Crown-Schaad Residential Project (Kerman, CA)

INITIAL STUDY – MITIGATED NEGATIVE DECLARATION

PUBLIC REVIEW DRAFT: ENV 2023-03

APRIL 2024

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

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1 INTRODUCTION

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 Crown-Schaad 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 the Initial Study is a mitigated negative declaration, 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 Analysis (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

Crown-Schaad Residential Project (Annexation (ANX) 2023-02, Rezone/Prezone (REZ) 2023-02, Tentative Subdivision Map (TSM) 2023-02, and Development Plan (DPL) 2023-03)

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
City of Kerman
Community Development Department
Jesus R. Orozco, Community Development Director
jorozco@cityofkerman.org
(559) 846-9386

Applicant
Joseph Crown Construction & Development
5320 East Pine Avenue
Fresno, CA 93727
jcrown@crownliving.com
(559) 275-5200

2.4 Study Prepared By

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

2.5 Project Location

The Project site is in the jurisdiction of the City of Kerman, Fresno County, California. The site is located on the north side of West Kearney Boulevard between South Modoc Avenue and South Siskiyou Avenue (Figure 2-1), consisting of two (2) parcels that total approximately 31.2 gross acres (Figure 2-2). The site is identified by the Fresno County Assessor as Assessor's Parcel Numbers (APNs) 020-140-22S (9.69 acres) and 020-140-23S (21.51 acres). The site is a portion of Section 11, Township 14 South, Range 17 East, Mount Diablo Base and Meridian.

2.6 Latitude and Longitude

The centroid of the Project site is 36.72938326036554, -120.0824924973448.

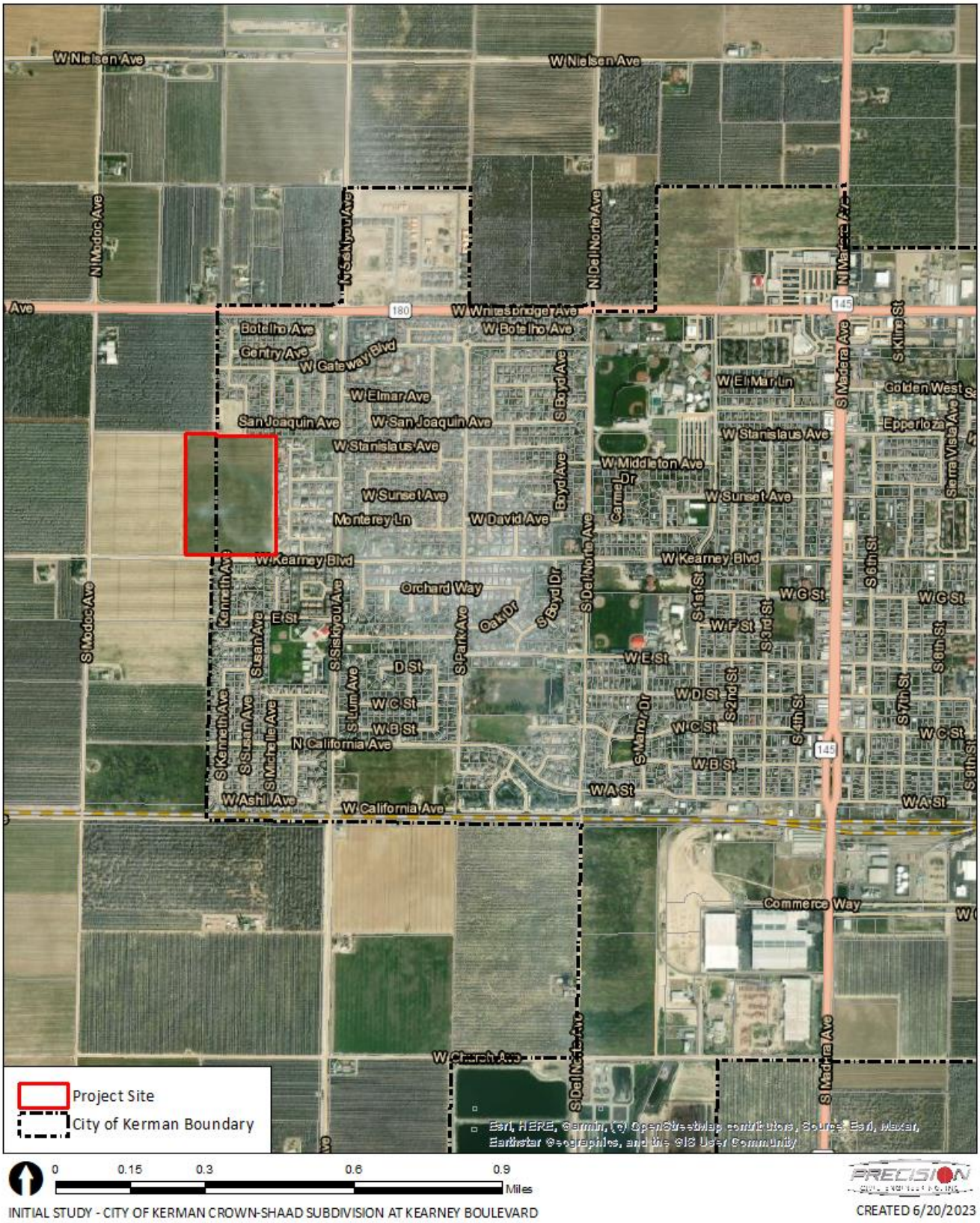


Figure 2-1 Project Location

Figure 2-2 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 (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).

2.8 Zoning

The eastern parcel of the Project site, APN 020-140-23S, is within the R-1-7, Single-Family Residential (7,000 SF. Min. Lot) zoning district (Figure 2-4). According to the Kerman Municipal Code (KMC), the purpose of the R-1 zoning district is *"to provide for residential areas within Kerman which allow a range of densities for single-family homes, and uses compatible with the single-family district. This district shall promote an environment which is free of traffic and parking congestion, significant noise levels, and uses which are not complementary to residential neighborhoods."* The R-1-7 district is reserved for traditional types of single-family development.

The western parcel of the Project site, APN 020-140-22S, is outside City limits and is within the County of Fresno Agricultural Exclusive – 20 Acres (AE-20) zoning district. Because the parcel 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.

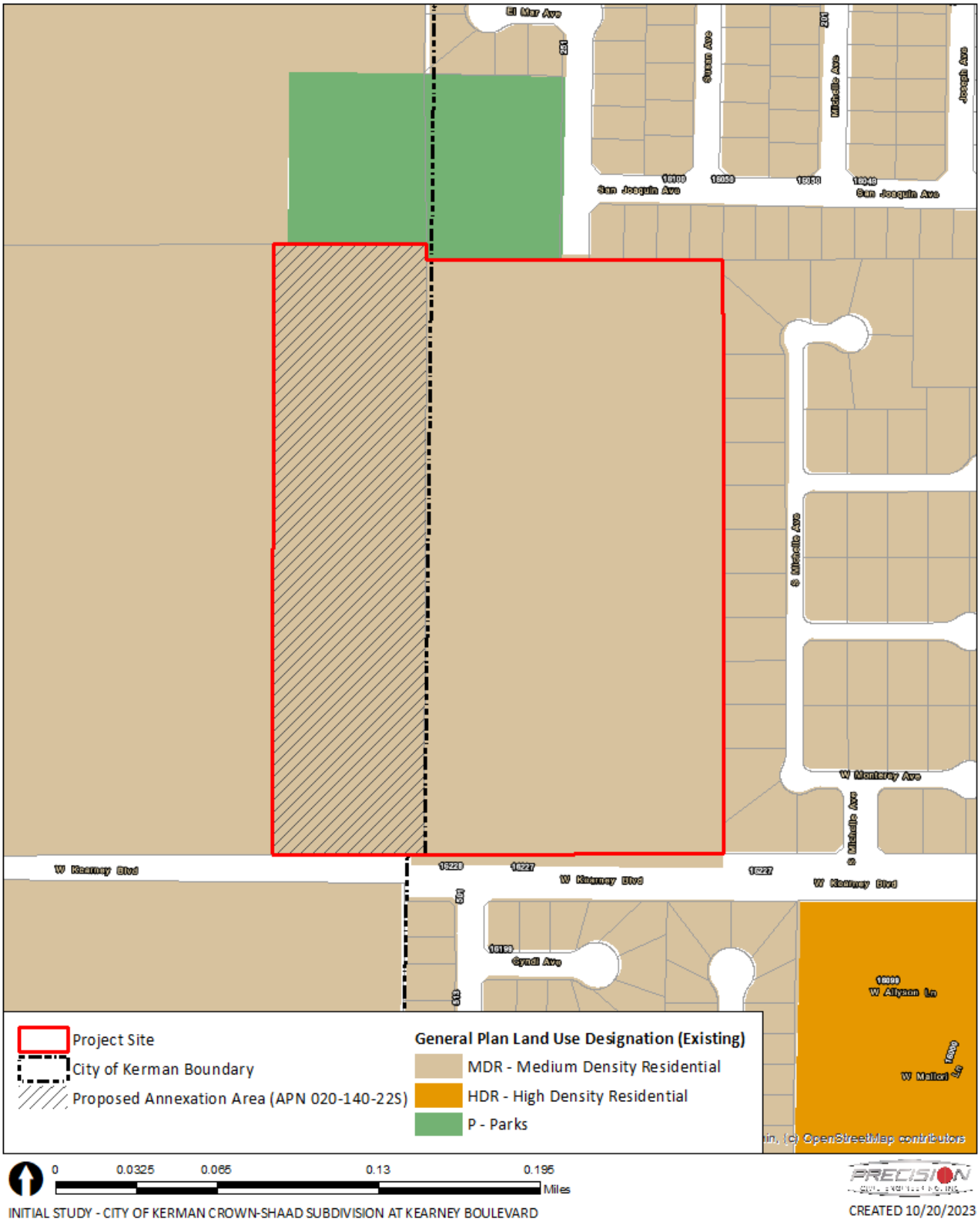


Figure 2-3 City of Kerman General Plan Land Use Designation Map (Existing)

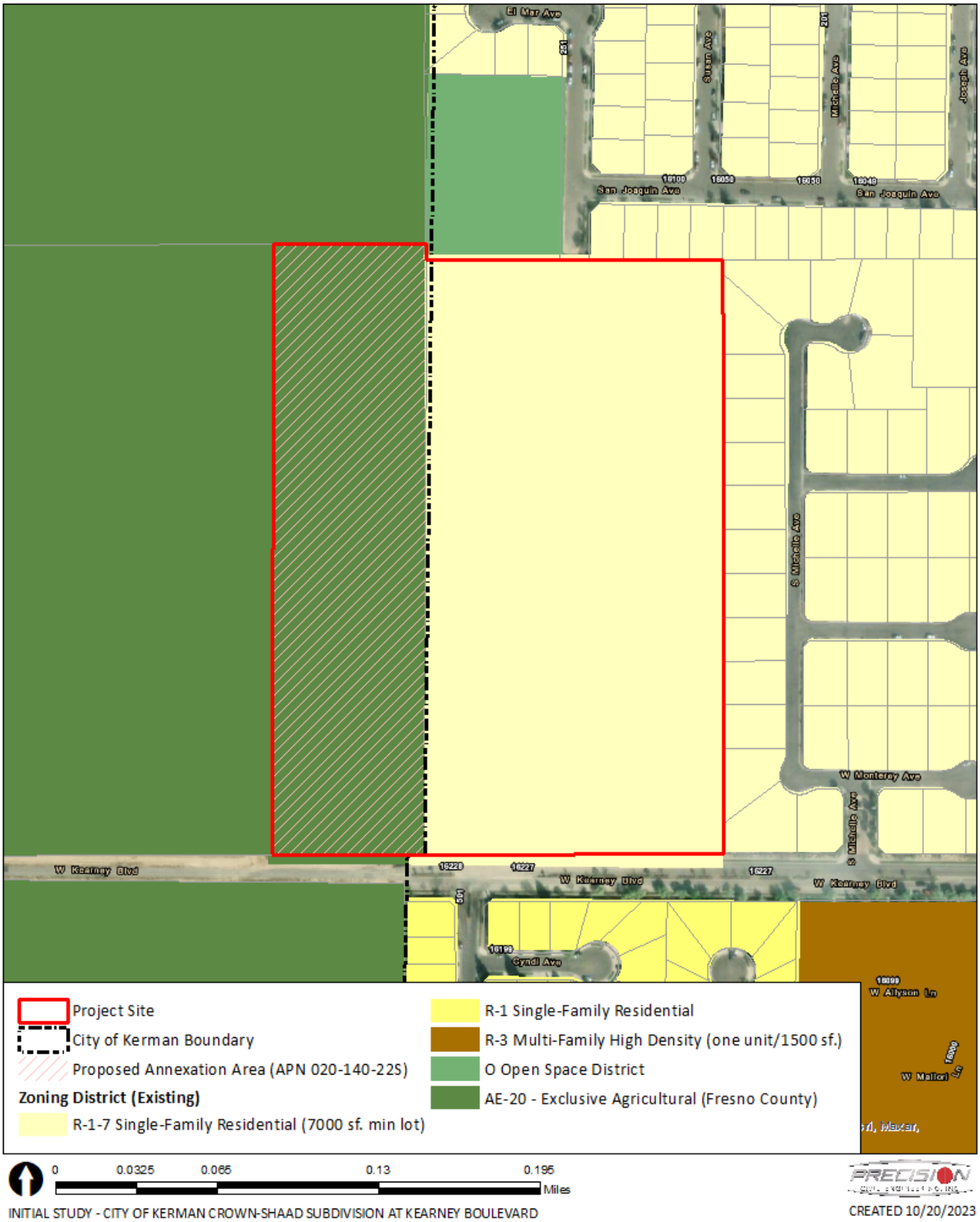


Figure 2-4 Zoning District Map (Existing)

2.9 Description of Project

Joseph Crown Construction & Development (Applicant) proposes Annexation (ANX) 2023-02, Rezone/Prezone (REZ) 2023-02, Tentative Subdivision Map (TSM) 2023-02, and Development Plan (DPL) 2023-03, pertaining to two (2) parcels (APNs 020-140-22S and 020-140-23S) that total approximately 31.2 acres located on the north side of West Kearney Boulevard between South Modoc Avenue and South Siskiyou Avenue.

- ANX 2023-02 would annex approximately 9.69 acres (APN 020-140-22S) and adjacent rights-of-way from the County of Fresno to the City of Kerman, and detach the subject area from the Kings River Conservation District (Figure 2-5).
- REZ 2023-02 would pre-zone approximately 9.69 acres (APN 020-140-22S) and rezone 21.51 acres (APN 20-140-23S) to the SD-R-4.5 – Smart Development (SD)-Residential (R)-4.5 (4,500 SF. Min. Lot) zoning district, which would be consistent with the underlying planned land use designation, MDR – Medium Density Residential (Figure 2-6).
- TSM 2023-02 would subdivide the Project site into 163 single-family lots (5.22 dwelling units per acre) that range in size from 4,878 square feet to 9,786 square feet, in addition to one 12,500 square foot lot reserved for a future City of Kerman well site.
- DPL 2023-03 would facilitate the development of the Project site in accordance with the Smart Development (SD) Combining District.

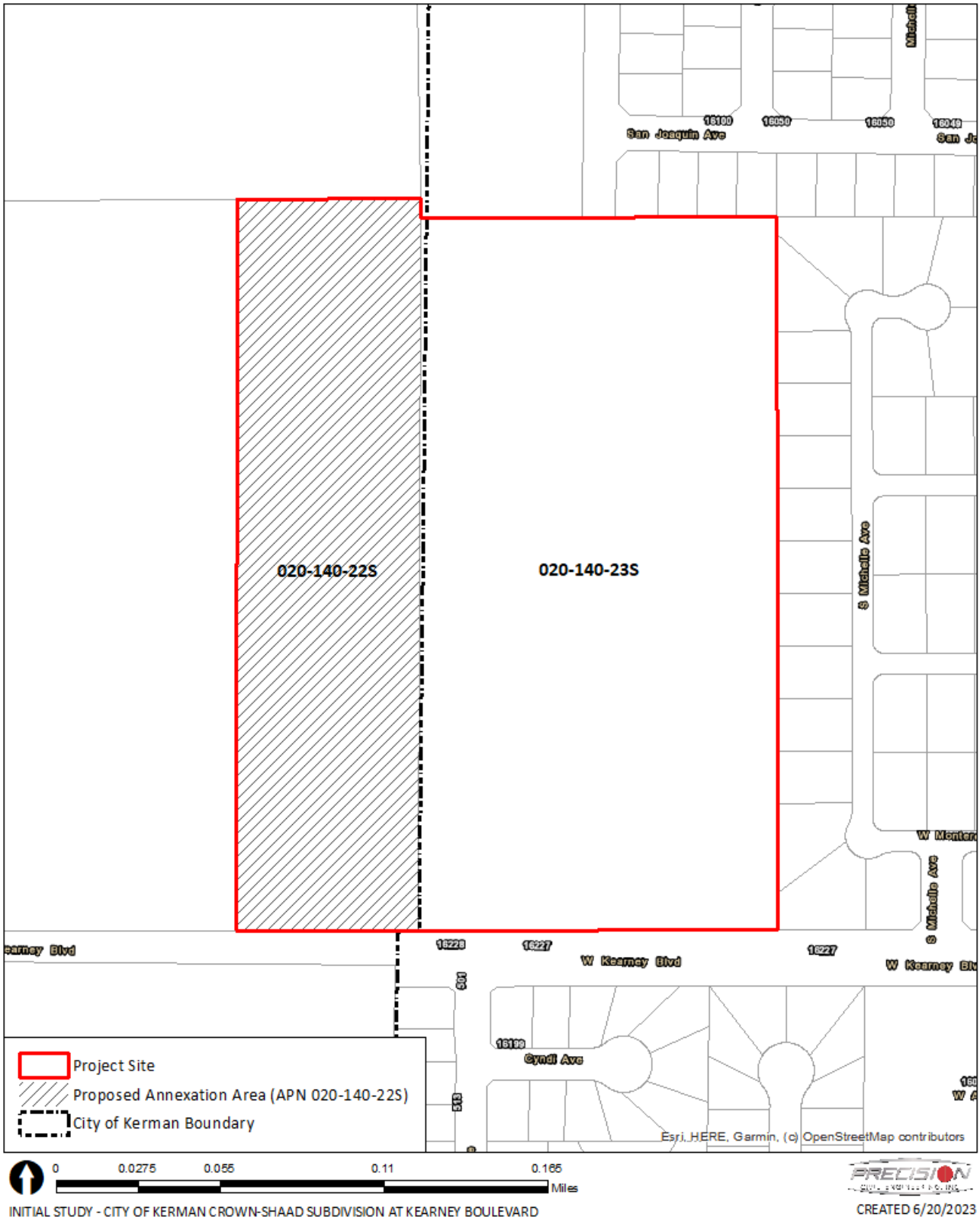


Figure 2-5 Annexation Area

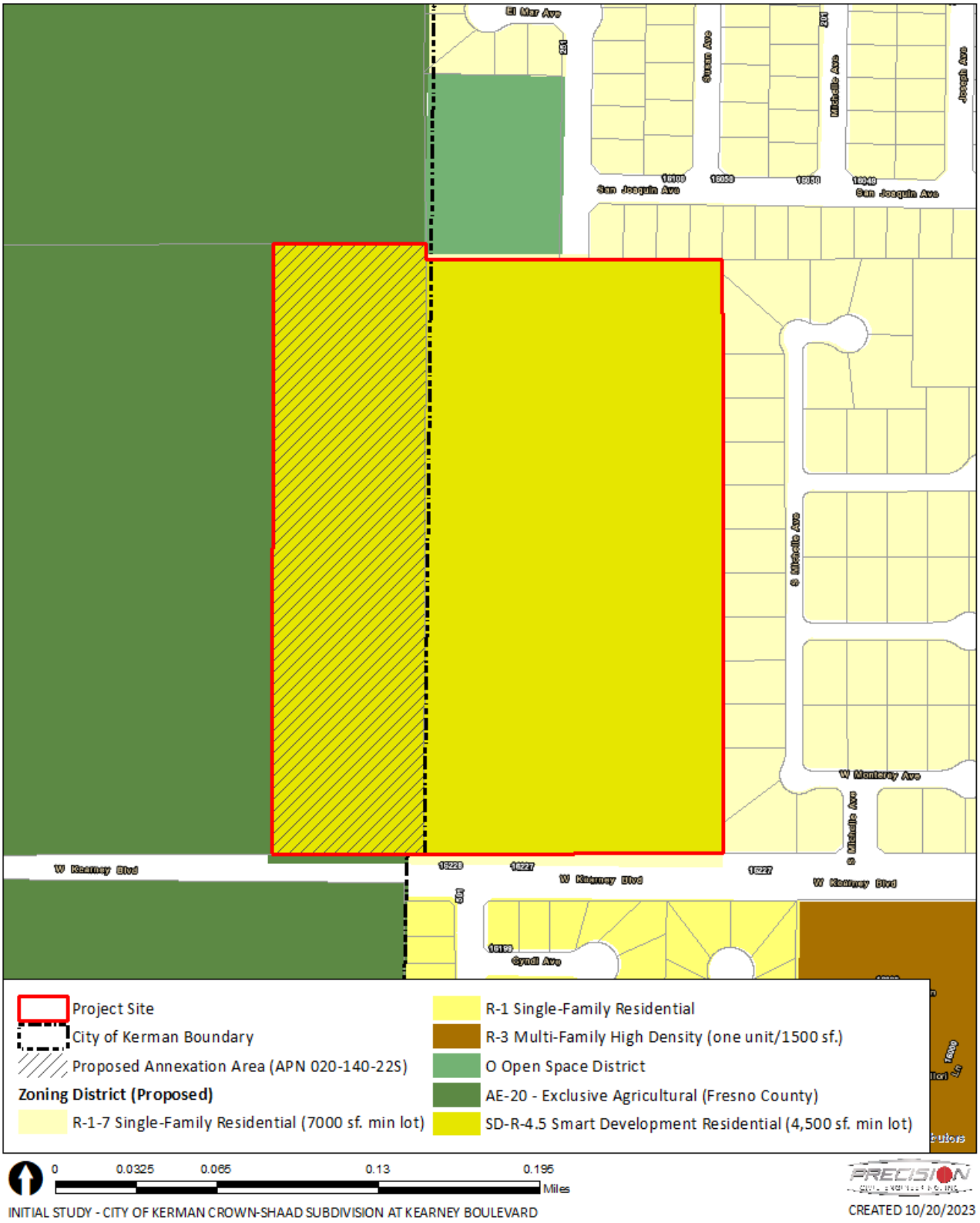


Figure 2-6 Zoning District Map (Proposed)

2.10 Project Setting and Surrounding Land Uses

Project Setting

Historically, the Project site has been designated and operated as agricultural land. Since 1998, the Project site has been in orchard production. Around 2015, the orchards were removed and put into row crop production. As of 2023, the site is planted in an alfalfa cover crop. The Project site is currently under agricultural production, with no existing structures or improvements except for the existing row crops.

Street frontage includes West Kearney Boulevard, a two (2) lane east-west collector street. The portions of West Kearney Boulevard in the vicinity of the Project site are partially improved. The northside of West Kearney Boulevard in vicinity of the Project site is improved from South Siskiyou Avenue to the southeast corner of the Project site with curb, gutter, sidewalk, a Class II bicycle lane, landscaping, streetlights, and a raised landscaped median. The southside of West Kearney Boulevard has similar improvements. There are no existing improvements adjacent to or along the Project site's frontage.

The site is relatively flat with a sandy loam soil type that is well drained with more than 80-inch water table depth. The existing biotic site conditions and resources of the Project site can be defined primarily as ruderal (grasses and forbes) and agricultural (alfalfa crop this year and other row crops in previous years). There are no water features (i.e., streams, drainages, wetlands) on or immediately adjacent to the Project site.

Surrounding Land Uses

As referenced in Table 2-1, the Project site is surrounded by agricultural land to the north, west, and south, and residential uses to the north, east, and south. Properties to the north, south, east, and west are planned for residential uses and a park. Consistent with the planned land use, properties north, south, and east are zoned for open space and residential uses. Properties outside the city limits are zoned for agricultural uses within the County of Fresno.

Table 2-1: Existing Uses, General Plan Designations, and Zoning districts of Surrounding Properties

Direction from the Project site	Existing Land Use	Planned Land Use	Zoning district
North	Agricultural, vacant land, single-family residential	P – Parks, MDR – Medium Density Residential	O – Open Space, R-1-7 – Single-Family Residential, AE-20 (County)
South	Agricultural, single-family residential	MDR – Medium Density Residential	R-1 – Single-Family Residential, AE-20 (County)
East	Single-family residential	MDR – Medium Density Residential	R-1-7 – Single-Family Residential
West	Agricultural	MDR – Medium Density Residential	AE-20 (County)

2.11 Site Preparation

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

The Project would be constructed in two (2) phases. Phase I construction is expected to begin as soon as August 2024 and conclude in August 2027, with operations beginning in August 2025 and ending in August 2027. There are 109 lots allocated to be built during Phase 1. Phase 2 construction is expected to begin in August 2025 and conclude in August 2027 with operations beginning in August 2026 and ending in August 2027. There are 55 lots allocated to be built during Phase 2. These 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.

Site Layout and Elevations

As shown in Figure 2-7, the Project proposes the construction of 163 single-family lots (5.22 dwelling units per acre) that range in size from 4,878 square feet to 9,786 square feet, in addition to one 12,500 square foot lot reserved for a future City of Kerman well site. Proposed elevations and floor plans are shown in Figure 2-8. As shown, the Project proposes four (4) distinct architectural styles and layouts: Picasa, Piccola, Abbey, and Vieta. All styles include three (3) design variations "A," "B" and "C," as well as an upgraded version of each to account for an optional third car garage and/or extended patio areas, and optional brick or stone veneer. Generally, the standard architectural styles comprise, stucco finish, tile or shingle roofs, arched or square windows, horizontal foe band treatments, optional window shutters, and exterior lighting. All proposed layouts are single-story with three bedrooms.

Building and Site Design Features

The Project would exceed all mandatory requirements for single-family buildings as outlined in the 2022 Energy Code 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, showerheads, and faucets. 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.

Site Circulation and Parking

Access to the site would be provided by one (1) point of ingress/egress from West Kearney Boulevard via Kenneth Avenue, one (1) point of ingress/egress connecting to the existing subdivision (i.e., "The Vineyard") to the north via South Kenneth Avenue. Future site access will occur via one (1) point of ingress/egress ("B Avenue") connecting to the parcel to the north of the site identified as APN 020-140-10S, which is currently vacant and undeveloped. The proposed West David Avenue and West Stanislaus Avenue extentions will connect to the parcel to the east of the site identified as APN 020-140-05S. All roadways within the proposed subdivision, including the Kenneth and South Kenneth Avenue entrances would be designed in accordance with City Standards and would have curb, gutter, and sidewalk. Outlots A and B as shown along the West Kearney Boulevard frontage are proposed to be dedicated to the City of Kerman for rights-of-way purposes. The rights-of-way would be improved in accordance with City standards. Turning radii are also proposed within the subdivision per North Central Fire Protection District and City Standards for emergency access and solid waste vehicle access.

Open Space and Landscaping

Private open space is proposed for each single-family lot, consisting of front, side, and rear yards. No common open space is proposed. Landscaping is proposed as part of the roadway design in accordance with City Standards.

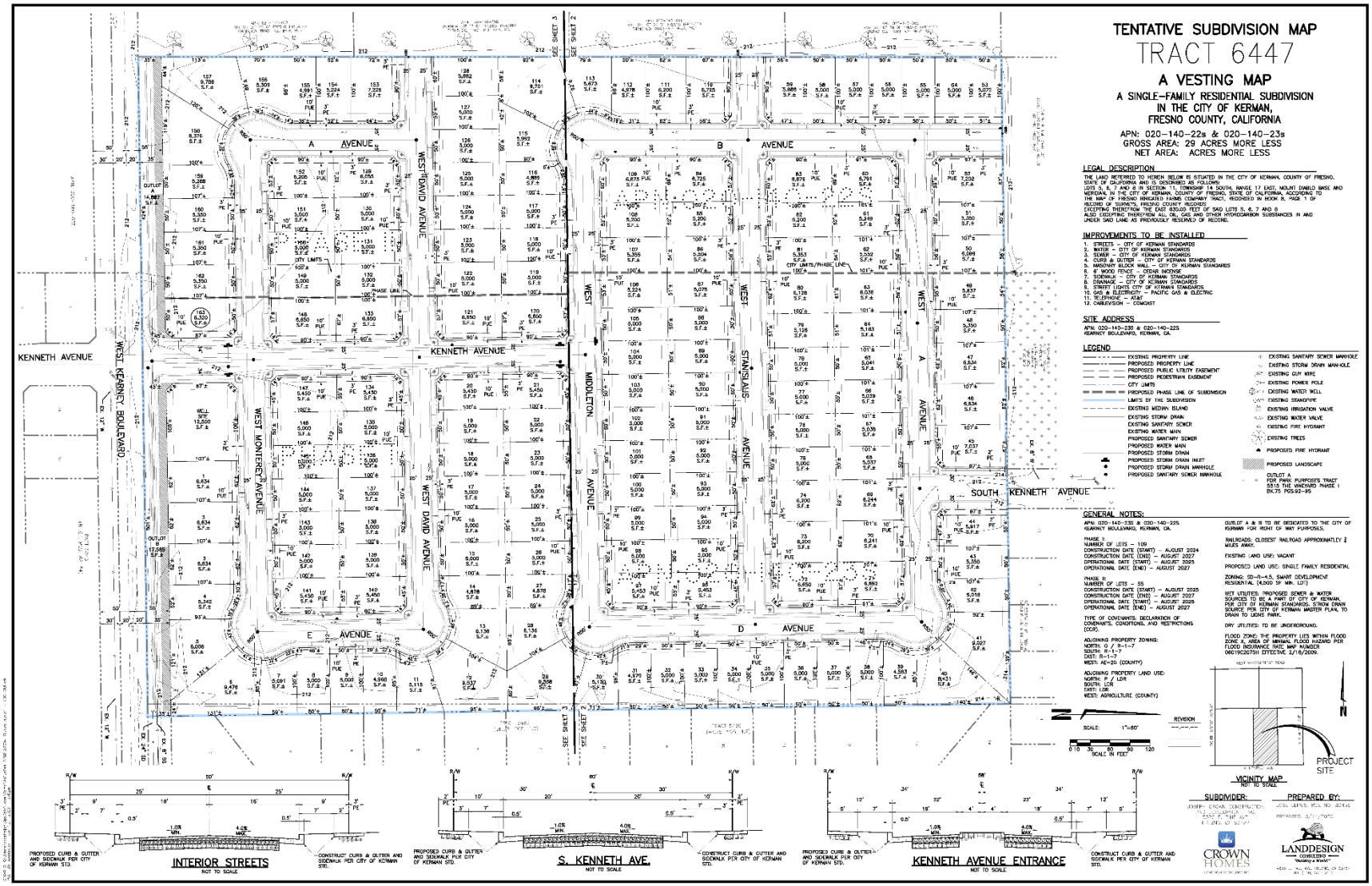
Public Services and Utilities

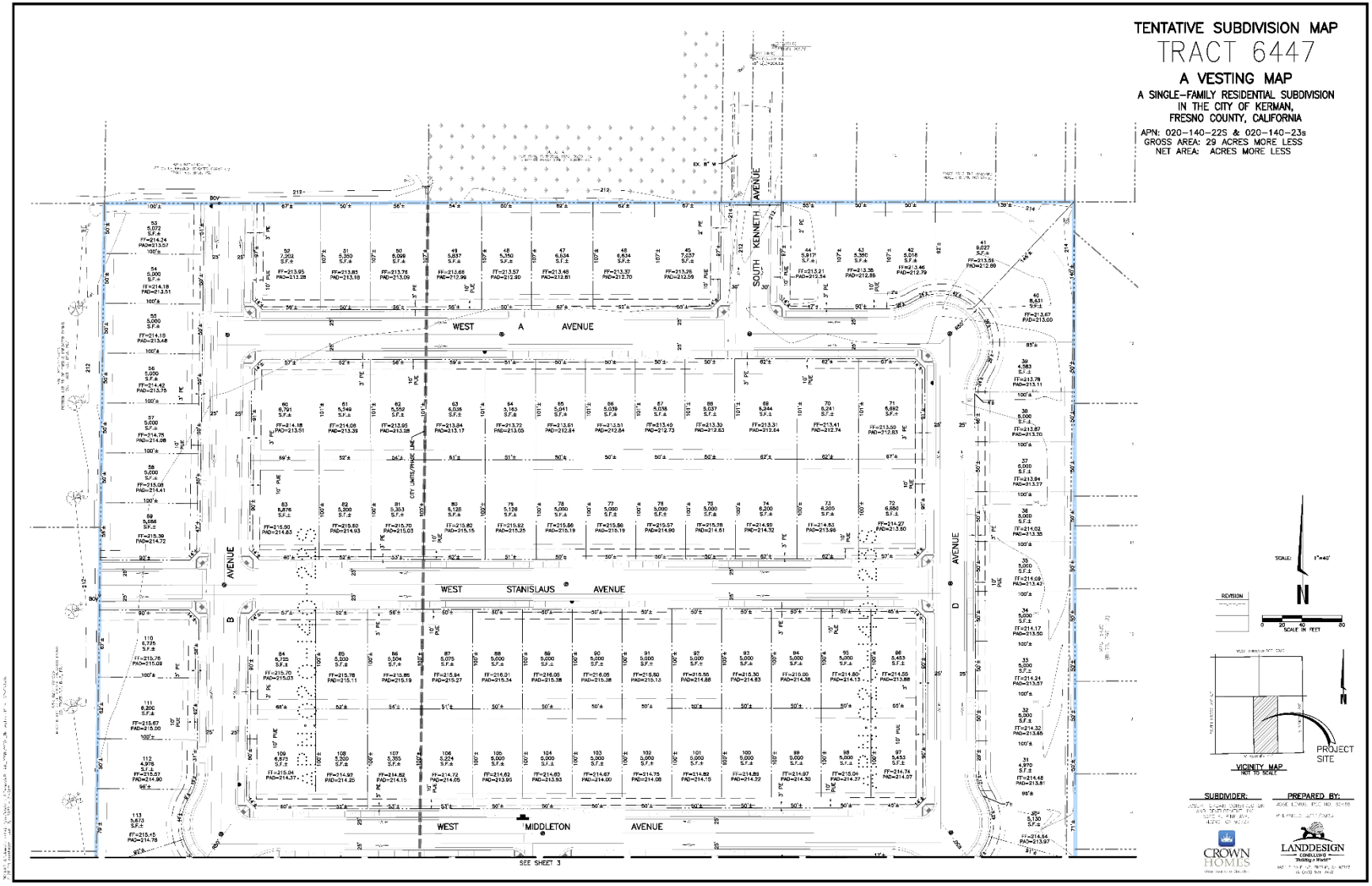
The Project would be required to connect to City water, wastewater, and stormwater services. Natural gas, electricity, telecommunications, and solid waste services are provided by private companies. In addition, the Project would be subject to fees for the construction, acquisition, and improvements 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 through proposed pipes located in a 10-foot public utility easement throughout the site. Seven (7) fire hydrants are proposed throughout the site and would be connected to City water.

Sanitary sewer service would be provided to the site through proposed sanitary sewer pipelines located along the proposed local roads. Seventeen sanitary sewer manholes are proposed in the internal circulation network.

A total of five (5) storm drain inlets are provided at the intersection of Kenneth Avenue/West Monterey Avenue and Kenneth Avenue/West Middleton Avenue. Three (3) storm drain manholes are proposed along Kenneth Avenue, adjacent to the storm drain inlets and at the ingress/egress point on West Kearney Boulevard. Based on the proposed site grading, stormwater runoff would generally drain south toward Kenneth Avenue. Runoff from the north-east section of the subdivision would drain north along South Kenneth Avenue.


TENTATIVE SUBDIVISION MAP
TRACT 6447
A VESTING MAP
A SINGLE-FAMILY RESIDENTIAL SUBDIVISION
IN THE CITY OF KERMAN,
FRESNO COUNTY, CALIFORNIA
APN: 020-140-22s & 020-140-23s
GROSS AREA: 29 ACRES MORE LESS
NET AREA: ACRES MORE LESS
LEGAL DESCRIPTION
IMPROVEMENTS TO BE INSTALLED
SITE ADDRESS
LEGEND
GENERAL NOTES:
KENNETH AVENUE
SOUTH KENNETH AVENUE
WEST KERMAN BOULEVARD
WEST MONTEREY AVENUE
WEST DAVID AVENUE
MIDDLETON AVENUE
STANISLAUS AVENUE
A AVENUE
B AVENUE
D AVENUE
E AVENUE
INTERIOR STREETS
S. KENNETH AVE.
KENNETH AVENUE ENTRANCE
VICINITY MAP
PROJECT SITE
SUBDIVIDER:
PREPARED BY:
CROWN HOMES
LANDDESIGN


TENTATIVE SUBDIVISION MAP
TRACT 6447
A VESTING MAP
A SINGLE-FAMILY RESIDENTIAL SUBDIVISION
IN THE CITY OF KERMAN,
FRESNO COUNTY, CALIFORNIA
APN: 020-140-22S & 020-140-23s
GROSS AREA: 29 ACRES MORE LESS
NET AREA: ACRES MORE LESS
WEST A AVENUE
WEST STANISLAUS AVENUE
WEST MIDDLETON AVENUE
SOUTH KENNETH AVENUE
AVENUE B
AVENUE D
SEE SHEET 3
SCALE
REVISION
SCALE IN FEET
PROJECT SITE
VICINITY MAP
NOT TO SCALE
SUBDIVIDER:
CROWN HOMES
PREPARED BY:
LANDDESIGN

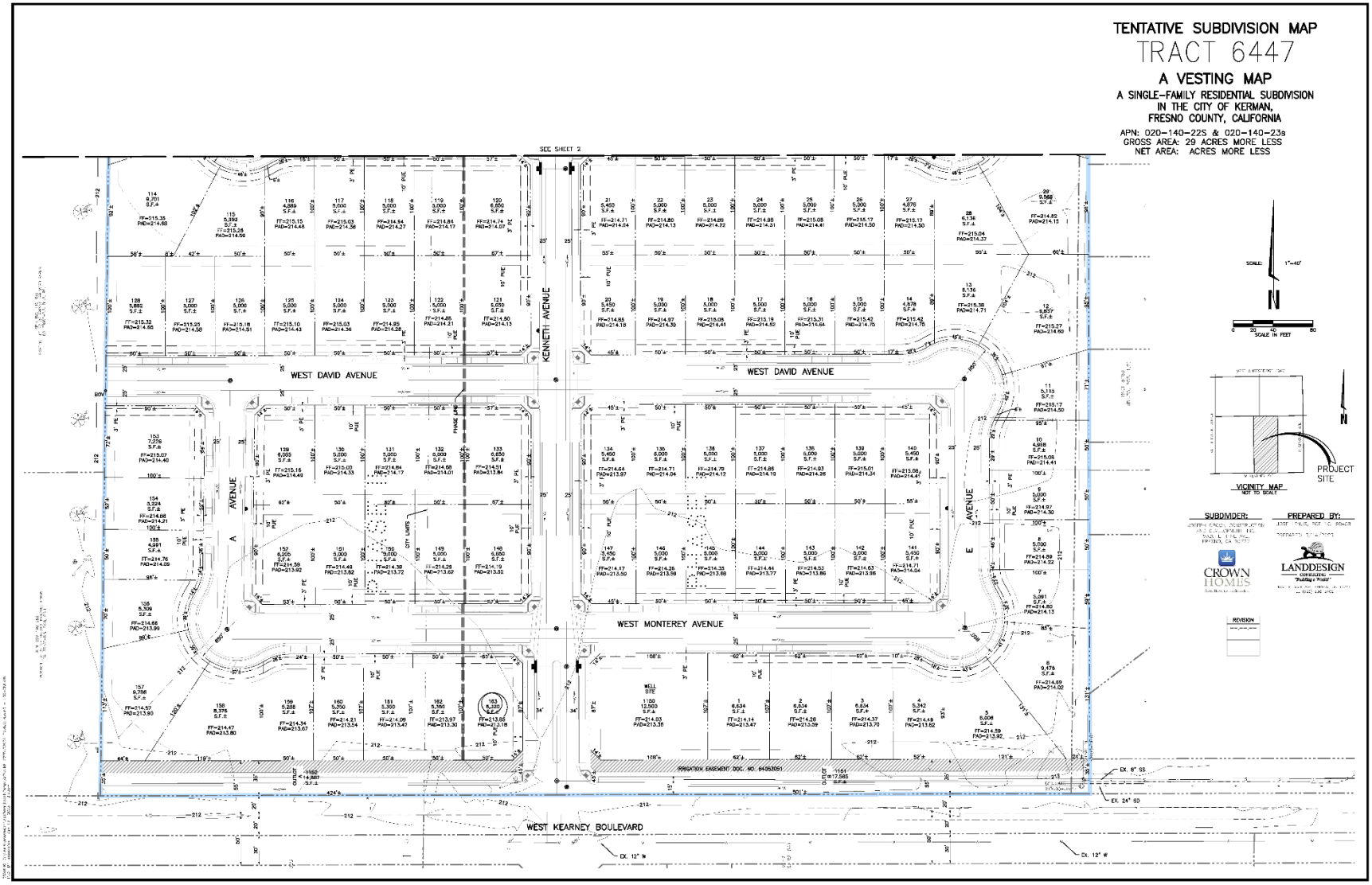


Figure 2-7 Tentative Subdivision Map

The Picasa 1100 Standard Plan

The Picasa 1100 Plan Elevation 'A'
UPGRADED ELEVATION

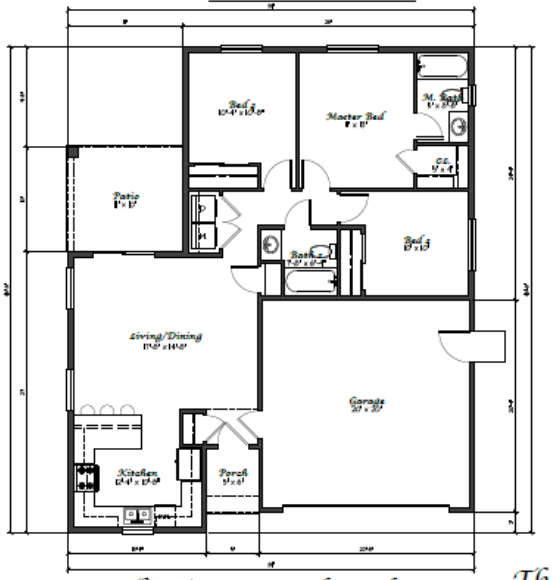
The Picasa 1100 Plan Elevation 'B'
UPGRADED ELEVATION

The Picasa 1100 Plan Elevation 'C'
UPGRADED ELEVATION

The Picasa 1100 Plan Elevation 'A'
STANDARD ELEVATION

The Picasa 1100 Plan Elevation 'B'
STANDARD ELEVATION

The Picasa 1100 Plan Elevation 'C'
STANDARD ELEVATION



The Picasa 1100 Floor Plan

TYPICAL PLOT PLAN

Area:

Livable Space	Unit	sq. ft.
Garage		sq. ft.
Patio		sq. ft.
Porch		sq. ft.
TOTAL UNDER	Unit	sq. ft.
TOTAL		sq. ft.

