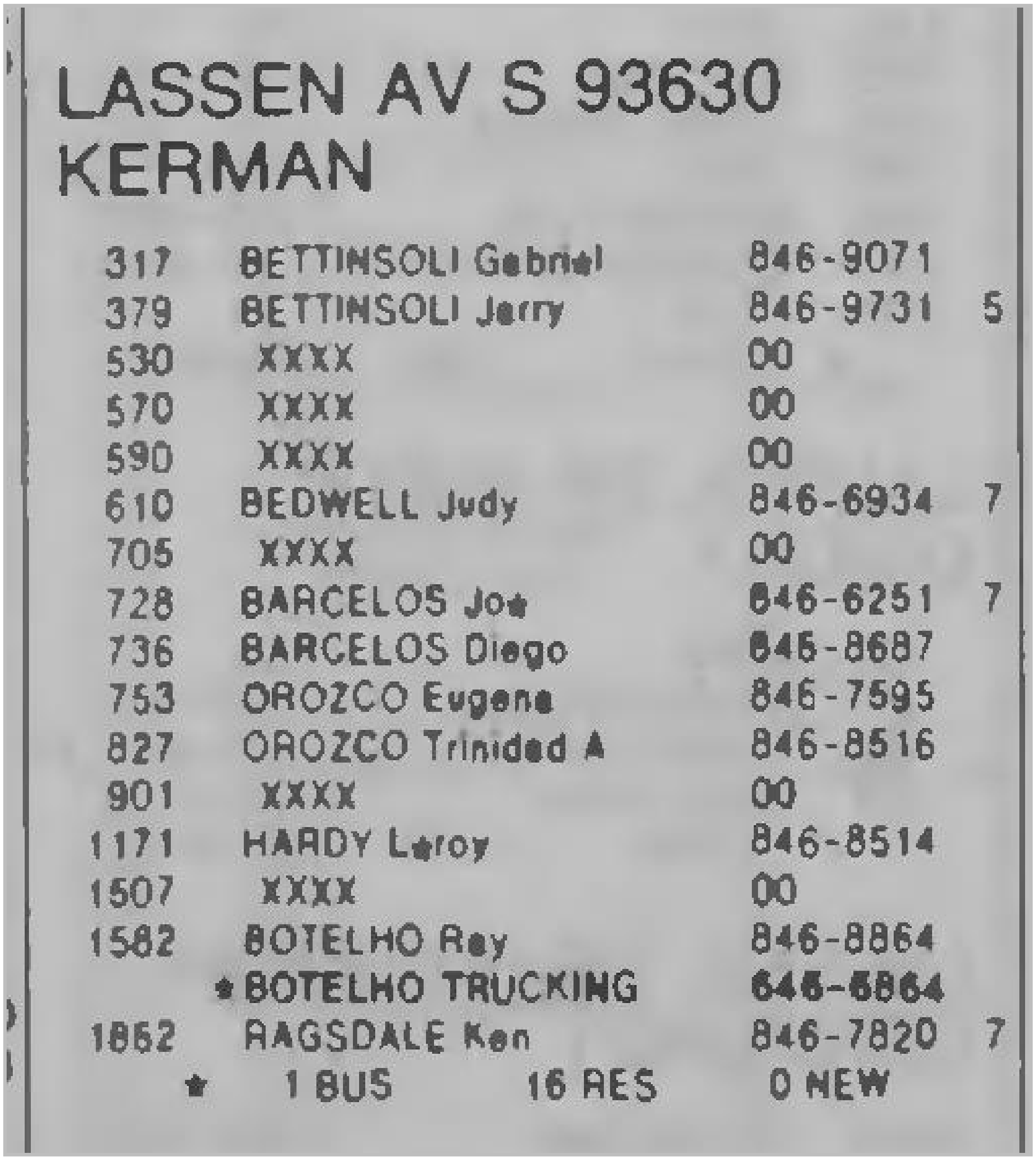
| **Target Street** | **Cross Street** | **Source** |
|---|---|---|
| - | ✓ | Cole Information |

## S SISKIYOU AVE 1992

| | |
|---|---|
| 73 | GENTRY, BRIAN |
| 193 | POLANCO, RICHARD |
| 731 | NAZAROFF, TIM |
| 812 | NEWMAN, OTHEL W |
| 909 | VELAZQUEZ, E |
| 910 | MEZA, CHARLES SR |
| 1020 | RICE, L F |
| 1233 | EDWARDS, JAMIE |
| 1260 | FURTADO, NORMAN |
| 1504 | STILSON, FRED E |
| 1800 | MERCER, WOODROW |

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Haines Criss-Cross Directory |

# S LASSEN AVE 1990



## LASSEN AV S 93630 KERMAN

| | | | |
|---|---|---|---|
| 317 | BETTINSOLI Gabriel | 846-9071 | |
| 379 | BETTINSOLI Jerry | 846-9731 | 5 |
| 530 | XXXX | 00 | |
| 570 | XXXX | 00 | |
| 590 | XXXX | 00 | |
| 610 | BEDWELL Judy | 846-6934 | 7 |
| 705 | XXXX | 00 | |
| 728 | BARCELOS Joe | 846-6251 | 7 |
| 736 | BARCELOS Diego | 846-8687 | |
| 753 | OROZCO Eugene | 846-7595 | |
| 827 | OROZCO Trinidad A | 846-8516 | |
| 901 | XXXX | 00 | |
| 1171 | HARDY Leroy | 846-8514 | |
| 1507 | XXXX | 00 | |
| 1582 | BOTELHO Ray | 846-8864 | |
| | ★ **BOTELHO TRUCKING** | **846-8864** | |
| 1862 | RAGSDALE Ken | 846-7820 | 7 |

★ 1 BUS 16 RES 0 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Haines Criss-Cross Directory |

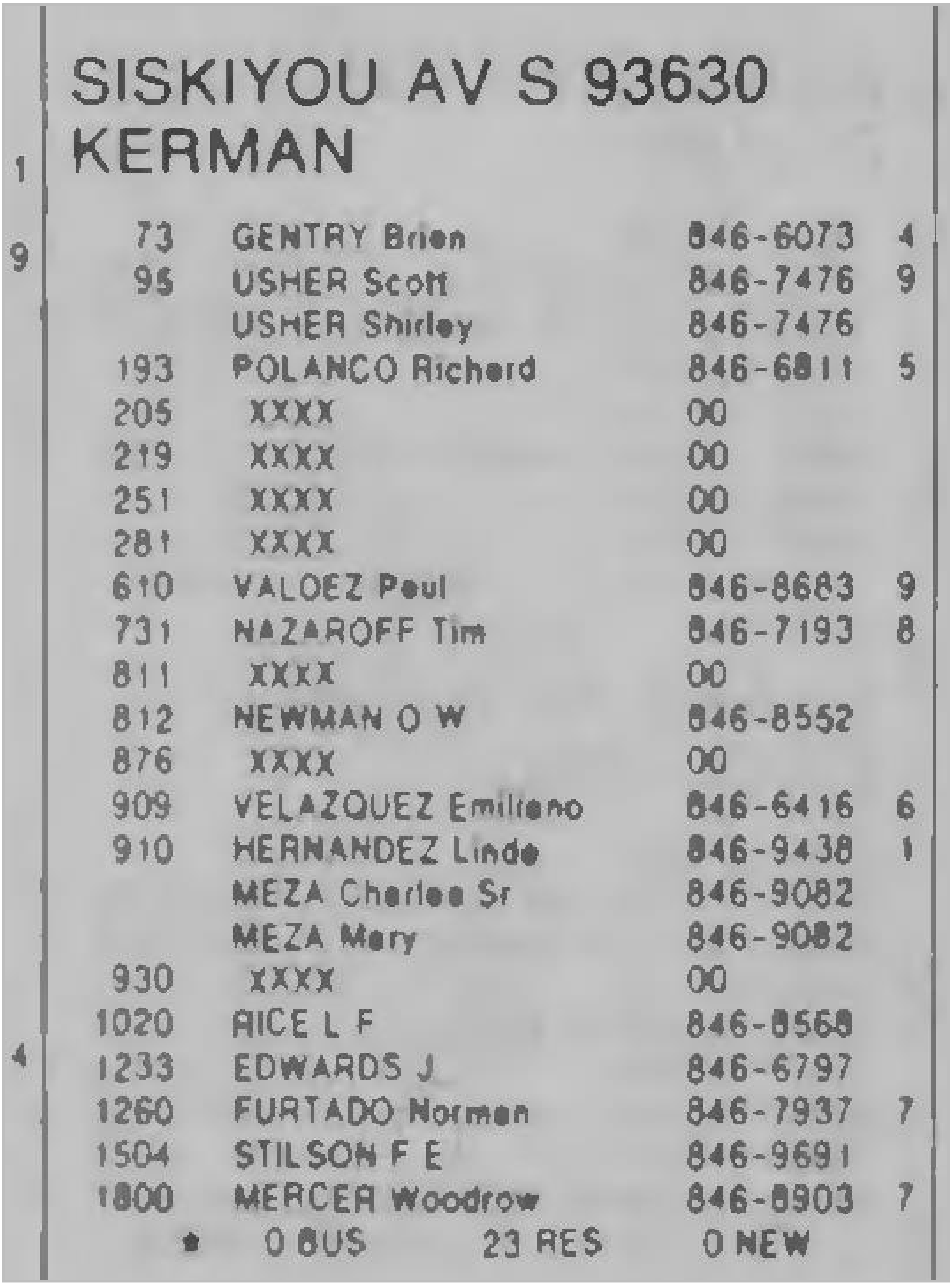
## S MODOC AVE 1990

+MODOC AV S (90)
93630 KERMAN

52 2501 LEMUS Marcelo 846-8544 +0
⌂ 0 BUS 1 RES 1 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Haines Criss-Cross Directory |

# S SISKIYOU AVE 1990



## SISKIYOU AV S 93630 KERMAN

| | | | |
|---|---|---|---|
| 73 | GENTRY Brian | 846-6073 | 4 |
| 95 | USHER Scott | 846-7476 | 9 |
| | USHER Shirley | 846-7476 | |
| 193 | POLANCO Richard | 846-6811 | 5 |
| 205 | XXXX | 00 | |
| 219 | XXXX | 00 | |
| 251 | XXXX | 00 | |
| 281 | XXXX | 00 | |
| 610 | VALDEZ Paul | 846-8683 | 9 |
| 731 | NAZAROFF Tim | 846-7193 | 8 |
| 811 | XXXX | 00 | |
| 812 | NEWMAN O W | 846-8552 | |
| 876 | XXXX | 00 | |
| 909 | VELAZQUEZ Emiliano | 846-6416 | 6 |
| 910 | HERNANDEZ Linda | 846-9438 | 1 |
| | MEZA Charles Sr | 846-9082 | |
| | MEZA Mary | 846-9082 | |
| 930 | XXXX | 00 | |
| 1020 | RICE L F | 846-8568 | |
| 1233 | EDWARDS J | 846-6797 | |
| 1260 | FURTADO Norman | 846-7937 | 7 |
| 1504 | STILSON F E | 846-9691 | |
| 1800 | MERCER Woodrow | 846-8903 | 7 |

* 0 BUS 23 RES 0 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Haines Criss-Cross Directory |

# S LASSEN AVE 1985

## LASSEN AV S 93630
## KERMAN

| | | | |
|---|---|---|---|
| 317 | BETTINSOLI GABRIEL | 846-9071 | |
| 379 | BETTINSOLI JERRY | 846-9731 | +5 |
| 530 | XXXX | 00 | |
| 570 | BARCELOS J D | 846-8510 | |
| 590 | BEDWELL KEVIN | 846-6934 | +5 |
| 610 | BARCELOS JOE | 846-6251 | 3 |
| 705 | CASTORENA JOSE | 846-9606 | 9 |
| 728 | RUIZ JOHN | 846-9432 | 0 |
| 736 | BARCELOS DIEGO | 846-8667 | |
| 753 | OROZCO EUGENE | 846-7595 | |
| | OROZCO RICHARD | 846-7526 | +5 |
| 827 | OROZCG TRINIDAD A | 846-8516 | |
| 901 | XXXX | 00 | |
| 1171 | HARDY LEROY | 846-8514 | |
| 1507 | XXXX | 00 | |
| 1582 | BOTELHO RAY | 846-8864 | |
| | **BOTELHO TRUCKING** | **846-8864** | |

* 1 BUS 16 RES 3 NEW

| **Target Street** | **Cross Street** | **Source** |
|---|---|---|
| - | ✓ | Haines Criss-Cross Directory |

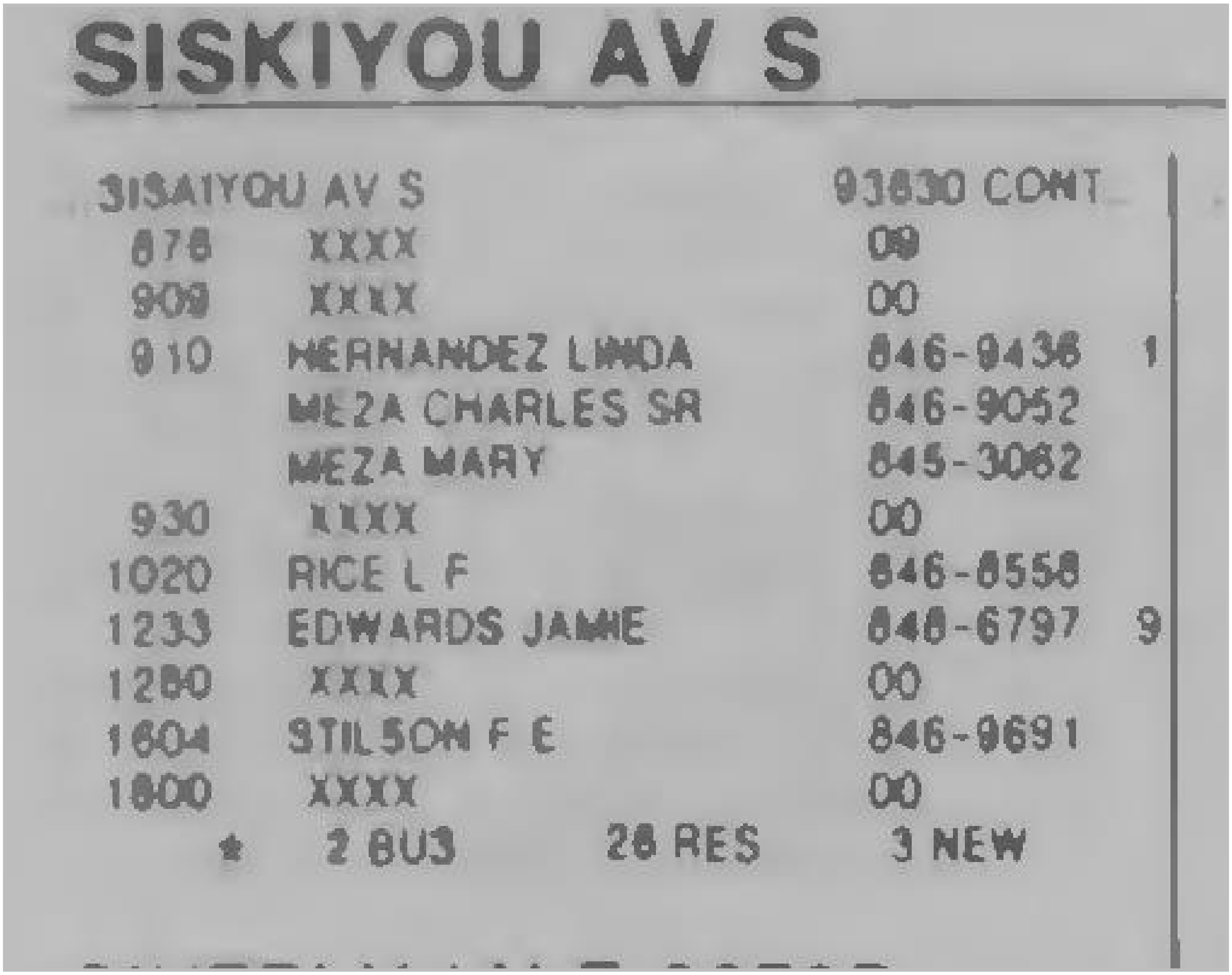
# S SISKIYOU AVE 1985

## SISKIYOU AV S 93630 KERMAN

| | | | |
|---|---|---|---|
| 73 | GENTRY BRIAN | 846-8073 | 4 |
| | **WAYNES BODY&PAINT** | **688-8700** | **+8** |
| 95 | GENTRY PAUL | 846-9796 | 3 |
| 193 | POLANCO RICHARD | 846-6811 | +5 |
| 205 | XXXX | 00 | |
| 219 | XXXX | 00 | |
| 251 | XXXX | 00 | |
| 281 | XXXX | 00 | |
| 548 | ESPINO JIMMY | 846-6911 | 1 |
| | GONZALES AURORA | 846-6832 | +5 |
| 578 | ESPINO GEORGE | 846-8557 | |
| 589 | XXXX | 00 | |
| 508 | VALDEZ PAUL | 846-8603 | |
| 731 | THOMAS RONNIE | 846-8151 | 0 |
| 811 | GREENINO ROBERT | 846-7751 | |
| | **GREENING ROOFING** | **846-7781** | **3** |
| 812 | NEWMAN O W | 846-8552 | |

| **Target Street** | **Cross Street** | **Source** |
|---|---|---|
| - | ✓ | Haines Criss-Cross Directory |