The Picasa 1100 Plan Exterior Elevations

Villa Di Ubaldo
Architecture, Engineering & Development
Ubaldo Garcia Hernandez
Architect Lic. No. C33519

Kerman

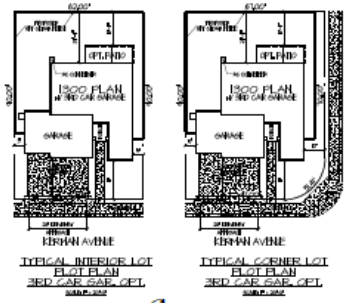
OWNER / BUILDER:
Jose P. Hernandez

1100 PLAN KERMAN

A1

The Piccola 1300 Standard Plan

Standard Elevation 'A'



TYPICAL INTERIOR LOT PLOT PLAN
3RD CAR GAR. OPT.

TYPICAL CORNER LOT PLOT PLAN
3RD CAR GAR. OPT.

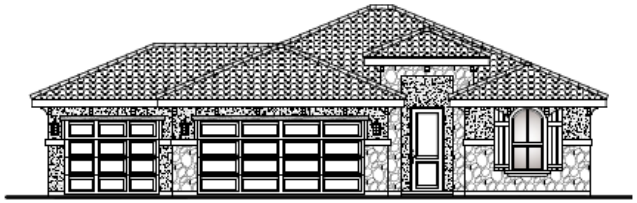
Area:

3RD CAR GARAGE OPTION

LIVING SPACE:	1300 sq. ft.
GARAGE:	415 sq. ft.
OPT. 3RD CAR GARAGE:	224 sq. ft.
OPT. 1 PATIO:	200 sq. ft.
OPT. 2 PATIO:	104 sq. ft.
PORCH:	54 sq. ft.
TOTAL LIVING:	1300 sq. ft.
TOTAL:	2353 sq. ft.

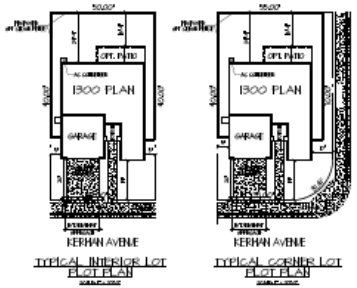
Upgraded Elevation 'A'
W/ OPTIONAL 3RD CAR GARAGE

Standard Elevation 'B'



Upgraded Elevation 'B'
W/ OPTIONAL 3RD CAR GARAGE & STONE VENEER

Standard Elevation 'C'



TYPICAL INTERIOR LOT PLOT PLAN

TYPICAL CORNER LOT PLOT PLAN

Area:

LIVING SPACE:	1300 sq. ft.
GARAGE:	415 sq. ft.
OPT. 1 PATIO:	200 sq. ft.
OPT. 2 PATIO:	104 sq. ft.
PORCH:	54 sq. ft.
TOTAL LIVING:	1300 sq. ft.
TOTAL:	1881 sq. ft.

Upgraded Elevation 'C'
W/ OPTIONAL 3RD CAR GARAGE & STONE VENEER

The Piccola 1300 Standard Plan Cover Sheet

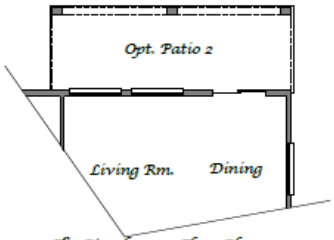
Villa Di Ubaldo
Architecture, Engineering & Development
Ubaldo Garcia Hernandez
Architect E, No. C35319

Kerman

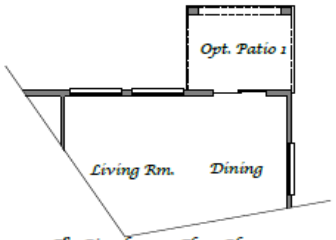
OWNER / BUILDER
Jose P. Crown
CONSTRUCTION & DEVELOPMENT, INC.

2 / 14 / 2023
PER PLAN
1300 PLAN KERMAN
C1

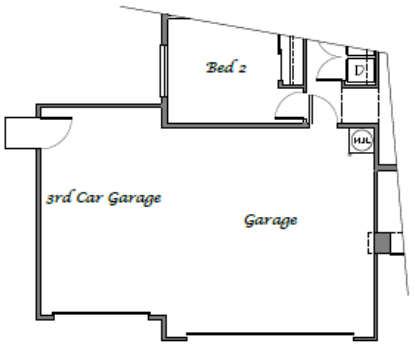
The Piccola 1300 Standard Plan



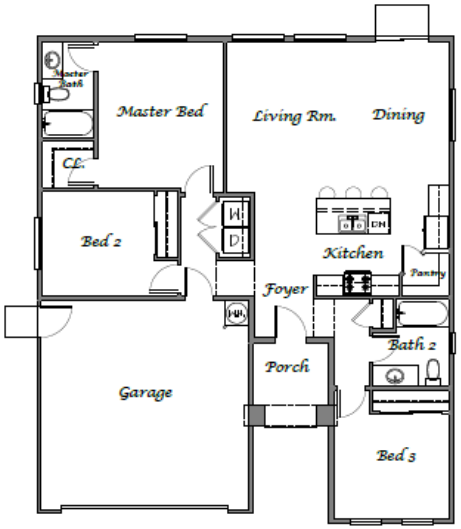
The Piccola 1300 Floor Plan
w/ Optional Patio '2'



The Piccola 1300 Floor Plan
w/ Optional Patio '1'



The Piccola 1300 Floor Plan
w/ Optional 3rd Car Garage



The Piccola 1300 Plan Floor Plan

Area:

LIVING SPACE:	1300 sq. Ft.
GARAGE:	416 sq. Ft.
OPT. 1 PATIO:	150 sq. Ft.
OPT. 2 PATIO:	184 sq. Ft.
PORCH:	101 sq. Ft.
TOTAL LIVING:	1300 sq. Ft.
TOTAL:	1901 sq. Ft.

Area:

3RD CAR GARAGE OPTION

LIVING SPACE:	1300 sq. Ft.
GARAGE:	416 sq. Ft.
3RD CAR GARAGE:	312 sq. Ft.
OPT. 1 PATIO:	150 sq. Ft.
OPT. 2 PATIO:	184 sq. Ft.
PORCH:	101 sq. Ft.
TOTAL LIVING:	1300 sq. Ft.
TOTAL:	2389 sq. Ft.

The Piccola 1300 Plan Floor Plan

Villa Di Ubaldo
Architecture, Engineering & Development
Ubaldo Garcia Hernandez
Architect I.C. No. C-33519

Kerman

OWNER / BUILDER:
Joseph Crown

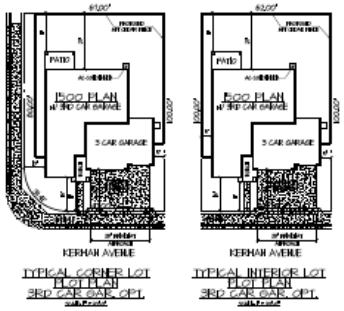
2078
2/14/2023
SCALE
1/4" = 1'-0"
1300 PLAN KERMAN
SHEET
A1

The Abbey 1500 Standard Plan

Standard Elevation 'A'

Standard Elevation 'B'

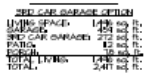
Standard Elevation 'C'

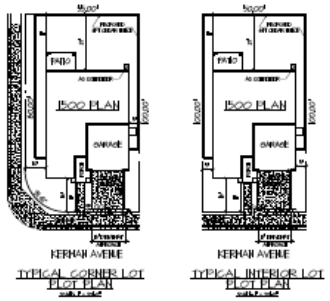


TYPICAL CORNER LOT PLOT PLAN 3RD CAR GAR. OPT.

TYPICAL INTERIOR LOT PLOT PLAN 3RD CAR GAR. OPT.

Area:

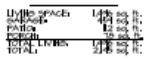




TYPICAL CORNER LOT PLOT PLAN

TYPICAL INTERIOR LOT PLOT PLAN

Area:



Upgraded Elevation 'A'
w/ OPTIONAL 3RD CAR GARAGE & 1OFT PLATE

Upgraded Elevation 'B'
w/ OPTIONAL 3RD CAR GARAGE, 1OFT PLATE & STONE VENEER

Upgraded Elevation 'C'
w/ OPTIONAL 3RD CAR GARAGE, 1OFT PLATE & STONE VENEER

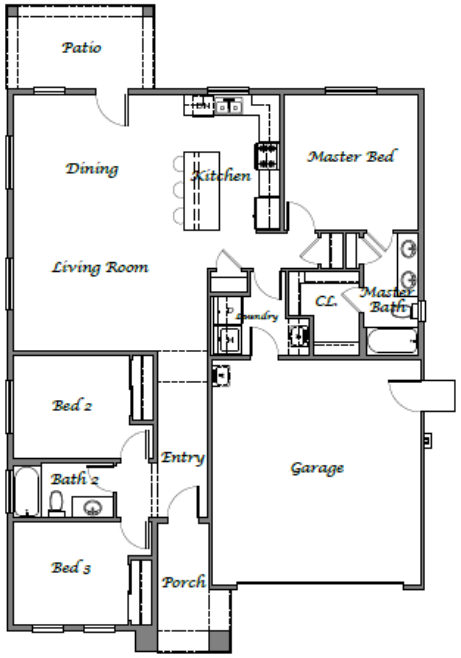
The Abbey 1500 Standard Plan Cover Sheet

Villa Di Ubaldo
Architecture, Engineering & Development
Ubaldo Garcia Hernandez
Architect lic. No. C35037

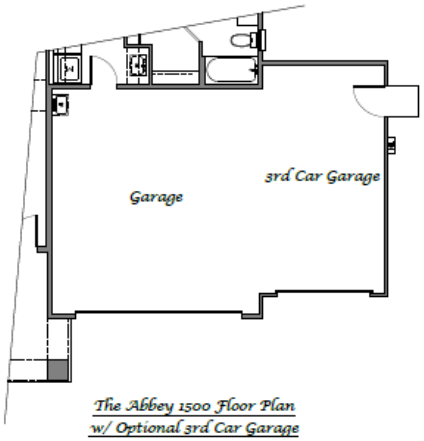
Kerman

OWNER / BUILDER:
JOSE SCHAAD CROWN
CONSTRUCTION & DEVELOPMENT, INC.
DATE
2/14/2023
SCALE
PER PLAN
1500 PLAN KERMAN
SHEET
C1

The Abbey 1500 Standard Plan



The Abbey 1500 Floor Plan



The Abbey 1500 Floor Plan
w/ Optional 3rd Car Garage

Area:

Area:

The Abbey 1500 Plan Floor Plan

Villa Di Ubaldo
Architecture, Engineering & Development
Ubaldo Garcia Hernandez
Architect Lic. No. C-33319

Kerman

OWNER / BUILDER:
Jose P HERRERA

DATE
2 / 16 / 2023
SCALE
1/4" = 1'-0"
1500 PLAN KERMAN
SHEET
A1

The Vieta 1600 Standard Plan

The Vieta Elevation 'A'
Standard Elevation

The Vieta Elevation 'A'
Upgraded Elevation w/ 3rd Car Garage

The Vieta Elevation 'B'
Standard Elevation

The Vieta Elevation 'B'
Upgraded Elevation w/ 3rd Car Garage

The Vieta Elevation 'C'
Standard Elevation

The Vieta Elevation 'C'
Upgraded Elevation w/ 3rd Car Garage

The Vieta 1600 Plan Elevations

Villa Di Ubaldo
Architecture, Engineering & Development
Ubaldo Garcia Hernandez
Architect License No. C-35319

Kerman

OWNER / BUILDER
Jose P. Crown
CONSTRUCTION & DEVELOPMENT, INC.

1 / 31 / 2023
1/4" = 1'-0"
1600 PLAN KERMAN
SHEET
C1

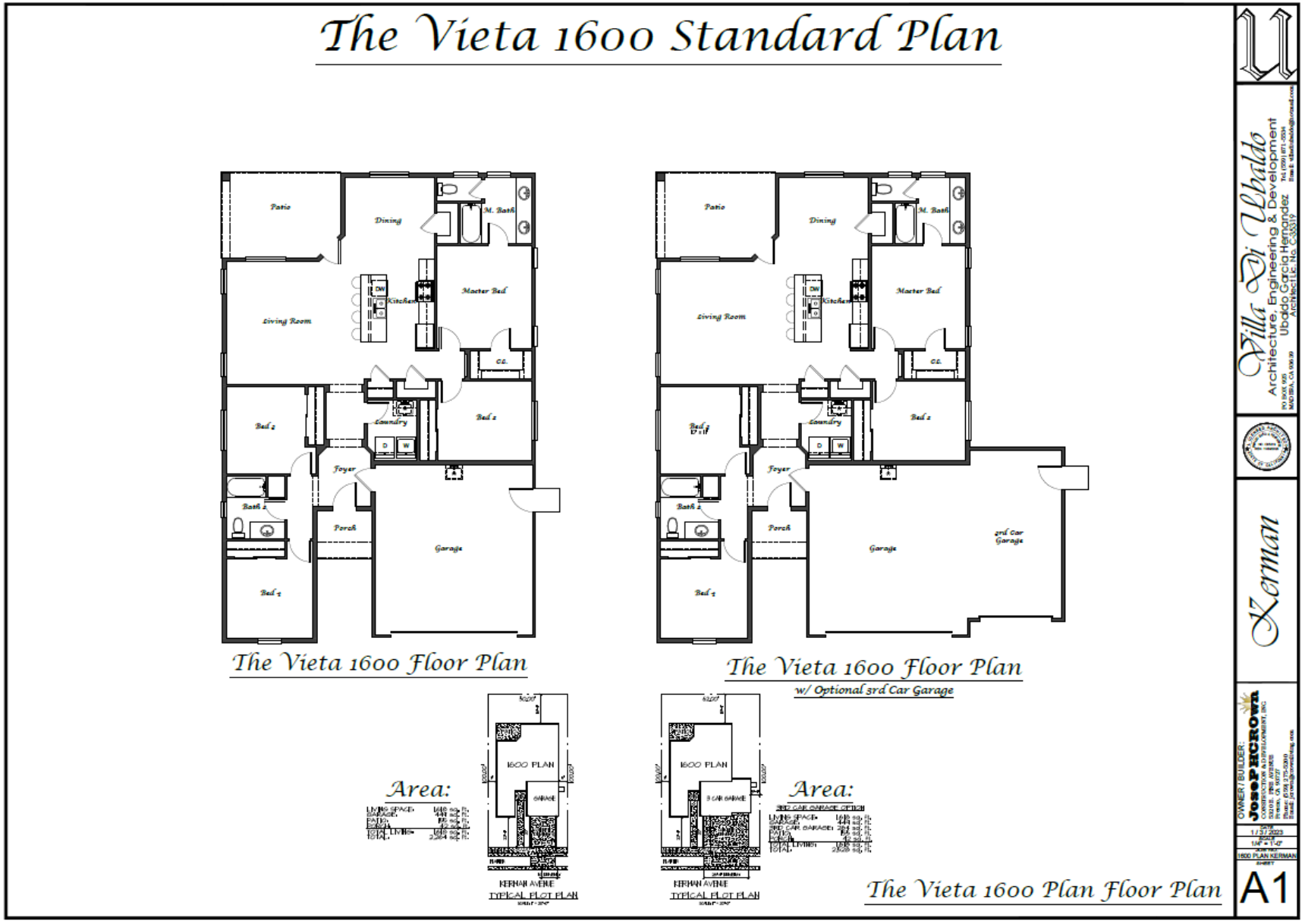


Figure 2-8 Elevations

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.

- Annexation
- Pre-Zone/Rezone
- Tentative Subdivision Map
- Development Plan
- Vacation
- Building Permit
- Grading Permit
- Encroachment Permit
- Site Utilities Permit
- Sign Permit

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 Crop., Fresno Irrigation District, Caltrans, and California Regional Water Quality Control Board.

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.

- 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 Analysis
- 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). 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 pursuant to AB 52 (Chapter 532, Statutes 2014) on June 26, 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 July 25, 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

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

3/27/2024

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

The Project site is currently under agricultural production, with no existing structures or improvements except for the existing row crops. The nearest roadway to the site is West Kearney Boulevard located directly to the south of the site. The site is generally flat and is surrounded by agricultural land to the north, south, and west, and single-family residences to the north, south, and east.

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 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;

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

[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

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 is currently under agricultural production and is surrounded by agricultural lands to the north, south, and west, and single-family residences to the north, south, and east. The site is generally flat and there are no long-range scenic views (e.g., mountain ranges) that can be seen from the Project site due to the development directly east of the site. Furthermore, the General Plan does not identify or designate scenic vistas or views within the general vicinity of the Project site. 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.

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. 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. As such, the proposed Project would not damage scenic resources, including trees, rock out-cropping's, 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 is adjacent to urbanized land. The Project site is currently under agricultural operations and there are no public access points to the site that would provide publicly accessible vantage points. 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

[2] Caltrans. California State Scenic Highway System Map. Accessed on October 23, 2023, https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa

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 Monitoring 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

The Project site is planned for residential uses within Kerman's Sphere of Influence (SOI). The Project site is currently under agricultural production with no existing structures or improvements except for row crops. The site is 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 the Project site can be defined primarily as ruderal (grasses, forbes and herbaceous vegetation) and agricultural (alfalfa crop this year and other row crops in previous years). There are no water features (i.e., streams, drainages, wetlands) on or immediately adjacent to the Project site.

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 in the southern portion being "Farmland of Statewide Importance" as defined below.[4] Figure 4-1 shows the farmland type classification within the Project site and its immediate vicinity. Table 4-1 shows the acreage of each farmland type on the Project site.

- *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.*

Table 4-1 Farmland Type in the Project Area

Farmland Classification	Total Acres
Prime Farmland	20.5
Farmland of Statewide Importance	10.7
Total	31.2

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 agricultural or open space uses. In return, property tax assessments of the restricted parcels are lower than full market value. The minimum length of a Williamson Act contract is 10 years and automatically renews upon its anniversary date; as such, the contract length is essentially indefinite. The Project site is not subject to the Williamson Act.

[3] California Department of Conservation. Important Farmland Categories. Accessed on October 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 October 25, 2023, https://maps.conservation.ca.gov/DLRP/CIFF/

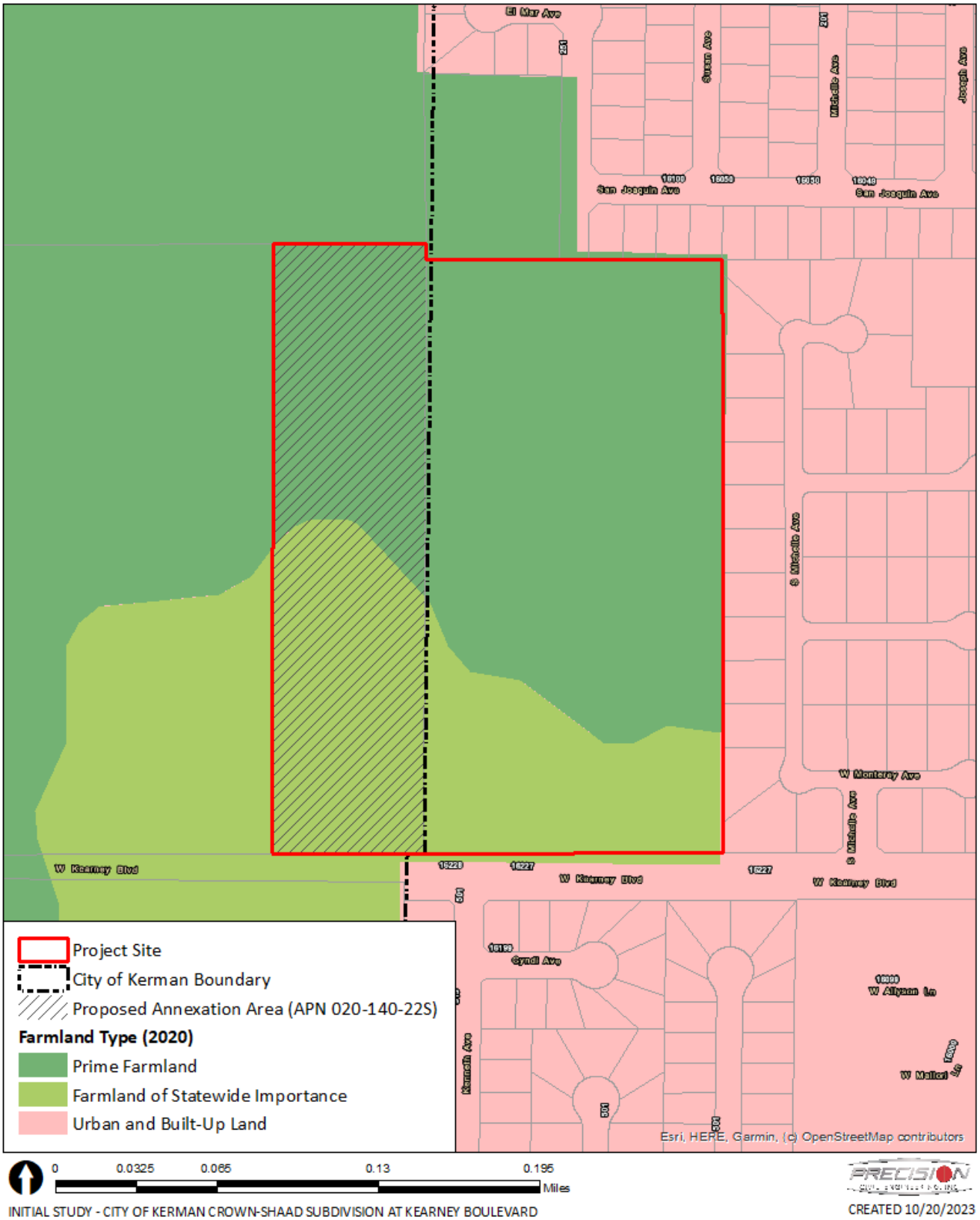


Figure 4-1 Farmland Type

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.*

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 site is designated as "Prime Farmland" and "Farmland of Statewide Importance." Table 4-1 shows the acreage of each farmland type on the Project site. The 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 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. Based on this, and the above discussion, impacts would be less than significant.

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

Less than Significant Impact. While a portion of the Project site is currently zoned for agricultural use within the County of Fresno, the Project proposes annexation of this portion into Kerman City Limits and 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 zoning district. Therefore, the Project would not conflict with existing zoning for agricultural use. Further, the site is not under a Williamson Act contract. Therefore, a less than significant impact would occur.

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 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 a portion of the Project site is zoned for agricultural uses within Fresno County, 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 September 23, 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 Crown-Schaad Residential Project would cause significant impacts to air resources in the Project area. The respective analyses were conducted within the context of CEQA. 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 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 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 $PM_{2.5}$ 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 and DPM.

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	

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
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, PM_{10}, and $PM_{2.5}$. [5]

[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

4.3.2 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, 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.

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.

4.3.3 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 Appendix A 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)	0.15	1.48	1.41	0.26	0.14
Project Construction (2025)	0.18	1.47	2.04	0.16	0.07
Project Construction (2026)	0.17	1.39	2.00	0.15	0.07
Project Construction (2027)	1.11	0.56	0.85	0.06	0.03
Total Project Construction Emissions (tons/year)	**1.61**	**4.90**	**6.30**	**0.63**	**0.31**
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. Although full buildout isn't expected until 2027, the 2025 operational year was chosen as it is the 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	1.43	0.06	0.85	<0.01	<0.01
Energy Consumption	0.02	0.29	0.12	0.02	0.02
Mobile (On-road Vehicles)	0.87	0.89	7.62	1.65	0.43
Total Project Annual Emissions	**2.32**	**1.24**	**8.59**	**1.67**	**0.45**
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. 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. Land uses surrounding the Project site are summarized below.

- North – Directly north and northwest of the Project site (APN:_____) is farmland, primarily almond orchards and grape vineyards with a few scattered rural residences. Directly north and northeast of the Project site (APN: _____) is an existing residential subdivision with approximately 110 homes. There are a couple hundred more homes farther to the northeast followed by Kerman High School just over ½-mile away. The nearest residence to the north of the Project is approximately 52.8 feet (0.01 miles) from the Project boundary.
- East – Directly east of the Project site (APN: _____) are residential subdivisions with several hundred homes, Soroptimist Park, Ruiz Daycare, and Enterprise High School. The main business district of Kerman is just over a mile away from the Project site. The nearest residence to the east of the Project is approximately 52.8 feet (0.01 miles) from the Project boundary.
- South – Directly south and southwest of the Project site (APN: _____) is farmland: primarily almond orchards and grape vineyards with a few scattered farmhouses starting about ¼-mile away. Directly south and southeast of the Project site (APN: _____) are several hundred existing residential homes, Liberty Elementary School, Over the Rainbow Daycare, Lions Park and Kerman Middle School. The nearest residence to the south of the Project is approximately 105.6 feet (0.02 miles) from the Project boundary.
- West – To the west of the Project site (APN: _____) is farmland, primarily almond orchards and grape vineyards. There are a few scattered farmhouses starting about ¾-mile west of the Project site. The Project site is located on the mid-western edge of the City of Kerman. The nearest residence to the west of the Project is approximately 3,696 feet (0.70 miles) from 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)	3.73	38.07	33.95	9.61	5.47
Construction (2025)	1.41	11.31	16.26	1.22	0.57
Construction (2026)	1.33	10.68	15.94	1.17	0.52
Construction (2027)	59.09	10.17	15.69	1.13	0.48
Entire Project Construction Duration (2024-2026)					
Maximum Daily On-site Emissions	**59.09**	**38.07**	**33.95**	**9.61**	**5.47**
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.
Source of Emissions: CalEEMod Output and Additional Supporting Information (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 September 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	8.30	1.35	9.80	0.11	0.11
Energy Consumption	0.09	1.60	0.68	0.13	0.13
Mobile (On-road Vehicles)	5.50	5.36	51.26	9.35	2.41
Daily Total	**13.89**	**8.31**	**61.74**	**9.59**	**2.65**
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 September 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.

[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 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.

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	16.58	0.009
	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 shown in Table 4-7, 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. Therefore, the proposed Project would not result in a significant impact on nearby sensitive receptors from TACs during construction.

Operations

Operational DPM

As described in the Traffic Impact Study prepared for the proposed Project (Appendix F), the Project is expected to generate 1,537 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 4-8, 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 4-8 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	1.77	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]

[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

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.* [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 homes, landscaping, and pavement associated with the proposed residential development; it is anticipated that all internal travel areas would be paved.

[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.

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. 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 construction or operations. The Project is not in an area with suitable habitat for Valley fever spores and is not in an area known to have naturally occurring asbestos. Therefore, the Project would not result in significant impacts to sensitive receptors.

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 feet 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 4-9.

Table 4-9 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 September 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 4-9. 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.

4.3.4 Mitigation Measures

None required.

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 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 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 June 4, 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 – are Hesperia sandy loam, deep (50.3% of the Study Area), Traver sandy loam (10.4%), and Hanford coarse sandy loam (1.7%).

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/nonnative/ruderal" habitat.

The Study Area is planted in an alfalfa cover crop this year. In previous years the Study Area was planted in other row crops. Along the southern edge and eastern of the Study Area are ruderal habitats along W Kearney Avenue and a farm access road adjacent to an eastern property wall. Interspersed within the ruderal habitat are desiccated nonnative grasses (e.g., bromes); perimeter marked by sparse weedy grasses (e.g., Hordeum murinum, bromes) and forbes (e.g., Chenopodium album, Malva parviflora).

Active ground squirrel (Otospermophilus beecheyi) burrows and burrow complexes are present around the perimeter of the property; Several bird species (mourning dove and several killdeer) were observed onsite. Killdeer nests on the ground. No nesting trees are present within the Study Area. A red-tailed hawk was heard northwest of the Study Area. Several house cats were observed along the edges of the Study Area.

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. Prior to 2015, the site was in orchard production. Since that time, the site has been in row crop production.*
- *The habitat value of wildlife is limited, and the only wildlife, or signs of wildlife, were a few birds.*
- *There are no suitable nesting trees for tree-nesting raptors within the Study Area.*
- *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.*
- *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 site is currently under agricultural production, with no existing structures or improvements except for the existing row crops. The existing biotic site conditions and resources of the Project site can be defined primarily as ruderal and agricultural. There is herbaceous vegetation throughout the Project site. There are no water features (i.e., streams, drainages, wetlands) on or immediately adjacent to the Project 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 site or vicinity. However, the Project site could support ground-nesting burrowing, given the presence of ground-burrowing mammals. There is also a likelihood for San Joaquin kit fox to pass through or attempt to forage within the site. Therefore, to reduce impacts to protected burrowing owls and San Joaquin kit fox 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 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, the Project site does not provide any riparian or sensitive natural community habitat and thus, no impact would occur.

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 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.

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 site for wildlife is limited, and the 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, ***Mitigation Measure 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 with 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 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 "Project Area" (0.5-mile radius from perimeter of Project site). Results of the CHRIS Record Search were provided on June 12, 2023 (Record Search File Number 23-214). 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 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-10-005808, a single family property.
(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.

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). The listed tribes include North Valley Yokuts Tribe, Picayune Rancheria of the Chukchansi Indians, Santa Rosa Rancheria Tachi Yokut Tribe, Table Mountain Rancheria, Tule River Indian Tribe, Waksachi Indian Tribe/Eshom Valley Band. The NAHC also conducted a Sacred Lands File (SLF) check which received negative results. Correspondence is 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) on June 26, 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 July 25, 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 as 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 June 12, 2023, there are no known local, state, or federal designated historical resources pursuant to *Section 15064.5* on the Project site. While there is no evidence that historical resources exist on the Project site, there is some possibility that hidden and buried resources may exist with no surface evidence that may be impacted by future physical development of the site. The Project would include typical construction activities such as grading, trenching, excavation, etc. 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 June 12, 2023, there are no known archeological resources pursuant to *Section 15064.5* on the Project site. While there is no evidence that archeological resources exist on the Project site, there is some possibility that hidden and buried resources may exist with no surface evidence that may be impacted by future physical development of the site. In the event of the accidental discovery and recognition of previously unknown historical resources before or during construction activities, the Project shall incorporate ***Mitigation Measure 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 on the Project 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

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.[10]

[10]Pacific Gas & Electric (PG&E). 2021. Corporate Sustainability Report 2021. Accessed October 20, 2023, https://www.pgecorp.com/corp_responsibility/reports/2021/pf04_renewable_energy.html

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.[11] 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.*

> ***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.*

[11] California Energy Commission. 2019 Building Energy Efficiency Standards. Accessed on October 20, 2023, https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency

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

The proposed Project is anticipated to begin construction as early as August 2024 and last approximately three (3) years. Table 4-10 provides estimates of the Project's construction fuel consumption from off-road construction equipment for the entire Project, categorized by construction activity.

Table 4-10 Construction Off-Road Fuel Consumption

Project Component	Construction Activity	Fuel Consumption (gallons)
Crown-Schaad Subdivision at Kearney Boulevard Project (Off-Road Equipment Use)	Site Preparation	1,819
	Grading	5,798
	Building Construction	25,652
	Paving	887
	Architectural Coating	103
Off-Road Fuel Consumption Total from Project Construction		**34,259**

Source: Energy Consumption Calculations (Attachment C of Appendix A).

As shown in Table 4-10, off-road construction equipment usage associated with the proposed Project would be estimated to consume approximately 34,259 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 4-11 provides an estimate of the total on-road vehicle fuel usage during construction.

Table 4-11 Construction On-Road Fuel Consumption

Project Component	Construction Activity	Total Annual Fuel Consumption (gallons)
Crown-Schaad Subdivision at Kearney Boulevard Project (On-Road Equipment Use)	Site Preparation	196
	Grading	6,314
	Building Construction	32,907
	Paving	304
	Architectural Coating	254
On-Road Fuel Consumption Total from Project Construction		**39,975**

Source: Energy Consumption Calculations (Attachment C of Appendix A).

As shown in Table 4-11, construction trips are estimated to consume approximately 39,975 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 34,259 gallons of diesel fuel for construction off-road equipment and 39,975 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 4-12, the proposed Project is estimated to demand 1,523,493 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 4-12 Long-Term Electricity Usage

Land Use	Total Electricity Demand (kWh/year)
Single Family Housing	1,523,493
Other Asphalt Surfaces	0
Other Non-Asphalt Surfaces	0
Total Project	**1,523,493**

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 1,523,493 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 the 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 4-13 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 4-13 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	6,808	2,484,906	30.21	225.4	82,253
Light Trucks and Medium Duty Vehicles (LDT1, LDT2, MDV)	43.60	5,660	2,066,016	22.62	250.3	91,345
Light-Heavy to Medium-Heavy Diesel Trucks (LHD1, LHD2, and MHDT)	0.93	121	44,069	11.16	10.8	3,949
Heavy-Heavy Diesel Trucks (HHDT)	2.12	275	100,458	6.11	45.1	16,451
Motorcycles (MCY)	0.25	32	11,846	41.37	0.8	286
Other (OBUS, UBUS, SBUS, MH)	0.66	86	31,275	7.59	11.3	4,122
Total	**100.0**	**12,982**	**4,738,570**	-	**544**	**198,406**

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)

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 544 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 198,406 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 developments 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 544 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 198,406 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 measures 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 the existing population. The proposed Project is located adjacent to existing residential development to the north, east, and south. The rest of the Project is surrounded by farmland with a few rural residences. 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:				
	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 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.[12]

Faulting

There are no known active faults in the city, inclusive of the 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 Project site.[13] 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

Wind and flowing water are the primary agents of erosion in the San Joaquin Valley. Two (2) 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.

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[12] County of Fresno. (2018). Fresno County Multi-Jurisdictional Hazard Mitigation Plan. Accessed on October 20, 2023, https://www.fresnocountyca.gov/files/sharedassets/county/public-health/fresno-county-hmp-final.pdf

[13] California Department of Conservation. "CGS Seismic Hazard Program: Alquist-Priolo Fault Hazard Zones." Accessed on October 23 , 2023, https://gis.data.ca.gov/maps/ee92a5f9f4ee4ec5aa731d3245ed9f53/explore?location=37.213952%2C-117.946341%2C7.19

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 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 site. Figure 4-2 shows the location of these soils within the Project site. [14]

> ***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 50.3% 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 10.4% 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 1.7% 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 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.*

[14] United States Department of Agriculture Natural Resources Conservation Service. "Web Soil Survey." Accessed on October 23, 2023, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

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.*

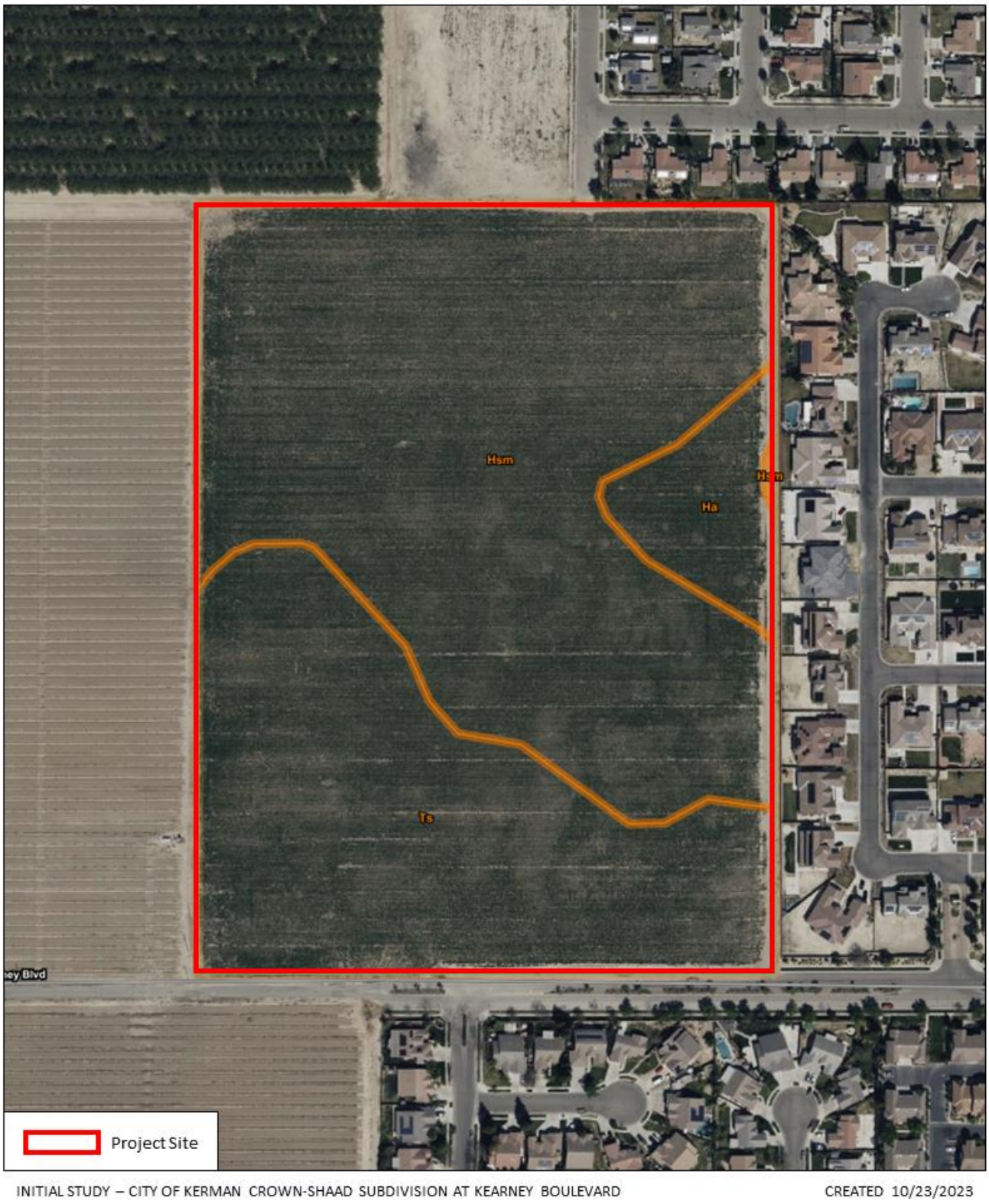


Figure 4-2 Soils Map

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 Project 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 Project site is in a zone with a low potential for dangerous seismic activity. The Project site 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 Project site is 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 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, the Project 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 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 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 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 Project site is 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. A majority of the Project site is in City Limits. The portion of the Project site outside City Limits is proposed to be annexed into Kerman's City Limits and thus, the Project site in its entirety 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 on this 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

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.[15] 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.[16] 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

[15] 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

[16] 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

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.

4.8.2 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.[17] The State projects that it will meet the 2020 target and achieve continued progress towards meeting the 2017 Scoping Plan target for 2030.[18] CARB adopted the 2022 Scoping Plan on December 16, 2022 that addresses long-term GHG goals set forth by AB 1279.[19] 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

[17] 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

[18] 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.

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

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.

4.8.3 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 Appendix A. Construction-generated GHGs were quantified and are disclosed in Attachment A of Appendix A. $MTCO_2e$ emissions during construction of the Project are summarized below in Table 4-14.

Table 4-14 Construction Greenhouse Gas Emissions

Project Construction (2024-2026)	$MTCO_2e$ per Year
Site Preparation (2024)	50
Grading (2024)	199
Building Construction (2024)	68
Building Construction (2025)	400
Building Construction (2026)	398
Architectural Coating (2027)	127
Paving (2027)	27
Architectural Coating (2027)	5
Total Construction $MTCO_2e$	**1,274**
Emissions Amortized Over 30 Years[1]	**42.47**

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 1,274 $MTCO_2e$ 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 4-15. 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 1,537 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 4-15.

Table 4-15 Operational Greenhouse Gas Emissions for Project Buildout

Source Category	Project Total Buildout Year ($MTCO_2e$/year)
Area	66
Energy Consumption	480
Mobile (On-road Vehicles)	1,697
Water Usage	19
Solid Waste Generation	45
Refrigerants	0.38
Amortized Construction Emissions	42.5
Total	**2,350**

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 4-16 provides an analysis of the Project's consistency with the 2017 Scoping Plan Update measures.

Table 4-16 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 would 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. The Project includes construction of a new subdivision consisting of single-family homes. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency over time. The proposed single-family would be built with rooftop solar panels. Based on applicant-provided information, homes would have a minimum of 5 kW solar systems.
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 would 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. Based on applicant-provided information, homes would have a minimum of 5 kW solar systems with EV charging stations in the garage of every home. Residential deliveries would 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	**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.

zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	
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 reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not Applicable**. The Project consists of a new residential subdivision and would 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.

4.8.4 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 in various commercial and industrial activities. Hazardous

wastes are injurious substances that have been or will be disposed of. 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 waste. 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: [20]

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

[20] County of Fresno. HazMat Compliance: The Designated CUPA. Accessed on October 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 Phase I ESA was performed by SEE's Consulting & Testing, Inc. in order to provide an indication whether hazardous materials and or soil contamination may be present on the Project site. The report (dated May 15, 2023) is attached as Appendix G. 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." No on-site (RECs) were identified.

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. Based on historical documentation, the Project site was used for agricultural purposes since at least the mid-1950s. As such, there is a potential that agricultural related chemicals may have been used onsite.

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)[21], California Department of Toxic Substance Control's EnviroStor database [22], and the State Water Resources Control Board's GeoTracker database [23] include hazardous release and contamination sites. A search of each database was conducted on October 23, 2023. The searches revealed no hazardous material release sites on the Project site or within the Project vicinity.