## S SISKIYOU AVE 1985



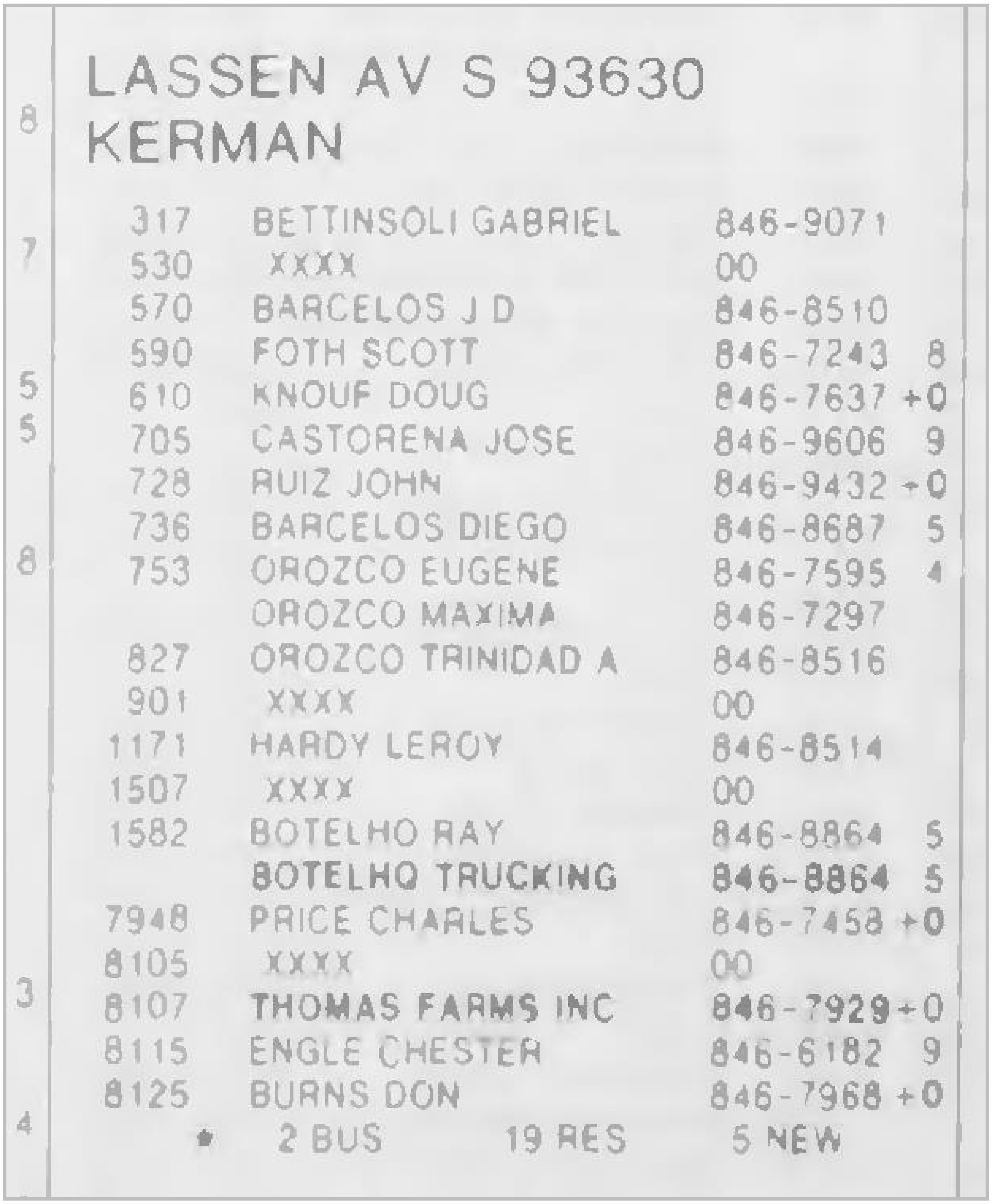
# SISKIYOU AV S

| SISKIYOU AV S | | 93630 CONT | |
|---|---|---|---|
| 876 | XXXX | 00 | |
| 909 | XXXX | 00 | |
| 910 | HERNANDEZ LINDA | 846-9436 | 1 |
| | MEZA CHARLES SR | 846-9052 | |
| | MEZA MARY | 845-3062 | |
| 930 | XXXX | 00 | |
| 1020 | RICE L F | 846-6558 | |
| 1233 | EDWARDS JAMIE | 846-6797 | 9 |
| 1280 | XXXX | 00 | |
| 1604 | STILSON F E | 846-9691 | |
| 1800 | XXXX | 00 | |

* 2 BUS 28 RES 3 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Haines Criss-Cross Directory |