[21] United States Environmental Protection Agency. Superfund National Priorities List. Accessed October 23, 2023, https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=33cebcdfdd1b4c3a8b51d416956c41f1
[22]California Department of Toxic Substances Control. Envirostor. Accessed October 23, 2023, https://www.envirostor.dtsc.ca.gov/public/
[23] California State Water Resources Control Board. GeoTracker. Accessed October 23, 2023, https://geotracker.waterboards.ca.gov/

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.*

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 760 feet southeast 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 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 potential BERs in connection with the subject property, including possible use of agricultural pesticides. ***Mitigation Measure HAZ-1*** establishes 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: *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 14.6 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 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 Kearney Boulevard 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:				
	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. [24]

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.*
>
> ***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.*

[24] City of Kerman. (2022). Final 2020 Urban Water Management Plan. Accessed November 10, 2023, https://cityofkerman.net/wp-content/uploads/2022/07/City-of-Kerman-FINAL-2020-UWMP-WSCP-reduced.pdf

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).[25] 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. The Project site has been identified by the City for a future City of Kerman well site to serve the City's growing population; an approximately 12,500 square foot lot would be reserved on the Project site for future well development. 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 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 single-family residential uses are shown in Table 4-17. As shown, the City anticipates 3,520 single-family residential users in 2025. Water demand is expected to increase to 3,828 for single-family residential users by 2030. The Project is anticipated to be developed and operational between 2025 and 2027. Since the Project site would be developed within the density allowed in the existing 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 4-17 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

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 4-18 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 17,995 gpd and an outdoor water demand of 87,758 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 4-18 Crown-Schaad Projected Water Demand

Proposed Project	Indoor Water (gpd)	Outdoor water (gpd)
163 Single-family Units	17,995	87,758

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

[25] City of Kerman (2021). 2020 Urban Water Management Plan. Accessed October 23, 2023, https://cityofkerman.net/239/Water-Division

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, based on the proposed site grading, stormwater runoff will generally drain south toward storm drain inlets provided on Kenneth Avenue or north along South Kenneth Avenue into the adjacent subdivision. 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., 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 south and north toward Kenneth Avenue. A series storm drain inlets and manholes on site would serve as a storm collection system. 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.[26] 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 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.

[26] North Kings Groundwater Sustainability Agency (2020). Groundwater Sustainability Plan. Accessed October 23, 2023, https://northkingsgsa.org/groundwater-sustainability-plan/

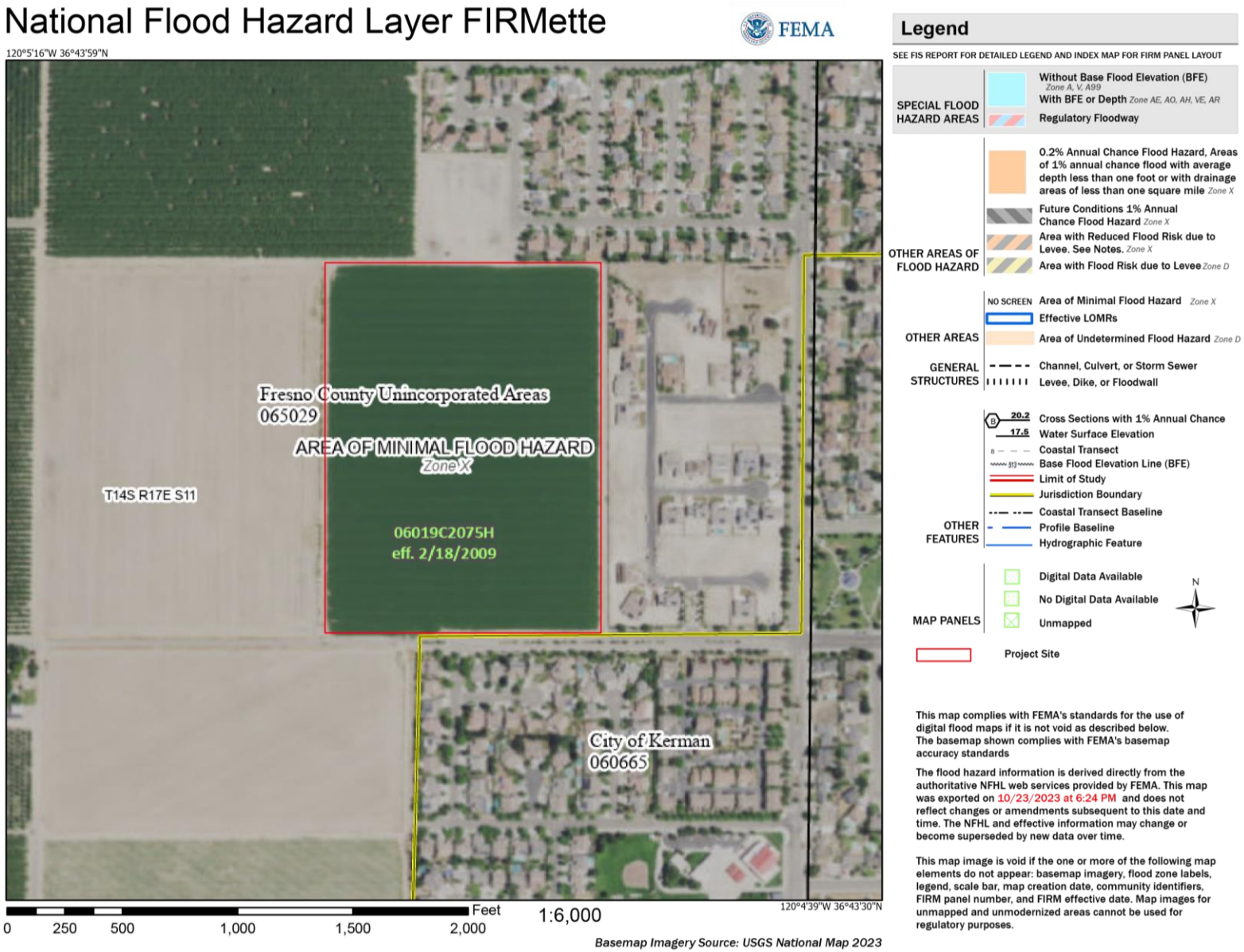


Figure 4-3 Flood Zone Map

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

A portion of the Project site (APN 020-140-22S) is within Kerman's SOI and outside of city limits. The rest of the site (APN 020-140-23S) is within Kerman's city limits. The Project proposes the annexation of APN 020-140-22S into the city limits of Kerman.

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 site is surrounded by single-family residences to the north, east, and south, and agricultural uses to the north, south, and west. 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, south, 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 and impacts would be less than significant.

Circulation System

Access to the site would be provided by one (1) point of ingress/egress from West Kearney Boulevard via Kenneth Avenue, one (1) point of ingress/egress connecting to the existing subdivision (i.e., "The Vineyard") to the north via South Kenneth Avenue, and one (1) point of ingress/egress ("B Avenue") connecting to the parcel to the north of the site identified as APN 020-140-10S, which is currently vacant and undeveloped. All roadways within the

proposed subdivision, including the Kenneth and South Kenneth Avenue entrances would be designed in accordance with City Standards and would have curb, gutter, and sidewalk. Outlots A and B as shown along the West Kearney Boulevard frontage are proposed to be dedicated to the City of Kerman for rights-of-way purposes. The rights-of-way would be improved in accordance with City standards. Turning radii are also proposed within the subdivision per North Central Fire Protection District and City Standards for emergency access and solid waste vehicle access.

Therefore, implementation of the Project would not include the introduction of new, intersecting roadways. Construction may require lane closure; however, these activities would be short-term and access through West Kearney Boulevard would be maintained through standard traffic control. Therefore, a less than significant impact would occur.

Utility Infrastructure

The portion of Project site within the city's SOI (APN 020-140-22S) is proposed to be annexed into the city limits and thus, the Project site in its entirety 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 and impacts would be less than significant.

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 improvement of West Kearney Boulevard, an existing General Plan-designated collector street, construction of internal roadways 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. 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 Rezone to provide more flexibility for residential development. A discussion of land use policies that are applicable to the Project are included in Table 4-19. As discussed below, the Project is generally consistent with the proposed General Plan residential land use designation. In addition, the portion of the Project site within the SOI is within Area 1 of the City's proposed SOI, which is the priority development area for the City.

Table 4-19 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*	**Consistent.** The Project site does not front and is not within the vicinity of any State Highways.

be designed and buffered to reduce noise and air pollutant impacts to the maximum extent reasonably feasible and consistent with CEQA review.	
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 north, south, and east. The Project would be buffered from adjacent agricultural uses by existing 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 three ingress/egress points of access. 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 Kearney Boulevard.
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 residential development in the General Plan and would be developed with single-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 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 site, is not within a CalGEM-recognized oilfield and there are no oil and gas wells on-site. [27]

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 on the Project site. 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?

No Impact. There are no identified mineral deposits of significance or active mine operations on the Project site. 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,

[27] California Department of Conservation. Well Finder. Accessed on October 25, 2023, https://maps.conservation.ca.gov/doggr/wellfinder/

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 full report (dated December 22, 2023) is provided in Appendix E. Results are summarized herein. This analysis is based upon a review of the project site plan, traffic data provided by Fresno Council of Governments (Fresno COG) and JLB Traffic Engineering, Inc., and the findings of on-site noise level measurements. Appendix E 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 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

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 4-20 provides the applicable exterior noise level standards for stationary noise sources.

Table 4-20 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*

Construction Noise and Vibration

Section 9.26 (Prohibition of Unreasonably Loud and Unnecessary Noise) of the KMC 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 4-21 and Table 4-22 and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

Table 4-21 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 (see Appendix E Acoustical Analysis)*

Table 4-22 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 (See Appendix E Acoustical Analysis)*

FHWA Traffic Noise Model

Traffic noise exposure from W. Kearney Boulevard was calculated by WJVA for existing and future (2046) conditions using the Federal Highway Administration (FHWA) Traffic Noise Model and traffic data obtained from Fresno COG on November 29, 2023. The purpose was to evaluate the accuracy of the FHWA Model in describing traffic noise exposure within the Project site. As described in the Acoustical Analysis, traffic noise levels predicted by the FHWA Model were determined to be 1.0 dB lower than those measured for W. Kearney Boulevard. This is considered a reasonable agreement, so no adjustments to the model were necessary. Annual Average Daily Traffic (AADT) Data for West Kearney Boulevard was obtained from Fresno COG and distribution of traffic was estimated to model noise exposure within the Project site.

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. Traffic noise exposure levels for Existing, Existing Plus Project, 2046 Cumulative and 2046 Cumulative Plus Project traffic conditions were calculated based upon the FHWA Model and traffic volumes provided by the project traffic engineer, JLB Traffic Engineering, 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 Ldn. Traffic noise was modeled at fifteen (15) receptor locations. The fifteen 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 provided in Appendix E.

Construction Noise and Vibration

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. 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 4-23 provides typical construction-related noise levels at distances of 50, 100 feet, 200 feet, and 300 feet.

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. 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 in Table 4-21 and Table 4-22.

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 *(see Appendix E Acoustical Analysis)*

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 (see Appendix E Acoustical Analysis)*

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 along the north side of W. Kearney Boulevard, between S. Siskiyou Avenue and S. Modoc Avenue. The Project site would be exposed to traffic noise associated with vehicles on W. Kearney Boulevard. The closest proposed single-family lots to W. Kearney Avenue are located approximately 90 feet from centerline of roadway.

Traffic Noise Exposure

Traffic noise modeling indicates that the traffic noise exposure at the closest proposed residential setback to W. Kearney Boulevard would be approximately 50 dB Ldn for existing conditions and approximately 53 dB Ldn for future (2046) traffic conditions. These levels do not exceed the City of Kerman exterior noise standard of 60 dB Ldn and therefore, impacts would be less than significant.

Interior Noise Exposure

The City of Kerman interior noise level standard is 45 dB Ldn. The worst-case noise exposure within the proposed residential development would be approximately 53 dB Ldn. for the first row of lots closest to W. Kearney Boulevard as indicated by traffic noise modeling. This means that the proposed residential construction must be capable of providing a minimum outdoor-to-indoor noise level reduction (NLR) of approximately 8 dB (53-45=8).

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 Ldn 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. Since all units would have air conditioning and mechanical ventilation, impacts would be less than significant.

Project-Related Increases In Traffic Noise Exposure

Traffic noise modeling indicated 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. In addition, as indicted by traffic noise modeling, Project-related traffic for 2046 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 Exposure

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 75-100 feet from construction activities. 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.

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 above. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above.

To mitigate potential impacts related to construction noise and vibration exposure for nearby sensitive land uses that may occur outside permitted hours, or if equipment was not adequately maintained and muffled, the Project shall incorporate ***Mitigation Measures NOI-1 and NOI-2*** to reduce impacts to less than significant levels. With mitigation incorporated, impacts would be less than significant.

Mitigation Measure NOI-1: *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-2: *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.*

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

Less than Significant Impact with Mitigation Incorporated. 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. However, to mitigate potential impacts related to construction noise and vibration exposure for nearby sensitive land uses that may occur outside permitted hours, or if equipment was not adequately maintained and muffled, the Project shall incorporate ***Mitigation Measures NOI-1 and NOI-2*** to reduce impacts to less than significant levels. With mitigation incorporated, impacts would be less than significant.

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 associated with operations 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 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)?

No Impact. The Project requests to pre-zone approximately 9.69 acres (APN 020-140-22S) and rezone 21.51 acres (APN 020-140-23S) to the SD-R-4.5 – Smart Development (SD)-Residential (R)-4.5 (4,500 SF. Min. Lot) zoning district. The proposed SD combining district is consistent with the underlying planned land use, MDR – Medium Density Residential. Since the site is proposed to be developed with the density allowed within its existing planned land use designation, housing units generated by the proposed Project would be within the Kerman General Plan projections for the City. Therefore, the Project would not induce substantial unplanned population growth and a less than significant impact would occur.

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

No Impact. The Project 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. 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 ladder truck with 400-gallon capacity, and Water Tender No. 55, which holds up to 3,000 gallons of water. [28] 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 construction and routine fire and life

[28] North Central Fire Protection District. Fire Station 55 Kerman. Accessed on October 25, 2023, https://www.northcentralfire.org/fire-station-55-kerman

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. [29] 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. [30] 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.*
>
> ***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.*

[29] Kerman Unified School District. About Us. Accessed on October 25, 2023, https://www.kermanusd.com/domain/10
[30] City of Kerman. Parks. Accessed on October 25, 2023, https://cityofkerman.net/park-facilities/

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 0.25 miles east 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 is 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. Through compliance, impacts would be less than significant.

ii. Police protection?

Less than Significant Impact. The Project site would be served by the Kerman Police Department (KPD). The KPD is located at 850 South Madera Avenue, Kerman, CA 93630, which is approximately 1.2 miles southeast of the Project site. 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 site is within the Kerman Unified School District (KUSD) with five (5) schools within a one-mile radius including Liberty Elementary School (0.2 miles southeast), Kerman Middle School (0.8 mile southeast), Nova High School (0.8 mile east), Kerman High School (0.8 mile northeast), and Kerman Christian Elementary School (0.8 miles northeast). Since the Project proposes residential development, 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. The proposed Project would generate approximately 157 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. 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 does not propose common open space. However, 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 to offset any potential impacts. 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 would not require the construction or expansion of off-site recreational facilities. 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 West Kearney Boulevard, an existing collector road that bounds the site to the south.

Fresno County Active Transportation Plan (ATP)

Fresno Council of Governments (FCOG) adopted the Fresno County Regional Active Transportation Plan (ATP) on February 22, 2018. [31] 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 West Kearney Boulevard, an east-west collector south of the Project site, is a Class II Bikeway (Bike Lane) from Madera Avenue to the center of the site's southern boundary. Planned bicycle facilities identified in the ATP include a Class II Bikeway (Bike Lane) extending west along West Kearney Boulevard across the southern boundary of the Project site.

According to the ATP, there is an existing sidewalk on one side of West Kearney Boulevard. No pedestrian facilities are identified within the Project vicinity; however, pedestrian improvements (i.e., sidewalk) would be required to be constructed along West Kearney Boulevard across the southern boundary of the Project site in compliance with City Standards.

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

[31] Fresno Council of Governments. (2018). 2018 Fresno County Regional Active Transportation Plan. Accessed October 25, 2023, https://www.fresnocog.org/Project/active-transportation/

of the 2040 General Plan Update identifies planned bicycle facilities in the Project vicinity. Planned bicycle facilities identified in this figure include a Class II Bikeway (Bike Lane) along West Kearney Boulevard across the southern boundary of the Project site to connect to a proposed Class I Bikeway (Bike Path) on South 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 (SB 743), traffic impacts are related to Vehicle Miles Traveled (VMT). The VMT metric became mandatory on July 1, 2020. 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, 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. [32]

According to the Guidelines, Projects can be screened out if: [33]

- *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)*

[32] Fresno Council of Governments. Fresno COG's SB743 Regional Guidelines and Tools. Accessed on October 25, 2023, https://www.fresnocog.org/Project/sb743-regional-guidelines-development/
[33] Fresno Council of Governments. Fresno COG's SB743 Implementation Regional Guidelines. Accessed on October 25, 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* [34]

If none of the screening criteria listed above applies, project VMT may be calculated using the Fresno COG VMT Calculation Tool for residential projects with 500 dwelling units of fewer, office projects with 375 employees or fewer, or mixed-use Projects that generate less than 5,000 ADT.

Traffic Impact Analysis

A Traffic Impact Analysis was prepared for the Project by JLB Traffic Engineering, Inc., dated February 2024. The Traffic Impact Analysis Report is provided in Appendix F and results are incorporated in the impact assessment below.

[34] Fresno Council of Governments. Fresno County VMT Screening Application. Accessed November 9, 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 one (1) point of ingress/egress from West Kearney Boulevard via Kenneth Avenue, one (1) point of ingress/egress connecting to the existing subdivision (i.e., "The Vineyard") to the north via South Kenneth Avenue, and one (1) point of ingress/egress ("B Avenue") connecting to the parcel to the north of the site identified as APN 020-140-10S, which is currently vacant and undeveloped. All roadways within the proposed subdivision, including the Kenneth and South Kenneth Avenue entrances would be designed in accordance with City Standards and would have curb, gutter, and sidewalk. Outlots A and B as shown along the West Kearney Boulevard frontage are proposed to be dedicated to the City of Kerman for rights-of-way purposes. The rights-of-way would be improved in accordance with City standards. Turning radii are also proposed within the subdivision per North Central Fire Protection District and City Standards for emergency access and solid waste vehicle access.

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 existing pedestrian facilities (i.e., sidewalks, trails, or paths) and Class I Bikeway (Bike Path) directly east of the Project site on West Kearney Boulevard. There is also an existing Class I Bikeway (Bike Path) on the south side of West Kearney Boulevard across the street from 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 vicinity of the Project site. Planned bicycle facilities identified in the Plan include a Class I Bikeway/Pedestrian Trail along West Kearney Boulevard across the southern boundary of the Project site to connect to the existing Class I Bikeway (Bike Path) and sidewalk east of the site.

The Project would result in off-site improvements along West Kearney Boulevard including concrete curb, gutter, sidewalk, paving, and a 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 entitlement or tentative and final map 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 one (1) mile 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 (8) 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. As described in the Environmental Setting, the City of Kerman has established a 13% below baseline conditions as a VMT threshold of significance to determine impacts on the environment related to development projects. According to the Fresno COG's VMT Screening Map, APN 020-140-22S is in a low VMT zone, whereas APN 020-140-23S is in a medium VMT zone (Figure 4-4). Based on the map, APN 020-140-22S screens out from further VMT analysis. Since the Project proposes less than 500 dwelling units, Project VMT was calculated for APN 020-140-23S using the Fresno COG VMT Calculation Tool. According to the calculation tool, the Project VMT per capita would be 13.5 compared to the County VMT per capita of 16.1 which is more than 13% below the existing County residential VMT per capita (Figure 4-5). Therefore, the Project would have a less than significant impact pursuant to CEQA Guidelines Section 15064.3.

c) 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.

Figure 4-4 Fresno County VMT Screening Application for the Project site

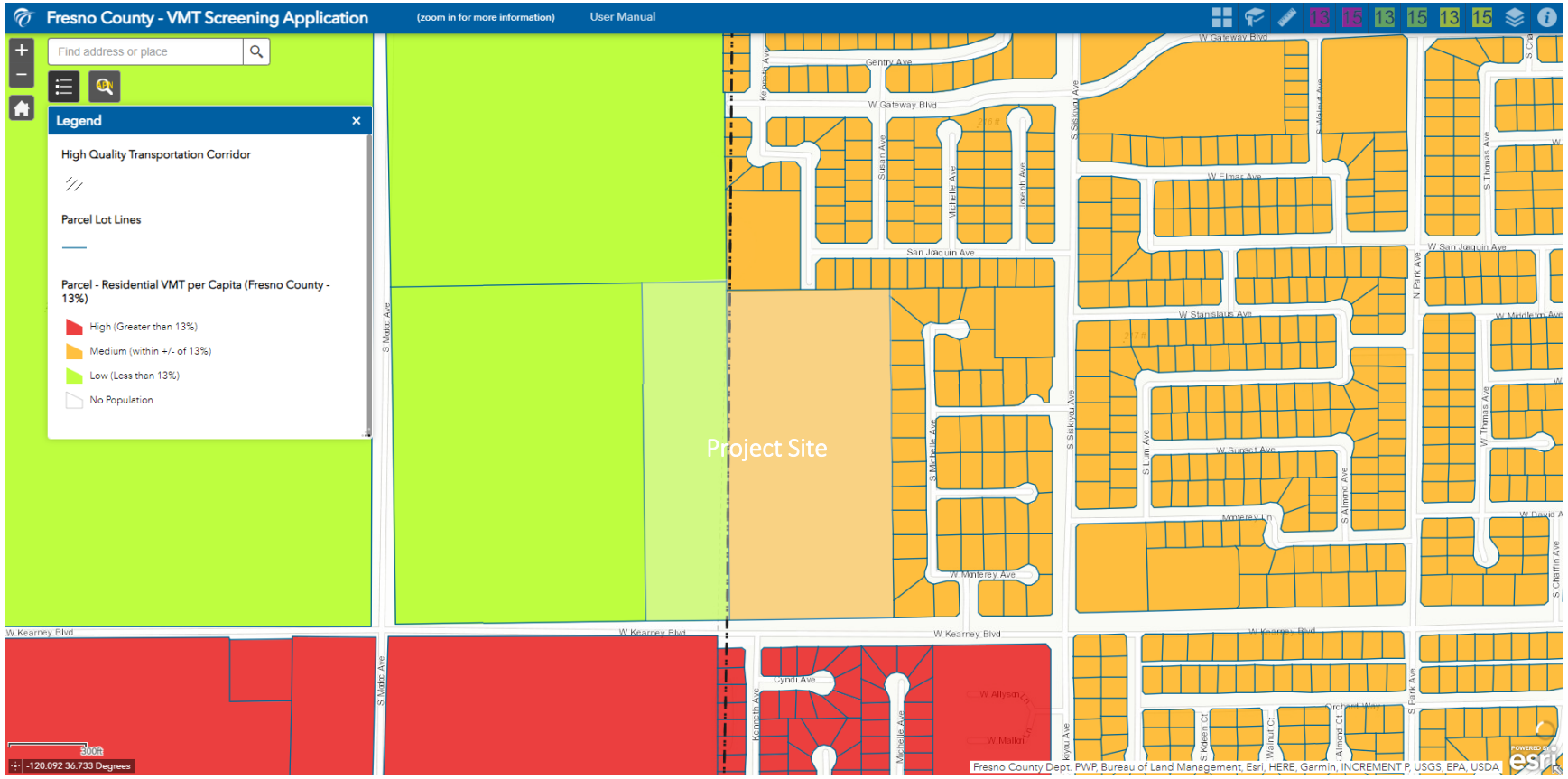
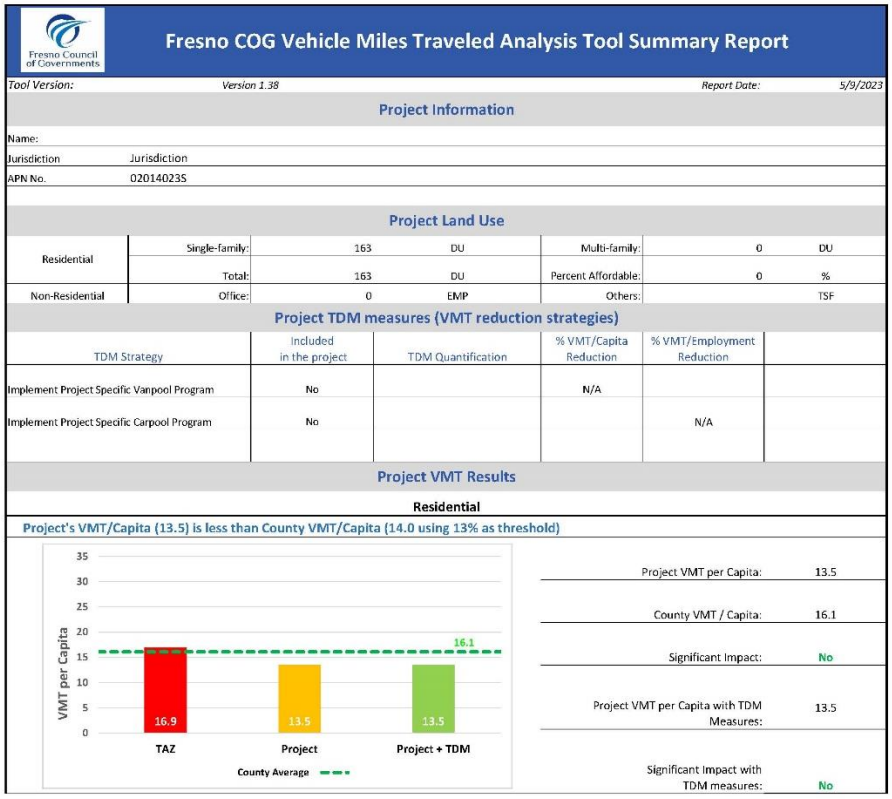


Figure 4-5 Fresno COG VMT Analysis Tool Summary Report for APN 020-140-23S



Fresno COG Vehicle Miles Traveled Analysis Tool Summary Report

Tool Version:	*Version 1.38*			*Report Date:*	*5/9/2023*	

Project Information

Name:	
Jurisdiction	Jurisdiction
APN No.	02014023S

Project Land Use

Residential	Single-family:	163	DU	Multi-family:	0	DU
	Total:	163	DU	Percent Affordable:	0	%
Non-Residential	Office:	0	EMP	Others:		TSF

Project TDM measures (VMT reduction strategies)

TDM Strategy	Included in the project	TDM Quantification	% VMT/Capita Reduction	% VMT/Employment Reduction	
Implement Project Specific Vanpool Program	No		N/A		
Implement Project Specific Carpool Program	No			N/A	

Project VMT Results

Residential

Project's VMT/Capita (13.5) is less than County VMT/Capita (14.0 using 13% as threshold)

Project VMT per Capita:	13.5
County VMT / Capita:	16.1
Significant Impact:	No
Project VMT per Capita with TDM Measures:	13.5
Significant Impact with TDM measures:	No

4.18 TRIBAL CULTURAL RESOURCES

Would the Project: 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 Project site does 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 Project 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 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. 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 for 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.[35]

[35] PG&E. (2022). Distribution Investment Deferral Framework (DIDF) Map. Accessed on November 9, 2023, https://www.pge.com/b2b/distribution-resource-planning/grid-needs-assessment-map.html

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. The Project site would be developed within city limits and thus, the Project 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 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. Seventeen (17) sanitary sewer manholes are proposed in the proposed roadways within the site. 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 21,594 gpd (17,995 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 impact 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.[36]

[36] 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

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 145 tons of solid waste per year 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 requires three (3) bins for each single-family residence (recycling, organics, and trash). 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?

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. 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 site, 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.[37] 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).

[37] California Department of Forestry and Fire Protection. FHSZ Viewer. Accessed on November 9, 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 Very High Fire Hazard Severity Zone (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. 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 degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		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 BIO-1, BIO-2, CUL-1, GEO-1, HAZ-1, NOI-1, and NOI-2*. 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 BIO-1, BIO-2, CUL-1, GEO-1, HAZ-1, NOI-1, and NOI-2*. 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 BIO-1, BIO-2, CUL-1, GEO-1, HAZ-1, NOI-1, and NOI-2*. 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 PRC (PRC). The timing of implementing each mitigation measure is identified 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	Timing of Verification	Responsible for Verification	Verification of Completion	
			Date	Initials
Biological Resources				
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.*	Prior to issuance of a construction permit	City of Kerman Building Division		
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 issuance of a construction permit	City of Kerman Building Division		

• ***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.				
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 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*	Prior to issuance of a construction permit	City of Kerman Building Division		

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.				
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.* *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*	During ground disturbance activities	City of Kerman Building Division		

shall be submitted to the City of Kerman, Community Development Department.				
Hazards and Hazardous Material				
Mitigation Measure HAZ-1: *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.*	Prior to ground disturbing activities	City of Kerman Building Division		
Noise				
Mitigation Measure NOI-1: *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*	At least 30-days before construction	City of Kerman Building Division		

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-2: *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.*	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 Community Development Department (559) 846-9386	Jesus R. Orozco, Community Development Director
Initial Study Consultant		
Initial Study	Precision Civil Engineering 1234 O Street Fresno, CA 93721 (559) 449-4500	Bonique Emerson, AICP, VP of Planning Jenna Chilingerian, AICP, Senior Planner 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 Gold River, CA 95670 (916) 803-1454
Noise Assessment	WJV Acoustics, Inc.	133 N. Church Street, Suite 203 Visalia, CA 93291 (559) 627-4923
Traffic Impact Analysis	JLB Traffic Engineering, Inc.	516 W. Shaw Avenue, Suite 103 Fresno, CA 93704 (559) 570-8991

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 September 23, 2023.

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Crown-Schaad Subdivision at Kearney Boulevard in Kerman, CA

Date: September 23, 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 Crown-Schaad Subdivision at Kearney Boulevard 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 project site includes two (2) parcels totaling approximately 31.2 gross acres that are located on the north side of West Kearney Boulevard between South Modoc Avenue and South Siskiyou Avenue near Kerman, California. The parcels are identified by Fresno County Assessor as Assessor's Parcel Numbers (APNs) 020-140-22S (9.69 acres) and 020-140-23S (21.51 acres). The project site is within the City of Kerman Sphere of influence; however, the parcel identified as APN 020-140-22S is outside city limits and would require an annexation from the County of Fresno and a pre-zone/rezone to a zone district consistent with the Kerman General Plan.

The project would include an annexation, rezone/prezone, ordinance text amendment, and tentative subdivision map that would facilitate the subdivision of the project site into 163 single-

[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 September 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 September 2023.

family lots (5.22 dwelling units per acre) that range in size from 4,878 square feet to 9,786 square feet, in addition to one 12,500 square foot lot reserved for a future well site. the project also proposes an internal network of local streets and sidewalks with one point of ingress/egress to West Kearny Boulevard and one point of ingress/egress to South Kenneth Avenue, connecting to an existing subdivision located north of the project site.

An aerial view of the project site is shown in Figure 1, and the project site plan is included as part of Attachment A.

Figure 1 – Aerial View of Crown-Schaad Subdivision at Kearney Boulevard Project Location

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 residential 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 residential 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, 2022.1.1.19)
- Operational emissions: CalEEMod, version 2022.1 (specifically, 2022.1.1.19)
- 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.

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	8/1/2024	8/28/2024	5	20
Grading	8/29/2024	10/30/2024	5	45
Building Construction	10/31/2024	4/27/2027	5	649
Paving	4/28/2027	6/15/2027	5	35
Architectural Coating	6/16/2027	8/3/2027	5	35
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	367	0.29	Diesel
	Forklifts	3	8	82	0.20	Diesel
	Generator Sets	1	8	14	0.74	Diesel
	Tractors/Loaders/Backhoes	3	7	84	0.37	Diesel
	Welders	1	8	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 (11.41 miles), vendor (8.53 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	38.89
Building Construction	58.68	17.42	2
Paving	15	2	0
Architectural Coating	11.74	2	0

Notes:
Additional vendor trips were added to account for delivery of materials.
Cut and fill estimates: 14,000 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 (1,537 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 project 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

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

[4] JLB Traffic Engineering, Inc. 2023. Proposed Scope of Work for the Preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision located on the Northwest Quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman (JLB Project 025-009). June 19.

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 September 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 and DPM.

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 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, 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 include applying dust suppressants and establishing vegetative cover.

Carryout and Trackout occur when materials from emptied or loaded vehicles fall 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

[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.

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)	0.15	1.48	1.41	0.26	0.14
Project Construction (2025)	0.18	1.47	2.04	0.16	0.07
Project Construction (2026)	0.17	1.39	2.00	0.15	0.07
Project Construction (2027)	1.11	0.56	0.85	0.06	0.03
Total Project Construction Emissions (tons/year)	**1.61**	**4.90**	**6.30**	**0.63**	**0.31**
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. Although full buildout isn't expected until 2027, the 2025 operational year was chosen as it is the 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)

Emissions Source	Tons per Year				
	ROG	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area	1.43	0.06	0.85	<0.01	<0.01
Energy Consumption	0.02	0.29	0.12	0.02	0.02
Mobile (On-road Vehicles)	0.87	0.89	7.62	1.65	0.43
Total Project Annual Emissions	**2.32**	**1.24**	**8.59**	**1.67**	**0.45**
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. Land uses surrounding the project site are summarized below.

- **North** – Directly north and northwest of the project site is farmland, primarily almond orchards and grape vineyards with a few scattered rural residences. Directly north and northeast of the project site is an existing residential subdivision with approximately 110 homes. There are a couple hundred more homes farther to the northeast followed by Kerman High School just over ½-mile away.
  The nearest residence to the north of the project is approximately 52.8 feet (0.01 miles) from the project boundary.
- **East** – Directly east of the project site are residential subdivisions with several hundred homes, Soroptimist Park, Ruiz Daycare, and Enterprise High School. The main business district of Kerman is just over a mile away from the project site.
  The nearest residence to the east of the project is approximately 52.8 feet (0.01 miles) from the project boundary.
- **South** – Directly south and southwest of the project site is farmland: primarily almond orchards and grape vineyards with a few scattered farmhouses starting about ¼-mile away. Directly south and southeast of the project are several hundred existing residential homes, Liberty Elementary School, Over the Rainbow Daycare, Lions Park and Kerman Middle School.
  The nearest residence to the south of the project is approximately 105.6 feet (0.02 miles) from the project boundary.
- **West** – To the west of the project site is farmland, primarily almond orchards and grape vineyards. There are a few scattered farmhouses starting about ¾-mile west of the project site. The project site is located on the mid-western edge of the City of Kerman.
  The nearest residence to the west of the project is approximately 3,696 feet (0.70 miles) from 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)	3.73	38.07	33.95	9.61	5.47
Construction (2025)	1.41	11.31	16.26	1.22	0.57
Construction (2026)	1.33	10.68	15.94	1.17	0.52
Construction (2027)	59.09	10.17	15.69	1.13	0.48
Entire Project Construction Duration (2024-2027)					
Maximum Daily On-site Emissions	**59.09**	**38.07**	**33.95**	**9.61**	**5.47**
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.

Source of Emissions: CalEEMod Output and Additional Supporting Information (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 September 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	8.30	1.35	9.80	0.11	0.11
Energy Consumption	0.09	1.60	0.68	0.13	0.13
Mobile (On-road Vehicles)	5.50	5.36	51.26	9.35	2.41
Daily Total	**13.89**	**8.31**	**61.74**	**9.59**	**2.65**
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 September 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.

[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 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.

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	16.58	0.009
	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 at 36°43'42.2"N 120°04'49.5"W (Receptor # 57).

Source: Attachment B.

As shown in Table 9, 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. Therefore, the proposed project would not result in a significant impact on nearby sensitive receptors from TACs during construction.

Operations

Operational DPM

As described in the traffic study prepared for the proposed project, the project is expected to generate 1,537 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 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 10: 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	1.77	0.0054
Applicable Prioritization Screening Threshold	**10**	**1**
Exceeds Prioritization Screening Threshold?	**No**	**No**
Source: Attachment B.		

As shown in Table 10, 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

[9] JLB Traffic Engineering, Inc. 2023. Proposed Scope of Work for the Preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision located on the Northwest Quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman (JLB Project 025-009). June 19.

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 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)

[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.

[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.

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 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 homes, 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 construction or operations. The project is not in an area with suitable habitat for Valley fever

[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.

[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.

spores and is not in an area known to have naturally occurring asbestos. Therefore, the project would not result in significant impacts to sensitive receptors.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are necessary.

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 feet 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 11.

Table 11: 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 September 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 11. 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, 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 ($MMTCO_2e$) 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.[14] 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.[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 the 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 shown below in Table 12.

Table 12: Construction Greenhouse Gas Emissions

Project Construction (2024-2027)	**$MTCO_2e$ per Year**
Site Preparation (2024)	50
Grading (2024)	199
Building Construction (2024)	68
Building Construction (2025)	400
Building Construction (2026)	398
Building Construction (2027)	127
Paving (2027)	27
Architectural Coating (2027)	5
Total Construction $MTCO_2e$	**1,274**
Emissions Amortized Over 30 Years[1]	**42.47**

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 1,274 $MTCO_2e$ 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 13. 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 1,537 average daily trips.[19]

[19] JLB Traffic Engineering, Inc. 2023. Proposed Scope of Work for the Preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision located on the Northwest Quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman (JLB Project 025-009). June 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.
- 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 13.

Table 13: Operational Greenhouse Gas Emissions for Project Buildout

Source Category	**Project Total Buildout Year ($MTCO_2e$/year)**
Area	66
Energy Consumption	480
Mobile (On-road Vehicles)	1,697
Water Usage	19
Solid Waste Generation	45
Refrigerants	0.38
Amortized Construction Emissions	42.5
Total	**2,350**
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 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 14 provides an analysis of the project's consistency with the 2017 Scoping Plan Update measures.

Table 14: 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. The project includes construction of a new subdivision consisting of single-family homes. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency over time. The proposed single-family would be built with rooftop solar panels. Based on applicant-provided information, homes will have a minimum of 5 kW solar systems.

Scoping Plan Measure	Project Consistency
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. Based on applicant-provided information, homes will have a minimum of 5 kW solar systems with EV charging stations in the garage of every home. 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 proposed single-family homes 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

Scoping Plan Measure	Project Consistency
	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 a new residential subdivision 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.

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 in August 2024 and last approximately three years. Table 15 provides estimates of the project's construction fuel consumption from off-road construction equipment for the entire project, categorized by construction activity.

Table 15: Construction Off-Road Fuel Consumption

Project Component	Construction Activity	Fuel Consumption (gallons)
Crown-Schaad Subdivision at Kearney Boulevard Project (Off-Road Equipment Use)	Site Preparation	1,819
	Grading	5,798
	Building Construction	25,652
	Paving	887
	Architectural Coating	103
Off-Road Fuel Consumption Total from Project Construction		**34,259**
Source: Energy Consumption Calculations (Attachment C).		

As shown in Table 15, off-road construction equipment usage associated with the proposed project would be estimated to consume approximately 34,259 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.

[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 September 2023.

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 16 provides an estimate of the total on-road vehicle fuel usage during construction.

Table 16: Construction On-Road Fuel Consumption

Project Component	Construction Activity	Total Annual Fuel Consumption (gallons)
Crown-Schaad Subdivision at Kearney Boulevard Project (On-Road Equipment Use)	Site Preparation	196
	Grading	6,314
	Building Construction	32,907
	Paving	304
	Architectural Coating	254
On-Road Fuel Consumption Total from Project Construction		**39,975**
Source: Energy Consumption Calculations (Attachment C).		