## S LASSEN AVE 1980



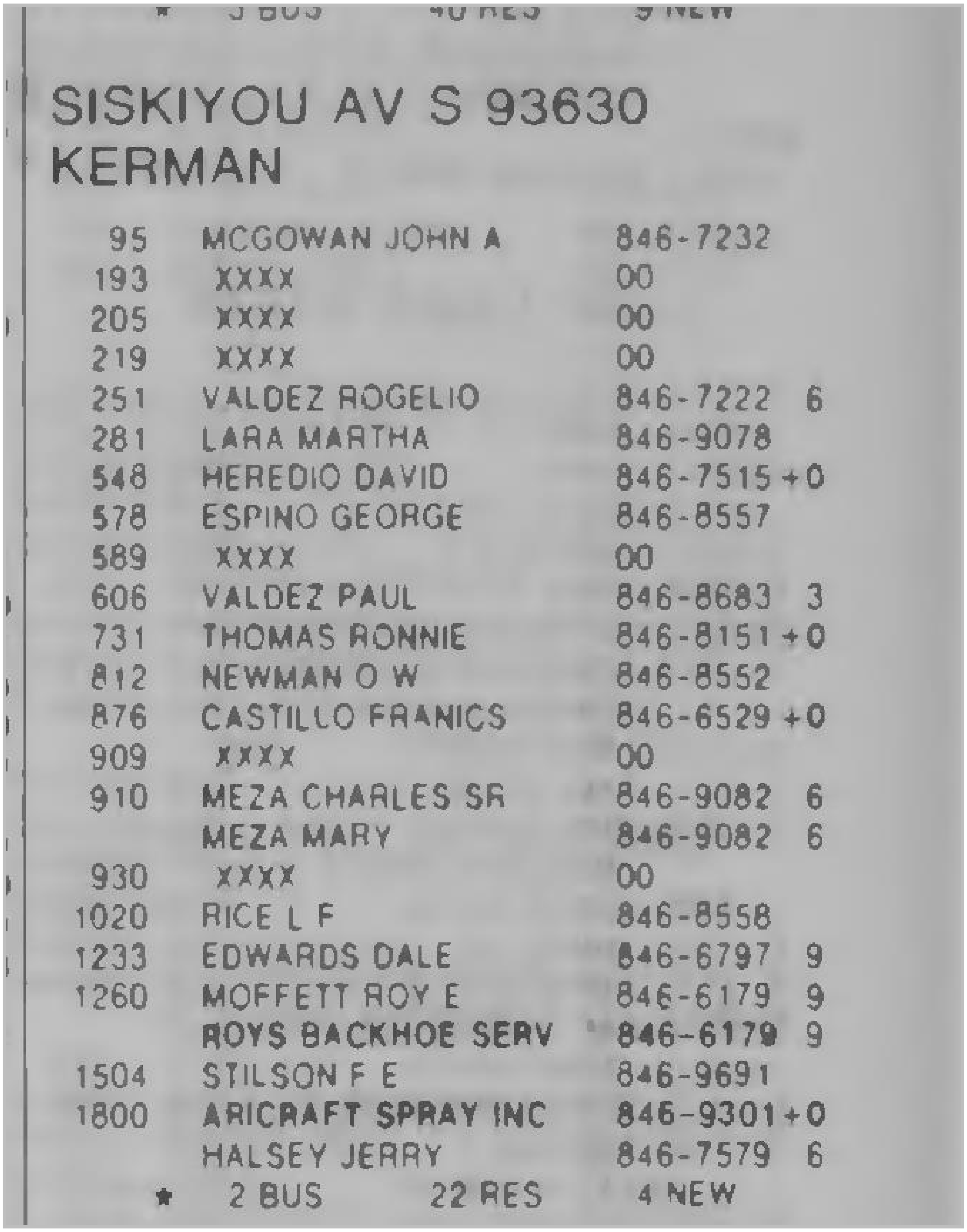
### LASSEN AV S 93630
### KERMAN

| | | | |
|---|---|---|---|
| 317 | BETTINSOLI GABRIEL | 846-9071 | |
| 530 | XXXX | 00 | |
| 570 | BARCELOS J D | 846-8510 | |
| 590 | FOTH SCOTT | 846-7243 | 8 |
| 610 | KNOUF DOUG | 846-7637 | +0 |
| 705 | CASTORENA JOSE | 846-9606 | 9 |
| 728 | RUIZ JOHN | 846-9432 | +0 |
| 736 | BARCELOS DIEGO | 846-8687 | 5 |
| 753 | OROZCO EUGENE | 846-7595 | 4 |
| | OROZCO MAXIMA | 846-7297 | |
| 827 | OROZCO TRINIDAD A | 846-8516 | |
| 901 | XXXX | 00 | |
| 1171 | HARDY LEROY | 846-8514 | |
| 1507 | XXXX | 00 | |
| 1582 | BOTELHO RAY | 846-8864 | 5 |
| | **BOTELHO TRUCKING** | **846-8864** | 5 |
| 7948 | PRICE CHARLES | 846-7458 | +0 |
| 8105 | XXXX | 00 | |
| 8107 | **THOMAS FARMS INC** | **846-7929** | +0 |
| 8115 | ENGLE CHESTER | 846-6182 | 9 |
| 8125 | BURNS DON | 846-7968 | +0 |

* 2 BUS 19 RES 5 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Haines Criss-Cross Directory |

## S SISKIYOU AVE 1980



★ 3 BUS 40 RES 9 NEW

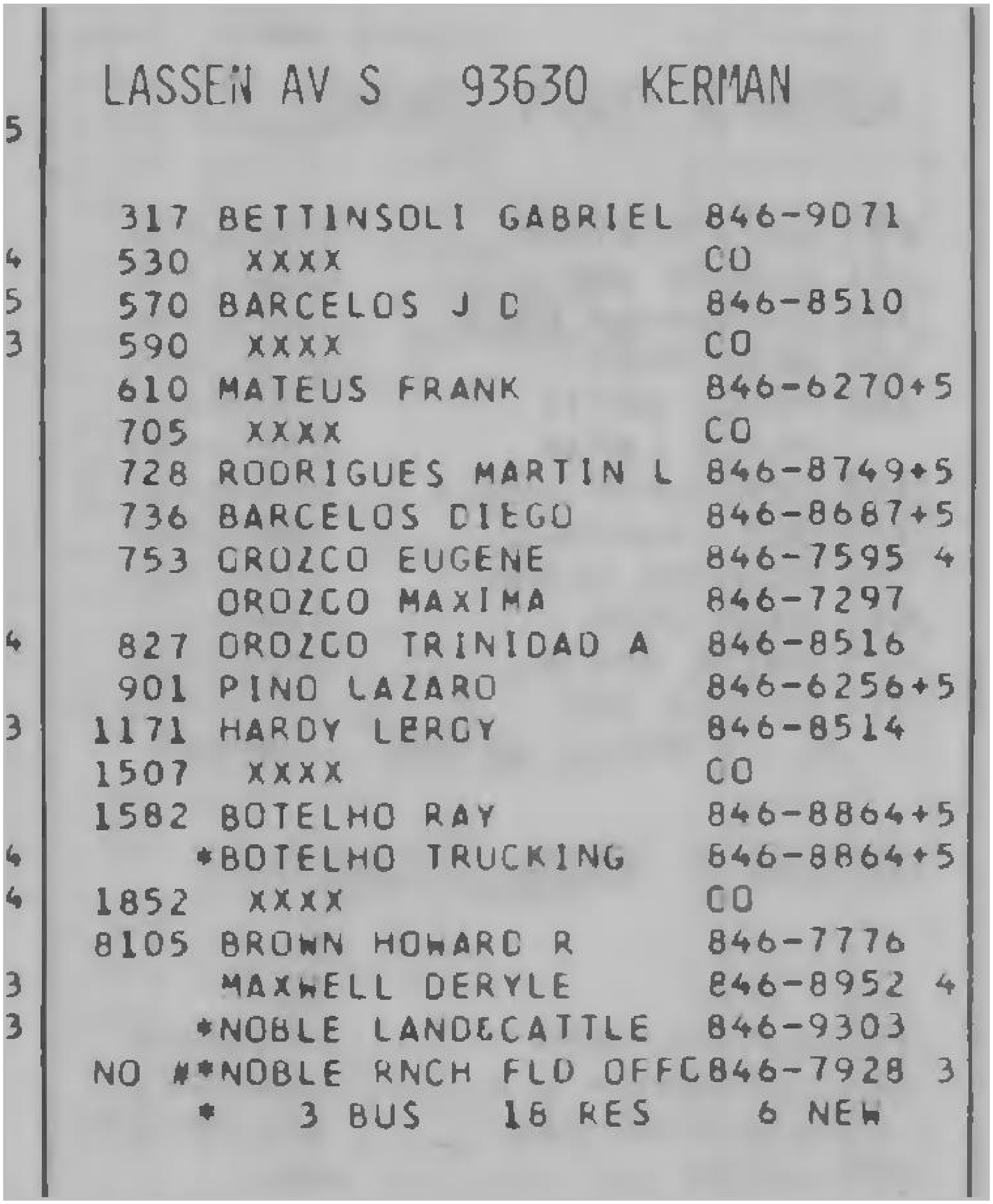
### SISKIYOU AV S 93630 KERMAN

| | | | |
|---|---|---|---|
| 95 | MCGOWAN JOHN A | 846-7232 | |
| 193 | XXXX | 00 | |
| 205 | XXXX | 00 | |
| 219 | XXXX | 00 | |
| 251 | VALDEZ ROGELIO | 846-7222 | 6 |
| 281 | LARA MARTHA | 846-9078 | |
| 548 | HEREDIO DAVID | 846-7515 | +0 |
| 578 | ESPINO GEORGE | 846-8557 | |
| 589 | XXXX | 00 | |
| 606 | VALDEZ PAUL | 846-8683 | 3 |
| 731 | THOMAS RONNIE | 846-8151 | +0 |
| 812 | NEWMAN O W | 846-8552 | |
| 876 | CASTILLO FRANICS | 846-6529 | +0 |
| 909 | XXXX | 00 | |
| 910 | MEZA CHARLES SR | 846-9082 | 6 |
| | MEZA MARY | 846-9082 | 6 |
| 930 | XXXX | 00 | |
| 1020 | RICE L F | 846-8558 | |
| 1233 | EDWARDS DALE | 846-6797 | 9 |
| 1260 | MOFFETT ROY E | 846-6179 | 9 |
| | **ROYS BACKHOE SERV** | 846-6179 | 9 |
| 1504 | STILSON F E | 846-9691 | |
| 1800 | **ARICRAFT SPRAY INC** | 846-9301 | +0 |
| | HALSEY JERRY | 846-7579 | 6 |

★ 2 BUS 22 RES 4 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Haines Criss-Cross Directory |