As shown in Table 16, construction trips are estimated to consume approximately 39,975 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 17 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 17: 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	6,808	2,484,906	30.21	225.4	82,253
Light Trucks and Medium Duty Vehicles (LDT1, LDT2, MDV)	43.60	5,660	2,066,016	22.62	250.3	91,345
Light-Heavy to Medium-Heavy Diesel Trucks (LHD1, LHD2, and MHDT)	0.93	121	44,069	11.16	10.8	3,949

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)
Heavy-Heavy Diesel Trucks (HHDT)	2.12	275	100,458	6.11	45.1	16,451
Motorcycles (MCY)	0.25	32	11,846	41.37	0.8	286
Other (OBUS, UBUS, SBUS, MH)	0.66	86	31,275	7.59	11.3	4,122
Total	**100.0**	**12,982**	**4,738,570**	**—**	**544**	**198,406**

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 544 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 198,406 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 developments 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 18 the proposed project is estimated to demand 1,523,493 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 18: Long-Term Electricity Usage

Land Use	Total Electricity Demand (kWh/year)
Single Family Housing	1,523,493
Other Asphalt Surfaces	0
Other Non-Asphalt Surfaces	0
Total Project	**1,523,493**

Notes:

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 15 and Table 16, the proposed project would require 34,259 gallons of diesel fuel for construction off-road equipment and 39,975 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 1,523,493 kWh of electricity per year and would not utilize natural gas (see Table 18). 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 new single-family homes in the region. Solar panels will be included in all single-family homes, and the project will be built to meet statewide and local building codes. In addition, EV charging stations will be included in the garage of every home. 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 new 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 544 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 198,406 gallons (see Table 17 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 north, east, and south. 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 measures 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 the existing population. The proposed project is located adjacent to existing residential development to the north, east, and south. The rest of the project is surrounded by farmland with a few rural residences. 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 – CalEEMod Output and Additional Supporting Information

Attachment B – Construction Health Risk Assessment and Operational Health Risk Screening

Attachment C – Energy Consumption Calculations

ATTACHMENT A
CalEEMod Output and Additional Supporting Information

CalEEMod Output and Additional Supporting Information

Table of Contents

Additional Supporting Information/Modeling Assumptions

- **Crown-Schaad Subdivision at Kearney Boulevard Project Construction Assumptions**
- **Project Site Vicinity Maps**
- **Project Site Plan**
- **Project Trip Generation Assumptions (Page from the Proposed Scope of Work for the Preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision located on the Northwest Quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman (JLB Project 025-009), dated June 19, 2023)**

CalEEMod Output Files

- **Unmitigated Project Construction & Buildout Operations in the Earliest Year (2025)**
- **Maximum Daily On-site/Localized Construction and Operational Emissions**

Crown-Schaad Subdivision at Kearney Boulevard Project Construction Assumptions

Construction Phase

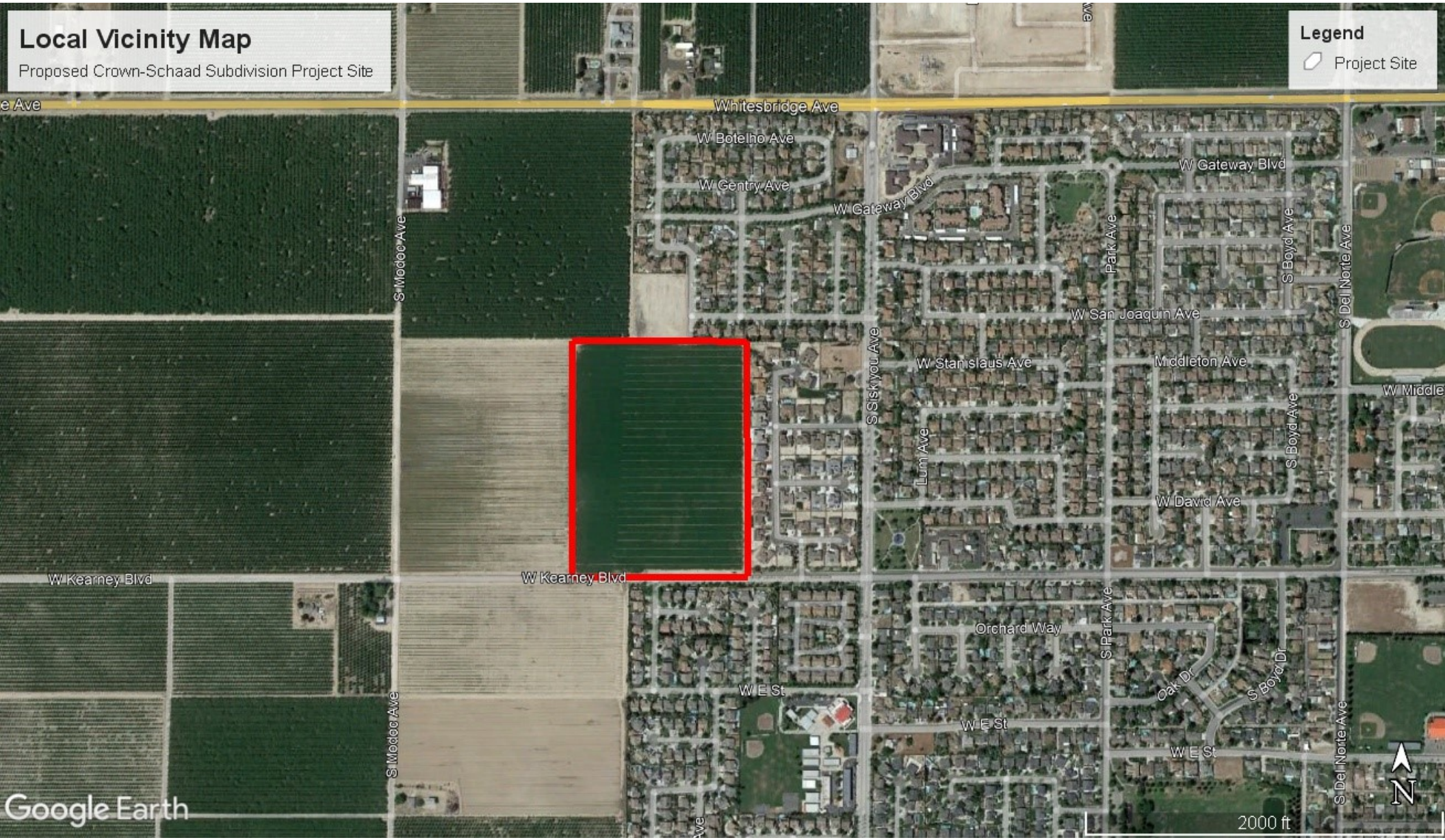
Phase Name	Start Date	End Date	Num Days Week	Num Days
Site Preparation	8/1/2024	8/28/2024	5	20
Grading	8/29/2024	10/30/2024	5	45
Building Construction	10/31/2024	4/27/2027	5	649
Paving	4/28/2027	6/15/2027	5	35
Architectural Coating	6/16/2027	8/3/2027	5	35

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	367	0.29
Building Construction	Forklifts	3	8	82	0.20
Building Construction	Generator Sets	1	8	14	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7	84	0.37
Building Construction	Welders	1	8	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

Construction 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	11.41	8.53	20
Grading	20	2	38.89	11.41	8.53	20
Building Construction	58.68	17.42	2	11.41	8.53	20
Paving	15	2	0	11.41	8.53	20
Architectural Coating	11.74	2	0	11.41	8.53	20


Local Vicinity Map
Proposed Crown-Schaad Subdivision Project Site
Legend
Project Site
Whitesbridge Ave
W Botelho Ave
W Gentry Ave
W Gateway Blvd
W Kearney Blvd
S Modoc Ave
S Siskiyou Ave
Park Ave
S Boyd Ave
S Del Norte Ave
W San Joaquin Ave
W Stanislaus Ave
Middleton Ave
Lum Ave
W David Ave
Orchard Way
S Park Ave
Oak Dr
S Boyd Dr
W E St
Google Earth
2000 ft
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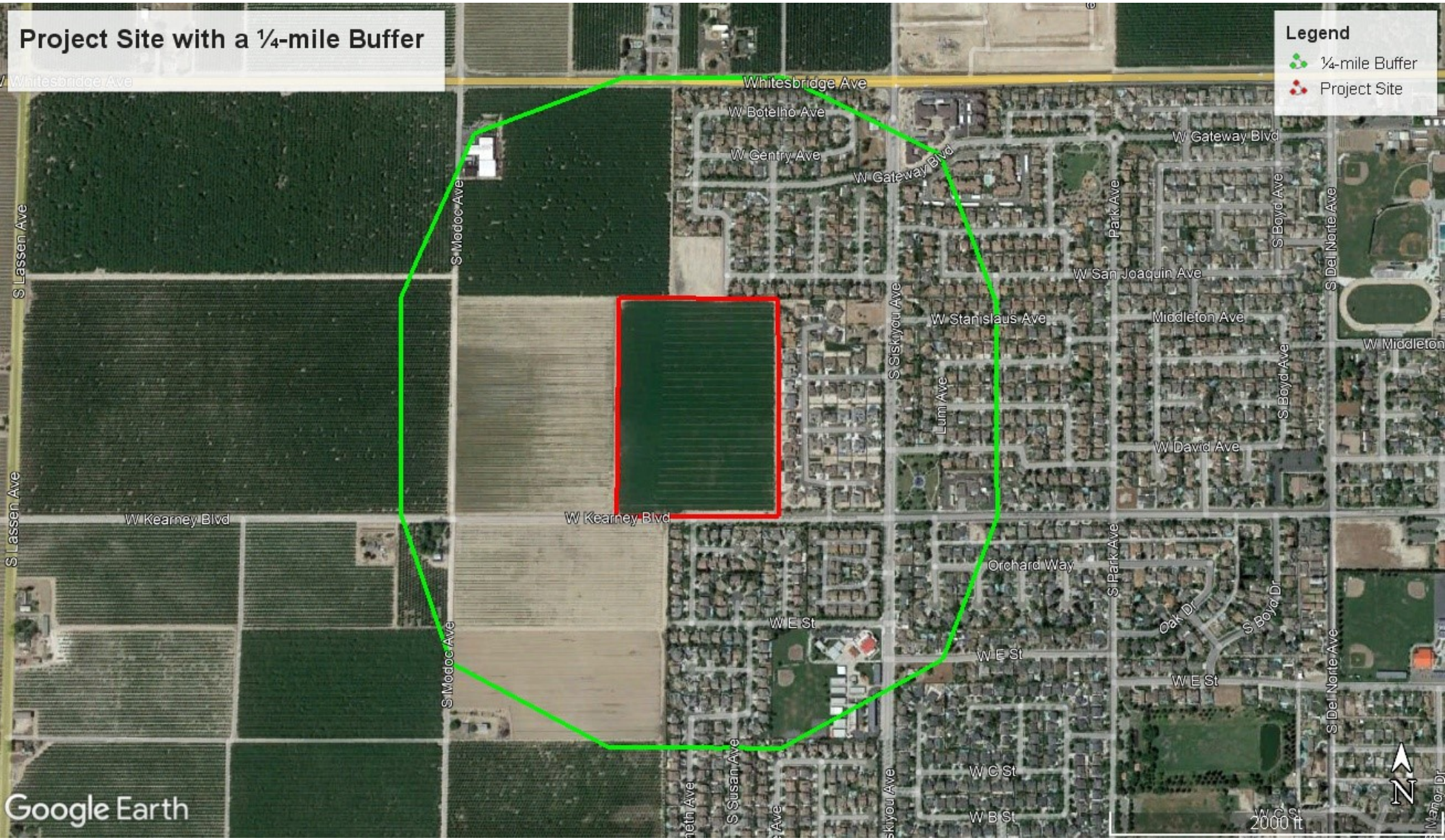
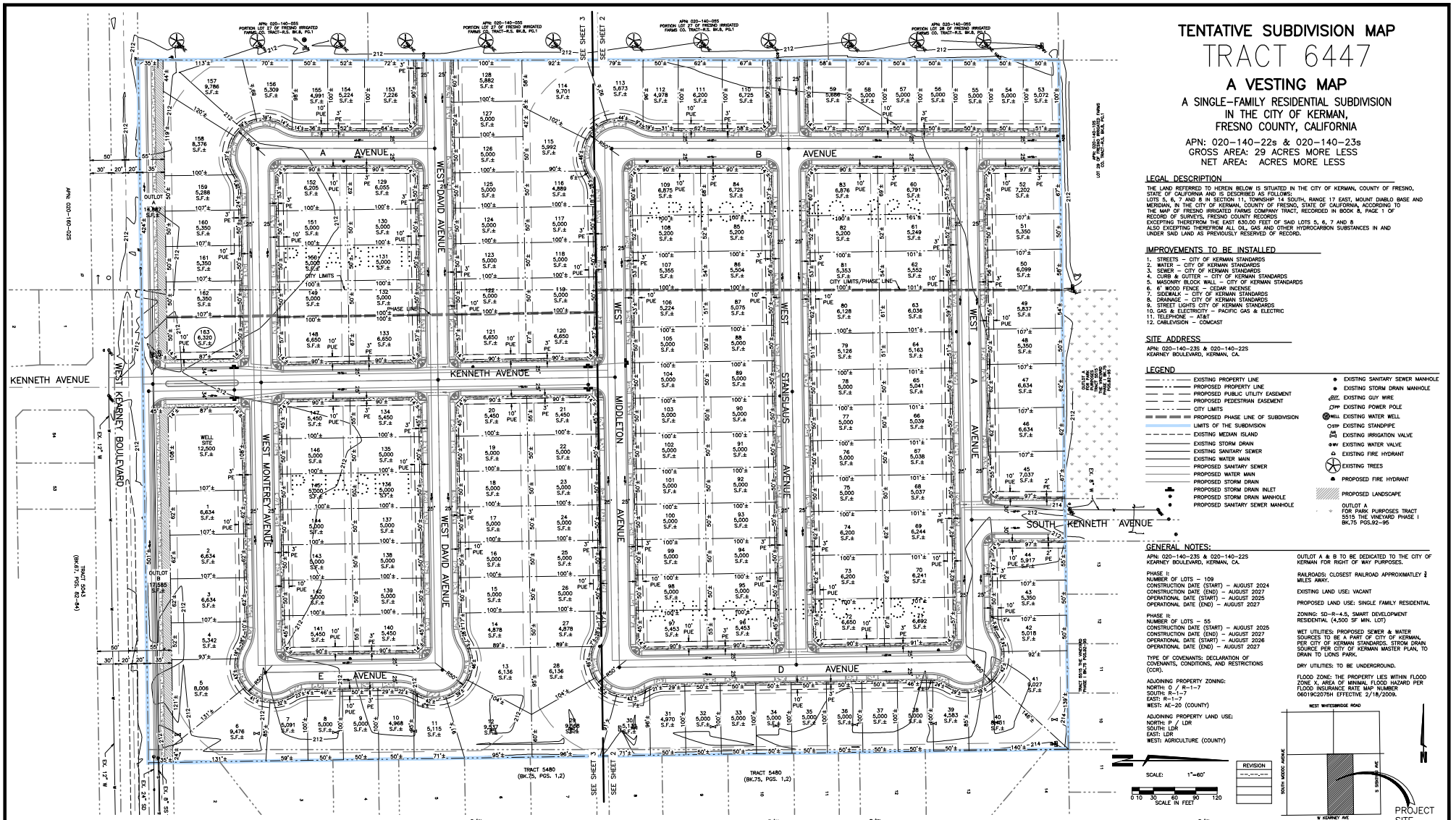

Project Site with a ¼-mile Buffer
Legend
¼-mile Buffer
Project Site
Whitesbridge Ave
W Botelho Ave
W Gentry Ave
W Gateway Blvd
S Modoc Ave
S Lassen Ave
Park Ave
S Boyd Ave
S Del Norte Ave
W San Joaquin Ave
W Stanislaus Ave
Middleton Ave
S Siskiyou Ave
Lumi Ave
W David Ave
W Kearney Blvd
Orchard Way
S Park Ave
Oak Dr
S Boyd Dr
W E St
W C St
W B St
S Susan Ave
Google Earth
2000 ft
N



TENTATIVE SUBDIVISION MAP

TRACT 6447

A VESTING MAP

A SINGLE-FAMILY RESIDENTIAL SUBDIVISION
IN THE CITY OF KERMAN,
FRESNO COUNTY, CALIFORNIA

APN: 020-140-22s & 020-140-23s
GROSS AREA: 29 ACRES MORE LESS
NET AREA: ACRES MORE LESS

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF KERMAN, COUNTY OF FRESNO, STATE OF CALIFORNIA AND IS DESCRIBED AS FOLLOWS:
LOTS 5, 6, 7 AND 8 IN SECTION 11, TOWNSHIP 14 SOUTH, RANGE 17 EAST, MOUNT DIABLO BASE AND MERIDIAN, IN THE CITY OF KERMAN, COUNTY OF FRESNO, STATE OF CALIFORNIA, ACCORDING TO THE MAP OF FRESNO IRRIGATED FARMS COMPANY TRACT, RECORDED IN BOOK 8, PAGE 1 OF RECORD OF SURVEYS, FRESNO COUNTY RECORDS
EXCEPTING THEREFROM THE EAST 830.00 FEET OF SAID LOTS 5, 6, 7 AND 8
ALSO EXCEPTING THEREFROM ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER SAID LAND AS PREVIOUSLY RESERVED OF RECORD.

IMPROVEMENTS TO BE INSTALLED

1. STREETS – CITY OF KERMAN STANDARDS
2. WATER – CITY OF KERMAN STANDARDS
3. SEWER – CITY OF KERMAN STANDARDS
4. CURB & GUTTER – CITY OF KERMAN STANDARDS
5. MASONRY BLOCK WALL – CITY OF KERMAN STANDARDS
6. 6' WOOD FENCE – CEDAR INCENSE
7. SIDEWALK – CITY OF KERMAN STANDARDS
8. DRAINAGE – CITY OF KERMAN STANDARDS
9. STREET LIGHTS CITY OF KERMAN STANDARDS
10. GAS & ELECTRICITY – PACIFIC GAS & ELECTRIC
11. TELEPHONE – AT&T
12. CABLEVISION – COMCAST

SITE ADDRESS

APN: 020-140-23S & 020-140-22S
KEARNEY BOULEVARD, KERMAN, CA.

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED PUBLIC UTILITY EASEMENT
- PROPOSED PEDESTRIAN EASEMENT
- CITY LIMITS
- PROPOSED PHASE LINE OF SUBDIVISION
- LIMITS OF THE SUBDIVISION
- EXISTING MEDIAN ISLAND
- EXISTING STORM DRAIN
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED WATER MAIN
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- EXISTING GUY WIRE
- EXISTING POWER POLE
- EXISTING WATER WELL
- EXISTING STANDPIPE
- EXISTING IRRIGATION VALVE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING TREES
- PROPOSED FIRE HYDRANT
- PROPOSED LANDSCAPE
- OUTLOT A FOR PARK PURPOSES TRACT 5515 THE VINEYARD PHASE I BK.75 PGS.92-95

GENERAL NOTES:

APN: 020-140-23S & 020-140-22S
KEARNEY BOULEVARD, KERMAN, CA.

PHASE I:
NUMBER OF LOTS – 109
CONSTRUCTION DATE (START) – AUGUST 2024
CONSTRUCTION DATE (END) – AUGUST 2027
OPERATIONAL DATE (START) – AUGUST 2025
OPERATIONAL DATE (END) – AUGUST 2027

PHASE II:
NUMBER OF LOTS – 55
CONSTRUCTION DATE (START) – AUGUST 2025
CONSTRUCTION DATE (END) – AUGUST 2027
OPERATIONAL DATE (START) – AUGUST 2026
OPERATIONAL DATE (END) – AUGUST 2027

TYPE OF COVENANTS: DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS (CCR).

ADJOINING PROPERTY ZONING:
NORTH: O / R-1-7
SOUTH: R-1-7
EAST: R-1-7
WEST: AE-20 (COUNTY)

ADJOINING PROPERTY LAND USE:
NORTH: P / LDR
SOUTH: LDR
EAST: LDR
WEST: AGRICULTURE (COUNTY)

OUTLOT A & B TO BE DEDICATED TO THE CITY OF KERMAN FOR RIGHT OF WAY PURPOSES.

RAILROADS: CLOSEST RAILROAD APPROXIMATELY ½ MILES AWAY.

EXISTING LAND USE: VACANT

PROPOSED LAND USE: SINGLE FAMILY RESIDENTIAL

ZONING: SD-R-4.5, SMART DEVELOPMENT RESIDENTIAL (4,500 SF MIN. LOT)

WET UTILITIES: PROPOSED SEWER & WATER SOURCES TO BE A PART OF CITY OF KERMAN, PER CITY OF KERMAN STANDARDS. STROM DRAIN SOURCE PER CITY OF KERMAN MASTER PLAN, TO DRAIN TO LIONS PARK.

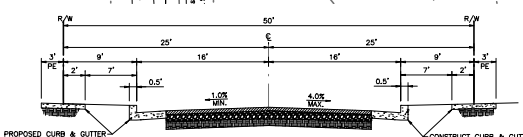
DRY UTILITIES: TO BE UNDERGROUND.

FLOOD ZONE: THE PROPERTY LIES WITHIN FLOOD ZONE X, AREA OF MINIMAL FLOOD HAZARD PER FLOOD INSURANCE RATE MAP NUMBER 06019C2075H EFFECTIVE 2/18/2009.

SCALE: 1"=60'
0 10 30 60 90 120
SCALE IN FEET

REVISION

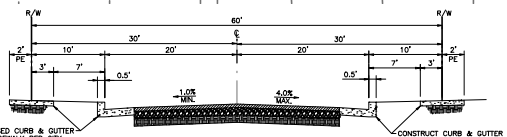
VICINITY MAP
NOT TO SCALE



PROPOSED CURB & GUTTER AND SIDEWALK PER CITY OF KERMAN STD.

INTERIOR STREETS
NOT TO SCALE

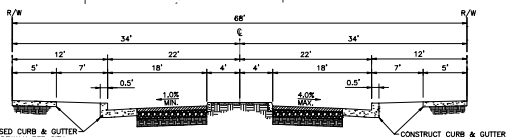
CONSTRUCT CURB & GUTTER AND SIDEWALK PER CITY OF KERMAN STD.



PROPOSED CURB & GUTTER AND SIDEWALK PER CITY OF KERMAN STD.

S. KENNETH AVE.
NOT TO SCALE

CONSTRUCT CURB & GUTTER AND SIDEWALK PER CITY OF KERMAN STD.



PROPOSED CURB & GUTTER AND SIDEWALK PER CITY OF KERMAN STD.

KENNETH AVENUE ENTRANCE
NOT TO SCALE

CONSTRUCT CURB & GUTTER AND SIDEWALK PER CITY OF KERMAN STD.

SUBDIVIDER:
JOSEPH CROWN CONSTRUCTION AND DEVELOPMENT, INC.
5320 E. PINE AVE.
FRESNO, CA 93727

CROWN HOMES
COME HOME TO THE GOOD LIFE

PREPARED BY:
JOSE LEMUS, RCE NO. 80458
PREPARED: 3/14/2023

LANDDESIGN CONSULTANTS
"Building a World"
4900 E. YALE AVE., FRESNO, CA 93727
TEL: (559) 538-3402

Trip Generation

The trip generation rates for the proposed Project and the Existing General Plan land use designations were obtained from the 11th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table I presents the trip generation for the proposed Project with trip generation rates for Single-Family Detached Housing. At buildout, the proposed Project is estimated to generate approximately 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips.

Table I: Project Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Single-Family Detached Housing (210)	163	d.u.	9.43	1,537	0.70	26	74	30	84	114	0.94	63	37	96	57	153
Total Driveway Trips				**1,537**				**30**	**84**	**114**				**96**	**57**	**153**

Note: d.u. = Dwelling Units

Near Term Projects to be Included

Based on our local knowledge of the study area and consultation with City of Kerman Planning & Development staff, JLB proposes to include near term projects in the vicinity of the proposed Project under the Near Term plus Project scenario. The near term projects proposed to be included in the Near Term scenario are:

Project Name	General Location
1. Commercial Development	SEC Whitesbridge Avenue and Kline Street
2. Tract 6236 (portion of)	NEC Siskiyou Avenue and Whitesbridge Avenue
3. Tract 6302 (portion of)	SWQ Goldenrod Avenue and Whitesbridge Avenue
4. Tract 6293	SEQ of Siskiyou Avenue and California Avenue
5. KUSD Athletic Site & Elementary School	NWQ Madera Avenue and Whitesbridge Avenue

Other Near Term Projects the City, County or Caltrans has knowledge and for which it is anticipated that said project(s) is/are projected to be whole or partially built by the Near Term Project Year 2029. City, County and Caltrans as appropriate would provide JLB with project details such as a project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

Crown-Schaad Subdivision at Kearney Boulevard Custom Report

Table of Contents

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Crown-Schaad Subdivision at Kearney Boulevard
Construction Start Date	8/1/2024
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	36.729444, -120.082622
County	Fresno
City	Kerman
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	2022.1.1.19

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	163	Dwelling Unit	27.5	317,850	1,909,196	—	522	—
Other Asphalt Surfaces	5.74	Acre	5.74	0.00	37,505	—	—	Includes 2 additional acres for offsite
Other Non-Asphalt Surfaces	12.5	1000sqft	0.29	0.00	1,875	—	—	—

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	4.43	3.73	37.8	33.9	0.08	1.60	8.01	9.61	1.47	4.00	5.47	—	9,613	9,613	0.34	0.51	7.55	9,781
2025	1.66	1.41	11.2	16.3	0.03	0.44	0.78	1.22	0.40	0.16	0.57	—	3,392	3,392	0.12	0.11	3.25	3,430
2026	1.57	1.33	10.6	15.9	0.03	0.39	0.78	1.17	0.35	0.16	0.52	—	3,372	3,372	0.12	0.11	2.92	3,410
2027	1.49	59.1	10.1	15.7	0.03	0.34	0.78	1.13	0.32	0.16	0.48	—	3,351	3,351	0.12	0.10	2.61	3,387
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.41	3.66	38.1	31.9	0.08	1.50	4.68	6.18	1.38	1.68	3.07	—	9,594	9,594	0.33	0.51	0.20	9,755
2025	1.63	1.37	11.3	15.5	0.03	0.44	0.78	1.22	0.40	0.16	0.57	—	3,333	3,333	0.12	0.11	0.08	3,368
2026	1.53	1.30	10.7	15.3	0.03	0.39	0.78	1.17	0.35	0.16	0.52	—	3,314	3,314	0.12	0.11	0.08	3,349
2027	1.47	1.24	10.2	15.1	0.03	0.34	0.78	1.13	0.32	0.16	0.48	—	3,295	3,295	0.12	0.11	0.07	3,329
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	1.00	0.83	8.13	7.72	0.02	0.33	1.11	1.44	0.31	0.45	0.75	—	1,894	1,894	0.07	0.08	0.60	1,920
2025	1.16	0.98	8.05	11.2	0.02	0.31	0.55	0.86	0.29	0.11	0.40	—	2,392	2,392	0.09	0.08	1.00	2,419
2026	1.11	0.93	7.60	11.0	0.02	0.28	0.55	0.82	0.25	0.11	0.37	—	2,379	2,379	0.08	0.08	0.90	2,405
2027	0.44	6.07	3.09	4.63	0.01	0.11	0.23	0.34	0.10	0.05	0.15	—	947	947	0.03	0.03	0.30	956
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.18	0.15	1.48	1.41	< 0.005	0.06	0.20	0.26	0.06	0.08	0.14	—	314	314	0.01	0.01	0.10	318
2025	0.21	0.18	1.47	2.04	< 0.005	0.06	0.10	0.16	0.05	0.02	0.07	—	396	396	0.01	0.01	0.17	400
2026	0.20	0.17	1.39	2.00	< 0.005	0.05	0.10	0.15	0.05	0.02	0.07	—	394	394	0.01	0.01	0.15	398
2027	0.08	1.11	0.56	0.85	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	157	157	0.01	< 0.005	0.05	158

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	6.02	5.50	4.59	51.3	0.11	0.07	9.28	9.35	0.06	2.35	2.41	—	11,033	11,033	0.55	0.50	39.6	11,235
Area	1.03	8.30	1.44	9.80	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,741	1,741	0.03	< 0.005	—	1,743
Energy	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,884	2,884	0.32	0.02	—	2,898
Water	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	7.24	13.9	7.63	61.7	0.13	0.31	9.28	9.59	0.31	2.35	2.65	90.7	15,716	15,807	10.0	0.55	41.9	16,264
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.28	4.73	5.36	41.7	0.10	0.07	9.28	9.35	0.06	2.35	2.41	—	9,956	9,956	0.63	0.54	1.03	10,133
Area	0.16	7.47	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Energy	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,884	2,884	0.32	0.02	—	2,898

Water	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	5.62	12.3	8.31	43.0	0.12	0.31	9.28	9.58	0.30	2.35	2.65	90.7	14,614	14,705	10.1	0.59	3.30	15,137
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.28	4.76	4.88	41.8	0.10	0.07	8.98	9.04	0.06	2.27	2.33	—	10,067	10,067	0.58	0.51	16.8	10,249
Area	0.47	7.82	0.35	4.68	< 0.005	0.03	—	0.03	0.03	—	0.03	0.00	398	398	0.01	< 0.005	—	398
Energy	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,884	2,884	0.32	0.02	—	2,898
Water	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	5.93	12.7	6.83	47.1	0.11	0.22	8.98	9.20	0.22	2.27	2.49	90.7	13,408	13,498	10.0	0.56	19.1	13,934
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.96	0.87	0.89	7.62	0.02	0.01	1.64	1.65	0.01	0.41	0.43	—	1,667	1,667	0.10	0.08	2.78	1,697
Area	0.09	1.43	0.06	0.85	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	65.8	65.8	< 0.005	< 0.005	—	65.9
Energy	0.03	0.02	0.29	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	478	478	0.05	< 0.005	—	480
Water	—	—	—	—	—	—	—	—	—	—	—	2.08	9.69	11.8	0.22	0.01	—	18.7
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Total	1.08	2.31	1.25	8.60	0.02	0.04	1.64	1.68	0.04	0.41	0.45	15.0	2,220	2,235	1.66	0.09	3.15	2,307

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	5.40	5.40	< 0.005	< 0.005	< 0.005	5.67
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.97	1.80	< 0.005	0.09	—	0.09	0.08	—	0.08	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.33	< 0.005	0.02	—	0.02	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.98	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	159	159	0.01	0.01	0.64	162
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	54.5	54.5	< 0.005	0.01	0.15	57.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.00	8.00	< 0.005	< 0.005	0.02	8.13
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.99	2.99	< 0.005	< 0.005	< 0.005	3.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (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	—	—	—	—	—	—	3.60	3.60	—	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	5.67
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	—	—	—	—	—	—	3.60	3.60	—	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	5.77
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	4.23	3.72	0.01	0.18	—	0.18	0.16	—	0.16	—	813	813	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	0.44	0.44	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.70
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.77	0.68	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.12

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.07	1.11	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	182	182	0.01	0.01	0.73	185
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	54.5	54.5	< 0.005	0.01	0.15	57.1
Hauling	0.13	0.07	3.36	0.80	0.02	0.05	0.72	0.77	0.05	0.20	0.25	—	2,773	2,773	0.06	0.44	6.67	2,912
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.84	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	161	161	0.01	0.01	0.02	163
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	54.6	54.6	< 0.005	0.01	< 0.005	57.0
Hauling	0.12	0.06	3.58	0.82	0.02	0.05	0.72	0.77	0.05	0.20	0.25	—	2,775	2,775	0.06	0.44	0.17	2,908
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.6	20.6	< 0.005	< 0.005	0.04	20.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.73	6.73	< 0.005	< 0.005	0.01	7.03
Hauling	0.02	0.01	0.43	0.10	< 0.005	0.01	0.09	0.09	0.01	0.02	0.03	—	342	342	0.01	0.05	0.35	359
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.41	3.41	< 0.005	< 0.005	0.01	3.46
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.11	1.11	< 0.005	< 0.005	< 0.005	1.16
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.6	56.6	< 0.005	0.01	0.06	59.4

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	5.77
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.15	1.36	1.59	< 0.005	0.06	—	0.06	0.06	—	0.06	—	291	291	0.01	< 0.005	—	292
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.69
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.2	48.2	< 0.005	< 0.005	—	48.3
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.24	0.25	2.47	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	472	472	0.02	0.02	0.06	479
Vendor	0.03	0.01	0.65	0.22	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	476	476	0.01	0.07	0.03	496
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.4	59.4	< 0.005	< 0.005	0.11	60.3
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	57.7	57.7	< 0.005	0.01	0.07	60.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.84	9.84	< 0.005	< 0.005	0.02	9.99
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.55	9.55	< 0.005	< 0.005	0.01	9.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	5.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	5.64
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	7.46	9.31	0.02	0.31	—	0.31	0.28	—	0.28	—	1,713	1,713	0.07	0.01	—	1,719
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	3.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.36	1.70	< 0.005	0.06	—	0.06	0.05	—	0.05	—	284	284	0.01	< 0.005	—	285

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	0.66
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.26	0.18	3.00	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	522	522	0.01	0.02	1.97	530
Vendor	0.03	0.02	0.58	0.21	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	467	467	0.01	0.07	1.27	489
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.23	0.21	2.26	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	463	463	0.01	0.02	0.05	469
Vendor	0.02	0.01	0.62	0.21	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	467	467	0.01	0.07	0.03	488
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.14	1.70	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	342	342	0.01	0.01	0.61	348
Vendor	0.02	0.01	0.43	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	334	334	0.01	0.05	0.39	349
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.7	56.7	< 0.005	< 0.005	0.10	57.5
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	55.2	55.2	< 0.005	0.01	0.06	57.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. 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	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	5.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	5.53
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	3.73	3.73	< 0.005	< 0.005	< 0.005	3.91
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.65
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.24	0.16	2.75	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	511	511	0.01	0.02	1.79	519
Vendor	0.03	0.02	0.56	0.20	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	458	458	0.01	0.07	1.12	480
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.22	0.20	2.08	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	453	453	0.01	0.02	0.05	459
Vendor	0.02	0.01	0.60	0.21	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	458	458	0.01	0.07	0.03	479
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.13	1.56	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	335	335	0.01	0.01	0.55	340
Vendor	0.02	0.01	0.41	0.14	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	327	327	0.01	0.05	0.34	342
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.5	55.5	< 0.005	< 0.005	0.09	56.4
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.2	54.2	< 0.005	0.01	0.06	56.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2027) - 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	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.16	5.16	< 0.005	< 0.005	< 0.005	5.42
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.15	2.96	0.01	0.08	—	0.08	0.07	—	0.07	—	549	549	0.02	< 0.005	—	551
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	1.17	1.17	< 0.005	< 0.005	< 0.005	1.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	90.9	90.9	< 0.005	< 0.005	—	91.2
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.20
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.23	0.14	2.54	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	501	501	0.01	0.02	1.62	508
Vendor	0.03	0.02	0.54	0.19	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	448	448	0.01	0.07	0.98	469
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.18	1.92	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	444	444	0.01	0.02	0.04	450
Vendor	0.02	0.01	0.57	0.20	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	449	449	0.01	0.07	0.03	468
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.46	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	105	105	< 0.005	< 0.005	0.16	107
Vendor	0.01	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	103	103	< 0.005	0.01	0.10	107

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.4	17.4	< 0.005	< 0.005	0.03	17.7
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.0	17.0	< 0.005	< 0.005	0.02	17.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Paving (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.67	0.95	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145
Paving	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1

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	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.09
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	< 0.005	< 0.005	0.41	130
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	51.4	51.4	< 0.005	0.01	0.11	53.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	11.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.93	4.93	< 0.005	< 0.005	< 0.005	5.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.87	1.87	< 0.005	< 0.005	< 0.005	1.89
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2027) - Unmitigated

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

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

Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	58.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Architectural Coatings	—	5.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	—	1.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.09
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.51	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	100	100	< 0.005	< 0.005	0.32	102
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	51.4	51.4	< 0.005	0.01	0.11	53.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.82	8.82	< 0.005	< 0.005	0.01	8.95
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.93	4.93	< 0.005	< 0.005	< 0.005	5.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.46	1.46	< 0.005	< 0.005	< 0.005	1.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	6.02	5.50	4.59	51.3	0.11	0.07	9.28	9.35	0.06	2.35	2.41	—	11,033	11,033	0.55	0.50	39.6	11,235
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

Other Non-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	6.02	5.50	4.59	51.3	0.11	0.07	9.28	9.35	0.06	2.35	2.41	—	11,033	11,033	0.55	0.50	39.6	11,235
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	5.28	4.73	5.36	41.7	0.10	0.07	9.28	9.35	0.06	2.35	2.41	—	9,956	9,956	0.63	0.54	1.03	10,133
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
Other Non-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	5.28	4.73	5.36	41.7	0.10	0.07	9.28	9.35	0.06	2.35	2.41	—	9,956	9,956	0.63	0.54	1.03	10,133
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.96	0.87	0.89	7.62	0.02	0.01	1.64	1.65	0.01	0.41	0.43	—	1,667	1,667	0.10	0.08	2.78	1,697
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
Other Non-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	0.96	0.87	0.89	7.62	0.02	0.01	1.64	1.65	0.01	0.41	0.43	—	1,667	1,667	0.10	0.08	2.78	1,697

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	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	141	141	0.02	< 0.005	—	142
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	141	141	0.02	< 0.005	—	142

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	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
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
Other Non-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	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
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
Other Non-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	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.03	0.02	0.29	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	337
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
Other Non-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	0.29	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	337

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	0.16	0.08	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Consumer Products	—	6.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.88	0.83	0.09	9.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.7	24.7	< 0.005	< 0.005	—	24.8
Total	1.03	8.30	1.44	9.80	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,741	1,741	0.03	< 0.005	—	1,743

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.16	0.08	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Consumer Products	—	6.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.16	7.47	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.01	< 0.005	0.06	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	63.8	63.8	< 0.005	< 0.005	—	63.9
Consumer Products	—	1.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.07	0.01	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.02	2.02	< 0.005	< 0.005	—	2.03
Total	0.09	1.43	0.06	0.85	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	65.8	65.8	< 0.005	< 0.005	—	65.9

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	—	—	—	—	—	—	—	—	—	—	—	12.6	57.8	70.4	1.30	0.03	—	112
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.70	0.70	< 0.005	< 0.005	—	0.70
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.03	0.03	< 0.005	< 0.005	—	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.6	57.8	70.4	1.30	0.03	—	112
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.70	0.70	< 0.005	< 0.005	—	0.70
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.03	0.03	< 0.005	< 0.005	—	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.08	9.57	11.6	0.22	0.01	—	18.6
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.12	0.12	< 0.005	< 0.005	—	0.12
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.01	0.01	< 0.005	< 0.005	—	0.01

Total	—	—	—	—	—	—	—	—	—	—	—	2.08	9.69	11.8	0.22	0.01	—	18.7

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	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38

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)

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	8/1/2024	8/28/2024	5.00	20.0	—
Grading	Grading	8/29/2024	10/30/2024	5.00	45.0	—
Building Construction	Building Construction	10/31/2024	4/27/2027	5.00	649	—
Paving	Paving	4/28/2027	6/15/2027	5.00	35.0	—
Architectural Coating	Architectural Coating	6/16/2027	8/3/2027	5.00	35.0	—

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	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
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	11.4	LDA,LDT1,LDT2
Site Preparation	Vendor	2.00	8.53	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	2.00	0.25	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.4	LDA,LDT1,LDT2
Grading	Vendor	2.00	8.53	HHDT,MHDT
Grading	Hauling	38.9	20.0	HHDT
Grading	Onsite truck	2.00	0.25	HHDT

Building Construction	—	—	—	—
Building Construction	Worker	58.7	11.4	LDA,LDT1,LDT2
Building Construction	Vendor	17.4	8.53	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	2.00	0.25	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.4	LDA,LDT1,LDT2
Paving	Vendor	2.00	8.53	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	2.00	0.25	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	11.7	11.4	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.00	8.53	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	643,646	214,549	0.00	0.00	15,752

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	—	—	30.0	0.00	—
Grading	14,000	—	225	0.00	—
Paving	0.00	0.00	0.00	0.00	7.82

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	1.80	0%
Other Asphalt Surfaces	5.74	100%
Other Non-Asphalt Surfaces	0.29	0%

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
2027	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	1,537	1,545	1,382	553,388	13,162	13,232	11,836	4,738,569
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-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	82
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	82
Conventional Wood Stoves	0
Catalytic Wood Stoves	8
Non-Catalytic Wood Stoves	8
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)
643646.25	214,549	0.00	0.00	15,752

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	1,523,493	204	0.0330	0.0040	6,342,708
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00
Other Non-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	6,568,248	32,031,922
Other Asphalt Surfaces	0.00	514,842
Other Non-Asphalt Surfaces	0.00	25,739

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—
Other Asphalt Surfaces	0.00	—
Other Non-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

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. 163 dwelling units on approximately 31.2 gross acres. Includes 2 additional acres of paved area to account for offsite improvements.
Construction: Construction Phases	Anticipated construction schedule based on applicant-provided information. Earliest construction dates used to provide a conservative estimate of emissions. August 2024 - August 2027
Construction: Off-Road Equipment	—
Operations: Vehicle Data	Project-specific trip generation, consistent with the traffic analysis prepared for the Crown-Schaad Subdivision Project. ITE Trip Generational Manual, 11th Edition (Land Use 210)
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
Construction: Dust From Material Movement	Estimates based on applicant-provided information Cubic yards of cut to be exported: None Cubic yards of fill to be imported: 14,000

Crown-Schaad Subdivision - Localized Analysis Custom Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Crown-Schaad Subdivision - Localized Analysis
Construction Start Date	8/1/2024
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	36.729444, -120.082622
County	Fresno
City	Kerman
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	2022.1.1.19

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	163	Dwelling Unit	27.5	317,850	1,909,196	—	522	—
Other Asphalt Surfaces	5.74	Acre	5.74	0.00	37,505	—	—	Includes 2 additional acres for offsite
Other Non-Asphalt Surfaces	12.5	1000sqft	0.29	0.00	1,875	—	—	—

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	4.42	3.72	36.0	33.2	0.06	1.60	7.86	9.46	1.47	3.96	5.43	—	6,759	6,759	0.28	0.08	0.21	6,790
2025	1.60	1.37	10.7	13.8	0.02	0.43	0.21	0.65	0.40	0.03	0.42	—	2,482	2,482	0.11	0.03	0.17	2,494
2026	1.52	1.30	10.1	13.7	0.02	0.38	0.21	0.59	0.35	0.03	0.37	—	2,479	2,479	0.11	0.03	0.15	2,492
2027	1.45	59.1	9.66	13.6	0.02	0.34	0.21	0.55	0.31	0.03	0.34	—	2,478	2,478	0.11	0.03	0.13	2,490
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.31	3.62	35.1	31.0	0.06	1.45	3.81	5.26	1.33	1.45	2.79	—	6,760	6,760	0.28	0.08	0.01	6,791
2025	1.57	1.34	10.8	14.0	0.02	0.43	0.21	0.65	0.40	0.03	0.42	—	2,480	2,480	0.11	0.03	< 0.005	2,493
2026	1.49	1.27	10.2	13.9	0.02	0.38	0.21	0.59	0.35	0.03	0.37	—	2,478	2,478	0.11	0.03	< 0.005	2,491
2027	1.43	1.22	9.69	13.8	0.02	0.34	0.21	0.55	0.31	0.03	0.34	—	2,476	2,476	0.11	0.03	< 0.005	2,489
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.98	0.82	7.69	7.33	0.01	0.33	0.92	1.25	0.30	0.40	0.70	—	1,426	1,426	0.06	0.02	0.02	1,432
2025	1.12	0.96	7.67	9.91	0.02	0.31	0.14	0.45	0.28	0.02	0.30	—	1,771	1,771	0.08	0.02	0.05	1,781
2026	1.07	0.91	7.25	9.82	0.02	0.27	0.14	0.42	0.25	0.02	0.27	—	1,770	1,770	0.08	0.02	0.05	1,779
2027	0.43	6.06	2.97	4.23	0.01	0.11	0.08	0.19	0.10	0.01	0.11	—	728	728	0.03	0.01	0.02	732
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.18	0.15	1.40	1.34	< 0.005	0.06	0.17	0.23	0.05	0.07	0.13	—	236	236	0.01	< 0.005	< 0.005	237
2025	0.21	0.18	1.40	1.81	< 0.005	0.06	0.03	0.08	0.05	< 0.005	0.06	—	293	293	0.01	< 0.005	0.01	295
2026	0.19	0.17	1.32	1.79	< 0.005	0.05	0.03	0.08	0.05	< 0.005	0.05	—	293	293	0.01	< 0.005	0.01	295
2027	0.08	1.11	0.54	0.77	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	121	121	0.01	< 0.005	< 0.005	121

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	5.16	5.02	1.69	13.0	0.01	0.01	0.54	0.55	0.01	0.14	0.15	—	938	938	0.25	0.14	2.31	989
Area	1.03	8.30	1.44	9.80	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,741	1,741	0.03	< 0.005	—	1,743
Energy	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,884	2,884	0.32	0.02	—	2,898
Water	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	6.38	13.4	4.74	23.5	0.03	0.25	0.54	0.80	0.25	0.14	0.39	90.7	5,621	5,712	9.71	0.20	4.59	6,018
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.47	4.29	1.93	17.1	0.01	0.01	0.54	0.55	0.01	0.14	0.15	—	885	885	0.34	0.16	0.06	940
Area	0.16	7.47	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Energy	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,884	2,884	0.32	0.02	—	2,898

Water	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	4.81	11.8	4.88	18.3	0.03	0.25	0.54	0.79	0.25	0.14	0.39	90.7	5,544	5,634	9.79	0.21	2.34	5,945
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.47	4.31	1.75	14.2	0.01	0.01	0.52	0.54	0.01	0.13	0.14	—	880	880	0.29	0.14	0.98	931
Area	0.47	7.82	0.35	4.68	< 0.005	0.03	—	0.03	0.03	—	0.03	0.00	398	398	0.01	< 0.005	—	398
Energy	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,884	2,884	0.32	0.02	—	2,898
Water	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Waste	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	5.12	12.2	3.70	19.6	0.02	0.17	0.52	0.69	0.17	0.13	0.30	90.7	4,221	4,311	9.72	0.20	3.26	4,616
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.82	0.79	0.32	2.59	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	146	146	0.05	0.02	0.16	154
Area	0.09	1.43	0.06	0.85	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	65.8	65.8	< 0.005	< 0.005	—	65.9
Energy	0.03	0.02	0.29	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	478	478	0.05	< 0.005	—	480
Water	—	—	—	—	—	—	—	—	—	—	—	2.08	9.69	11.8	0.22	0.01	—	18.7
Waste	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Total	0.94	2.23	0.68	3.57	< 0.005	0.03	0.10	0.13	0.03	0.02	0.05	15.0	699	714	1.61	0.03	0.54	764