# S LASSEN AVE 1975



## LASSEN AV S 93630 KERMAN

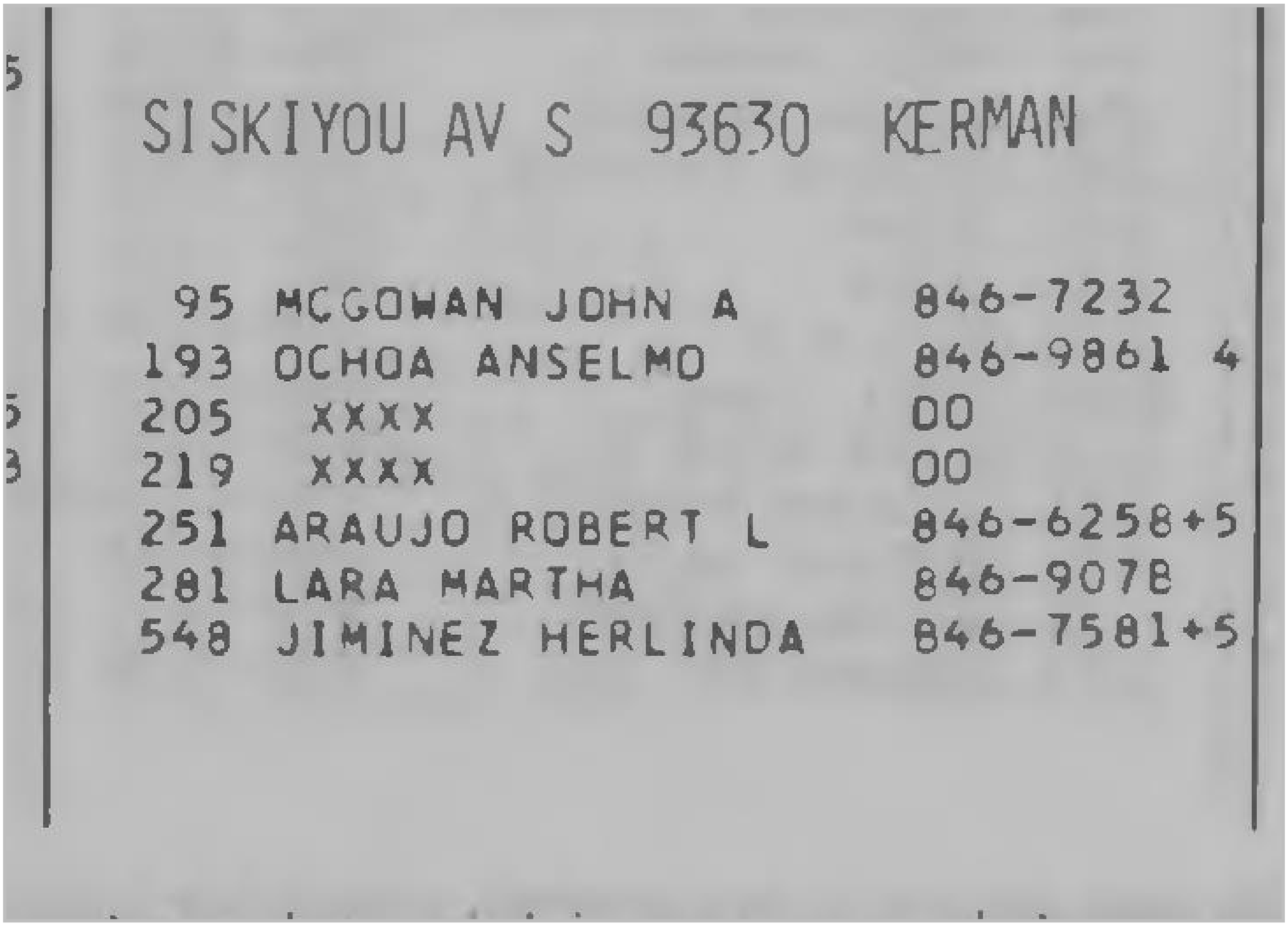
5

| | | | |
|---|---|---|---|
| | 317 | BETTINSOLI GABRIEL | 846-9071 |
| 4 | 530 | XXXX | CO |
| 5 | 570 | BARCELOS J D | 846-8510 |
| 3 | 590 | XXXX | CO |
| | 610 | MATEUS FRANK | 846-6270+5 |
| | 705 | XXXX | CO |
| | 728 | RODRIGUES MARTIN L | 846-8749+5 |
| | 736 | BARCELOS DIEGO | 846-8687+5 |
| | 753 | OROZCO EUGENE | 846-7595 4 |
| | | OROZCO MAXIMA | 846-7297 |
| 4 | 827 | OROZCO TRINIDAD A | 846-8516 |
| | 901 | PINO LAZARO | 846-6256+5 |
| 3 | 1171 | HARDY LEROY | 846-8514 |
| | 1507 | XXXX | CO |
| | 1582 | BOTELHO RAY | 846-8864+5 |
| 4 | | *BOTELHO TRUCKING | 846-8864+5 |
| 4 | 1852 | XXXX | CO |
| | 8105 | BROWN HOWARD R | 846-7776 |
| 3 | | MAXWELL DERYLE | 846-8952 4 |
| 3 | | *NOBLE LAND&CATTLE | 846-9303 |
| | NO # | *NOBLE RNCH FLD OFFC | 846-7928 3 |

* 3 BUS 16 RES 6 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Haines Criss-Cross Directory |

# S SISKIYOU AVE 1975

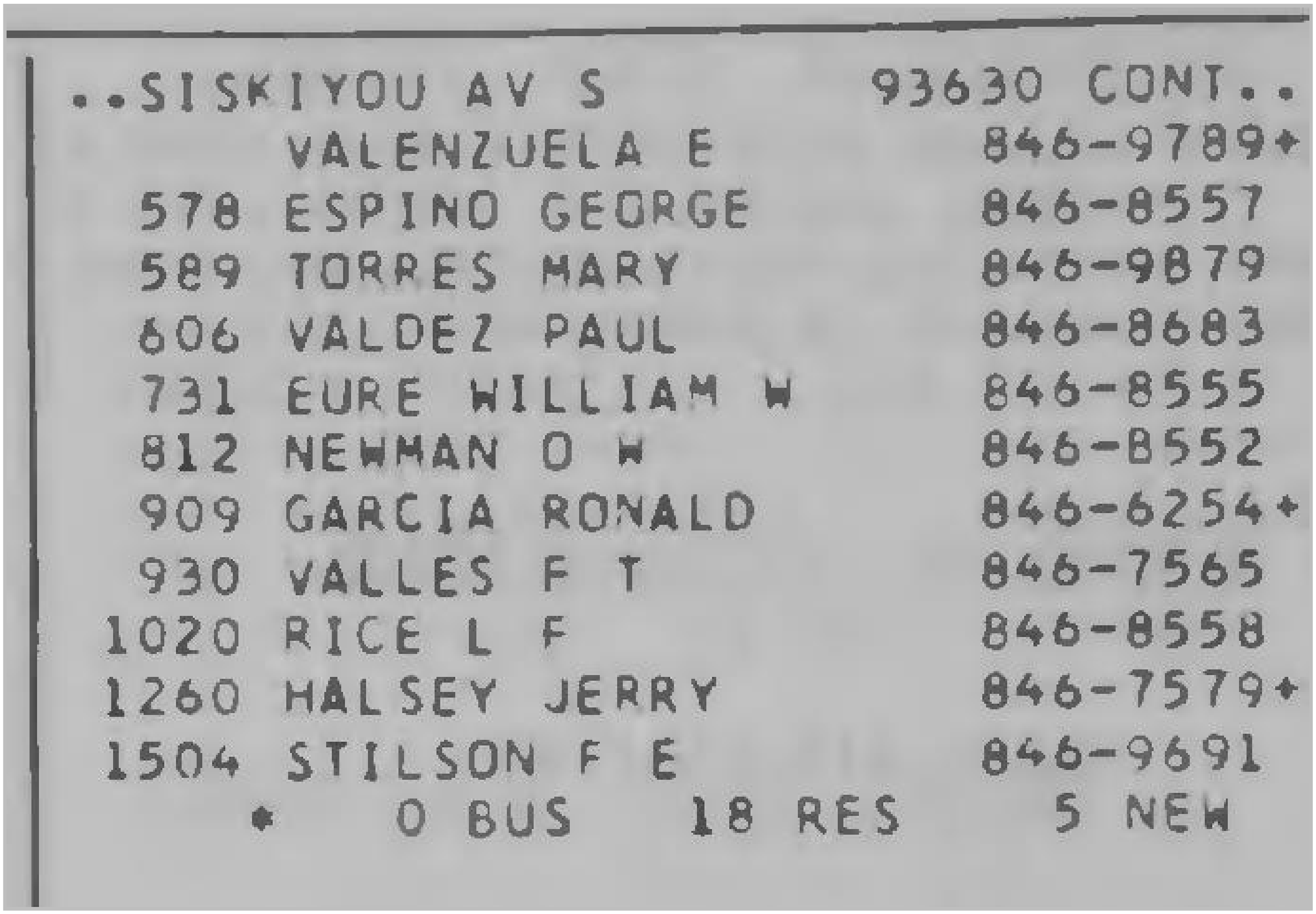


SISKIYOU AV S 93630 KERMAN

| | | |
|---|---|---|
| 95 | MCGOWAN JOHN A | 846-7232 |
| 193 | OCHOA ANSELMO | 846-9861 4 |
| 205 | XXXX | 00 |
| 219 | XXXX | 00 |
| 251 | ARAUJO ROBERT L | 846-6258+5 |
| 281 | LARA MARTHA | 846-9078 |
| 548 | JIMINEZ HERLINDA | 846-7581+5 |

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Haines Criss-Cross Directory |