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	5.40	5.40	< 0.005	< 0.005	< 0.005	5.67
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.97	1.80	< 0.005	0.09	—	0.09	0.08	—	0.08	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	0.42	0.42	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.33	< 0.005	0.02	—	0.02	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.02	0.20	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.0	10.0	< 0.005	< 0.005	0.03	10.7
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	5.60
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.56
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	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	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	—	—	—	—	—	—	3.60	3.60	—	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	5.67
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	—	—	—	—	—	—	3.60	3.60	—	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	5.77
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	4.23	3.72	0.01	0.18	—	0.18	0.16	—	0.16	—	813	813	0.03	0.01	—	816
Dust From Material Movement	—	—	—	—	—	—	0.44	0.44	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.70
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.77	0.68	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.12

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	12.2
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	5.60
Hauling	0.05	0.03	0.67	0.45	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	139	139	0.01	0.02	0.17	146
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	11.4
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	5.64
Hauling	0.04	0.03	0.71	0.46	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	140	140	0.01	0.02	< 0.005	148
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	—	1.34	1.34	< 0.005	< 0.005	< 0.005	1.43
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.69
Hauling	0.01	< 0.005	0.08	0.06	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.2	17.2	< 0.005	< 0.005	0.01	18.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	< 0.005	0.24
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	5.77
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.15	1.36	1.59	< 0.005	0.06	—	0.06	0.06	—	0.06	—	291	291	0.01	< 0.005	—	292
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.69
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.2	48.2	< 0.005	< 0.005	—	48.3
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.06	0.88	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	31.4	31.4	0.02	0.01	< 0.005	33.5
Vendor	0.01	0.01	0.22	0.14	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.0	47.0	< 0.005	0.01	< 0.005	49.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.87	3.87	< 0.005	< 0.005	< 0.005	4.13
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.67	5.67	< 0.005	< 0.005	< 0.005	5.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.64	0.64	< 0.005	< 0.005	< 0.005	0.68
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.94	0.94	< 0.005	< 0.005	< 0.005	0.98
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	5.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	5.64
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	7.46	9.31	0.02	0.31	—	0.31	0.28	—	0.28	—	1,713	1,713	0.07	0.01	—	1,719
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	3.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.36	1.70	< 0.005	0.06	—	0.06	0.05	—	0.05	—	284	284	0.01	< 0.005	—	285

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	0.66
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.23	0.05	0.61	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	32.9	32.9	0.01	0.01	0.09	35.0
Vendor	0.01	0.01	0.21	0.13	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.7	45.7	< 0.005	0.01	0.07	47.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.06	0.81	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	30.7	30.7	0.01	0.01	< 0.005	32.8
Vendor	0.01	0.01	0.22	0.14	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.1	46.1	< 0.005	0.01	< 0.005	48.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.04	0.49	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	22.3	22.3	0.01	< 0.005	0.03	23.8
Vendor	0.01	0.01	0.15	0.10	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.8	32.8	< 0.005	< 0.005	0.02	34.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	< 0.005	3.94
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.43	5.43	< 0.005	< 0.005	< 0.005	5.68
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. 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	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	5.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	5.53
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	3.73	3.73	< 0.005	< 0.005	< 0.005	3.91
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	0.65
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.05	0.57	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	32.2	32.2	0.01	0.01	0.08	34.2
Vendor	0.01	0.01	0.20	0.13	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.9	44.9	< 0.005	0.01	0.07	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.06	0.75	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	30.0	30.0	0.01	0.01	< 0.005	32.1
Vendor	0.01	0.01	0.21	0.14	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.3	45.3	< 0.005	0.01	< 0.005	47.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.14	0.04	0.45	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	21.8	21.8	0.01	< 0.005	0.02	23.3
Vendor	0.01	0.01	0.15	0.09	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.2	32.2	< 0.005	< 0.005	0.02	33.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.08	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.61	3.61	< 0.005	< 0.005	< 0.005	3.85
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.33	5.33	< 0.005	< 0.005	< 0.005	5.58
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2027) - 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	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.16	5.16	< 0.005	< 0.005	< 0.005	5.42
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.15	2.96	0.01	0.08	—	0.08	0.07	—	0.07	—	549	549	0.02	< 0.005	—	551
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	1.17	1.17	< 0.005	< 0.005	< 0.005	1.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	90.9	90.9	< 0.005	< 0.005	—	91.2
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.20
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.04	0.53	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	31.5	31.5	0.01	< 0.005	0.07	33.1
Vendor	0.01	0.01	0.20	0.13	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.0	44.0	< 0.005	0.01	0.06	46.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.18	0.05	0.70	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	29.4	29.4	0.01	0.01	< 0.005	31.4
Vendor	0.01	0.01	0.21	0.13	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.4	44.4	< 0.005	0.01	< 0.005	46.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.01	0.13	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	6.84	6.84	< 0.005	< 0.005	0.01	7.30
Vendor	< 0.005	< 0.005	0.05	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.6

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.13	1.13	< 0.005	< 0.005	< 0.005	1.21
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.67	1.67	< 0.005	< 0.005	< 0.005	1.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Paving (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.67	0.95	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145
Paving	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1

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	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.09
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.01	0.13	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.05	8.05	< 0.005	< 0.005	0.02	8.47
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.05	5.05	< 0.005	< 0.005	0.01	5.29
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.73	0.73	< 0.005	< 0.005	< 0.005	0.78
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.12	0.12	< 0.005	< 0.005	< 0.005	0.13
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2027) - Unmitigated

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

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

Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	58.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.32
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Architectural Coatings	—	5.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	—	1.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.09
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.01	0.11	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	6.30	6.30	< 0.005	< 0.005	0.01	6.63
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.05	5.05	< 0.005	< 0.005	0.01	5.29
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.10
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	5.16	5.02	1.69	13.0	0.01	0.01	0.54	0.55	0.01	0.14	0.15	—	938	938	0.25	0.14	2.31	989
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

Other Non-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	5.16	5.02	1.69	13.0	0.01	0.01	0.54	0.55	0.01	0.14	0.15	—	938	938	0.25	0.14	2.31	989
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.47	4.29	1.93	17.1	0.01	0.01	0.54	0.55	0.01	0.14	0.15	—	885	885	0.34	0.16	0.06	940
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
Other Non-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	4.47	4.29	1.93	17.1	0.01	0.01	0.54	0.55	0.01	0.14	0.15	—	885	885	0.34	0.16	0.06	940
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.82	0.79	0.32	2.59	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	146	146	0.05	0.02	0.16	154
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
Other Non-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	0.82	0.79	0.32	2.59	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	146	146	0.05	0.02	0.16	154

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	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	851	851	0.14	0.02	—	860
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	141	141	0.02	< 0.005	—	142
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	141	141	0.02	< 0.005	—	142

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	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
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
Other Non-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	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
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
Other Non-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	0.19	0.09	1.60	0.68	0.01	0.13	—	0.13	0.13	—	0.13	—	2,033	2,033	0.18	< 0.005	—	2,038
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.03	0.02	0.29	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	337
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
Other Non-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	0.29	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	337

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	0.16	0.08	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Consumer Products	—	6.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.88	0.83	0.09	9.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.7	24.7	< 0.005	< 0.005	—	24.8
Total	1.03	8.30	1.44	9.80	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,741	1,741	0.03	< 0.005	—	1,743

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.16	0.08	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Consumer Products	—	6.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.16	7.47	1.35	0.58	0.01	0.11	—	0.11	0.11	—	0.11	0.00	1,716	1,716	0.03	< 0.005	—	1,718
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.01	< 0.005	0.06	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	63.8	63.8	< 0.005	< 0.005	—	63.9
Consumer Products	—	1.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.07	0.01	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.02	2.02	< 0.005	< 0.005	—	2.03
Total	0.09	1.43	0.06	0.85	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	65.8	65.8	< 0.005	< 0.005	—	65.9

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	—	—	—	—	—	—	—	—	—	—	—	12.6	57.8	70.4	1.30	0.03	—	112
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.70	0.70	< 0.005	< 0.005	—	0.70
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.03	0.03	< 0.005	< 0.005	—	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.6	57.8	70.4	1.30	0.03	—	112
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.70	0.70	< 0.005	< 0.005	—	0.70
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.03	0.03	< 0.005	< 0.005	—	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	12.6	58.5	71.1	1.30	0.03	—	113
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.08	9.57	11.6	0.22	0.01	—	18.6
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.12	0.12	< 0.005	< 0.005	—	0.12
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.01	0.01	< 0.005	< 0.005	—	0.01

Total	—	—	—	—	—	—	—	—	—	—	—	2.08	9.69	11.8	0.22	0.01	—	18.7

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	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	78.1	0.00	78.1	7.81	0.00	—	273

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	0.00	12.9	1.29	0.00	—	45.2

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.28	2.28
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38

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)

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	8/1/2024	8/28/2024	5.00	20.0	—
Grading	Grading	8/29/2024	10/30/2024	5.00	45.0	—
Building Construction	Building Construction	10/31/2024	4/27/2027	5.00	649	—
Paving	Paving	4/28/2027	6/15/2027	5.00	35.0	—
Architectural Coating	Architectural Coating	6/16/2027	8/3/2027	5.00	35.0	—

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	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
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	38.9	0.50	HHDT
Grading	Onsite truck	2.00	0.25	HHDT

Building Construction	—	—	—	—
Building Construction	Worker	58.7	0.50	LDA,LDT1,LDT2
Building Construction	Vendor	17.4	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	11.7	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	643,646	214,549	0.00	0.00	15,752

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	—	—	30.0	0.00	—
Grading	14,000	—	225	0.00	—
Paving	0.00	0.00	0.00	0.00	7.82

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	1.80	0%
Other Asphalt Surfaces	5.74	100%
Other Non-Asphalt Surfaces	0.29	0%

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
2027	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	1,537	1,545	1,382	553,388	769	773	691	276,694
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-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	82
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	82
Conventional Wood Stoves	0
Catalytic Wood Stoves	8
Non-Catalytic Wood Stoves	8
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)
643646.25	214,549	0.00	0.00	15,752

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	1,523,493	204	0.0330	0.0040	6,342,708
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00
Other Non-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	6,568,248	32,031,922
Other Asphalt Surfaces	0.00	514,842
Other Non-Asphalt Surfaces	0.00	25,739

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	145	—
Other Asphalt Surfaces	0.00	—
Other Non-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

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. 163 dwelling units on approximately 31.2 gross acres. Includes 2 additional acres of paved area to account for offsite improvements.
Construction: Construction Phases	Anticipated construction schedule based on applicant-provided information. Earliest construction dates used to provide a conservative estimate of emissions. August 2024 - August 2027
Construction: Off-Road Equipment	—
Operations: Vehicle Data	Project-specific trip generation, consistent with the traffic analysis prepared for the Crown-Schaad Subdivision Project. ITE Trip Generational Manual, 11th Edition (Land Use 210) 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 No woodburning fireplaces or wood stoves
Construction: Dust From Material Movement	Estimates based on applicant-provided information Cubic yards of cut to be exported: None Cubic yards of fill to be imported: 14,000
Construction: Trips and VMT	Construction trip lengths updated to 0.5 mile to account for on-site and localized emissions from mobile sources.

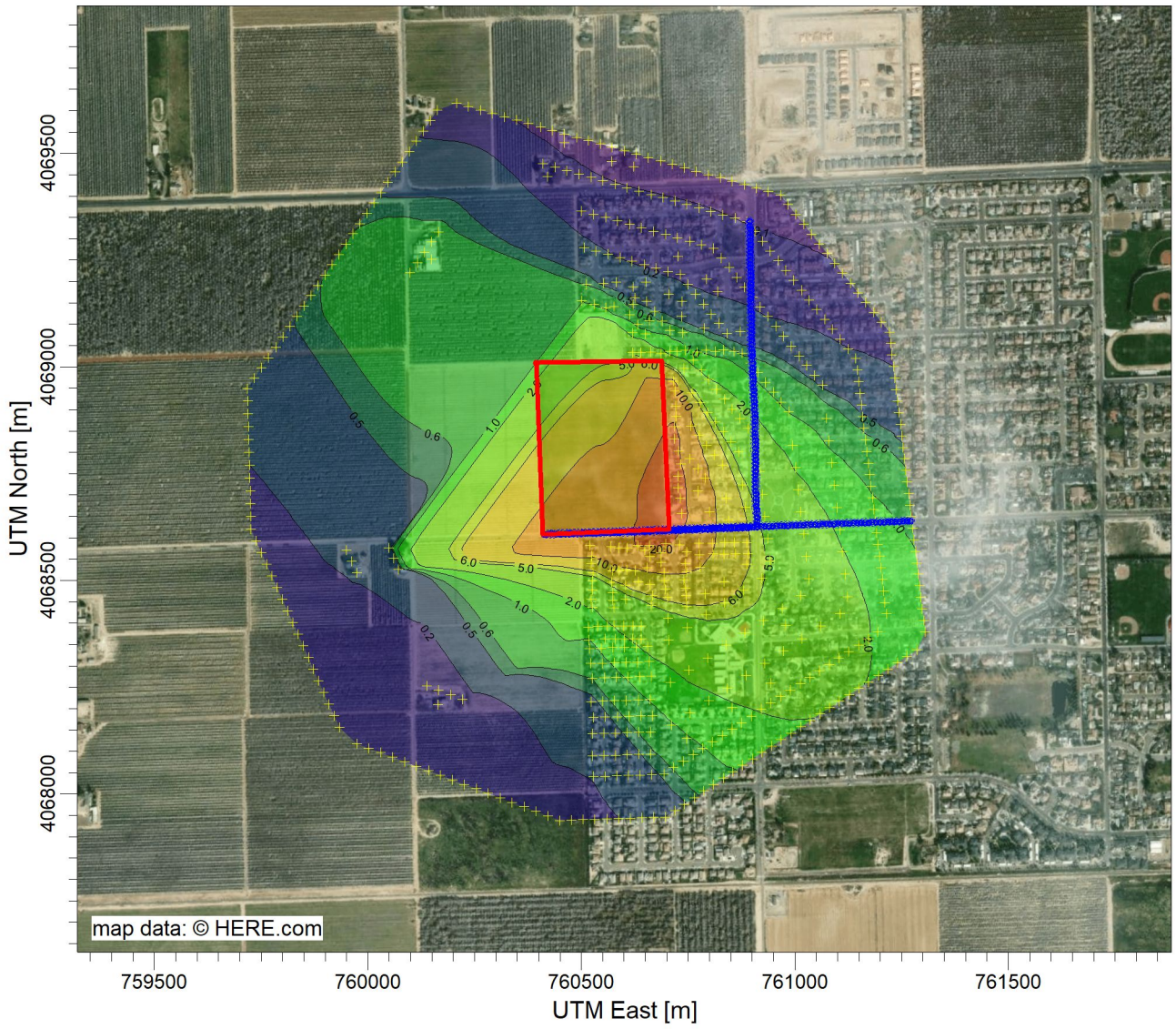
ATTACHMENT B
Construction Health Risk Assessment and Operational Health Risk Screening

Health Risk Assessment

General Parameters

PROJECT TITLE:

Air Dispersion Trend and Graphical Representation of AERMOD Inputs (Unit Emissions)



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: AREA ug/m^3

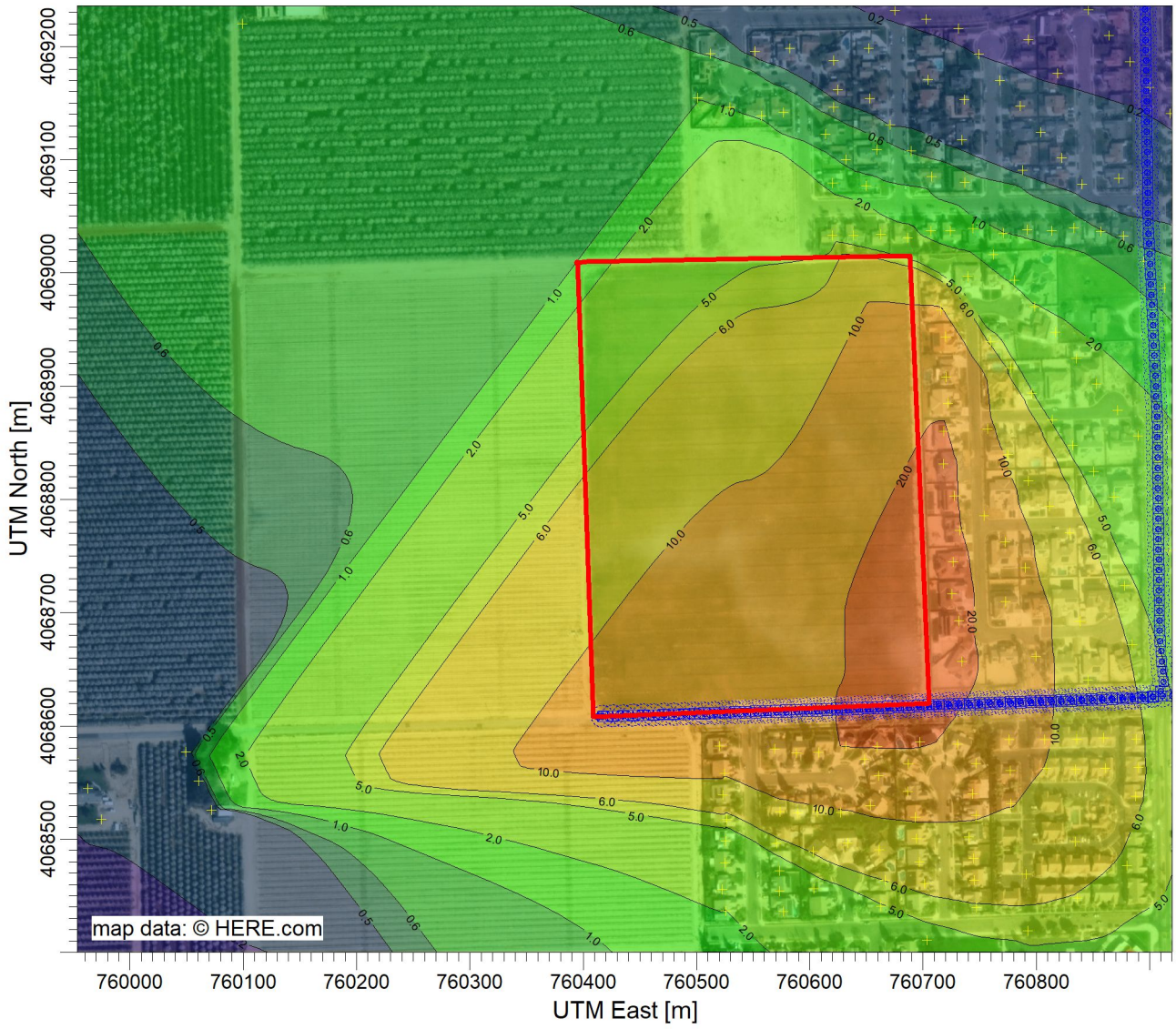
Max: 24.6 [ug/m^3] at (760725.71, 4068716.82)

0.0 0.1 0.2 0.5 0.6 1.0 2.0 5.0 6.0 10.0 20.0 24.6

COMMENTS:	SOURCES: **3**	COMPANY NAME:	
	RECEPTORS: **579**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:16,118 0 0.5 km	
	MAX: **24.6 ug/m^3**	DATE: **9/21/2023**	PROJECT NO.:

PROJECT TITLE:

Air Dispersion Trend (Unit Emissions) - Zoomed In Near the Project Site



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: AREA ug/m^3

Max: 24.6 [ug/m^3] at (760725.71, 4068716.82)

0.0 0.1 0.2 0.5 0.6 1.0 2.0 5.0 6.0 10.0 20.0 24.6

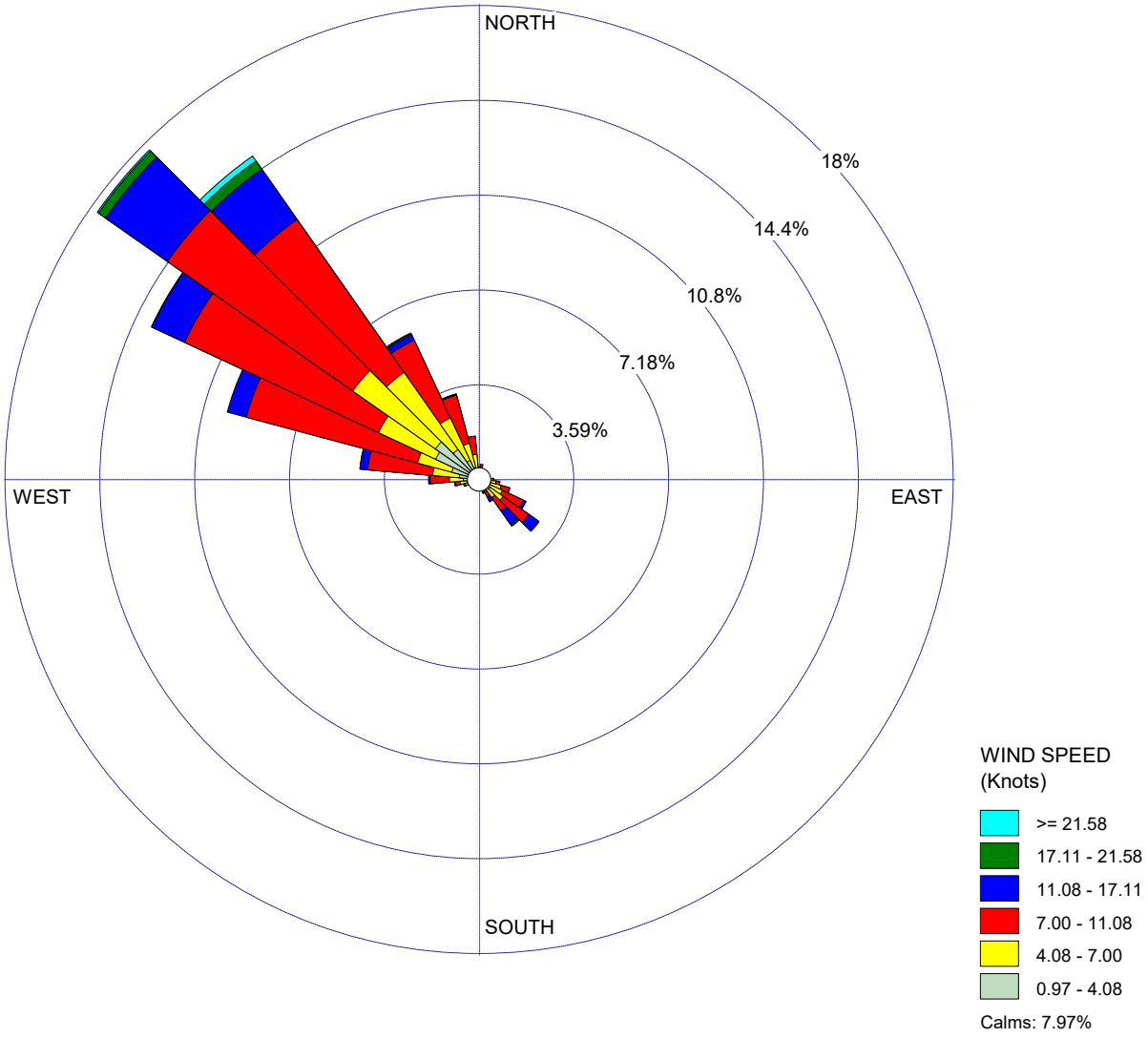
COMMENTS:	SOURCES: **3**	COMPANY NAME:	
	RECEPTORS: **579**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:6,079 0 0.2 km	
	MAX: **24.6 ug/m^3**	DATE: **9/21/2023**	PROJECT NO.:

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.:

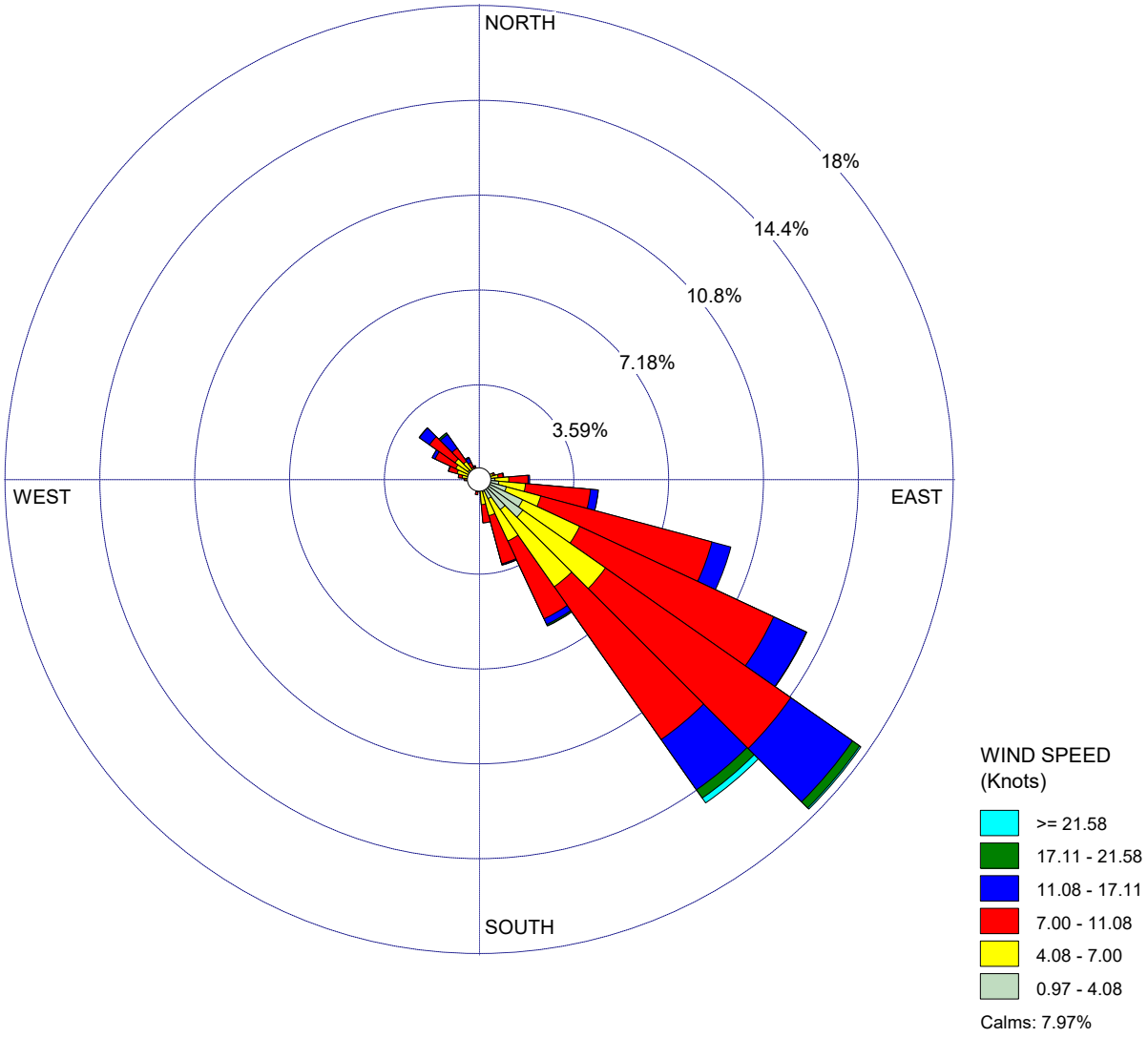
WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:

Wind Rose - Mendota Station (#99005) – Blowing To

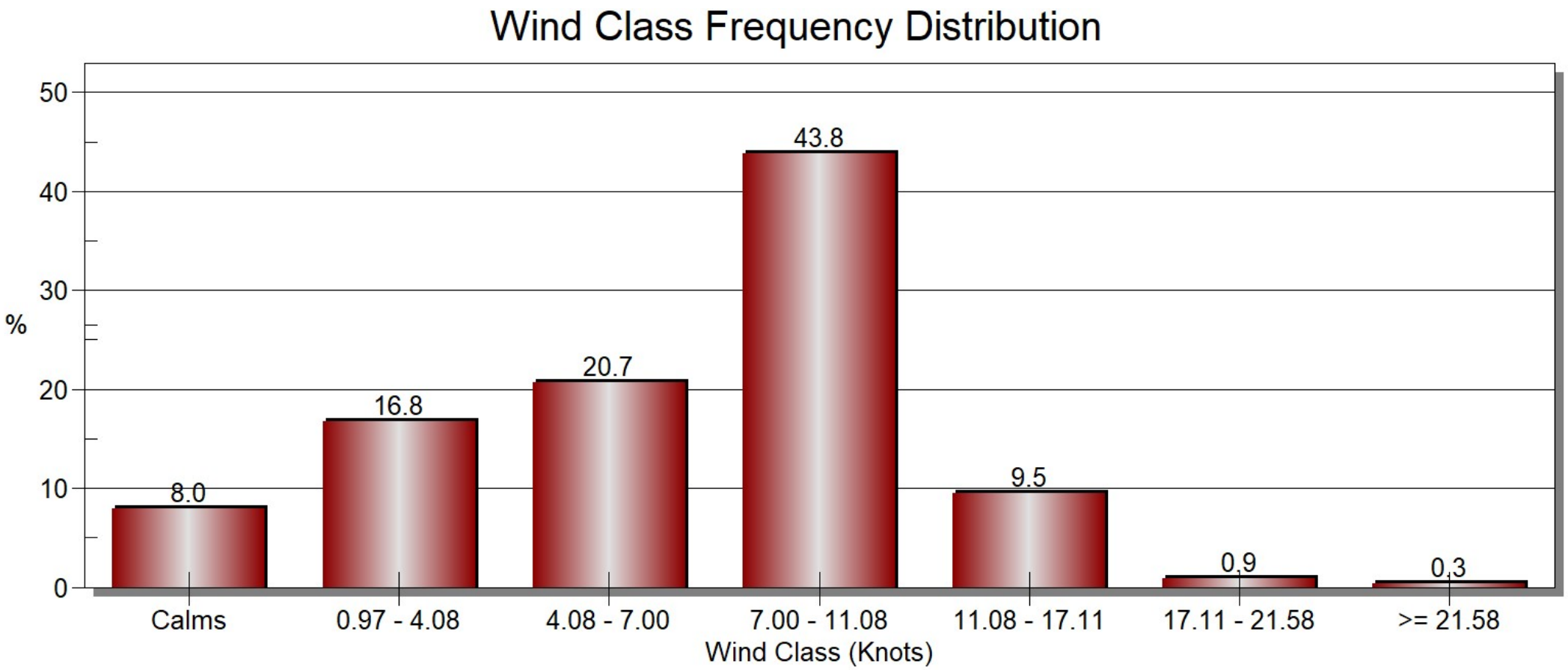
DISPLAY:

Wind Speed
Flow Vector (blowing to)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2007 - 00:00 **End Date: 12/31/2011 - 23:59**	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
50
40
30
20
10
0
%
8.0
16.8
20.7
43.8
9.5
0.9
0.3
Calms
0.97 - 4.08
4.08 - 7.00
7.00 - 11.08
11.08 - 17.11
17.11 - 21.58
>= 21.58
Wind Class (Knots)

Health Risk Assessment

Unmitigated Construction

Crown-Schaad Subdivision at Kearney Boulevard Project (Unmitigated Construction)

Estimation of Annual Onsite Construction Emissions

Start of Construction	8/1/2024	
End of Construction	8/3/2027	**Total**
Number of Days	1,097	1,097
Number of Hours	26,328	26,328

Size of the construction area source: **117,451.1** **sq-meters**

Run	Year	On-site Construction Activity	Unmitigated On-site DPM (pounds)
Project Construction	2024	Site Preparation	31.9932
Project Construction	2024	Grading	65.1624
Project Construction	2024	Building Construction	22.0438
Project Construction	2025	Building Construction	112.5870
Project Construction	2026	Building Construction	98.7205
Project Construction	2027	Building Construction	28.1280
Project Construction	2027	Paving	10.4344
Project Construction	2027	Architectural Coating	0.6667

Total Unmitigated DPM (On-site) 3.697E+02 pounds

Factor in AERMOD to Account for 5 days per week/8 hours per day: 4.2

Average Emission for Construction Site	1.679E+05	grams
	1.771E-03	grams/sec
	1.508E-08	grams/m2-sec

Pounds/Construction Period	3.697E+02
Pounds/Day	3.370E-01
Pounds/Hour	1.404E-02
Pounds/Year	1.230E+02
Years	3.00548

Crown-Schaad Subdivision at Kearney Boulevard Project (Unmitigated Construction)

Estimation of Annual Offsite Construction DPM Emissions (Unmitigated)

Start of Construction	8/1/2024	
End of Construction	8/3/2027	**Total**
Number of Days	1,097	1,097
Number of Hours	26,328	26,328

Construction Trip Type	2024 Site Preparation	2024 Grading	2024 Building Construction	2025 Building Construction	2026 Building Construction	2027 Building Construction	2027 Paving	2027 Architectural Coating	**Total (pounds)**
Total (pounds)	0.01571	2.35019	0.29169	1.71723	14.56564	0.55046	0.02749	0.02749	**19.54589**

	Haul Truck	**Vendor Truck**	**Worker**	**Total**
Site Preparation	350.0	40.0	0.0	390.00
Grading	900.0	90.0	1750.0	2740.00
Building Construction (2024)	2581.92	766.69	88.00	3436.61
Building Construction (2025)	15315.48	4547.85	522.00	20385.33
Building Construction (2026)	15315.48	4547.85	522.00	20385.33
Building Construction (2027)	4870.44	1446.25	166.00	6482.69
Paving	525.00	70.00	0.00	595.00
Architectural Coating	410.8	70.0	0.0	480.76
Total	**40,269.08**	**11,578.63**	**3,048.00**	**54,895.71**

	Haul Truck (pounds)	**Vendor Truck (pounds)**	**Worker (pounds)**	**Total (pounds)**
Total DPM	1.434E+01	4.123E+00	1.085E+00	1.955E+01

Average Emissions				
Grams	6.509E+03	1.872E+03	4.927E+02	
Grams/sec	6.868E-05	1.975E-05	5.198E-06	
Default Distance	20	8.53	11.41	Default Vehicle Travel Distance in CalEEMod
Vehicle Travel Distances in the Construction HRA (miles)				
Off-site (mi)	0.53	0.53	0.53	miles
On-site (mi)	0.75	0.75	0.75	miles
Trip Distribution (percent)				
Off-site Road Segment 1	50.0%	50.0%	50.0%	off-site
Off-site Road Segment 2	50.0%	50.0%	50.0%	on-site

Total Average Offsite Vehicle Emissions Along Travel Distance (g/sec)				**Total**
Off-site Road Segment 1	9.177E-07	6.187E-07	1.218E-07	1.658E-06
Off-site Road Segment 2	1.292E-06	8.709E-07	1.714E-07	2.334E-06

	Grams/sec	Pounds/Hour	Pounds/Day	Pounds/year	Tons/year
Off-site Road Segment 1	1.658E-06	1.316E-05	3.158E-04	1.153E-01	5.764E-05
Off-site Road Segment 2	2.334E-06	1.853E-05	4.446E-04	1.623E-01	8.114E-05

Health Risk Summary - Unmitigated Construction (Summary of HARP2 Results)
Crown-Schaad Subdivision at Kearney Boulevard Project (Unmitigated Construction)

	RISK_SUM	Cancer Risk/million	MAXHI NonCancer Chronic	MAXHI Acute
Maximum Risk	1.6582E-05	16.58	8.7040E-03	0.00E+00

	X	Y
MEI UTM	760725.71	4068716.82
Lat/Long	36°43'42.2"N	120°04'49.5"W
Receptor #	57	

*HARP - HRACalc v22118 9/21/2023 9:04:47 PM - Cancer Risk - Input File: F:\Move\0004-0019\UNMIT CON\hra\Unmit ConHRAInput.hra
*HARP - HRACalc v22118 9/21/2023 9:04:47 PM - Chronic Risk - Input File: F:\Move\0004-0019\UNMIT CON\hra\Unmit ConHRAInput.hra
*HARP - HRACalc v22118 9/21/2023 9:04:47 PM - Acute Risk - Input File: F:\Move\0004-0019\UNMIT CON\hra\Unmit ConHRAInput.hra

REC	GRP	X	Y	RISK_SUM	SCENARIO	MAXHI NonCancerChronic	MAXHI Acute
1	ALL	760049.08	4068576.96	2.3149E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2151E-04	0.00E+00
2	ALL	760060.48	4068551.41	2.2161E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1633E-04	0.00E+00
3	ALL	760071.88	4068525.87	2.1186E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1121E-04	0.00E+00
4	ALL	759950.43	4068571.51	1.8530E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.7268E-05	0.00E+00
5	ALL	759962.49	4068544.50	1.7934E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.4136E-05	0.00E+00
6	ALL	759974.54	4068517.48	1.7345E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.1049E-05	0.00E+00
7	ALL	760138.40	4068253.40	1.0651E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.5910E-05	0.00E+00
8	ALL	760166.07	4068242.94	1.0617E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.5728E-05	0.00E+00
9	ALL	760193.75	4068232.48	1.0643E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.5864E-05	0.00E+00
10	ALL	760221.42	4068222.01	1.0751E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.6432E-05	0.00E+00
11	ALL	759738.57	4068593.24	1.3195E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.9261E-05	0.00E+00
12	ALL	759750.76	4068565.92	1.2970E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.8084E-05	0.00E+00
13	ALL	759762.95	4068538.60	1.2754E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.6949E-05	0.00E+00
14	ALL	759775.14	4068511.28	1.2548E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.5866E-05	0.00E+00
15	ALL	759787.33	4068483.97	1.2345E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.4799E-05	0.00E+00
16	ALL	759799.52	4068456.65	1.2130E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.3675E-05	0.00E+00
17	ALL	759811.71	4068429.33	1.1888E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.2399E-05	0.00E+00
18	ALL	759823.90	4068402.02	1.1600E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.0891E-05	0.00E+00
19	ALL	759836.10	4068374.70	1.1260E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9108E-05	0.00E+00
20	ALL	759848.29	4068347.38	1.0871E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.7062E-05	0.00E+00
21	ALL	759860.48	4068320.07	1.0445E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.4828E-05	0.00E+00
22	ALL	759872.67	4068292.75	1.0001E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2495E-05	0.00E+00
23	ALL	759884.86	4068265.43	9.5528E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.0144E-05	0.00E+00
24	ALL	759897.05	4068238.12	9.1122E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.7831E-05	0.00E+00
25	ALL	759909.24	4068210.80	8.6871E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.5600E-05	0.00E+00
26	ALL	759921.43	4068183.48	8.2794E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.3460E-05	0.00E+00
27	ALL	759933.62	4068156.17	7.8920E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.1426E-05	0.00E+00
28	ALL	759973.79	4068118.27	7.4322E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.9013E-05	0.00E+00
29	ALL	760001.77	4068107.69	7.3397E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8527E-05	0.00E+00
30	ALL	760029.75	4068097.11	7.2532E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8073E-05	0.00E+00
31	ALL	760057.73	4068086.53	7.1788E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7682E-05	0.00E+00
32	ALL	760085.71	4068075.95	7.1239E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7395E-05	0.00E+00
33	ALL	760113.69	4068065.37	7.0981E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7259E-05	0.00E+00
34	ALL	760141.67	4068054.79	7.1099E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7321E-05	0.00E+00
35	ALL	760169.65	4068044.21	7.1663E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7617E-05	0.00E+00
36	ALL	760197.63	4068033.63	7.2719E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8171E-05	0.00E+00
37	ALL	760225.62	4068023.05	7.4280E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8991E-05	0.00E+00
38	ALL	760253.60	4068012.47	7.6333E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0069E-05	0.00E+00
39	ALL	760281.58	4068001.89	7.8858E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.1394E-05	0.00E+00
40	ALL	760309.56	4067991.32	8.1835E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.2956E-05	0.00E+00
41	ALL	760337.54	4067980.74	8.5249E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4749E-05	0.00E+00
42	ALL	760365.52	4067970.16	8.9122E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.6781E-05	0.00E+00
43	ALL	760393.50	4067959.58	9.3507E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.9083E-05	0.00E+00
44	ALL	760421.48	4067949.00	9.8465E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.1686E-05	0.00E+00
45	ALL	759726.38	4068620.55	1.3423E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.0462E-05	0.00E+00
46	ALL	759725.63	4068650.47	1.3980E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.3382E-05	0.00E+00
47	ALL	759724.88	4068680.39	1.4572E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.6489E-05	0.00E+00
48	ALL	759724.14	4068710.31	1.5201E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.9790E-05	0.00E+00
49	ALL	759723.39	4068740.23	1.5871E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.3310E-05	0.00E+00
50	ALL	759722.64	4068770.15	1.6588E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.7071E-05	0.00E+00
51	ALL	759721.89	4068800.07	1.7353E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.1087E-05	0.00E+00
52	ALL	759721.15	4068829.99	1.8162E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.5337E-05	0.00E+00
53	ALL	759720.40	4068859.90	1.9006E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.9764E-05	0.00E+00
54	ALL	759719.65	4068889.82	1.9866E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0428E-04	0.00E+00
55	ALL	759718.91	4068919.74	2.0727E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0880E-04	0.00E+00
56	ALL	759718.16	4068949.66	2.1569E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1322E-04	0.00E+00
57	ALL	760725.71	4068716.82	1.6582E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.7040E-03	0.00E+00
58	ALL	760731.71	4068692.92	1.5530E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1521E-03	0.00E+00
59	ALL	760717.55	4068831.27	1.5534E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1538E-03	0.00E+00
60	ALL	760727.46	4068802.97	1.3963E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.3294E-03	0.00E+00
61	ALL	760753.99	4068785.43	9.8925E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.1927E-03	0.00E+00
62	ALL	760772.21	4068762.51	8.4052E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4120E-03	0.00E+00
63	ALL	760790.42	4068739.59	7.3136E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8390E-03	0.00E+00
64	ALL	760620.08	4069079.41	9.4605E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.9659E-04	0.00E+00
65	ALL	760619.74	4069033.04	3.0042E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5769E-03	0.00E+00
66	ALL	760638.44	4069033.08	2.6296E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3803E-03	0.00E+00
67	ALL	760720.25	4068908.22	1.0978E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.7623E-03	0.00E+00
68	ALL	760721.86	4068884.81	1.1949E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.2724E-03	0.00E+00
69	ALL	760756.69	4068862.38	7.3019E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8329E-03	0.00E+00
70	ALL	760774.91	4068839.46	6.3364E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3261E-03	0.00E+00
71	ALL	760793.13	4068816.54	5.6262E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.9533E-03	0.00E+00
72	ALL	760811.35	4068793.62	5.0756E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6642E-03	0.00E+00
73	ALL	760829.57	4068770.70	4.6312E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.4310E-03	0.00E+00
74	ALL	760576.75	4069141.46	4.9406E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5934E-04	0.00E+00
75	ALL	760557.44	4069138.58	5.7764E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0321E-04	0.00E+00
76	ALL	760529.34	4069146.53	6.1324E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.2190E-04	0.00E+00
77	ALL	760501.24	4069154.47	6.4252E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3727E-04	0.00E+00
78	ALL	760613.65	4069122.70	4.9637E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6055E-04	0.00E+00
79	ALL	760631.87	4069099.78	6.0468E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1740E-04	0.00E+00
80	ALL	760650.08	4069076.86	7.6942E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0388E-04	0.00E+00
81	ALL	760662.44	4069034.40	1.9389E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0178E-03	0.00E+00
82	ALL	760686.52	4069031.02	1.5972E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.3840E-04	0.00E+00
83	ALL	760739.63	4068997.24	1.9644E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0312E-03	0.00E+00
84	ALL	760715.89	4068967.43	6.9634E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6552E-03	0.00E+00
85	ALL	760759.40	4068939.33	3.7702E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9790E-03	0.00E+00
86	ALL	760777.61	4068916.41	3.6029E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8912E-03	0.00E+00
87	ALL	760795.83	4068893.49	3.4325E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8018E-03	0.00E+00
88	ALL	760814.05	4068870.57	3.2695E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.7162E-03	0.00E+00
89	ALL	760832.27	4068847.65	3.1209E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6382E-03	0.00E+00
90	ALL	760850.49	4068824.73	2.9836E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5661E-03	0.00E+00
91	ALL	760868.71	4068801.81	2.8547E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4985E-03	0.00E+00
92	ALL	760624.69	4069161.75	3.0351E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5932E-04	0.00E+00
93	ALL	760620.92	4069187.48	2.4571E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2898E-04	0.00E+00
94	ALL	760582.16	4069198.16	2.6375E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3845E-04	0.00E+00
95	ALL	760551.61	4069195.84	3.1323E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6442E-04	0.00E+00
96	ALL	760512.27	4069193.53	3.9421E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0693E-04	0.00E+00
97	ALL	760652.79	4069153.81	2.9093E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5271E-04	0.00E+00
98	ALL	760671.01	4069130.89	3.3552E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.7612E-04	0.00E+00
99	ALL	760689.23	4069107.97	3.9597E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0785E-04	0.00E+00
100	ALL	760707.44	4069085.05	4.7838E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5111E-04	0.00E+00
101	ALL	760736.90	4069079.71	4.4548E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.3384E-04	0.00E+00
102	ALL	760743.88	4069039.21	7.7353E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0604E-04	0.00E+00
103	ALL	760762.10	4069016.29	9.9313E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2131E-04	0.00E+00