# S SISKIYOU AVE 1975



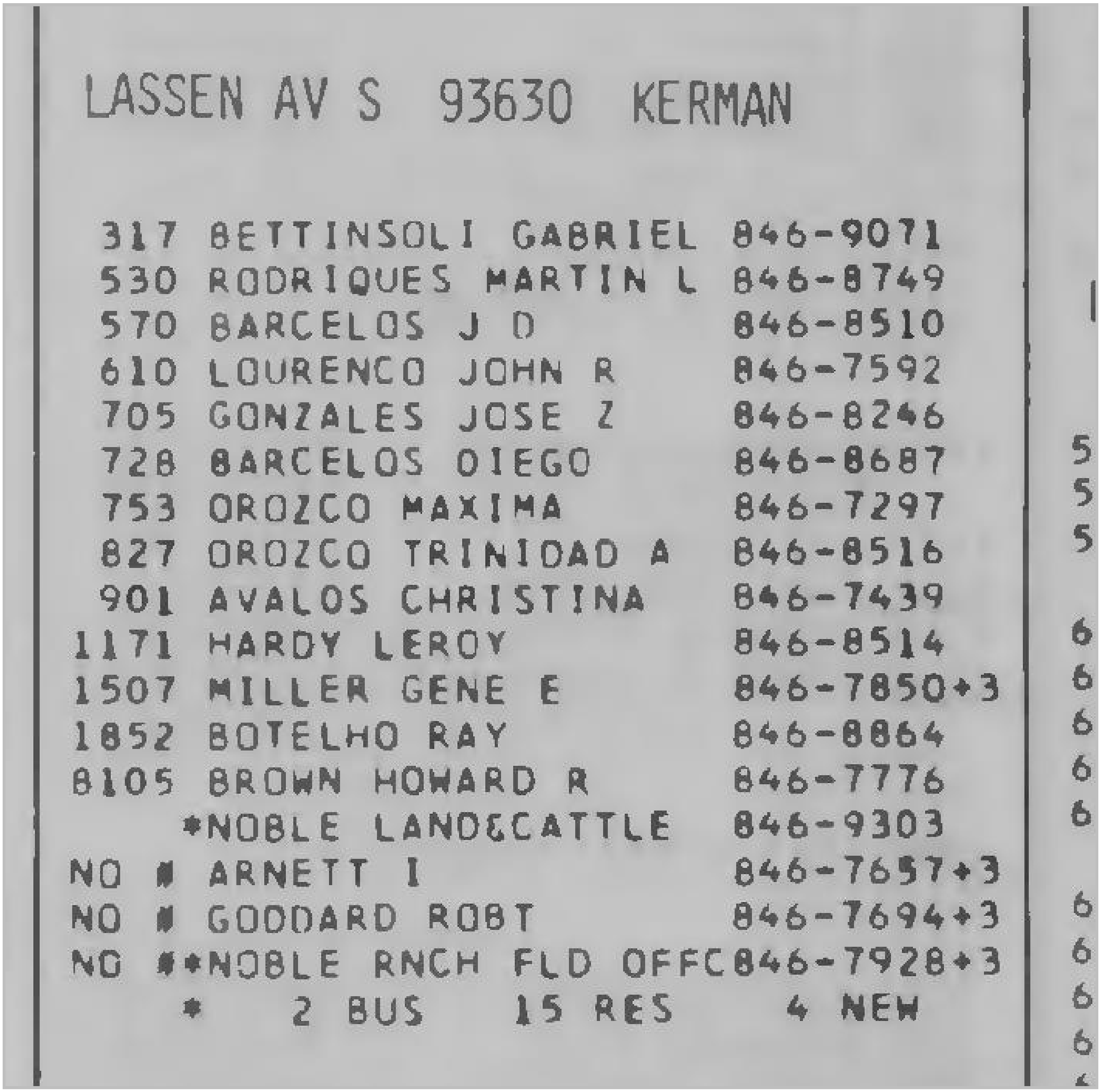
..SISKIYOU AV S 93630 CONT..

| | | |
|---|---|---|
| | VALENZUELA E | 846-9789+ |
| 578 | ESPINO GEORGE | 846-8557 |
| 589 | TORRES MARY | 846-9879 |
| 606 | VALDEZ PAUL | 846-8683 |
| 731 | EURE WILLIAM W | 846-8555 |
| 812 | NEWMAN O W | 846-8552 |
| 909 | GARCIA RONALD | 846-6254+ |
| 930 | VALLES F T | 846-7565 |
| 1020 | RICE L F | 846-8558 |
| 1260 | HALSEY JERRY | 846-7579+ |
| 1504 | STILSON F E | 846-9691 |

* 0 BUS 18 RES 5 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| ✓ | - | Haines Criss-Cross Directory |

# S LASSEN AVE 1973



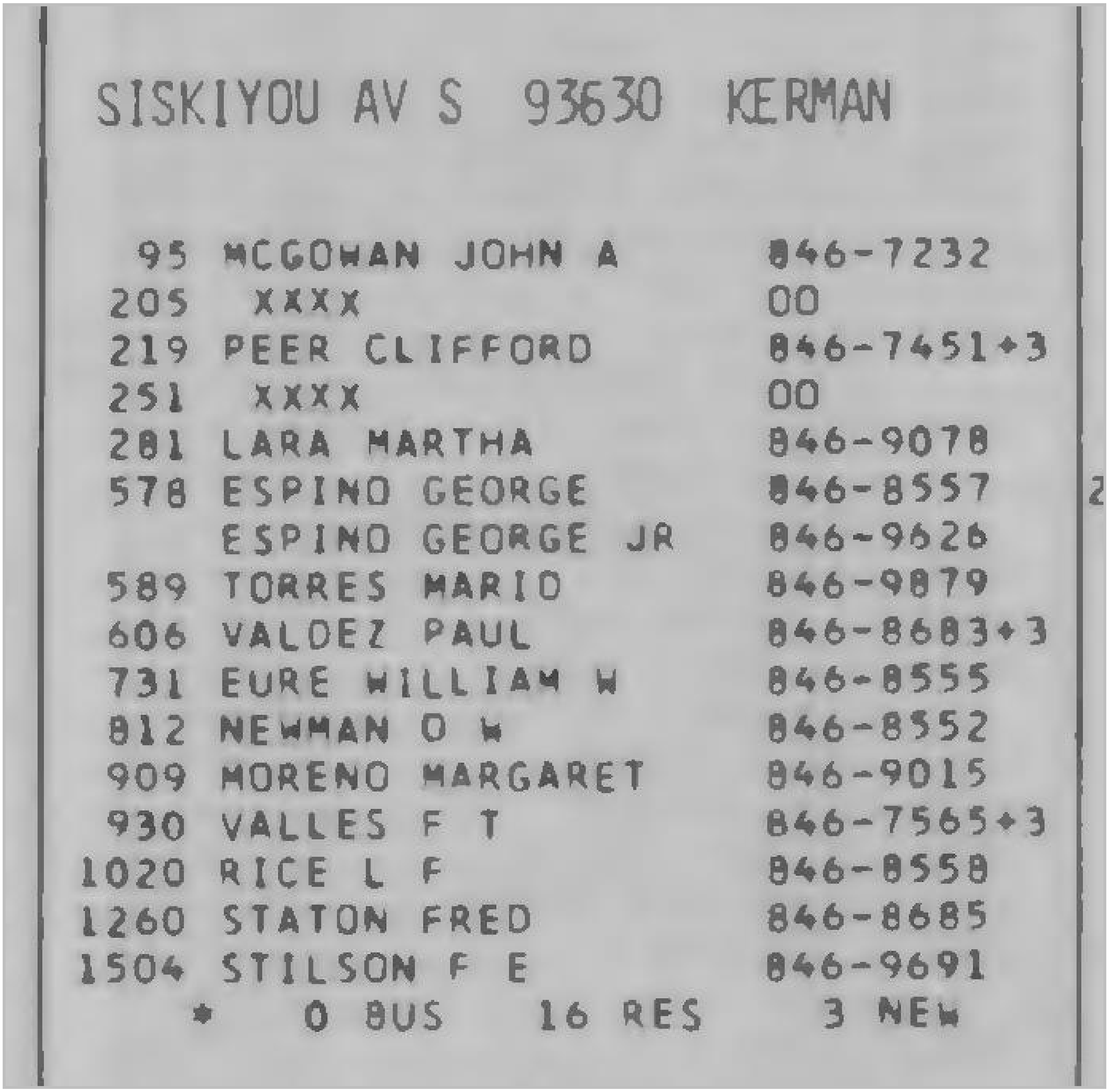
## LASSEN AV S 93630 KERMAN

| | | |
|---|---|---|
| 317 | BETTINSOLI GABRIEL | 846-9071 |
| 530 | RODRIQUES MARTIN L | 846-8749 |
| 570 | BARCELOS J D | 846-8510 |
| 610 | LOURENCO JOHN R | 846-7592 |
| 705 | GONZALES JOSE Z | 846-8246 |
| 728 | BARCELOS DIEGO | 846-8687 |
| 753 | OROZCO MAXIMA | 846-7297 |
| 827 | OROZCO TRINIDAD A | 846-8516 |
| 901 | AVALOS CHRISTINA | 846-7439 |
| 1171 | HARDY LEROY | 846-8514 |
| 1507 | MILLER GENE E | 846-7850+3 |
| 1852 | BOTELHO RAY | 846-8864 |
| 8105 | BROWN HOWARD R | 846-7776 |
| | *NOBLE LAND&CATTLE | 846-9303 |
| NO # | ARNETT I | 846-7657+3 |
| NO # | GOODARD ROBT | 846-7694+3 |
| NO # | *NOBLE RNCH FLD OFFC | 846-7928+3 |