104	ALL	760780.32	4068993.37	1.2042E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.3208E-04	0.00E+00
105	ALL	760798.54	4068970.44	1.3776E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2310E-04	0.00E+00
106	ALL	760816.76	4068947.52	1.5063E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.9066E-04	0.00E+00
107	ALL	760834.97	4068924.60	1.5961E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.3781E-04	0.00E+00
108	ALL	760853.19	4068901.68	1.6557E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.6908E-04	0.00E+00
109	ALL	760871.41	4068878.76	1.6941E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.8928E-04	0.00E+00
110	ALL	760889.63	4068855.84	1.7231E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.0448E-04	0.00E+00
111	ALL	760907.85	4068832.92	1.7311E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.0869E-04	0.00E+00
112	ALL	760702.97	4069223.98	1.5343E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.0536E-05	0.00E+00
113	ALL	760674.87	4069231.92	1.5490E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1310E-05	0.00E+00
114	ALL	760646.76	4069239.86	1.5676E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.2287E-05	0.00E+00
115	ALL	760618.66	4069247.81	1.6004E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.4005E-05	0.00E+00
116	ALL	760590.56	4069255.75	1.6455E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.6375E-05	0.00E+00
117	ALL	760562.46	4069263.69	1.7102E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.9773E-05	0.00E+00
118	ALL	760534.35	4069271.64	1.7962E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.4284E-05	0.00E+00
119	ALL	760506.25	4069279.58	1.9030E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.9892E-05	0.00E+00
120	ALL	760731.07	4069216.03	1.5189E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.9730E-05	0.00E+00
121	ALL	760749.29	4069193.11	1.6706E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.7694E-05	0.00E+00
122	ALL	760767.51	4069170.19	1.8441E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.6797E-05	0.00E+00
123	ALL	760785.73	4069147.27	2.0491E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0756E-04	0.00E+00
124	ALL	760803.95	4069124.35	2.3032E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2090E-04	0.00E+00
125	ALL	760822.17	4069101.43	2.6244E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3776E-04	0.00E+00
126	ALL	760840.38	4069078.51	3.0257E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5882E-04	0.00E+00
127	ALL	760872.77	4069083.43	2.7114E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4232E-04	0.00E+00
128	ALL	760876.82	4069032.67	4.0902E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1470E-04	0.00E+00
129	ALL	760895.04	4069009.75	4.6589E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.4455E-04	0.00E+00
130	ALL	760913.26	4068986.83	5.3932E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8310E-04	0.00E+00
131	ALL	760931.48	4068963.91	5.6300E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.9553E-04	0.00E+00
132	ALL	760949.70	4068940.99	5.9867E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1425E-04	0.00E+00
133	ALL	760967.91	4068918.06	6.3536E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3351E-04	0.00E+00
134	ALL	760986.13	4068895.14	6.6987E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.5163E-04	0.00E+00
135	ALL	760781.25	4069286.20	9.9121E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2030E-05	0.00E+00
136	ALL	760753.15	4069294.14	9.9358E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2154E-05	0.00E+00
137	ALL	760725.05	4069302.09	9.9473E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2215E-05	0.00E+00
138	ALL	760696.94	4069310.03	9.9468E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2212E-05	0.00E+00
139	ALL	760668.84	4069317.97	9.9477E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2217E-05	0.00E+00
140	ALL	760640.74	4069325.92	9.9691E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2329E-05	0.00E+00
141	ALL	760612.64	4069333.86	1.0027E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2634E-05	0.00E+00
142	ALL	760584.53	4069341.80	1.0146E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.3257E-05	0.00E+00
143	ALL	760556.43	4069349.75	1.0350E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.4329E-05	0.00E+00
144	ALL	760528.33	4069357.69	1.0674E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.6028E-05	0.00E+00
145	ALL	760500.22	4069365.63	1.1147E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.8514E-05	0.00E+00
146	ALL	760165.00	4069316.50	4.3875E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.3030E-04	0.00E+00
147	ALL	760148.54	4069292.38	4.9486E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5976E-04	0.00E+00
148	ALL	760132.08	4069268.26	5.4586E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8653E-04	0.00E+00
149	ALL	760115.62	4069244.13	5.8828E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0880E-04	0.00E+00
150	ALL	760099.16	4069220.01	6.1902E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.2493E-04	0.00E+00
151	ALL	760809.36	4069278.26	9.9022E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.1978E-05	0.00E+00
152	ALL	760827.57	4069255.34	1.0699E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.6163E-05	0.00E+00
153	ALL	760845.79	4069232.42	1.1666E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.1237E-05	0.00E+00
154	ALL	760864.01	4069209.50	1.3005E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.8266E-05	0.00E+00
155	ALL	760882.23	4069186.57	1.5510E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1416E-05	0.00E+00
156	ALL	760900.45	4069163.65	1.6785E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.8107E-05	0.00E+00
157	ALL	760918.67	4069140.73	1.8314E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.6134E-05	0.00E+00
158	ALL	760936.89	4069117.81	1.8492E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.7069E-05	0.00E+00
159	ALL	760955.10	4069094.89	1.9689E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0335E-04	0.00E+00
160	ALL	760973.32	4069071.97	2.1385E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1226E-04	0.00E+00
161	ALL	760991.54	4069049.05	2.3382E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2274E-04	0.00E+00
162	ALL	761009.76	4069026.13	2.5558E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3416E-04	0.00E+00
163	ALL	761027.98	4069003.21	2.7822E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4604E-04	0.00E+00
164	ALL	761046.20	4068980.29	3.0111E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5806E-04	0.00E+00
165	ALL	761064.42	4068957.37	3.2379E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6996E-04	0.00E+00
166	ALL	760859.54	4069348.42	7.5072E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.9407E-05	0.00E+00
167	ALL	760831.43	4069356.37	7.2323E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7964E-05	0.00E+00
168	ALL	760803.33	4069364.31	7.1601E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7584E-05	0.00E+00
169	ALL	760775.23	4069372.25	7.1265E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7408E-05	0.00E+00
170	ALL	760747.12	4069380.20	7.0932E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7233E-05	0.00E+00
171	ALL	760719.02	4069388.14	7.0512E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7013E-05	0.00E+00
172	ALL	760690.92	4069396.08	7.0060E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6775E-05	0.00E+00
173	ALL	760662.82	4069404.03	6.9644E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6557E-05	0.00E+00
174	ALL	760634.71	4069411.97	6.9363E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6410E-05	0.00E+00
175	ALL	760606.61	4069419.91	6.9294E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6374E-05	0.00E+00
176	ALL	760578.51	4069427.86	6.9552E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6509E-05	0.00E+00
177	ALL	760550.40	4069435.80	7.0301E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6902E-05	0.00E+00
178	ALL	760522.30	4069443.74	7.1700E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7637E-05	0.00E+00
179	ALL	760494.20	4069451.68	7.3882E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8782E-05	0.00E+00
180	ALL	760466.10	4069459.63	7.6919E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0376E-05	0.00E+00
181	ALL	760437.99	4069467.57	8.0830E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.2429E-05	0.00E+00
182	ALL	760409.89	4069475.51	8.5528E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4895E-05	0.00E+00
183	ALL	760887.64	4069340.48	8.4357E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4280E-05	0.00E+00
184	ALL	760905.86	4069317.56	1.1417E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9931E-05	0.00E+00
185	ALL	760924.08	4069294.64	9.5018E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.9876E-05	0.00E+00
186	ALL	760942.29	4069271.72	9.1088E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.7814E-05	0.00E+00
187	ALL	760960.51	4069248.80	9.1660E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.8114E-05	0.00E+00
188	ALL	760978.73	4069225.88	9.4531E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.9621E-05	0.00E+00
189	ALL	760996.95	4069202.96	9.9107E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2023E-05	0.00E+00
190	ALL	761015.17	4069180.04	1.0523E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.5237E-05	0.00E+00
191	ALL	761033.39	4069157.12	1.1288E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9253E-05	0.00E+00
192	ALL	761051.61	4069134.19	1.2203E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.4055E-05	0.00E+00
193	ALL	761069.82	4069111.27	1.3255E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.9575E-05	0.00E+00
194	ALL	761088.04	4069088.35	1.4429E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.5739E-05	0.00E+00
195	ALL	761106.26	4069065.43	1.5702E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.2422E-05	0.00E+00
196	ALL	761124.48	4069042.51	1.7050E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.9498E-05	0.00E+00
197	ALL	761142.70	4069019.59	1.8446E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.6825E-05	0.00E+00
198	ALL	760937.82	4069410.65	5.1806E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7194E-05	0.00E+00
199	ALL	760909.72	4069418.59	5.2352E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7480E-05	0.00E+00
200	ALL	760881.61	4069426.53	5.2777E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7704E-05	0.00E+00
201	ALL	760853.51	4069434.48	5.3218E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7935E-05	0.00E+00
202	ALL	760825.41	4069442.42	5.3481E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8073E-05	0.00E+00
203	ALL	760797.30	4069450.36	5.3567E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8118E-05	0.00E+00
204	ALL	760769.20	4069458.31	5.3418E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8040E-05	0.00E+00
205	ALL	760741.10	4069466.25	5.3095E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7870E-05	0.00E+00
206	ALL	760713.00	4069474.19	5.2640E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7632E-05	0.00E+00
207	ALL	760684.89	4069482.14	5.2137E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7368E-05	0.00E+00
208	ALL	760656.79	4069490.08	5.1668E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7121E-05	0.00E+00
209	ALL	760628.69	4069498.02	5.1274E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6914E-05	0.00E+00
210	ALL	760600.58	4069505.97	5.1033E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6788E-05	0.00E+00
211	ALL	760572.48	4069513.91	5.1041E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6792E-05	0.00E+00
212	ALL	760544.38	4069521.85	5.1370E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6965E-05	0.00E+00
213	ALL	760516.28	4069529.79	5.2122E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7359E-05	0.00E+00
214	ALL	760488.17	4069537.74	5.3355E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8007E-05	0.00E+00
215	ALL	760460.07	4069545.68	5.5090E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8918E-05	0.00E+00
216	ALL	760431.97	4069553.62	5.7353E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0106E-05	0.00E+00
217	ALL	760403.86	4069561.57	6.0111E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1553E-05	0.00E+00
218	ALL	760375.76	4069569.51	6.3336E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3246E-05	0.00E+00
219	ALL	760347.66	4069577.45	6.7000E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.5169E-05	0.00E+00
220	ALL	760319.56	4069585.40	7.1070E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7306E-05	0.00E+00
221	ALL	760291.45	4069593.34	7.5493E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.9627E-05	0.00E+00
222	ALL	760263.35	4069601.28	8.0206E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.2101E-05	0.00E+00
223	ALL	760235.25	4069609.23	8.5156E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4700E-05	0.00E+00
224	ALL	760207.14	4069617.17	9.0350E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.7426E-05	0.00E+00
225	ALL	760162.58	4069600.99	1.1161E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.8584E-05	0.00E+00
226	ALL	760146.12	4069576.87	1.3030E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.8399E-05	0.00E+00

227	ALL	760129.66	4069552.74	1.5181E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.9689E-05	0.00E+00
228	ALL	760113.20	4069528.62	1.7609E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.2430E-05	0.00E+00
229	ALL	760096.74	4069504.50	2.0293E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0652E-04	0.00E+00
230	ALL	760080.28	4069480.37	2.3191E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2173E-04	0.00E+00
231	ALL	760063.82	4069456.25	2.6229E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3768E-04	0.00E+00
232	ALL	760047.36	4069432.13	2.9312E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5387E-04	0.00E+00
233	ALL	760030.90	4069408.00	3.2332E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6971E-04	0.00E+00
234	ALL	760014.44	4069383.88	3.5164E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8458E-04	0.00E+00
235	ALL	759997.98	4069359.76	3.7624E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9749E-04	0.00E+00
236	ALL	759981.52	4069335.63	3.9619E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0797E-04	0.00E+00
237	ALL	759965.06	4069311.51	4.1060E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1553E-04	0.00E+00
238	ALL	759948.60	4069287.39	4.1901E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1995E-04	0.00E+00
239	ALL	759932.14	4069263.26	4.2138E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2119E-04	0.00E+00
240	ALL	759915.68	4069239.14	4.1808E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1946E-04	0.00E+00
241	ALL	759899.22	4069215.02	4.0978E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1510E-04	0.00E+00
242	ALL	759882.76	4069190.89	3.9766E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0874E-04	0.00E+00
243	ALL	759866.30	4069166.77	3.8210E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0057E-04	0.00E+00
244	ALL	759849.84	4069142.65	3.6410E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9112E-04	0.00E+00
245	ALL	759833.38	4069118.52	3.4467E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8092E-04	0.00E+00
246	ALL	759816.92	4069094.40	3.2456E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.7036E-04	0.00E+00
247	ALL	759800.46	4069070.28	3.0439E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5978E-04	0.00E+00
248	ALL	759784.00	4069046.15	2.8466E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4942E-04	0.00E+00
249	ALL	759767.54	4069022.03	2.6583E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3954E-04	0.00E+00
250	ALL	759751.08	4068997.91	2.4810E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3023E-04	0.00E+00
251	ALL	759734.62	4068973.79	2.3130E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2142E-04	0.00E+00
252	ALL	760965.92	4069402.70	5.1150E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6849E-05	0.00E+00
253	ALL	760984.14	4069379.78	5.3317E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7987E-05	0.00E+00
254	ALL	761002.36	4069356.86	5.5573E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.9171E-05	0.00E+00
255	ALL	761020.58	4069333.94	5.7966E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0427E-05	0.00E+00
256	ALL	761038.80	4069311.02	6.0560E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1789E-05	0.00E+00
257	ALL	761057.01	4069288.10	6.3446E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3304E-05	0.00E+00
258	ALL	761075.23	4069265.18	6.6743E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.5035E-05	0.00E+00
259	ALL	761093.45	4069242.26	7.0559E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7037E-05	0.00E+00
260	ALL	761111.67	4069219.34	7.5023E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.9381E-05	0.00E+00
261	ALL	761129.89	4069196.42	8.0221E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.2109E-05	0.00E+00
262	ALL	761148.11	4069173.50	8.6202E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.5249E-05	0.00E+00
263	ALL	761166.33	4069150.58	9.2969E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.8801E-05	0.00E+00
264	ALL	761184.54	4069127.66	1.0050E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2752E-05	0.00E+00
265	ALL	761202.76	4069104.73	1.0872E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.7067E-05	0.00E+00
266	ALL	761220.98	4069081.81	1.1749E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.1673E-05	0.00E+00
267	ALL	760697.36	4068585.79	1.4365E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.5406E-03	0.00E+00
268	ALL	760734.05	4068656.95	1.5386E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.0765E-03	0.00E+00
269	ALL	760659.36	4068581.67	1.3757E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2211E-03	0.00E+00
270	ALL	760631.95	4068582.51	1.3695E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.1888E-03	0.00E+00
271	ALL	760587.92	4068576.20	1.1739E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.1621E-03	0.00E+00
272	ALL	760569.21	4068579.85	1.2018E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.3086E-03	0.00E+00
273	ALL	760524.69	4068557.93	6.9855E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6668E-03	0.00E+00
274	ALL	760520.22	4068582.42	1.0934E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.7395E-03	0.00E+00
275	ALL	760730.70	4068583.98	1.2294E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.4533E-03	0.00E+00
276	ALL	760686.29	4068542.15	8.6771E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.5548E-03	0.00E+00
277	ALL	760693.21	4068519.55	7.0116E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6805E-03	0.00E+00
278	ALL	760743.58	4068539.82	8.0742E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.2383E-03	0.00E+00
279	ALL	760777.04	4068560.52	7.9673E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.1821E-03	0.00E+00
280	ALL	760776.04	4068588.01	8.9001E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.6718E-03	0.00E+00
281	ALL	760799.79	4068661.45	7.5712E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.9742E-03	0.00E+00
282	ALL	760661.36	4068490.85	5.1200E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6876E-03	0.00E+00
283	ALL	760633.10	4068497.00	5.0149E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6324E-03	0.00E+00
284	ALL	760603.19	4068489.03	4.1179E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1616E-03	0.00E+00
285	ALL	760573.66	4068523.94	5.4041E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8367E-03	0.00E+00
286	ALL	760526.69	4068517.65	3.7012E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9428E-03	0.00E+00
287	ALL	760523.20	4068539.21	5.0361E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6435E-03	0.00E+00
288	ALL	760701.52	4068460.86	4.3266E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2711E-03	0.00E+00
289	ALL	760744.41	4068482.79	5.3177E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7914E-03	0.00E+00
290	ALL	760777.73	4068531.55	6.8708E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6066E-03	0.00E+00
291	ALL	760834.64	4068561.52	5.7210E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0030E-03	0.00E+00
292	ALL	760859.24	4068589.36	5.0618E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6570E-03	0.00E+00
293	ALL	760845.18	4068640.47	5.4471E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8593E-03	0.00E+00
294	ALL	760838.93	4068692.56	5.2676E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7650E-03	0.00E+00
295	ALL	760662.82	4068440.86	3.3159E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.7405E-03	0.00E+00
296	ALL	760603.63	4068456.18	2.9471E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5470E-03	0.00E+00
297	ALL	760573.38	4068454.21	2.4014E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2606E-03	0.00E+00
298	ALL	760576.66	4068436.00	2.0412E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0714E-03	0.00E+00
299	ALL	760525.43	4068478.92	2.1532E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1302E-03	0.00E+00
300	ALL	760525.84	4068498.52	2.7936E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4664E-03	0.00E+00
301	ALL	760703.18	4068410.89	2.9724E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5602E-03	0.00E+00
302	ALL	760746.90	4068439.88	3.9660E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0818E-03	0.00E+00
303	ALL	760790.63	4068468.87	4.7248E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.4801E-03	0.00E+00
304	ALL	760834.35	4068497.87	4.8575E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5498E-03	0.00E+00
305	ALL	760887.84	4068538.10	4.1914E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2001E-03	0.00E+00
306	ALL	760889.97	4068563.01	4.2054E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2075E-03	0.00E+00
307	ALL	760890.56	4068619.50	4.1284E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1670E-03	0.00E+00
308	ALL	760884.32	4068671.58	3.9430E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0697E-03	0.00E+00
309	ALL	760878.08	4068723.67	3.6125E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8962E-03	0.00E+00
310	ALL	760640.13	4068394.06	2.0397E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0707E-03	0.00E+00
311	ALL	760621.17	4068394.21	1.8470E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.6951E-04	0.00E+00
312	ALL	760599.04	4068393.65	1.6059E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.4298E-04	0.00E+00
313	ALL	760576.20	4068393.79	1.3729E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2064E-04	0.00E+00
314	ALL	760537.83	4068392.17	9.9557E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2259E-04	0.00E+00
315	ALL	760516.76	4068390.91	8.1971E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.3028E-04	0.00E+00
316	ALL	760704.85	4068360.91	2.0846E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0942E-03	0.00E+00
317	ALL	760748.57	4068389.91	2.8600E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5013E-03	0.00E+00
318	ALL	760792.29	4068418.90	3.5712E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8746E-03	0.00E+00
319	ALL	760836.01	4068447.90	3.9787E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0885E-03	0.00E+00
320	ALL	760879.74	4068476.89	3.9089E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0518E-03	0.00E+00
321	ALL	760923.46	4068505.89	3.4547E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8134E-03	0.00E+00
322	ALL	760942.20	4068546.43	3.2052E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6825E-03	0.00E+00
323	ALL	760935.95	4068598.52	3.2192E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6898E-03	0.00E+00
324	ALL	760929.71	4068650.61	3.0834E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6185E-03	0.00E+00
325	ALL	760923.46	4068702.70	2.8078E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4739E-03	0.00E+00
326	ALL	760917.22	4068754.79	2.4325E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2768E-03	0.00E+00
327	ALL	760655.56	4068345.50	1.5096E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.9240E-04	0.00E+00
328	ALL	760628.13	4068344.59	1.2921E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.7824E-04	0.00E+00
329	ALL	760600.70	4068343.68	1.0832E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.6858E-04	0.00E+00
330	ALL	760573.28	4068342.76	8.9099E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.6770E-04	0.00E+00
331	ALL	760545.85	4068341.85	7.2186E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7892E-04	0.00E+00
332	ALL	760518.42	4068340.94	5.7989E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0439E-04	0.00E+00
333	ALL	760708.17	4068260.97	1.0987E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.7674E-04	0.00E+00
334	ALL	760751.90	4068289.96	1.5462E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1162E-04	0.00E+00
335	ALL	760795.62	4068318.96	2.0453E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0736E-03	0.00E+00
336	ALL	760839.34	4068347.95	2.5049E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3149E-03	0.00E+00
337	ALL	760883.06	4068376.95	2.8051E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4724E-03	0.00E+00
338	ALL	760926.79	4068405.94	2.8615E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5020E-03	0.00E+00
339	ALL	760970.51	4068434.94	2.6777E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4056E-03	0.00E+00
340	ALL	761014.23	4068463.93	2.3378E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2272E-03	0.00E+00
341	ALL	761032.97	4068504.47	2.1443E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1256E-03	0.00E+00
342	ALL	761026.72	4068556.56	2.0963E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1004E-03	0.00E+00
343	ALL	761020.48	4068608.65	1.9979E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0487E-03	0.00E+00
344	ALL	761014.23	4068660.74	1.7965E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.4300E-04	0.00E+00
345	ALL	761007.99	4068712.83	1.5542E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1584E-04	0.00E+00
346	ALL	761001.74	4068764.92	1.2904E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.7732E-04	0.00E+00
347	ALL	760995.50	4068817.01	1.0232E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.3710E-04	0.00E+00
348	ALL	760663.40	4068276.03	9.7682E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.1275E-04	0.00E+00
349	ALL	760635.97	4068275.12	8.3808E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.3992E-04	0.00E+00

350	ALL	760608.55	4068274.21	7.0814E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7171E-04	0.00E+00
351	ALL	760581.12	4068273.29	5.9210E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1080E-04	0.00E+00
352	ALL	760553.69	4068272.38	4.9198E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5825E-04	0.00E+00
353	ALL	760526.27	4068271.47	4.0927E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1483E-04	0.00E+00
354	ALL	760711.50	4068161.02	6.4241E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3721E-04	0.00E+00
355	ALL	760755.22	4068190.02	8.9398E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.6926E-04	0.00E+00
356	ALL	760798.95	4068219.01	1.2044E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.3223E-04	0.00E+00
357	ALL	760842.67	4068248.01	1.5459E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1148E-04	0.00E+00
358	ALL	760886.39	4068277.00	1.8642E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.7853E-04	0.00E+00
359	ALL	760930.11	4068306.00	2.0929E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0986E-03	0.00E+00
360	ALL	760973.84	4068334.99	2.1827E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1457E-03	0.00E+00
361	ALL	761017.56	4068363.99	2.1204E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1130E-03	0.00E+00
362	ALL	761061.28	4068392.98	1.9371E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0168E-03	0.00E+00
363	ALL	761105.00	4068421.97	1.6837E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.8381E-04	0.00E+00
364	ALL	761123.74	4068462.52	1.5349E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.0567E-04	0.00E+00
365	ALL	761117.50	4068514.61	1.4790E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.7632E-04	0.00E+00
366	ALL	761111.25	4068566.70	1.3891E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2916E-04	0.00E+00
367	ALL	761105.01	4068618.79	1.2947E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.7960E-04	0.00E+00
368	ALL	761098.76	4068670.87	1.1116E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.8350E-04	0.00E+00
369	ALL	761092.52	4068722.96	9.4000E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.9342E-04	0.00E+00
370	ALL	761086.27	4068775.05	7.7353E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0604E-04	0.00E+00
371	ALL	761080.03	4068827.14	6.1902E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.2493E-04	0.00E+00
372	ALL	761073.78	4068879.23	4.8406E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5409E-04	0.00E+00
373	ALL	760662.21	4068145.61	4.7131E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.4740E-04	0.00E+00
374	ALL	760634.79	4068144.70	4.0887E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1462E-04	0.00E+00
375	ALL	760607.36	4068143.79	3.5410E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8587E-04	0.00E+00
376	ALL	760579.93	4068142.87	3.0725E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6128E-04	0.00E+00
377	ALL	760552.51	4068141.96	2.6624E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3975E-04	0.00E+00
378	ALL	760525.08	4068141.05	2.3175E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2165E-04	0.00E+00
379	ALL	760715.78	4068061.71	4.1482E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1775E-04	0.00E+00
380	ALL	760738.59	4068076.84	4.8650E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5537E-04	0.00E+00
381	ALL	760761.40	4068091.97	5.6973E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.9906E-04	0.00E+00
382	ALL	760784.22	4068107.09	6.6451E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.4881E-04	0.00E+00
383	ALL	760807.03	4068122.22	7.6927E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0380E-04	0.00E+00
384	ALL	760829.84	4068137.35	8.8496E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.6453E-04	0.00E+00
385	ALL	760852.65	4068152.48	1.0088E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2952E-04	0.00E+00
386	ALL	760875.46	4068167.60	1.1367E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9665E-04	0.00E+00
387	ALL	760898.27	4068182.73	1.2642E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.6362E-04	0.00E+00
388	ALL	760921.09	4068197.86	1.3862E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2765E-04	0.00E+00
389	ALL	760943.90	4068212.99	1.4969E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.8572E-04	0.00E+00
390	ALL	760966.71	4068228.11	1.5904E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.3484E-04	0.00E+00
391	ALL	760989.52	4068243.24	1.6619E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.7233E-04	0.00E+00
392	ALL	761012.33	4068258.37	1.7085E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.9683E-04	0.00E+00
393	ALL	761035.14	4068273.50	1.7281E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.0709E-04	0.00E+00
394	ALL	761057.96	4068288.62	1.7203E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.0301E-04	0.00E+00
395	ALL	761080.77	4068303.75	1.6871E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.8559E-04	0.00E+00
396	ALL	761103.58	4068318.88	1.6316E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.5648E-04	0.00E+00
397	ALL	761126.39	4068334.01	1.5581E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.1785E-04	0.00E+00
398	ALL	761149.20	4068349.13	1.4708E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.7203E-04	0.00E+00
399	ALL	761172.01	4068364.26	1.3737E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2109E-04	0.00E+00
400	ALL	761194.83	4068379.39	1.2725E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.6797E-04	0.00E+00
401	ALL	761214.38	4068421.69	1.1528E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.0510E-04	0.00E+00
402	ALL	761211.12	4068448.87	1.1286E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9243E-04	0.00E+00
403	ALL	761207.86	4068476.05	1.0984E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.7656E-04	0.00E+00
404	ALL	761204.60	4068503.22	1.0627E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.5783E-04	0.00E+00
405	ALL	761201.35	4068530.40	1.0223E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.3663E-04	0.00E+00
406	ALL	761198.09	4068557.58	9.7861E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.1369E-04	0.00E+00
407	ALL	761194.83	4068584.76	9.3390E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.9022E-04	0.00E+00
408	ALL	761191.57	4068611.93	8.9577E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.7020E-04	0.00E+00
409	ALL	761188.31	4068639.11	8.3999E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4093E-04	0.00E+00
410	ALL	761185.06	4068666.29	7.6853E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0342E-04	0.00E+00
411	ALL	761181.80	4068693.46	7.0344E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6925E-04	0.00E+00
412	ALL	761178.54	4068720.64	6.4404E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3807E-04	0.00E+00
413	ALL	761175.28	4068747.82	5.8740E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0834E-04	0.00E+00
414	ALL	761172.02	4068775.00	5.3300E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7978E-04	0.00E+00
415	ALL	761168.76	4068802.17	4.8138E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5268E-04	0.00E+00
416	ALL	761165.51	4068829.35	4.3297E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2727E-04	0.00E+00
417	ALL	761162.25	4068856.53	3.8734E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0332E-04	0.00E+00
418	ALL	761158.99	4068883.70	3.4551E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8136E-04	0.00E+00
419	ALL	761155.73	4068910.88	3.0694E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6112E-04	0.00E+00
420	ALL	761152.47	4068938.06	2.7161E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4257E-04	0.00E+00
421	ALL	761149.21	4068965.24	2.3947E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2570E-04	0.00E+00
422	ALL	761145.96	4068992.41	2.1044E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1047E-04	0.00E+00
423	ALL	760692.97	4068046.58	3.5395E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8579E-04	0.00E+00
424	ALL	760665.54	4068045.67	3.1335E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6448E-04	0.00E+00
425	ALL	760638.12	4068044.76	2.7744E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4563E-04	0.00E+00
426	ALL	760610.69	4068043.84	2.4499E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2860E-04	0.00E+00
427	ALL	760583.26	4068042.93	2.1671E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1375E-04	0.00E+00
428	ALL	760555.84	4068042.02	1.9235E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0097E-04	0.00E+00
429	ALL	760528.41	4068041.10	1.7155E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.0050E-05	0.00E+00
430	ALL	760718.97	4067961.67	2.8863E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5151E-04	0.00E+00
431	ALL	760741.64	4067976.71	3.3172E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.7413E-04	0.00E+00
432	ALL	760764.31	4067991.74	3.8174E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0038E-04	0.00E+00
433	ALL	760786.98	4068006.77	4.3928E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.3058E-04	0.00E+00
434	ALL	760809.65	4068021.81	5.0469E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6492E-04	0.00E+00
435	ALL	760832.32	4068036.84	5.7792E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0336E-04	0.00E+00
436	ALL	760854.99	4068051.88	6.5808E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.4544E-04	0.00E+00
437	ALL	760877.66	4068066.91	7.4404E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.9056E-04	0.00E+00
438	ALL	760900.34	4068081.95	8.3589E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.3877E-04	0.00E+00
439	ALL	760923.01	4068096.98	9.3043E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.8840E-04	0.00E+00
440	ALL	760945.68	4068112.01	1.0248E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.3793E-04	0.00E+00
441	ALL	760968.35	4068127.05	1.1158E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.8568E-04	0.00E+00
442	ALL	760991.02	4068142.08	1.1998E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.2978E-04	0.00E+00
443	ALL	761013.69	4068157.12	1.2732E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.6832E-04	0.00E+00
444	ALL	761036.36	4068172.15	1.3327E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.9958E-04	0.00E+00
445	ALL	761059.03	4068187.18	1.3768E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2272E-04	0.00E+00
446	ALL	761081.70	4068202.22	1.4031E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.3653E-04	0.00E+00
447	ALL	761104.37	4068217.25	1.4110E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.4064E-04	0.00E+00
448	ALL	761127.04	4068232.29	1.4007E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.3526E-04	0.00E+00
449	ALL	761149.71	4068247.32	1.3736E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2103E-04	0.00E+00
450	ALL	761172.39	4068262.36	1.3317E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.9904E-04	0.00E+00
451	ALL	761195.06	4068277.39	1.2776E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.7063E-04	0.00E+00
452	ALL	761217.73	4068292.42	1.2137E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.3710E-04	0.00E+00
453	ALL	761240.40	4068307.46	1.1429E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9992E-04	0.00E+00
454	ALL	761263.07	4068322.49	1.0687E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.6095E-04	0.00E+00
455	ALL	761285.74	4068337.53	9.9286E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2117E-04	0.00E+00
456	ALL	761305.17	4068379.57	9.0045E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.7266E-04	0.00E+00
457	ALL	761301.93	4068406.58	8.7938E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.6160E-04	0.00E+00
458	ALL	761298.70	4068433.59	8.5460E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4859E-04	0.00E+00
459	ALL	761295.46	4068460.60	8.2658E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.3388E-04	0.00E+00
460	ALL	761292.22	4068487.61	7.9577E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.1771E-04	0.00E+00
461	ALL	761288.98	4068514.62	7.6274E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.0037E-04	0.00E+00
462	ALL	761285.74	4068541.63	7.2819E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8224E-04	0.00E+00
463	ALL	761282.51	4068568.64	6.9312E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6383E-04	0.00E+00
464	ALL	761279.27	4068595.64	6.5962E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.4624E-04	0.00E+00
465	ALL	761276.03	4068622.65	6.3520E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3343E-04	0.00E+00
466	ALL	761272.79	4068649.66	5.8814E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0872E-04	0.00E+00
467	ALL	761269.55	4068676.67	5.3354E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.8007E-04	0.00E+00
468	ALL	761266.32	4068703.68	4.9192E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5821E-04	0.00E+00
469	ALL	761263.08	4068730.69	4.5347E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.3803E-04	0.00E+00
470	ALL	761259.84	4068757.70	4.1697E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1887E-04	0.00E+00
471	ALL	761256.60	4068784.71	3.8217E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.0060E-04	0.00E+00
472	ALL	761253.36	4068811.72	3.4906E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8323E-04	0.00E+00

473	ALL	761250.12	4068838.73	3.1770E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6677E-04	0.00E+00
474	ALL	761246.89	4068865.74	2.8812E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5124E-04	0.00E+00
475	ALL	761243.65	4068892.75	2.6034E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3666E-04	0.00E+00
476	ALL	761240.41	4068919.76	2.3438E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2303E-04	0.00E+00
477	ALL	761237.17	4068946.77	2.1026E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1037E-04	0.00E+00
478	ALL	761233.93	4068973.78	1.8798E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.8674E-05	0.00E+00
479	ALL	761230.70	4069000.79	1.6756E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.7954E-05	0.00E+00
480	ALL	761227.46	4069027.80	1.4902E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.8223E-05	0.00E+00
481	ALL	761224.22	4069054.80	1.3234E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.9470E-05	0.00E+00
482	ALL	760696.30	4067946.64	2.5218E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3237E-04	0.00E+00
483	ALL	760668.87	4067945.72	2.2671E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1900E-04	0.00E+00
484	ALL	760641.44	4067944.81	2.0339E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0676E-04	0.00E+00
485	ALL	760614.02	4067943.90	1.8268E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.5894E-05	0.00E+00
486	ALL	760586.59	4067942.98	1.6446E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.6325E-05	0.00E+00
487	ALL	760559.16	4067942.07	1.4855E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.7975E-05	0.00E+00
488	ALL	760531.74	4067941.16	1.3477E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.0745E-05	0.00E+00
489	ALL	760504.31	4067940.24	1.2290E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.4513E-05	0.00E+00
490	ALL	760476.88	4067939.33	1.1280E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9213E-05	0.00E+00
491	ALL	760449.46	4067938.42	1.0407E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.4628E-05	0.00E+00
492	ALL	760607.71	4068576.84	1.2227E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.4182E-03	0.00E+00
493	ALL	760660.85	4068556.08	9.9197E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.2070E-03	0.00E+00
494	ALL	760687.01	4068566.05	1.1265E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.9131E-03	0.00E+00
495	ALL	760746.80	4068566.88	9.7611E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.1237E-03	0.00E+00
496	ALL	760653.38	4068529.51	7.3414E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.8536E-03	0.00E+00
497	ALL	760627.22	4068523.70	6.5105E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.4175E-03	0.00E+00
498	ALL	760606.46	4068524.11	6.1511E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.2288E-03	0.00E+00
499	ALL	760589.03	4068523.28	5.7264E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0059E-03	0.00E+00
500	ALL	760746.80	4068521.21	6.9871E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6676E-03	0.00E+00
501	ALL	760740.57	4068502.11	6.1168E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.2108E-03	0.00E+00
502	ALL	760694.07	4068500.45	5.9234E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1093E-03	0.00E+00
503	ALL	760571.17	4068496.30	3.7907E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9898E-03	0.00E+00
504	ALL	760648.07	4068570.38	1.1714E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.1488E-03	0.00E+00
505	ALL	760522.79	4068455.84	1.5997E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.3970E-04	0.00E+00
506	ALL	760525.62	4068436.78	1.3435E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.0523E-04	0.00E+00
507	ALL	760573.26	4068472.07	2.9087E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5268E-03	0.00E+00
508	ALL	760745.13	4068463.96	4.6639E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.4481E-03	0.00E+00
509	ALL	760696.78	4068479.84	4.9985E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6238E-03	0.00E+00
510	ALL	760666.43	4068463.96	4.0821E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.1427E-03	0.00E+00
511	ALL	760560.91	4068394.08	1.2268E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.4398E-04	0.00E+00
512	ALL	760619.59	4068363.43	1.4217E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.4626E-04	0.00E+00
513	ALL	760600.63	4068363.57	1.2646E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.6380E-04	0.00E+00
514	ALL	760578.50	4068363.01	1.0820E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.6794E-04	0.00E+00
515	ALL	760555.66	4068363.16	9.1368E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.7960E-04	0.00E+00
516	ALL	760517.29	4068361.54	6.6279E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.4791E-04	0.00E+00
517	ALL	760640.59	4068363.09	1.5959E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.3771E-04	0.00E+00
518	ALL	760835.68	4068588.21	5.8649E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0786E-03	0.00E+00
519	ALL	760807.33	4068587.87	7.0817E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7173E-03	0.00E+00
520	ALL	760808.33	4068562.81	6.6876E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.5104E-03	0.00E+00
521	ALL	760861.08	4068562.81	4.9317E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5887E-03	0.00E+00
522	ALL	760887.95	4068588.21	4.2622E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2373E-03	0.00E+00
523	ALL	760726.56	4068744.90	1.5758E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.2718E-03	0.00E+00
524	ALL	760732.42	4068772.75	1.3726E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.2047E-03	0.00E+00
525	ALL	760718.25	4068860.19	1.4093E-05	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.3976E-03	0.00E+00
526	ALL	760772.96	4068709.73	9.1983E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.8283E-03	0.00E+00
527	ALL	760719.74	4068943.73	8.4725E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.4473E-03	0.00E+00
528	ALL	760706.76	4069036.99	1.1018E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.7837E-04	0.00E+00
529	ALL	760723.86	4069036.99	9.4758E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.9740E-04	0.00E+00
530	ALL	760770.75	4069035.04	6.8443E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.5927E-04	0.00E+00
531	ALL	760791.76	4069038.46	5.7191E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0020E-04	0.00E+00
532	ALL	760813.25	4069036.99	5.1595E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.7083E-04	0.00E+00
533	ALL	760833.28	4069039.92	4.5158E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.3704E-04	0.00E+00
534	ALL	760856.73	4069036.50	4.2175E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2138E-04	0.00E+00
535	ALL	760620.77	4069146.54	3.5989E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.8891E-04	0.00E+00
536	ALL	760659.31	4069108.68	4.5149E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.3699E-04	0.00E+00
537	ALL	760148.76	4069251.37	5.8881E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0908E-04	0.00E+00
538	ALL	760420.57	4069445.08	9.5807E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.0290E-05	0.00E+00
539	ALL	760459.63	4069524.75	5.9645E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1309E-05	0.00E+00
540	ALL	760570.54	4069481.01	5.7355E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0107E-05	0.00E+00
541	ALL	760622.09	4069468.51	5.6945E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.9891E-05	0.00E+00
542	ALL	760834.64	4068561.52	5.7210E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0030E-03	0.00E+00
543	ALL	760164.65	4068209.68	9.8091E-08	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.1489E-05	0.00E+00
544	ALL	760659.17	4068310.41	1.1978E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.2875E-04	0.00E+00
545	ALL	760631.75	4068309.50	1.0240E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	5.3752E-04	0.00E+00
546	ALL	760604.32	4068308.59	8.6220E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	4.5258E-04	0.00E+00
547	ALL	760576.89	4068307.67	7.1694E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.7633E-04	0.00E+00
548	ALL	760549.47	4068306.76	5.8835E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0884E-04	0.00E+00
549	ALL	760522.04	4068305.85	4.8093E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.5245E-04	0.00E+00
550	ALL	760660.30	4068221.25	6.9204E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.6326E-04	0.00E+00
551	ALL	760632.88	4068220.33	5.9362E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.1160E-04	0.00E+00
552	ALL	760605.45	4068219.42	5.0527E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6522E-04	0.00E+00
553	ALL	760578.02	4068218.51	4.2820E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2477E-04	0.00E+00
554	ALL	760550.60	4068217.59	3.6301E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9055E-04	0.00E+00
555	ALL	760523.17	4068216.68	3.0936E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6239E-04	0.00E+00
556	ALL	760665.95	4068184.00	5.8165E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.0532E-04	0.00E+00
557	ALL	760638.52	4068183.09	5.0202E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.6352E-04	0.00E+00
558	ALL	760611.09	4068182.17	4.3098E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	2.2623E-04	0.00E+00
559	ALL	760583.67	4068181.26	3.6975E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9409E-04	0.00E+00
560	ALL	760556.24	4068180.35	3.1762E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6673E-04	0.00E+00
561	ALL	760528.81	4068179.43	2.7295E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.4328E-04	0.00E+00
562	ALL	760662.56	4068093.71	3.7411E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.9638E-04	0.00E+00
563	ALL	760635.13	4068092.79	3.2793E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.7214E-04	0.00E+00
564	ALL	760607.71	4068091.88	2.8768E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5101E-04	0.00E+00
565	ALL	760580.28	4068090.97	2.5189E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.3222E-04	0.00E+00
566	ALL	760552.85	4068090.05	2.2123E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1613E-04	0.00E+00
567	ALL	760525.43	4068089.14	1.9529E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0251E-04	0.00E+00
568	ALL	760746.37	4068130.93	6.4285E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	3.3744E-04	0.00E+00
569	ALL	760853.59	4068202.03	1.2696E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.6642E-04	0.00E+00
570	ALL	760943.88	4068259.60	1.7724E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	9.3036E-04	0.00E+00
571	ALL	760978.87	4068395.04	2.4589E-06	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.2907E-03	0.00E+00
572	ALL	760734.22	4069117.74	3.0269E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.5889E-04	0.00E+00
573	ALL	760736.14	4069153.24	2.2519E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1821E-04	0.00E+00
574	ALL	760704.48	4069170.51	2.1641E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.1360E-04	0.00E+00
575	ALL	760651.72	4069198.33	2.0420E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.0718E-04	0.00E+00
576	ALL	760726.55	4069258.78	1.2184E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	6.3956E-05	0.00E+00
577	ALL	760792.75	4069206.01	1.4176E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	7.4411E-05	0.00E+00
578	ALL	760787.95	4069090.88	3.2196E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	1.6900E-04	0.00E+00
579	ALL	760818.65	4069176.27	1.5860E-07	3YrCancerHighEnd_InhSoilDermMMilkCrops	8.3249E-05	0.00E+00