* 2 BUS 15 RES 4 NEW

| Target Street | Cross Street | Source |
|---|---|---|
| - | ✓ | Haines Criss-Cross Directory |

# S SISKIYOU AVE 1973



## SISKIYOU AV S 93630 KERMAN

| | | |
|---|---|---|
| 95 | MCGOWAN JOHN A | 846-7232 |
| 205 | XXXX | 00 |
| 219 | PEER CLIFFORD | 846-7451+3 |
| 251 | XXXX | 00 |
| 281 | LARA MARTHA | 846-9078 |
| 578 | ESPINO GEORGE | 846-8557 |
| | ESPINO GEORGE JR | 846-9626 |
| 589 | TORRES MARIO | 846-9879 |
| 606 | VALDEZ PAUL | 846-8683+3 |
| 731 | EURE WILLIAM W | 846-8555 |
| 812 | NEWMAN O W | 846-8552 |
| 909 | MORENO MARGARET | 846-9015 |
| 930 | VALLES F T | 846-7565+3 |
| 1020 | RICE L F | 846-8558 |
| 1260 | STATON FRED | 846-8685 |
| 1504 | STILSON F E | 846-9691 |

* 0 BUS 16 RES 3 NEW

# USER QUESTIONNAIRE

RMA GeoScience

## USER QUESTIONNAIRE

## ASTM E 1527-21

**(1) Environmental liens that are filed or recorded against the subject property (40 CFR 312.25).**

Did a search of land title records (or judicial records where appropriate) identify any environmental liens filled or recorded against the subject property under federal, tribal, state, or local law? Undetermined

According to EnviroStor there are no records of environmental cleanups which would suggest any environmental liens being filed or recorded against the subject property. Source: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=%09870+S+MODOC+AVE

**(2) Activity and use limitations that are in place on the subject property or that have been filed or recorded in a registry against the subject property.**

Did a search of land title records (or judicial records where appropriate) identify any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the subject property and/or have been filed or recorded against the subject property under federal, tribal, state, or local law?

Unknown

**(3) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).**

Do you have any specialized knowledge or experience related to the subject property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the subject property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

Unknown

**(4) Relationship of the purchase price to the fair market value of the subject property if it were not contaminated (40 CFR 312.29).**

Does the purchase price being paid for this subject property reasonably reflect the fair market value of the subject property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the subject property?

Specifics unknown, property assessed at $1,122,510.

Source Zillow https://www.zillow.com/homedetails/870-S-Modoc-Ave-Kerman-CA-93630/95483319_zpid/

**(5) Commonly known or reasonably ascertainable information about the subject property (40 CFR 312.30).**

Are you aware of commonly known or reasonably ascertainable information about the subject property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example,

(a) Do you know the past uses of the subject property? Specifics unknwown: Google Earth imagery indicate site was previously used for farming, including a use of barn and/or SFR home.

Source: Google Earth

(b) Do you know of specific chemicals that are present or once were present at the subject property? Unknown

(c) Do you know of spills or other chemical releases that have taken place at the subject property?
Unknown

(d) Do you know of any environmental cleanups that have taken place at the subject property?
Unknown

**(6) The degree of obviousness of the presence or likely presence of contamination at the subject property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).**

Based on your knowledge and experience related to the subject property, are there any obvious indicators that point to the presence or likely presence of releases at the subject property?
Unknown

**(7) Site Contact**

Please identify and provide contact information of a Site Contact to setup an inspection of the subject property. None/ Unknown

**(8) Key Site Manager**

Please identify and provide contact information of a Key Site Manager with good knowledge of the uses and physical characteristic of the subject property. This may be the same as the Site Contact.
None/ Unknown

**(9) Current or Former Owners, Occupants, and/or Operators**

Please identify and provide contact information of any Current or Former Owners, Occupants, and/or Operators that we may contact about the subject property.
WHISPERING FALLS DEVELOPMENT LLC
Attn: Ken Boyd & Associates
275 S Madera Ave #100
Kerman, CA 93630
559-846-9362

**(10) Prior Assessments**

Are there any prior assessment reports, documents, or correspondence concerning the subject property which may be pertinent to the environmental professional? If so, please describe them and provide copies if possible. None, would defer to Fresno County Department of Public Works and Planning

**(11) Other Relevant Information**

Please use the remaining space to provide any other relevant information regarding the subject property.
None

**Completed by:** Jesus R Orozco

**Signature:** Jesus R. Orozco

**Company:** City of Kerman - Community Development

**Title:** Community Development Director

**Date:** 5/18/2023

## Acronyms and Definitions

| | |
|---|---|
| **AUL** | Activity and Use Limitations |
| **CFR** | Code of Federal Regulations |
| **ESA** | Environmental Site Assessment |

**Engineering Controls**

Physical modifications to a site or facility (for example, capping, slurry walls, or point of use water treatment) to reduce or eliminate the potential for exposure to hazardous substances or petroleum products in the soil or groundwater on a property. Engineering controls are a type of activity and use limitation (AUL).

**Institutional Controls**

A legal or administrative mechanism (for example, "deed restrictions" restrictive covenants, easements, or zoning) on the use of, or access to, a site or facility to (1) reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil or groundwater on the property, or (2) to prevent activities that could interfere with effectiveness of a response action, in order to ensure maintenance of a conditions of no significant risk to public health or the environment. An institutional control is a type of activity and use limitation (AUL).

**User**

The party seeking to use Practice E 1527-21 to complete an environmental site assessment of the subject property. A user may include, without limitation, a potential purchaser of subject property, a potential tenant of the subject property, an owner of subject property, a lender, or a property manager. A user seeking to qualify for an LLP to CERCLA liability, or a user that is an EPA Brownfield Assessment and Characterization grantee, has specific responsibilities for completing a successful application of this practice as outlined in Section 6 of ASTM E 1527-21.

# INTERVIEW QUESTIONNAIRE

RMA GeoScience
Every Project Matters | www.rmacompanies.com

## INTERVIEW QUESTIONNAIRE
## ASTM E 1527-21

In accordance with Section 10 of the Standard Practice for Phase I Environmental Site Assessments (ESA); Designation E1527-21 the environmental professional shall address questions to be asked of past and present owners, operators, and occupants of the subject property.

We ask that you complete the following questions to the best of your knowledge and return it to us at your earliest convenience for inclusion in the Phase I ESA.

1. Is there litigation or administrative proceedings relevant to hazardous substances or petroleum products? NO
2. Are you aware of the existence of structures on site in the past? yes
   If so, was there asbestos containing building materials in the structure? NO
3. Are there or has there ever been chemicals, pesticides or herbicides used, mixed or formulated on the subject property?
   yes
   If so, what types? Farming Pesticides for grapes approved by Farm bureau
   Storage areas: NONE
4. Are there or has there ever been above ground or underground storage tanks at the subject property? No
   Location
   Contents
   Permits
5. Have any solid or liquid waste been disposed of, treated or neutralized on the subject property?
   If so, what types NONE
   Permits
6. Have there been any spills, leaks or other releases of chemicals on the subject property?
   What chemicals? NONE
   Quantity
   Cleanup measures?
   Are there any enforcement actions pending against the subject property?
7. Are you aware of any past uses of the subject property such as agricultural or commercial usage?
   Just for farming

**Completed by:** Ken Boyd
**Company:** Boyd & Associates
**Date:** May 8, 2023

**Signature:** Ken Boyd
**Title:** Owner

RECORD REQUESTS AND RESPONSES

**From:** County of Fresno - Public Records Requests
**To:** Gabriel Valov
**Subject:** Your first record request #23-214 has been opened.
**Date:** Thursday, March 30, 2023 3:40:03 PM

---

-- Attach a non-image file and/or reply ABOVE THIS LINE with a message, and it will be sent to staff on this request. --

## County of Fresno Public Records

### Your first County of Fresno record request (request number #23-214) has been submitted. It is currently unpublished and is not available for the general public to view.

Thank you for your request. We will respond within 10 days with an update. If you have any questions please feel free to reply to this email.

View Request 23-214

https://fresnocountyca.nextrequest.com/requests/23-214

As the requester, you can always see the status of your request by signing into the County of Fresno Public Records portal here.

If you haven't already activated your account, click here to get started. Once your account is activated, your request will be visible at the following link: Request #23-214.

## Gabriel Valov

**From:** Marci Reyes <MReyes@cityofkerman.org>
**Sent:** Thursday, March 30, 2023 3:45 PM
**To:** Gabriel Valov
**Cc:** Jim Vue
**Subject:** RE: Building Permits and Applications

Hi Gabriel,

The requested address is not within City limits. Fresno Co. would house that information.

Thank you,

**Marci Reyes | City Clerk**
City of Kerman | City Clerk's Office
p. (559) 846-9380 | f. (559) 846-6199
850 S. Madera Ave. Kerman, CA 93630
mreyes@cityofkerman.org
www.cityofkerman.net

---

**From:** Gabriel Valov <gvalov@rmageoscience.com>
**Sent:** Thursday, March 30, 2023 3:36 PM
**To:** Marci Reyes <MReyes@cityofkerman.org>
**Cc:** Jim Vue <jvue@rmageoscience.com>
**Subject:** Building Permits and Applications

Hello Marci,

Can we please see any Building Permits and/or Applications for the property located at:

870 South Modoc Avenue
APN: 020-160-36S

Regards,

Gabriel Valov, GIT
Staff Geologist
RMA GeoScience, Inc.
3897 North Ann Avenue
Fresno, CA 93727
559.708.8865 | 559.228.9488 fax
www.rmageoscience.com

ENGINEERING GEOLOGY
GEOTECHNICAL ENGINEERING
ENVIRONMENTAL ENGINEERING
CONSTRUCTION SERVICES

DOCUMENTS AND REPORTS

Kerman

Zone 3

| DATE | PERMIT NO. | NAME |
|---|---|---|
| 3/24/71 | New Service<br>E-33687C | Ken Biggs/<br>Barney Huntington |

870 N. Modoc

QUALIFICATIONS

# JOSUE MONTES | PRINCIPAL GEOTECHNICAL ENGINEER

### EDUCATION

BS, Civil Engineering, University of Santo Tomas, Philippines, 1983

### LICENSE / REGISTRATION

(CA) Licensed Professional Engineer #C52610

(CA) Licensed Geotechnical Engineer #G2904

Mr. Josue Montes has more than 29 years of extensive geotechnical assessment, engineering, construction inspections, and materials testing experience in California with successful leadership roles. His duties include proposal preparation, project management, engineering, and completion of various projects from pre-design to detailed design, materials testing, and construction monitoring. His responsibilties also include business development and project proposal preparation and review, staff mentoring and training, preparation of geotechnical reports, plan details, and geotechnical related specifications. Josue is experienced in managing and performing challenging geotechnical ground investigations, earthwork design and structure foundations, site-specific evaluation of seismic ground motions, and liquefaction and landslide hazard assessments.

## RELEVANT PROJECT INVOLVEMENT / EXPERIENCE

### AVENUE 7 1/2 BRIDGE, FIREBAUGH

**Project Engineer |** Mr. Montes served as Project Engineer for the Avenue 7 1/2 Bridge Project. Construction consisted of large diameter deep foundations and of the bridge substructure and superstructure. The bridge consisted of two-span bridge decks, approximately 40 foot wide with pedestrian sidewalks of both sides of the superstructure. His duties included construction inspection and testing of drilling, inspection and monitoring of drilling fluid / slurry, concrete pouring, and post construction testing of concrete poured using gamma-gamma testing.

### MAIN STREET BRIDGE, PORTERVILLE

**Project Engineer |** Mr. Montes served as Project Engineer for the Main Street Bridge Project. The construction consisted of a new 40-foot wide concrete two-span bridge supported on large diameter reinforced concrete piers (CIDH's), on Main Street crossing Tule River. Josue's primary responsibilities included inspections and monitoring of construction of large- diameter CIDH's, its sub-structure (bents and abutments).

### CALIFORNIA HIGH SPEED RAIL CP 2-3, LOS ANGELES

**Project Manager |** Mr. Montes provided Project Management services for the California Speed Rail CP 2-3 Project. The contract includes approximately 65 miles of construction, including embankment, overcrossings / bridges, viaducts, and associated railway / track structures. As the Quality Control laboratory for the project, tasks included materials sampling and testing as required by the project. Sampling of potential borrow sites, prepared embankment subgrade, concrete batching, plate (eV2) testing, nuclear and sand cone testing, lightweight deflectometer tests (LWD), and AASHTO classification of soils. Primary responsibilities include oversight of geotechnical tasks required by the High Speed Rail Contract Package 2-3. Geotechnical tasks included managing laboratory, evaluation of potential borrow sites, haul roads, task coordination, and oversight of field testing (nuke gauge, sand cone, plate test/ eV2, LWD or lightweight deflectometer, grounding test).

### WESTSIDE PARKWAY, BAKERSFIELD

**Senior Engineer |** Mr. Montes served as a Senior Engineer for the Westside Parkway Project. The project included a series of overcrossings and undercrossings along the Westside Parkway alignment located north of the Kern River, west of SR-58. His responsibilities included preparation of laboratory tests on collected soils samples from the field exploration, preparation and review of the foundation engineering report for Caltrans review.

### DOLLAR GENERAL STORES, INLAND EMPIRE UTILITIES AGENCY

**Geotechnical Engineer-of-Record |** Mr. Montes provided geotechnical engineer services for the design and construction of Dollar General Stores in various locations throughout California. The project consisted of single-story masonry and steel commercial buildings on shallow foundations. Different locations required careful evaluation of on-site soils and import soils prior to construction. As the geotechnical-engineer-of-record, his responsibilities included preparation of scope of work for field exploration for geotechnical / foundation investigation in various geographical areas and varying geological deposits. Preparation of laboratory testing of subsurface soils and writing and finalizing of geotechnical investigation reports.

### KAWEAH DELTA HOSPITAL, VISALIA

**Project Engineer |** Mr. Montes served as Project Engineer for the Kaweah Delta Hospital Project. Construction included installation of deep foundations and a rigid grade beam system as support of a multi-story concrete-frame building. His responsibilities included oversight of monitoring and inspections of over 100 reinforced drilled concrete piers at various elevations.

### CENTURY 21 OFFICE BUILDING, CALIFORNIA

**Project Engineer |** Mr. Montes services as Project Engineer for the Century 21 Office Building Project. The project consisted primarily of a high rise building supported on driven pre-stressed square concrete piles. The project included subterranean parking levels. and construction included a Pile Driving Analysis (PDA) program prior to pile production. Josue's duties included oversight of PDA and re-evaluation of pile design. Also monitoring and inspection of production pile driving and evaluation post driving of piles.

### PERFORMANCE VENUE, LASED (RAMS STADIUM), LOS ANGELES

**Geotechnical Engineer-of-Record |** Mr. Montes services as Geotechnical Engineer-of-Record for the Performance Venue project located at the RAMS stadium. The project consisted of construction of a multi-use dome facility adjoining the professional football Los Angeles Rams home playing arena. This project also consisted of a multi-level structure, including a performance / concert, multiple shops, and associated structures, supported mainly of mat foundations. Primary responsibilities included review and evaluation of an existing geotechnical report prepared by others, engineering of foundations based on the available data, and preparation of a foundation engineering report for the planned structure. Josue responded to review comments by multiple layers of peer review, and the permitting agency reviews and comments.

# JIM VUE, GIT

## STAFF GEOLOGIST

### EDUCATION

BS, Geology, California State University, Fresno

### CERTIFICATION

CA, Geologist-in-Training (GIT), No. 815
OSHA 40 Hour HAZWOPER Training
Title 22 Drinking Water Certified Water Sampler

### PROFILE

Mr. Jim Vue has more than five years of environmental engineering experience in California. He has conducted Phase I Environmental Site Assessment (ESA) throughout California and Phase II ESA, and other environmental sampling throughout the Central Valley. His duties include project coordination, sampling, logging, and report preparation. In addition, Mr. Vue is also proficient in geotechnical logging, sampling, and report preparation.

### RELEVANT EXPERIENCE

**BEDROSIAN TRUCK SERVICE,** FRESNO

**Staff Geologist |** Mr. Vue served as Staff Geologist for the Bedrosian Truck Service Project. The scope of services for this project included the removal of underground storage tanks and impacted soils, collection of subsurface soil samples, and installation, monitoring, and removal of groundwater wells. His duties included project coordination, permitting, groundwater sampling, soil sampling, and report preparation.

**MERCED COUNTY REGIONAL WASTE AUTHORITY,** MERCED

**Staff Geologist |** Mr. Vue served as Staff Geologist for the Geotechnical Investigation for the Merced County Regional Waste Authority Project (RWA). The scope of services included geotechnical investigation for the design of an expansion at the Merced County RWA. Mr. Vue's duties consisted of project coordination, geotechnical logging and sampling, as well as report preparation.

**VALLEY CHILDREN HOSPIRAL MEDICAL OFFICE,** MERCED

**Staff Geologist |** Mr. Vue served as a Staff Geologist for the Phase I Environmental Site Assessment for the Valley Children Hospital Medical Office project. Mr. Vue's duties consisted of project coordination, records request, interviews, and report preparation.