HARP2 - HRACalc (dated 22118) 9/21/2023 9:04:47 PM - 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: 3

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 1
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\0004-0019\UNMIT CON\hra\Unmit
ConCancerRisk.csv
Cancer risk total by receptor saved to: F:\Move\0004-0019\UNMIT CON\hra\Unmit ConCancerRiskSumByRec.csv
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to: F:\Move\0004-0019\UNMIT CON\hra\Unmit
ConNCChronicRisk.csv
Chronic risk total by receptor saved to: F:\Move\0004-0019\UNMIT CON\hra\Unmit ConNCChronicRiskSumByRec.csv
Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to: F:\Move\0004-0019\UNMIT CON\hra\Unmit
ConNCAcuteRisk.csv
Acute risk total by receptor saved to: F:\Move\0004-0019\UNMIT CON\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	September 21, 2023
Facility:	**Crown-Schaad Subdivision Project (Diesel PM Screening Analysis)**
ID#:	—
Project #:	**Truck Run and Idle Emissions**
Unit and Process#	**Mobile Source Diesel (Trucks Visiting the Crown-Schaad Subdivision Project)**

Operating Hours hr/yr 4,277.66 **(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**	1.77E+00	5.37E-03	0.00E+00	1.77E+00
100≤R<250	**0.250**	4.42E-01	1.34E-03	0.00E+00	4.42E-01
250≤R<500	**0.040**	7.07E-02	2.15E-04	0.00E+00	7.07E-02
500≤R<1000	**0.011**	1.95E-02	5.91E-05	0.00E+00	1.95E-02
1000≤R<1500	**0.003**	5.31E-03	1.61E-05	0.00E+00	5.31E-03
1500≤R<2000	**0.002**	3.54E-03	1.07E-05	0.00E+00	3.54E-03
2000<R	**0.001**	1.77E-03	5.37E-06	0.00E+00	1.77E-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.

esel (Trucks Visiting the Crown-Schaad Su

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**	7.66E-01	6.94E-04	1.79E-04	1.77E+00	5.37E-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
				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	**1.77E+00**	**5.37E-03**	**0.00E+00**

Crown-Schaad Subdivision at Kearney Boulevard Project—Health Risk Screening Analysis for Project Operations

Diesel Truck Trips

	Trucks Onsite Daily	Average Daily Truck Trips
Heavy Truck Trips	**23.44**	**46.88**

Truck Assumptions

Trucks Onsite per Day	23.44
Trucks Onsite per Year	8,555.3
Idling Events per Truck per day	2
Idling Time per Event (minutes)	15
Idling Minutes/Year	256,660
Idling Hours/Year	4,278

	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	17,110.7	8,555.3

	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	0.74	**0.7656**	0.77	0.00210	0.00629	0.00052

*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	23.4	0.09473	202.62	0.45	0.00010199

	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	23.4	0.03120	133.48	0.29	6.7183E-05
						Total Running	**0.74096**	**0.00017**

Total Emissions	**Lbs/Year**	**Max Lbs/Hours**
Onsite Running Emissions	0.4467	0.0001020
Offsite Running Emissions	0.2943	0.0000672
Idling Emissions	0.0246	0.0005244
Total	**0.7655637**	**0.0006935**

Health Risk Prioritization Results (Receptor 0-100 M)

	Cancer Score	**Chronic Score**	**Acute Score**
Prioritization Score Truck Run and Idle	1.76845	0.00537	0.00000

Operational Fuel Calculation—Project-generated Operational Trips

Daily Truck Trips

Crown-Schaad Subdivision at Kearney Boulevard

	Total Daily Project Trips
Total Average Daily Trips (All Vehicles)	**1,537**

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	806.002800	325.844000	257.754900	86.533100	1.229600	1.383300	11.681200	32.584400	0.000000	6.609100	3.842500	0.153700	3.381400

Heavy Trucks Only	Trips
LHD1	1.230
LHD2	1.383
MHD	11.681
HHD	32.584
Heavy Trucks Total	46.879

On-site Truck Running and Idling Emissions for the Health Risk Screening Analysis—Crown-Schaad Subdivision at Kearney Boulevard 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	16.29	Daily Trucks	0.61	Daily Trucks	0.69	Daily Trucks	5.84
Daily Trips	32.58	Daily Trips	1.23	Daily Trips	1.38	Daily Trips	11.68

Onsite Truck Max Daily Emissions	**ROG**	**NO_x**	**CO**	**SO2**	**PM10**	**PM2.5**
HHDT (g/day)	2.3678	125.4159	9.1783	0.3862	0.4846	0.4636
LHDT1 (g/day)	0.1912	1.2855	0.5890	0.0053	0.0438	0.0419
LHDT2 (g/day)	0.1979	1.2862	0.5979	0.0071	0.0450	0.0430
MHDT (g/day)	0.6603	19.1725	1.6265	0.0929	0.1579	0.1511
Total Trucks (g/day)	3.4172	147.1602	11.9917	0.4914	0.7314	0.6997
Running Emissions lbs/day	0.0075	0.3244	0.0264	0.0011	0.0016	0.0015
Idling Emissions Lbs/Day	0.243	2.970	3.618	0.005	0.000	0.000
Total Emissions/Day	**0.251**	**3.295**	**3.644**	**0.0065**	**0.002**	**0.002**
g/lb conversion factor		0.00220				

Idling Minutes/Day Per Truck	15
Max Trucks per Day	23.44
Number Idling Trucks per Day	23.44
Max Trucks per Day—HHDT	16.29
Max Trucks per Day—LHDT1	0.61
Max Trucks per Day—LHDT2	0.69
Max Trucks per Day—MHDT	5.84

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	108.7714	0.239800
IDLEX	2025	Annual	FRESNO	LHDT1	DSL	ROG	0.1098	0.0675	0.000149
IDLEX	2025	Annual	FRESNO	LHDT2	DSL	ROG	0.1098	0.0759	0.000167
IDLEX	2025	Annual	FRESNO	MHDT	DSL	ROG	0.2262	1.3210	0.002912
IDLEX	2025	Annual	FRESNO	HHDT	DSL	NOx	78.1690	1,273.5457	2.807688
IDLEX	2025	Annual	FRESNO	LHDT1	DSL	NOx	2.1244	1.3061	0.002879
IDLEX	2025	Annual	FRESNO	LHDT2	DSL	NOx	2.0745	1.4348	0.003163
IDLEX	2025	Annual	FRESNO	MHDT	DSL	NOx	12.1612	71.0289	0.156592
IDLEX	2025	Annual	FRESNO	HHDT	DSL	CO	98.0188	1,596.9417	3.520654
IDLEX	2025	Annual	FRESNO	LHDT1	DSL	CO	0.9097	0.5593	0.001233
IDLEX	2025	Annual	FRESNO	LHDT2	DSL	CO	0.9097	0.6292	0.001387
IDLEX	2025	Annual	FRESNO	MHDT	DSL	CO	7.3364	42.8492	0.094466
IDLEX	2025	Annual	FRESNO	HHDT	DSL	SO2	0.1445	2.3545	0.005191
IDLEX	2025	Annual	FRESNO	LHDT1	DSL	SO2	0.0013	0.0008	0.000002
IDLEX	2025	Annual	FRESNO	LHDT2	DSL	SO2	0.0020	0.0014	0.000003
IDLEX	2025	Annual	FRESNO	MHDT	DSL	SO2	0.0206	0.1204	0.000265
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	125.4159193	0.463647372	0.484611449	40782.8763	0.109976121	6.425358769	2.367755728	2.69550966	9.178334485	0.386189451
LHDT1	1.285543605	0.041933119	0.043829149	555.7655806	0.008882449	0.087561094	0.191233888	0.217707067	0.588971137	0.005266161
LHDT2	1.286164978	0.043038961	0.044984991	747.3676396	0.009194103	0.117748076	0.197943629	0.225345661	0.597865288	0.007081688
MHDT	19.1725489	0.151116526	0.157949345	9810.500612	0.030669222	1.545648367	0.660299929	0.751701207	1.626515803	0.092899574
Total	147.1601768	0.699735978	0.731374934	51896.51013	0.158721894	8.176316305	3.417233175	3.890263595	11.99168671	0.491436875
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	16.29
Max Trucks per Day—LHDT1	0.61
Max Trucks per Day—LHDT2	0.69
Max Trucks per Day—MHDT	5.84
Total	23.44

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	285.3720921	1.669433201	1.744917562	55523.76134	0.406780108	8.747791211	8.757864167	9.970161694	21.20615604	0.525776817
LHDT1	1.473816933	0.05988549	0.062593246	736.2558606	0.012540709	0.115997411	0.269994075	0.307370304	0.875541389	0.006976398
LHDT2	1.524636244	0.060619593	0.063360542	979.490047	0.012678915	0.154319056	0.272969574	0.310757711	0.878834386	0.009281166
MHDT	48.55047332	0.334481658	0.349605435	13741.70352	0.079384121	2.165010986	1.709118357	1.945701149	2.93972956	0.130125715
Total	336.9210186	2.124419942	2.220476785	70981.21077	0.511383852	11.18311866	11.00994617	12.53399086	25.90026138	0.672160097
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	16.29
Max Trucks per Day—LHDT1	0.61
Max Trucks per Day—LHDT2	0.69
Max Trucks per Day—MHDT	5.84
Total	23.44

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	0.544226359
LHDT1	0.017074593
LHDT2	0.019208829
MHDT	0.136143619
Total	0.7166534
Weighted Average	0.030574929

ATTACHMENT C
Energy Consumption Calculations

Crown-Schaad Subdivision at Kearney Boulevard Project—Energy Consumption Summary

Date of Last Revision: September 21, 2023

Summary of Energy Use During Construction		(Annually)
Construction vehicle fuel	39,975	gallons (gasoline, diesel)
Construction equipment fuel	34,259	gallons (diesel)
Construction office trailer electricity	50,735	kilowatt hours

Summary of Energy Use During Proposed Operations		(Annually)
Operational vehicle fuel consumption	198,406	gallons (gasoline, diesel)
Operational natural gas consumption	0	(project is all electric)
Operational electricity consumption	1,523,493	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 September 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

Crown-Schaad Subdivision at Kearney Boulevard Project

CalEEMod Run	Phase Name	Start Date	End Date	Num Days Week	Num Days
Project Construction	Site Preparation	8/1/2024	8/28/2024	5	20
Project Construction	Grading	8/29/2024	10/30/2024	5	45
Project Construction	Building Construction	10/31/2024	4/27/2027	5	649
Project Construction	Paving	4/28/2027	6/15/2027	5	35
Project Construction	Architectural Coating	6/16/2027	8/3/2027	5	35

Construction Trips and VMT

	Trips per Day			Construction Trip Length in Miles				Trips per Phase			VMT per Phase			Fuel Consumption (gallons)		
Phase Name	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Number of Days per Phase	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	11.41	8.53	20.00	20	350	40	0	3,993	341	0	153.83	41.91	0.00
Grading	20.00	2.00	38.89	11.41	8.53	20.00	45	900	90	1,750	10,269	768	35,000	395.56	94.30	5,824.28
Building Construction	58.68	17.42	2.00	11.41	8.53	20.00	649	38,083	11,309	1,298	434,531	96,463	25,960	16,737.95	11,849.11	4,319.95
Paving	15.00	2.00	0.00	11.41	8.53	20.00	35	525	70	0	5,990	597	0	230.74	73.35	0.00
Architectural Coating	11.74	2.00	0.00	11.41	8.53	20.00	35	411	70	0	4,687	597	0	180.53	73.35	0.00

Total Project Construction VMT (miles)

619,196

Total Project Fuel Consumption (gallons)

39,975

Construction Equipment Fuel Calculation (Page 1 of 2)

Source: CalEEMod Output
Crown-Schaad Subdivision at Kearney Boulevard Project
Construction Schedule

Construction Area	Phase Type	Start Date	End Date	Num Days Week	Num Days
Project Construction	Site Preparation	8/1/2024	8/28/2024	5	20
Project Construction	Grading	8/29/2024	10/30/2024	5	45
Project Construction	Building Construction	10/31/2024	4/27/2027	5	649
Project Construction	Paving	4/28/2027	6/15/2027	5	35
Project Construction	Architectural Coating	6/16/2027	8/3/2027	5	35

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	20	70,464.00	0.02046	1,441.80
Site Preparation	Tractors/Loaders/Backhoes	4	8	84	0.37	20	19,891.20	0.01894	376.77
Grading	Excavators	2	8	36	0.38	45	9,849.60	0.01976	194.66
Grading	Graders	1	8	148	0.41	45	21,844.80	0.02120	463.08
Grading	Rubber Tired Dozers	1	8	367	0.40	45	52,848.00	0.02046	1,081.35
Grading	Scrapers	2	8	423	0.48	45	146,188.80	0.02486	3,634.81
Grading	Tractors/Loaders/Backhoes	2	8	84	0.37	45	22,377.60	0.01894	423.86
Building Construction	Cranes	1	7	367	0.29	649	483,511.49	0.01500	7,250.41
Building Construction	Forklifts	3	8	82	0.20	649	255,446.40	0.02081	5,315.60
Building Construction	Generator Sets	1	8	14	0.74	649	53,789.12	0.04240	2,280.82
Building Construction	Tractors/Loaders/Backhoes	3	7	84	0.37	649	423,589.32	0.01894	8,023.33
Building Construction	Welders	1	8	46	0.45	649	107,474.40	0.02588	2,781.71
Paving	Pavers	2	8	81	0.42	35	19,051.20	0.02151	409.85
Paving	Paving Equipment	2	8	89	0.36	35	17,942.40	0.01833	328.88
Paving	Rollers	2	8	36	0.38	35	7,660.80	0.01942	148.75
Architectural Coating	Air Compressors	1	6	37	0.48	35	3,729.60	0.02766	103.15
							Total Construction Equipment Fuel Consumption (gallons)		**34,258.81**

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 September 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	**50,735**	**kWh**

Total Construction Schedule

Start	8/1/2024
End	8/3/2027
Total Calendar Days	1097
Years	3.01

Operational Fuel Calculation—Project-generated Operational Trips

California Air Resource Board (CARB). 2023. EMFAC2021. Website: https://arb.ca.gov/emfac/emissions-inventory/. Accessed September 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

Crown-Schaad Subdivision at Kearney Boulevard Project

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	1,537	1,545	1,382	553,388	13,162	13,232	11,836	4,738,569
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Annual VMT (miles)
Total VMT	**4,738,569**

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	2,484,906	6,808	30.21	225.4	82,253
Light Trucks and Medium Vehicles (LDT1, LDT2, and MDV)	0.4360	43.60	2,066,016	5,660	22.62	250.3	91,345
LHDT1, LHDT2, and MHDT	0.0093	0.93	44,069	121	11.16	10.8	3,949
HHDT	0.0212	2.12	100,458	275	6.11	45.1	16,451
MCY	0.0025	0.25	11,846	32	41.37	0.8	286
Buses/Other	0.0066	0.66	31,275	86	7.59	11.3	4,122
Total	—	100.0	4,738,569	12,982		543.6	198,406

Project Operations Electricity Use

Source: CalEEMod Output

Crown-Schaad Subdivision at Kearney Boulevard

kWh/yr = kilowatt hours per year

CalEEMod Land Use	Electricity Use (kWh/yr)
Single Family Housing	1,523,493
Other Asphalt Surfaces	0
Other Non-Asphalt Surfaces	0
Total	**1,523,493** **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

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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

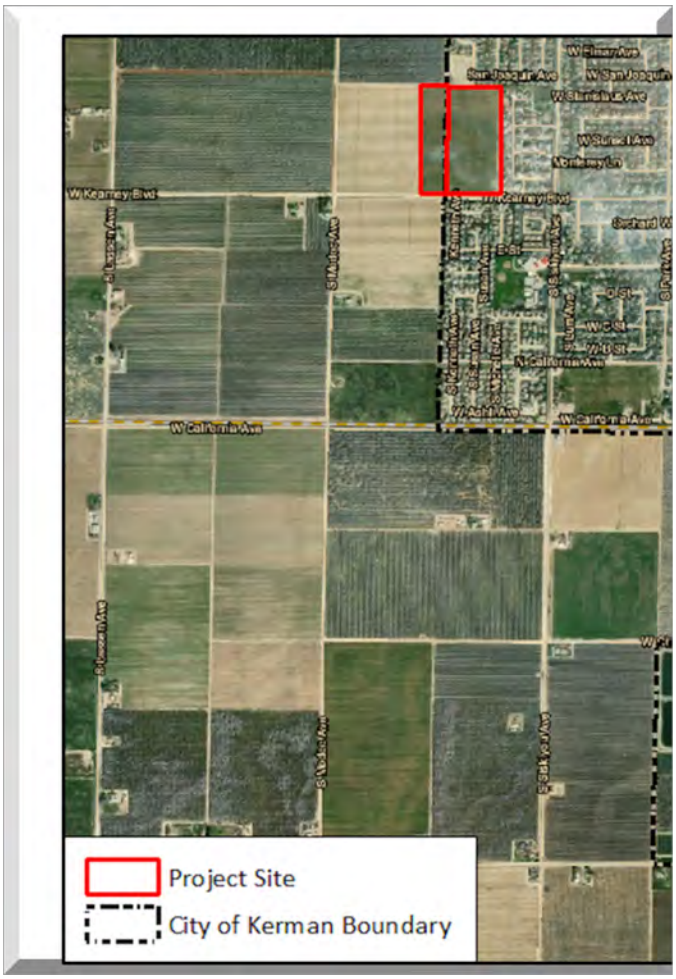
Prepared by Argonaut Ecological Consulting, Inc., dated June 2023.

BIOLOGICAL RESOURCE ASSESSMENT

Crown-Schaad Project TSM 2023-XX
W Kearney Avenue, Kerman, CA

APNs

020-140-22S
200-160-23S



June 2023

Prepared for:

PRECISION CIVIL ENGINEERING, INC

ARGONAUT ECOLOGICAL CONSULTING, INC.

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1.0 EXECUTIVE SUMMARY AND INTRODUCTION

EXECUTIVE SUMMARY

Argonaut Ecological, Inc. conducted a biological evaluation of an approximately 31.2 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 two parcels (31.2 acres). The parcels are located along West Kearney and between S. Siskiyou and S. Modoc Avenue, immediately west of Kerman, California. The Crown-Schaad project includes the construction of single-family homes (12 units per acre) of 163 homes. The project includes two parcels (APN 020-140-22S and -23S). The project is within the City of Kerman Sphere of Influence; however, the parcel is APN 020-140-22S is outside the city limits and would require an annexation from the County of Fresno and a pre-zone/rezone to a zone district consistent with the Kerman General Plan.

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).

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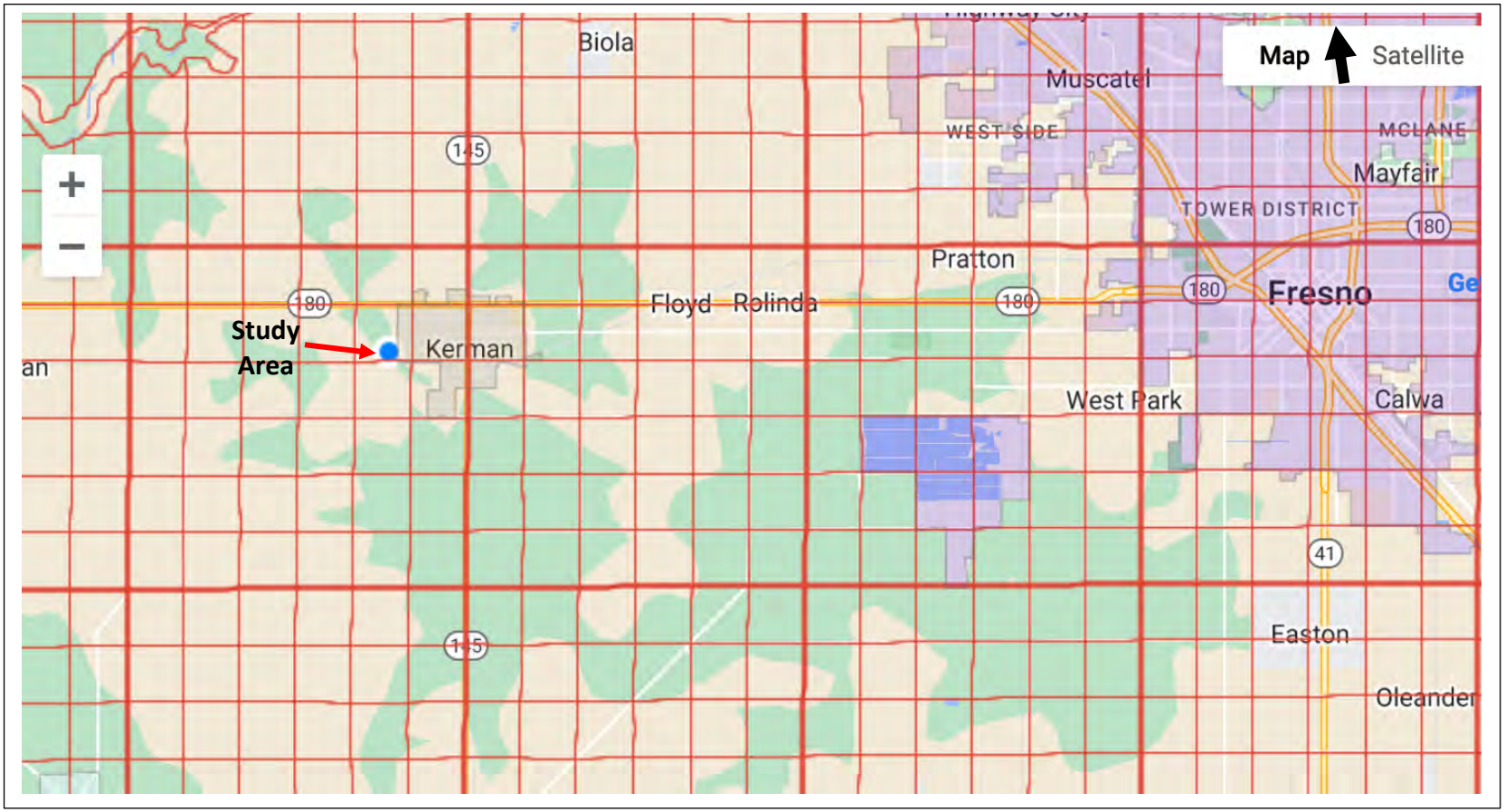

Figure 1

Location Map – Crown Shaad Site

Kerman, California

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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 nonnative 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 harm (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 for reviewing and evaluating 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 one of the parcels is outside the city limits. Fresno County is responsible for all local land-use decisions within its jurisdiction under CEQA, but the City would serve as the lead agency. As the lead agency 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 June 4, 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 – are Hesperia sandy loam, deep (50.3% of the Study Area), Traver sandy loam (10.4%), and Hanford coarse sandy loam (1.7%).

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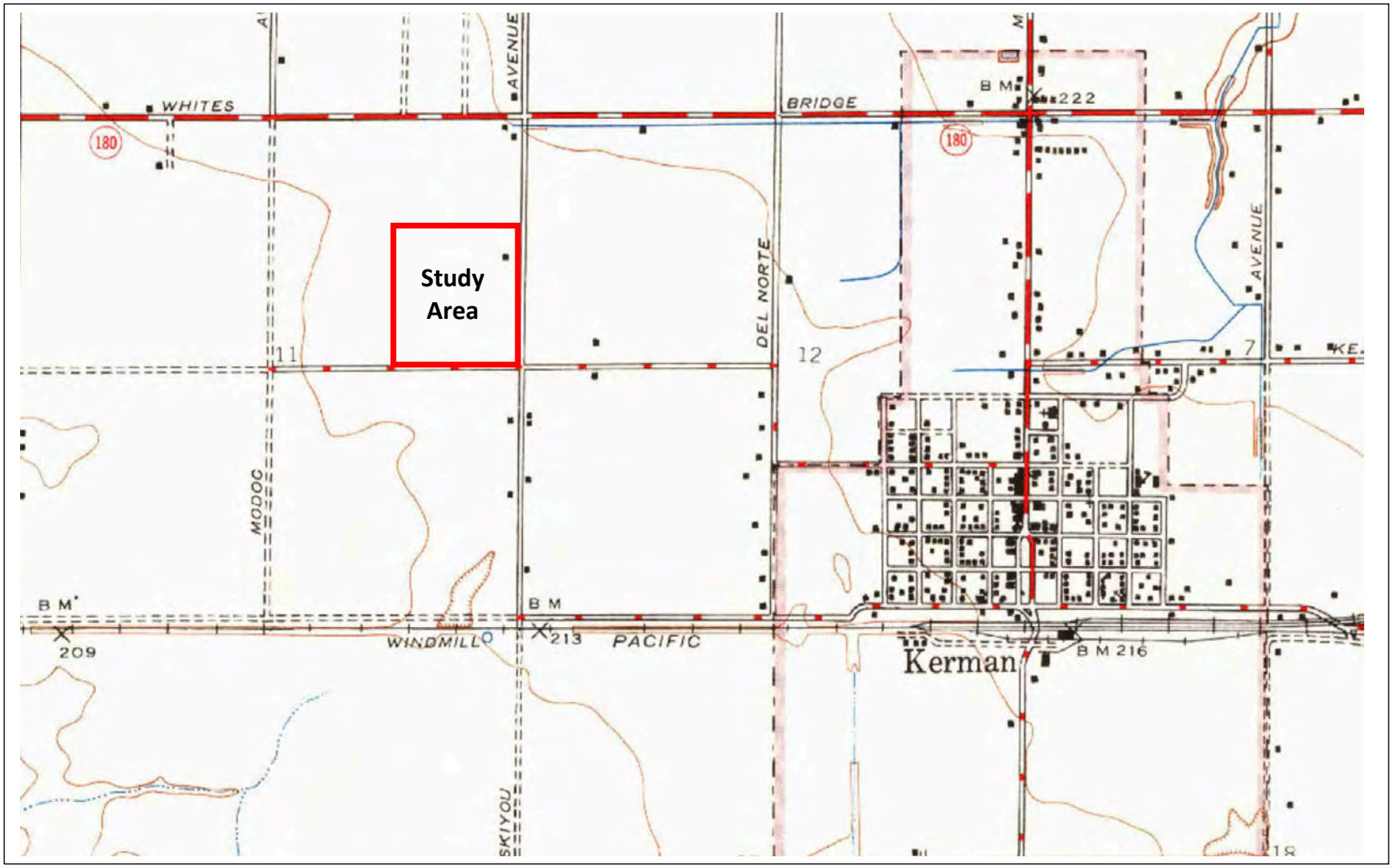

Figure 2

Topographic Map: 1946

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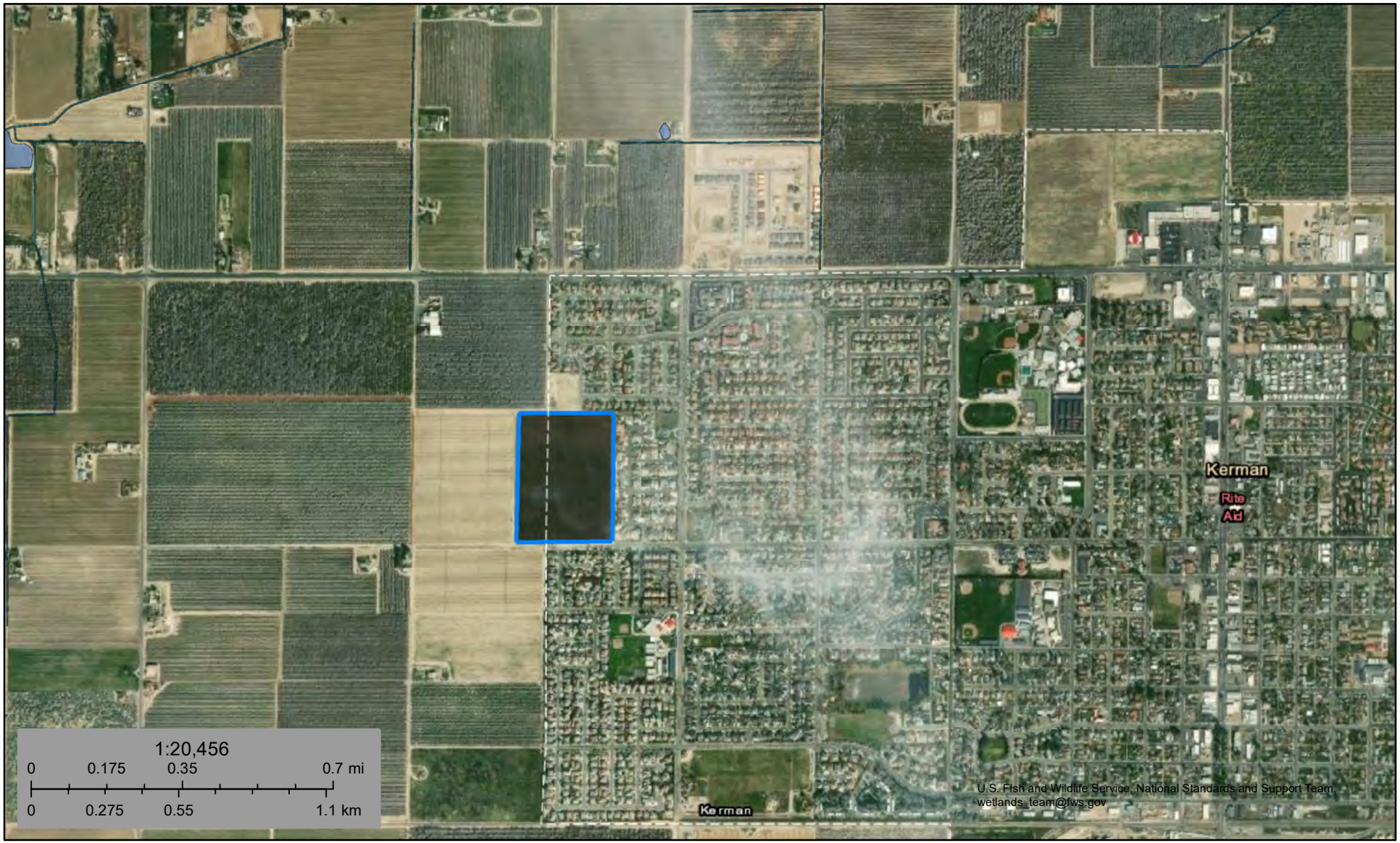
U.S. Fish and Wildlife Service
National Wetlands Inventory

Figure 3 - NWI Map



June 25, 2023

Wetlands_Alaska

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
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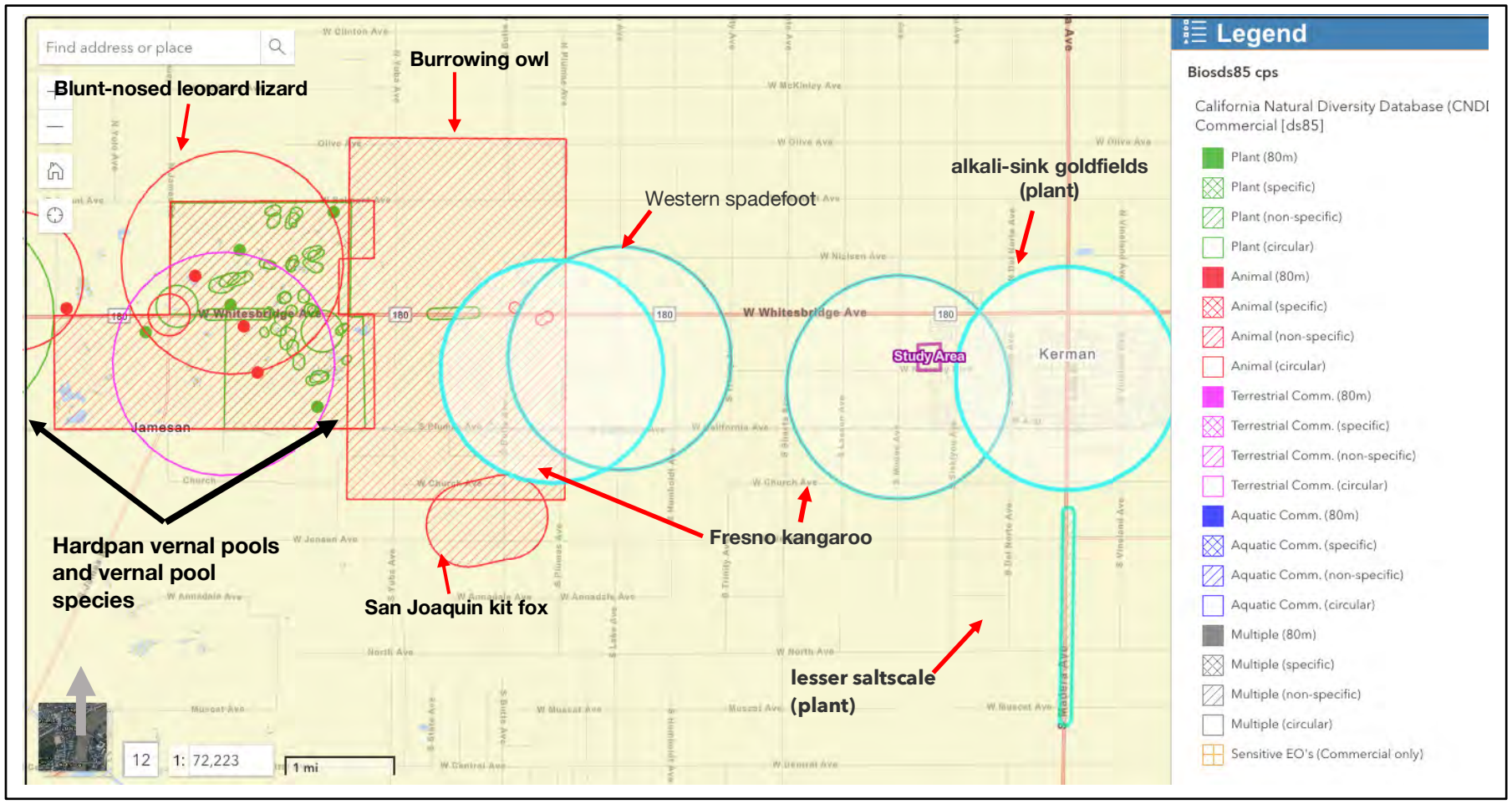

Figure 4

CNDDB Bios Map

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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.

Since 1998, both parcels within the Study Area have been in orchard production. Around 2015 the orchards were removed and put into row crop production.

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/nonnative/ruderal" habitat. Attachment A shows photographs of the Study Area.

The Study Area is planted in an alfalfa cover crop this year. In previous years the Study Area was planted in other row crops. Along the southern edge and eastern of the Study Area are ruderal habitats along W Kearney Avenue and a farm access road adjacent to an eastern property wall. Interspersed within the ruderal habitat are desiccated nonnative grasses (e.g., bromes); perimeter marked by sparse weedy grasses (e.g., *Hordeum murinum,* bromes) and forbes (e.g., *Chenopodium album, Malva parviflora).*

Active ground squirrel (*Otospermophilus beecheyi*) burrows and burrow complexes are present around the perimeter of the property; Several bird species (mourning dove and several killdeer) were observed onsite. Killdeer nests on the ground. No nesting trees are present within the Study Area. A red-tailed hawk was heard northwest of the Study Area. Several house cats were observed along the edges of the Study Area.

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, there are no trees or shrubs within the Study Area.. Only one ground-nesting raptor has a potentially suitable habitat within the Study Area –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. Active ground-burrowing mammals (California ground squirrels) were observed onsite however the vegetative cover is lacking in these areas. The lack of vegetative cover combined with recurring disturbance and the presence of numerous house cats within the Study Area makes potential occupation by burrowing owl highly unlikely.

Mammals

The CNDDB and IPaC list two species of mammals that occur within the region (Fresno kangaroo rat and San Joaquin kit fox).

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).

[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.

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. The Study Area does not support suitable habitat for this species.

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 the Study Area is in row crop production and, before 2015, was planted in orchards.

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 are present.

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	NE	**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

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.

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.

3.2 CONCLUSIONS/RECOMMENDATIONS

CONCLUSIONS

- The Study Area has historically been disturbed in agricultural production. Prior to 2015, the site was in orchard production. Since that time, the site has been in row crop production.
- 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.
- 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.
- 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 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

ARGONAUT ECOLOGICAL CONSULTING, INC.

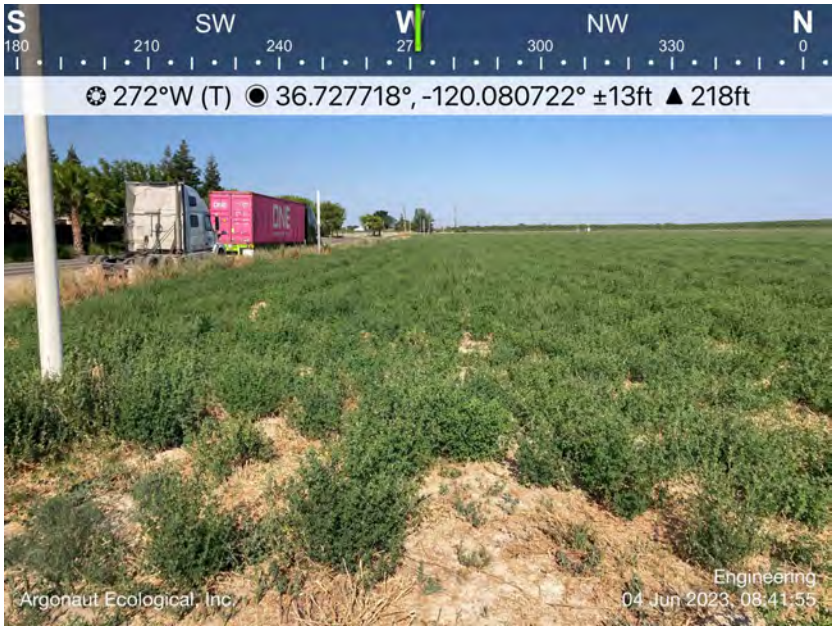
Photographic Documentation

Photographs: June 4, 2023

Project: Crowne Schaad, Kerman, Ca

Photograph 1

Southern end of Study Area, looking toward W Kearney Avenue



Photograph 2

View of southern end of Study Area looking west. W. Kearney Avenue on the left.

ARGONAUT ECOLOGICAL CONSULTING, INC.

Photographic Documentation

Photographs: June 4, 2023

Project: Crowne Schaad, Kerman, Ca

Photograph 3

View across Study Area looking northeast.

Photograph 4

Farm road between Study Area and existing residential development.

ARGONAUT ECOLOGICAL CONSULTING, INC.

Photographic Documentation

Photographs: June 4, 2023

Project: Crowne Schaad, Kerman, Ca

Photograph 5

View along eastern properly line along wall.

Photograph 6

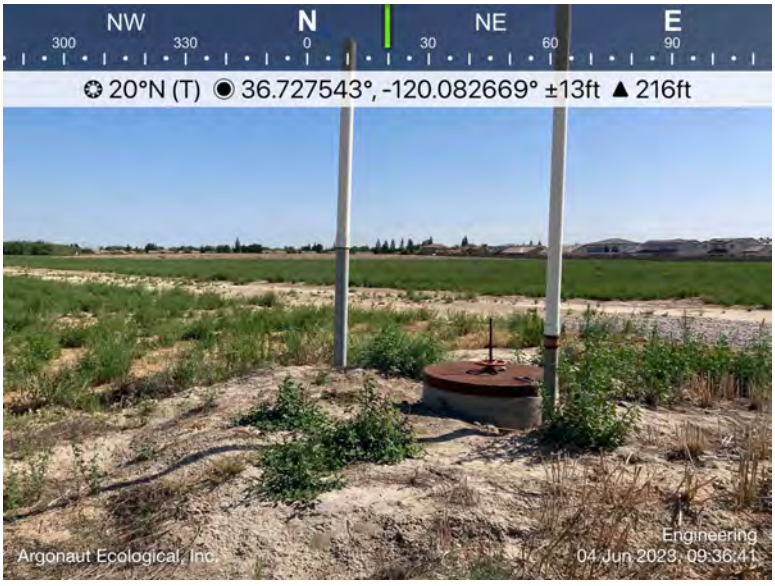
View of north end of Study Area looking northwest.

Photographs: June 4, 2023

Project: Crowne Schaad, Kerman, Ca

Photograph 7

View of southern end of Study Area looking east along W. Kearnery Ave.



Photograph 8

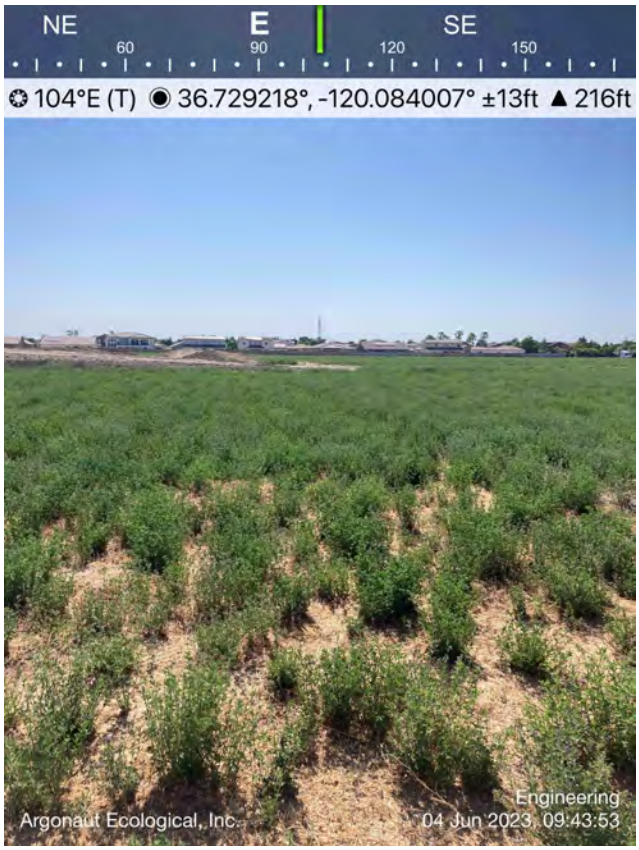
View of western side of Study Area looking northeast.

ARGONAUT ECOLOGICAL CONSULTING, INC.

Photographic Documentation

Photographs: June 4, 2023

Project: Crowne Schaad, Kerman, Ca



Photograph 9

View of alfalfa cover crop within Study Area.

7.3 Appendix C: CHRIS Search Results

Prepared by Southern San Joaquin Valley Information Center dated June 12, 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 23-214

Date: June 12, 2023

Re: Crown-Shadd Subdivision

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. There have been seven studies completed within the one-half mile radius: FR-00245, 00246, 02414, 02501, 02505, & 02506.

Record Search 23-214

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 resources within the project area. There is one recorded resource within the one-half mile radius: P-10-005808. This resource consists primarily of a single-family property.

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 intends to facilitate a subdivision of 163 single-family lots. Further, we understand the project area is vacant agricultural property. 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. 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**: June 12, 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 August 10, 2023.

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

August 10, 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 2023-02 - Crown Schaad 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: Acoustical Analysis

Prepared by WJV Acoustics, Inc., on December 22, 2023.

ACOUSTICAL ANALYSIS

CROWN-SHAAD AT KEARNEY BOULEVARD
KERMAN, CALIFORNIA

WJVA Project No. 23-20

PREPARED FOR

PRECISION ENGINEERING
1234 O STREET
FRESNO, CALIFORNIA 93721

PREPARED BY

WJV ACOUSTICS, INC.
VISALIA, CALIFORNIA

wjv acoustics

DECEMBER 22, 2023

INTRODUCTION

Joseph Crown Construction & Development (Applicant) proposes Annexation (ANX) 2023-02, Rezone/Prezone (REZ) 2023-02, Tentative Subdivision Map (TSM) 2023-02, and Development Plan (DPL) 2023-02, pertaining to two (2) parcels (APNs 020-140-22S and 020-140-23S) that total approximately 31.2 acres located on the north side of West Kearney Boulevard between South Modoc Avenue and South Siskiyou Avenue.

- ANX 2023-02 would annex approximately 9.69 acres (APN 020-140-22S) and adjacent rights-of-way from the County of Fresno to the City of Kerman.

- REZ 2023-02 would pre-zone approximately 9.69 acres (APN 020-140-22S) and rezone 21.51 acres (APN 020-140-23S) to the SD-R-4.5 – Smart Development (SD)-Residential (R)-4.5 (4,500 SF. Min. Lot) zoning district, which would be consistent with the underlying planned land use designation, MDR – Medium Density Residential.

- TSM 2023-02 would subdivide the Project site into 163 single-family lots (5.22 dwelling units per acre) that range in size from 4,878 square feet to 9,786 square feet, in addition to one 12,500 square foot lot reserved for a future City of Kerman well site.

- DPL 2023-02 would facilitate the development of the Project site in accordance with the Smart Development (SD) Combining District.

This analysis, prepared by WJV Acoustics, Inc. (WJVA), is based upon a review of the project site plan prepared by Landdesign Consulting (dated 3/14/23), traffic data provided by Fresno Council of Governments (Fresno COG) and JBL Traffic Engineering, Inc., and the findings of on-site noise level measurements. Revisions to the site plan may affect the findings and recommendations of this report. The site plan parcel map is provided as Figure 1.

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 along the north side of W. Kearney Boulevard, between S. Siskiyou Avenue and S. Modoc Avenue. The project site would be exposed to traffic noise associated with vehicles on W. Kearney Boulevard. The closest proposed single-family lots to W. Kearney Avenue are located approximately 90 feet from centerline of roadway.

FHWA Traffic Noise Model-

Noise exposure from traffic on W. Kearney Avenue was calculated for existing and future (2046) conditions using the FHWA Traffic Noise Model and traffic data obtained from Fresno Council of Governments (Fresno COG). A description of the FHWA traffic noise model and methodology used for the analysis is provided below.

WJVA utilized the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA Model is a standard analytical method used for roadway traffic noise calculations. 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.

Noise level measurements and concurrent traffic counts were conducted by WJVA staff within the project site on November 29, 2023. The purpose of the measurement was to evaluate the accuracy of the FHWA Model in describing traffic noise exposure within the project site. The traffic noise measurement site was located at a setback distance of approximately 40 feet from the centerline of W. Kearney Avenue. The posted speed limit was in the project vicinity was 35 mph (miles per hour). The project vicinity and traffic noise measurement site location are provided as Figure 2. A photograph showing the W. Kearney Avenue noise measurement site is provided as Figure 3.

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2" microphone. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The microphone was located on a tripod at 5 feet above the ground. The project site presently consists of undeveloped land and a portion is currently used for industrial purposes.

Noise measurements were conducted in terms of the equivalent energy sound level (L_{eq}). Measured L_{eq} values were compared to L_{eq} values calculated (predicted) by the FHWA Model using as inputs the traffic volumes, truck mix and vehicle speed observed during the noise measurements. The results of the comparison are shown in Table IV.

TABLE IV

COMPARISON OF MEASURED AND PREDICTED (FHWA MODEL) NOISE LEVELS CROWN-SHAAD AT KEARNEY, KERMAN

	W. Kearney Avenue
Measurement Start Time	8:35 a.m.
Observed # Autos/Hr.	156
Observed # Medium Trucks/Hr.	0
Observed # Heavy Trucks/Hr.	0
Observed Speed (MPH)	35
Distance, ft. (from center of roadway)	40
L_{eq}, dBA (Measured)	57.6
L_{eq}, dBA (Predicted)	56.6
Difference between Predicted and Measured L_{eq}, dBA	**1.0**

Note: FHWA "soft" site assumed for calculations.
Source: WJV Acoustics, Inc.

From Table IV it may be determined that the traffic noise levels predicted by the FHWA Model were 1.0 dB lower than those measured for the conditions observed at the time of the noise measurements for W. Kearney Avenue. This is considered reasonable agreement with the model and therefore no adjustments to the model are necessary.

Annual Average Daily Traffic (AADT) data for W. Kearney Avenue in the project vicinity was obtained from Fresno COG. Truck percentages and the day/night distribution of traffic were estimated by WJVA, based upon previous studies conducted in the project vicinity since project-specific data were not available from government sources. A speed limit of 35 mph was assumed for the roadway. Table V summarizes annual average traffic data used to model noise exposure within the project site.

TABLE V

TRAFFIC NOISE MODELING ASSUMPTIONS CROWN-SHAAD AT KEARNEY BOULEVARD

	W. Kearney Avenue	
	Existing Conditions	2046 Traffic Conditions
Annual Avenue Daily Traffic (AADT)	1,000	2,180
Day/Night Split (%)	90/10	
Assumed Vehicle Speed (mph)	35	
% Medium Trucks (% AADT)	2	
% Heavy Trucks (% AADT)	1	

Sources: Fresno COG
WJV Acoustics, Inc.

Using data from Table V, the FHWA Model, annual average traffic noise exposure was calculated for the closest proposed residential units from W. Kearney Avenue. Table VI provides the noise exposure levels for W. Kearney Avenue for future 2046 traffic conditions, at the closest proposed residential setbacks from the roadway.

TABLE VI

MODELED TRAFFIC NOISE LEVELS, W. KEARNEY AVENUE, dB, L_{dn}
CROWN-SHAAD AT KEARNEY BOULEVARD

Roadway	Existing Conditions	2046 Conditions
W. Kearney Avenue	50	53

Source: WJV Acoustics
TCAG

Reference to Table VI indicates that the traffic noise exposure at the closest proposed residential setbacks to W. Kearney Avenue would be approximately 50 dB L_{dn} for existing conditions and approximately 53 dB L_{dn} future (2046) traffic conditions on W. Kearney Avenue. Such levels do not exceed the City of Kerman exterior noise standard of 60 dB L_{dn}, and mitigation measures are therefore not required for project noise compliance.

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 53 dB $L_{dn.}$ for the first row of lots closest to W. Kearney Avenue. This means that the proposed residential construction must be capable of providing a minimum outdoor-to-indoor noise level reduction (NLR) of approximately 8 dB (53-45=8).

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, 2046 Cumulative and 2046 Cumulative Plus Project traffic conditions were calculated based upon the FHWA Model and traffic volumes provided by the project traffic engineer, JBL Traffic Engineering, 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 fifteen (15) receptor locations. The fifteen 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 80 feet from the centerline of Whitesbridge Ave
- R-2: Residence located approximately 65 feet from the centerline of Siskiyou Ave.
- R-3: Residence located approximately 90 feet from the centerline of Whitesbridge Ave.
- R-4: Residence located approximately 100 feet from the centerline of Siskiyou Ave
- R-5: Residence located approximately 90 feet from the centerline of Kearney Blvd
- R-6: Residence located approximately 65 feet from the centerline of Siskiyou Ave
- R-7: Residence located approximately 130 feet from the centerline of Kearney Blvd
- R-8: Residence located approximately 115 feet from the centerline of Park Ave
- R-9: Residence located approximately 120 feet from the centerline of Park Ave
- R-10: Residence located approximately 125 feet from the centerline of Kearney Blvd
- R-11: Residence located approximately 150 feet from the centerline of Del Norte Ave
- R-12: Residence located approximately 120 feet from the centerline of Kearney Blvd
- R-13: Residence located approximately 85 feet from the centerline of 1st St
- R-14: Residence located approximately 100 feet from the centerline of 1st St
- R-15: Residence located approximately 110 feet from the centerline of Kearney Blvd

Existing Conditions

Table VII provides Existing and Existing Plus Project traffic noise exposure levels at the fifteen analyzed receptor locations. Noise levels described in Table VII 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 VII

PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, L_{dn}
CROWN-SHAAD AT KEARNEY BOULEVARD
EXISTING CONDITIONS

Modeled Receptor	Existing	Existing Plus Project	Change (Maximum)	Significant Impact?
R-1	63	63	0	No
R-2	57	59	+2	No
R-3	63	63	0	No
R-4	54	55	+1	No
R-5	50	53	+3	No
R-6	58	58	0	No
R-7	52	53	+1	No
R-8	49	49	0	No
R-9	50	50	0	No
R-10	54	54	0	No
R-11	49	49	0	No
R-12	54	55	+1	No
R-13	53	53	0	No
R-14	52	52	0	No
R-15	55	55	0	No

Source: WJV Acoustics, Inc.
JBL Traffic Engineering, Inc.

Reference to Table VII 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.

2046 Cumulative Conditions

Table VIII provides 2046 Cumulative traffic noise exposure levels at the fifteen analyzed representative receptor locations, and provides what the project contribution would be to 2046 Cumulative conditions. Noise levels described in Table VIII 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 VIII

PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, L_{dn}
CROWN-SHAAD AT KEARNEY BOULEVARD
2046 CUMULATIVE CONDITIONS

Modeled Receptor	2046 No Project	2046 Plus Project	Change (Maximum)	Significant Impact?
R-1	65	65	0	No
R-2	59	60	+1	No
R-3	65	65	0	No
R-4	56	57	+1	No
R-5	50	53	+3	No
R-6	58	58	0	No
R-7	53	54	+1	No
R-8	49	49	0	No
R-9	52	52	0	No
R-10	55	55	0	No
R-11	49	49	0	No
R-12	55	55	0	No
R-13	54	54	0	No
R-14	52	52	0	No
R-15	55	56	+1	No
R-16	65	65	0	No

Source: WJV Acoustics, Inc.
JBL Traffic Engineering, Inc.

Reference to Table VIII indicates that project-related traffic for 2046 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 75-100 feet from construction activities. Table IX 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 IX

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 X. 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 X

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 Crown-Shaad at Kearney Boulevard development will comply with applicable City of Kerman exterior and 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

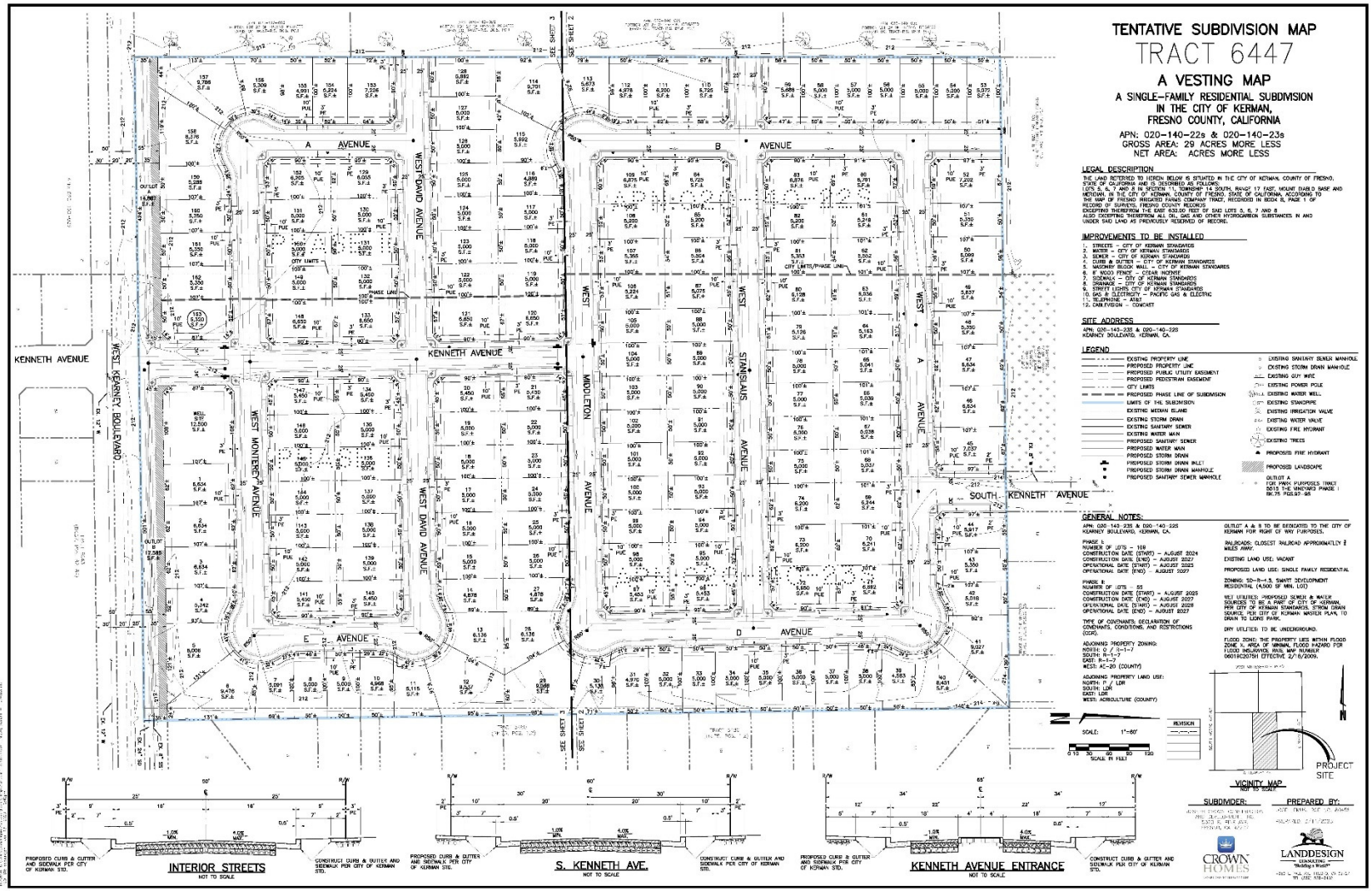


FIGURE 2: TRAFFIC NOISE MEASUREMENT LOCATION

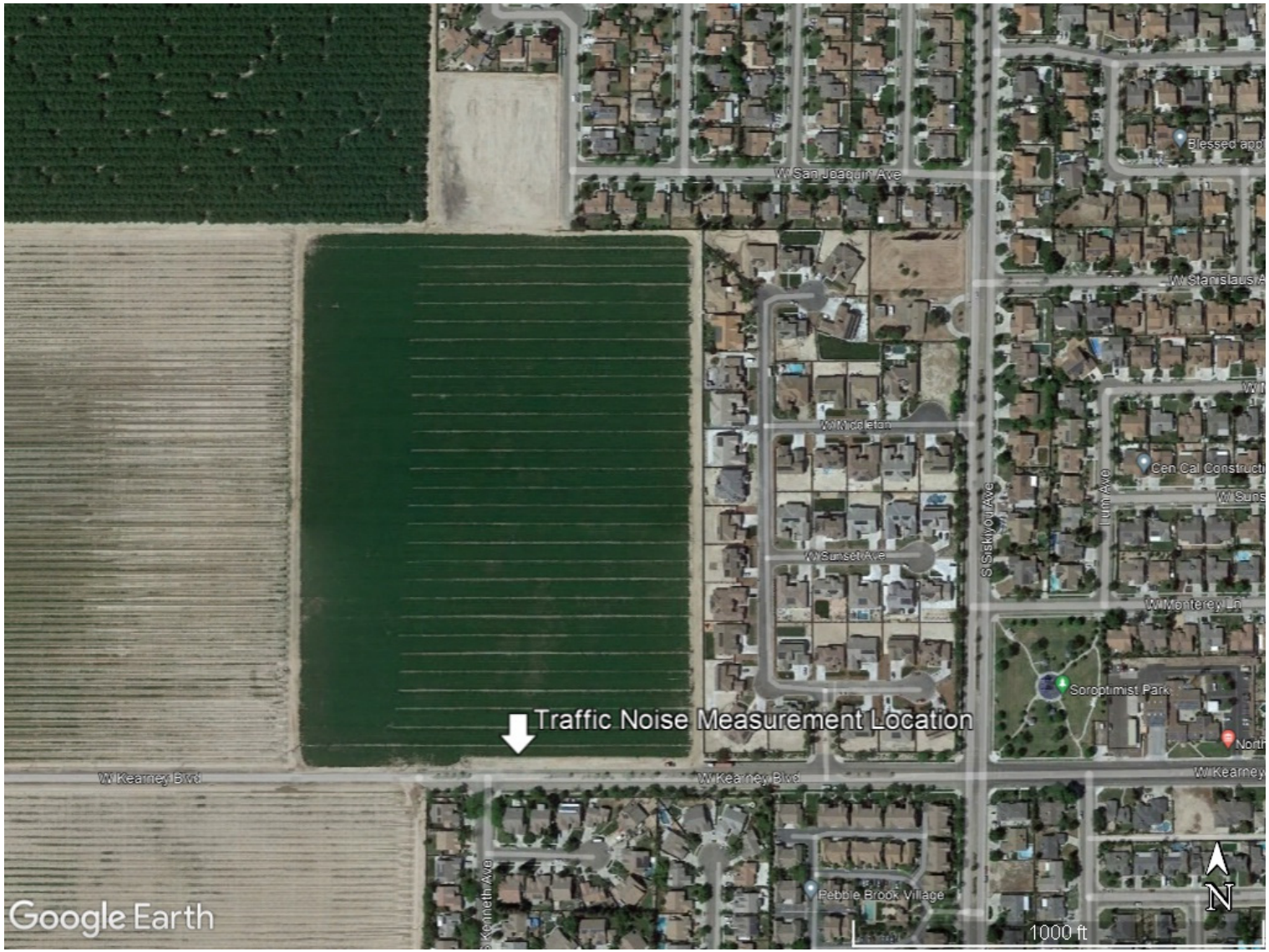


FIGURE 3: KEARNEY BOULEVARD TRAFFIC NOISE MEASUREMENT SITE

FIGURE 4: 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.

A-2

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.

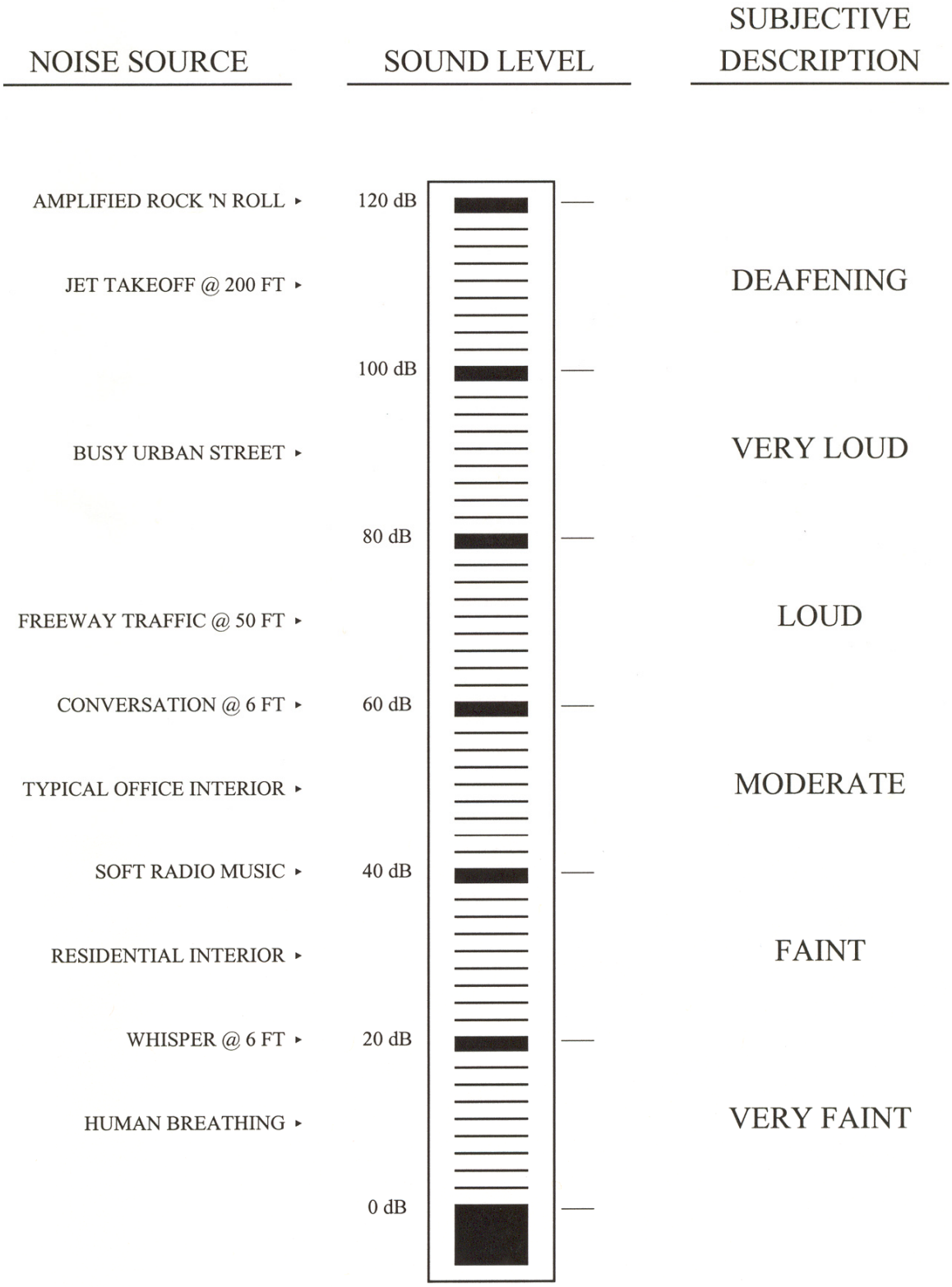
NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss 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
December 20, 2023

Project #:	23-20
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	Whitesbridge	R-1	7330	90		10	2	1	50	80	
2	Siskiyou	R-2	3470	90		10	2	1	35	65	
3	Whitesbridge	R-3	8810	90		10	2	1	50	90	
4	Siskiyou	R-4	3260	90		10	2	1	35	100	
5	Kearney	R-5	1000	90		10	2	1	35	90	
6	Siskiyou	R-6	3710	90		10	2	1	35	65	
7	Kearney	R-7	3070	90		10	2	1	35	130	
8	Park	R-8	1100	90		10	2	1	35	115	
9	Park	R-9	1600	90		10	2	1	35	120	
10	Kearney	R-10	4130	90		10	2	1	35	125	
11	Del Norte	R-11	1880	90		10	2	1	35	150	
12	Kearney	R-12	4270	90		10	2	1	35	120	
13	First	R-13	1680	90		10	2	1	35	85	
14	First	R-14	1690	90		10	2	1	35	100	
15	Kearney	R-15	4110	90		10	2	1	35	110	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
December 20, 2023

Project #:	23-20
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	Whitesbridge	R-1	7560	90		10	2	1	50	80	
2	Siskiyou	R-2	4410	90		10	2	1	35	65	
3	Whitesbridge	R-3	9340	90		10	2	1	50	90	
4	Siskiyou	R-4	3880	90		10	2	1	35	100	
5	Kearney	R-5	2080	90		10	2	1	35	90	
6	Siskiyou	R-6	4010	90		10	2	1	35	65	
7	Kearney	R-7	3380	90		10	2	1	35	130	
8	Park	R-8	1100	90		10	2	1	35	115	
9	Park	R-9	1600	90		10	2	1	35	120	
10	Kearney	R-10	4440	90		10	2	1	35	125	
11	Del Norte	R-11	1880	90		10	2	1	35	150	
12	Kearney	R-12	4580	90		10	2	1	35	120	
13	First	R-13	1730	90		10	2	1	35	85	
14	First	R-14	1720	90		10	2	1	35	100	
15	Kearney	R-15	4340	90		10	2	1	35	110	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
December 20, 2023

Project #:	23-20
Description:	2046 No 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	Whitesbridge	R-1	10400	90		10	2	1	50	80	
2	Siskiyou	R-2	5250	90		10	2	1	35	65	
3	Whitesbridge	R-3	14280	90		10	2	1	50	90	
4	Siskiyou	R-4	4960	90		10	2	1	35	100	
5	Kearney	R-5	1100	90		10	2	1	35	90	
6	Siskiyou	R-6	3570	90		10	2	1	35	65	
7	Kearney	R-7	3640	90		10	2	1	35	130	
8	Park	R-8	1290	90		10	2	1	35	115	
9	Park	R-9	2290	90		10	2	1	35	120	
10	Kearney	R-10	5360	90		10	2	1	35	125	
11	Del Norte	R-11	1900	90		10	2	1	35	150	
12	Kearney	R-12	5120	90		10	2	1	35	120	
13	First	R-13	2140	90		10	2	1	35	85	
14	First	R-14	2050	90		10	2	1	35	100	
15	Kearney	R-15	4860	90		10	2	1	35	110	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
December 20, 2023

Project #:	23-20
Description:	2046 + 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	Whitesbridge	R-1	10630	90		10	2	1	50	80	
2	Siskiyou	R-2	6190	90		10	2	1	35	65	
3	Whitesbridge	R-3	14810	90		10	2	1	50	90	
4	Siskiyou	R-4	5610	90		10	2	1	35	100	
5	Kearney	R-5	2180	90		10	2	1	35	90	
6	Siskiyou	R-6	3870	90		10	2	1	35	65	
7	Kearney	R-7	3950	90		10	2	1	35	130	
8	Park	R-8	1290	90		10	2	1	35	115	
9	Park	R-9	2290	90		10	2	1	35	120	
10	Kearney	R-10	5670	90		10	2	1	35	125	
11	Del Norte	R-11	1900	90		10	2	1	35	150	
12	Kearney	R-12	5410	90		10	2	1	35	120	
13	First	R-13	2190	90		10	2	1	35	85	
14	First	R-14	2080	90		10	2	1	35	100	
15	Kearney	R-15	5090	90		10	2	1	35	110	

7.6 Appendix F: Traffic Impact Analysis Study

Prepared by JLB Traffic Engineering, Inc. dated February 2024.

Traffic Impact Analysis

Crown-Schaad Subdivision

Located on the Northwest Quadrant of Kearney Boulevard and Siskiyou Avenue

In Kerman, California

Prepared for

Joseph Crown Construction
5320 East Pine Street
Fresno, CA 93727

February 10, 2024

Project No. 025-009

Traffic Engineering, Transportation Planning, & Parking Solutions
516 W. Shaw Ave., Ste. 103
Fresno, CA 93710
Phone: (559) 570-8991
www.JLBtraffic.com

Traffic Engineering, Transportation Planning, & Parking Solutions

Traffic Impact Analysis

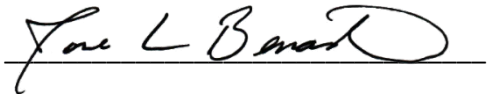
For the Crown-Schaad Subdivision located on the Northwest Quadrant of Kearney Boulevard and Siskiyou Avenue

In Kerman, California

Febraury 10, 2024

This Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:



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Introduction and Summary

Introduction

This **Report** describes a **Traffic Impact Analysis (TIA)** prepared by **JLB Traffic Engineering, Inc. (JLB)** for **Crown-Schaad Subdivision (Project)** to be located in the city of Kerman. The Project site is located on the northwest quadrant of Kearney Boulevard and Siskiyou Avenue. The Project proposes to develop 163 dwelling units of single-family detached housing. Based on information provided to JLB, the Project is consistent with the City of Kerman 2040 *General Plan Update*. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term and long-term roadway and circulation needs, determine potential roadway improvement measures and identify any critical traffic issues that should be addressed in the on-going planning process. The TIA primarily focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. The Scope of Work was prepared via consultation with City of Kerman, County of Fresno and Caltrans staff.

Summary

The potential traffic impacts of the proposed Project were evaluated in accordance with the standards set forth by the Level of Service (LOS) policies of the City of Kerman, Fresno County and Caltrans.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.
- At present, all study segments operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- At build-out, the Project is estimated to generate 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips.
- It is recommended that the Project implement a Class II Bikeway along its frontage to Kearney Boulevard.
- To improve traffic safety, it is recommended that traffic calming features be implemented at two internal intersections and that the existing raised median island on Kearny Boulevard be modified to accommodate an eastbound left turn pocket. Additional details as to the recommended improvements are presented later in this Report.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.
- Under this scenario, all study segments are projected to operate at an acceptable LOS during both peak periods.

Near Term Year plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 12,451 daily trips, 1,387 AM peak hour trips and 1,092 PM peak hour trips.
- Under this scenario, the study intersections of Siskiyou Avenue at State Route 180 is projected to exceed its LOS threshold during both peak periods. The addition of lanes is recommended to improve the LOS at these intersections. Additional details as to the recommended improvements for these intersections are presented later in this Report.
- Under this scenario, all study segments are projected to operate at an acceptable LOS during both peak periods.

Cumulative Year 2046 plus Project Traffic Conditions

- Under this scenario, the study intersection of Siskiyou Avenue at State Route 180 is projected to exceed its LOS threshold during both peak periods. The addition of lanes is recommended to improve the LOS at these intersections. Additional details as to the recommended improvements for these intersections are presented later in this Report.
- Under this scenario, all study segments are projected to operate at an acceptable LOS during both peak periods.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project's Equitable Fair Share

- It is recommended that the Project contribute its equitable Fair Share as presented in Table XII for those future improvements which are not covered by an existing impact fee program or grant funds.

Scope of Work

The TIA focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On June 19, 2023, a Draft Scope of Work for the preparation of a TIA for this Project was provided to the City of Kerman, County of Fresno and Caltrans staff for their review and comment.

On July 19, 2023, the City of Kerman reiterated Caltrans' initial comments and requested that the Boyd Whispering Falls Subdivision be added to the list of near term projects. On July 20, 2023, the County of Fresno requested that the TIA include the intersections of Siskiyou Avenue at Church Avenue and Siskiyou Avenue at Jensen Avenue and the segments of Siskiyou Avenue between California Avenue and Church Avenue, Siskiyou Avenue between Church Avenue and Jensen Avenue, and Jensen Avenue between Siskiyou Avenue and State Route 145. On August 16, 2023, Caltrans requested that the TIA include the intersection of Siskiyou Avenue at State Route 180 and a cumulative year no project scenario. After discussions, Caltrans rescinded their request to analyze a cumulative year no project scenario.

Based on the comments received, this TIA now includes the intersections of Siskiyou Avenue at State Route 180, Siskiyou Avenue at Church Avenue and Siskiyou Avenue at Jensen Avenue; the segments of Siskiyou Avenue between California Avenue and Church Avenue, Siskiyou Avenue between Church Avenue and Jensen Avenue, and Jensen Avenue between Siskiyou Avenue and State Route 145; and the near term project of Boyd Whispering Falls Subdivision. The Draft Scope of Work and the comments received from the responsible agencies are included in Appendix A.

Study Facilities

The existing intersection peak hour turning movement and segment volume counts were conducted at the study facilities in August 2023, while schools in the vicinity of the Project site were in session. The intersection turning movement counts included pedestrian and bicycle volumes. The traffic counts for the existing study facilities are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

Study Intersections

1. Siskiyou Avenue / State Route 180
2. Siskiyou Avenue / Kearney Boulevard
3. Park Avenue / Kearney Boulevard
4. Del Norte Avenue / Kearney Boulevard
5. First Street / Kearney Boulevard
6. Siskiyou Avenue / E Street (West Leg)
7. Siskiyou Avenue / Church Avenue
8. Siskiyou Avenue / Jensen Avenue

Study Segments

1. Siskiyou Avenue between California Avenue and Church Avenue
2. Siskiyou Avenue between Church Avenue and Jensen Avenue
3. Jensen Avenue between Siskiyou Avenue and State Route 145

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from field surveys and traffic counts conducted in August 2023.

Existing plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project Traffic Conditions. The Existing plus Project traffic volumes were obtained by adding the Project Only Trips to the Existing Traffic Conditions Scenario. The Project Only Trips to the study facilities were developed based on existing travel patterns, the Project Select Zone, the surrounding roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities and the *City of Kerman 2040 General Plan Update* Circulation Element in the vicinity of the Project site. The Fresno COG Project Select Zone results are contained in Appendix C.

Near Term plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. The Near Term plus Project traffic volumes were obtained by adding the Near Term related trips to the Existing plus Project Traffic Conditions scenario.

Cumulative Year 2046 plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2046 plus Project Traffic Conditions. The Cumulative Year 2046 plus Project traffic volumes were obtained by using a combination of the Fresno Council of Governments (Fresno COG) activity-based model (ABM) (Base Year 2019 and Cumulative Year 2046 plus Project) and Existing Traffic Conditions traffic volumes. Under this scenario, the increment method, as recommended by the Model Steering Committee was utilized to forecast the Cumulative Year 2046 plus Project Traffic Volumes. Furthermore, if the model showed a decrease or zero gain in trips a growth rate of 1% was utilized over 23 years. The Fresno COG ABM plots are contained in Appendix C.

LOS Methodology

LOS is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F", with "A" indicating no congestion of any kind and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 6th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. U-turn movements were analyzed using HCM 2000 methodologies and would yield more accurate results for the reason that HCM 6th Edition methodologies do not allow the analysis of U-turns. Lane configurations not reflective of existing conditions are a result of software limitations and thus represent a worst-case scenario. Synchro software was used to define LOS in this study. Details regarding these calculations are included in Appendix D.

While LOS is no longer the criteria of significance for traffic impacts under CEQA, the *City of Kerman 2040 General Plan Update* includes policies that utilize LOS to determine traffic-related improvements that are needed for a project.

LOS Thresholds

The *Fresno County General Plan Update* has established LOS C as the acceptable level of traffic congestion on county roads and streets that fall entirely outside the Sphere of Influence (SOI) of a City (Fresno County, 2000). For those areas that fall within the SOI of a City, the LOS threshold of the city is used in this Report. LOS C is used to evaluate the potential LOS impacts to Fresno County intersections that fall outside the City of Kerman SOI. The study intersections of Siskiyou Avenue at Church Avenue and Siskiyou Avenue at Jensen Avenue fall within the County of Fresno and utilize the threshold of LOS C as a result. The study segments of Siskiyou Avenue between California Avenue and Church Avenue, Siskiyou Avenue between Church Avenue and Jensen Avenue, and Jensen Avenue between Siskiyou Avenue and State Route 145 fall within the County of Fresno and utilize the threshold of LOS C as a result.

The *City of Kerman 2040 General Update Document* has established LOS C as the acceptable level of traffic congestion on its major streets controlled and operated by the City of Kerman. The study intersection of Siskiyou Avenue at Kearney Boulevard, Park Avenue at Kearney Boulevard, Del Norte Avenue at Kearney Boulevard, First Street at Kearney Boulevard and Siskiyou Avenue at E Street fall within the City of Kerman and utilize the threshold of LOS C as a result.

Caltrans no longer considers delay as a significant impact to the environment, for land use projects and plans. According to the Caltrans document VMT Focused Transportation Impact Study Guidelines dated May 2020, Caltrans review of land use projects and plans is focused on a VMT metric consistent with CEQA. VMT for this project has been completed by others and as such not part of this report. In this TIA, the study intersection of Siskiyou Avenue at State Route 180 falls within Caltrans SOI. Therefore, the Caltrans LOS threshold for State Route 180 at this location is utilized. According to the Transportation Concept Report for State Route 180, the concept LOS at this location on State Route 180 is LOS C.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- The Caltrans Timing plan was utilized for the intersections of Siskiyou Avenue at State Route 180.
- The number of observed pedestrians at existing intersections is utilized under all study scenarios.
- An average of 10 pedestrian calls per hour is utilized at study intersections under traffic signal control with crosswalks.
- The existing Heavy Vehicle Factor (HVF) is utilized under all study scenarios.
- The observed approach Peak Hour Factor (PHF) is utilized in the Existing and Existing plus Project scenarios.
- For the Near Term plus Project and Cumulative Year 2046 plus Project scenarios, the following PHFs were utilized to reflect traffic operations and an increase in future traffic volumes. As roadways start to reach their saturated flow rates, PHF's tend to increase to 0.90 or higher in urban settings. A PHF of 0.92, or the existing PHF if higher, is utilized for all remaining study intersections.
  - For the intersections of Siskiyou Avenue at Kearney Boulevard, Park Avenue at Kearney Boulevard, Del Norte Avenue at Kearney Boulevard, First Street at Kearney Boulevard and Siskiyou Avenue at E Street, the following PHF's were utilized:
    - A PHF of 0.86, or the existing if higher, is utilized during the AM peak.
    - A PHF of 0.90, or the existing if higher, is utilized during the PM peak.
  - A PHF of 0.92, or the existing if higher, is utilized for the intersection of Siskiyou Avenue at State Route 180.
  - The existing PHF is utilized for the intersections of Siskiyou Avenue at Church Avenue and Siskiyou Avenue at Jensen Avenue.

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project are discussed below.

Siskiyou Avenue is an existing north-south two-lane divided collector in the vicinity of the proposed Project site. In this area, Siskiyou Avenue exists as a two-lane undivided collector between Belmont Avenue and State Route 180, a two-lane divided collector between State Route 180 and San Joaquin Valley Railroad (SJVR) and a two-lane undivided collector between SJVR and Jensen Avenue. The *City of Kerman 2040 General Plan Update* Circulation Element designates Siskiyou Avenue as a collector between Belmont Avenue and Jensen Avenue.

Park Avenue is an existing north-south two-lane undivided local street in the vicinity of the proposed Project site. In this area, Park Avenue exists as a two-lane undivided local street between Gateway Boulevard and California Avenue. The *City of Kerman 2040 General Plan Update* Circulation Element designates Park Avenue as a local street between Gateway Boulevard and California Avenue.

Del Norte Avenue is an existing north-south two-lane divided collector in the vicinity of the proposed Project site. In this area, Del Norte Avenue exists as a two-lane undivided collector between the Belmont Avenue and State Route 180, a two-lane divided collector between State Route 180 and Kearney Boulevard and a two-lane undivided collector between Keaney Boulevard and A Street. The *City of Kerman 2040 General Plan Update* Circulation Element designates Del Norte Avenue as a collector between Belmont Avenue and Church Avenue.

First Street is an existing north-south two-lane collector divided by a two-way left-turn lane in the vicinity of the proposed Project site. In this area, First Street exists as a two-lane collector divided by a two-way left-turn lane between State Route 180 and Kearney Boulevard and a two-lane undivided collector between Kearney Boulevard and A Street. The *City of Kerman 2040 General Plan Update* Circulation Element designates First Street as a collector between State Route 180 and California Avenue.

State Route 180 is an existing east-west two-lane undivided arterial in the vicinity of the proposed Project site. In this area, State Route 180 exists as a two-lane undivided arterial between Lassen Avenue and Siskiyou Avenue, a three-lane undivided arterial between Siskiyou Avenue and State Route 145, a four-lane undivided arterial between State Route 145 and Goldenrod Avenue and a three-lane undivided arterial between Goldenrod Avenue and Howard Avenue. The *City of Kerman 2040 General Plan Update* Circulation Element designates State Route 180 as a collector between Lassen Avenue and Howard Avenue.

The Transportation Concept Report (TCR) for State Route 180 by Caltrans District 6 classifies State Route 180 as a two-lane conventional highway for the segment between James Road and Del Norte Avenue. The Caltrans District 6 State Route 180 TCR designates this segment of State Route 180 as a four-lane expressway.

Kearney Boulevard is an existing east-west two-lane divided collector adjacent to the proposed Project site. In this area, Kearney Boulevard exists as a two-lane undivided collector between Lassen Avenue and Kenneth Avenue, a two-lane divided collector between Kenneth Avenue and State Route 145 and a two-lane undivided collector between State Route 145 and Howard Avenue. The *City of Kerman 2040 General Plan Update* Circulation Element designates Kearney Boulevard as a collector between Lassen Avenue and Howard Avenue.

California Avenue is an existing east-west two-lane divided collector in the vicinity of the proposed Project. In this area, California Avenue exists as a two-lane divided collector between Kenneth Avenue and Del Norte Avenue and a two-lane undivided collector between Del Norte Avenue and Howard Avenue. The *City of Kerman 2040 General Plan Update* Circulation Element designates California Avenue as a collector between Lassen Avenue and Howard Avenue.

Church Avenue is an existing east-west two-lane undivided collector in the vicinity of the proposed Project site. In this area, Church Avenue is a two-lane undivided collector between Siskiyou Avenue and State Route 145 and a two-lane undivided collector between Vineland Avenue and Howard Avenue. The *City of Kerman 2040 General Plan Update* Circulation Element designates Church Avenue as a collector between Lassen Avenue and Howard Avenue.

Jensen Avenue is an existing east-west two-lane undivided arterial in the vicinity of the proposed Project site. In this area, Jensen Avenue is a two-lane undivided arterial between Lassen Avenue and Howard Avenue. The *City of Kerman 2040 General Plan Update* Circulation Element designates Jensen Avenue as an arterial between Lassen Avenue and Howard Avenue.

Traffic Signal Warrants

The CA MUTCD indicates that an engineering study of traffic conditions, pedestrian characteristics and physical features of an intersection shall be conducted to determine whether installation of traffic signal controls are justified. The CA MUTCD provides a total of nine (9) warrants to evaluate the need for traffic signal controls. These warrants include 1) Eight-Hour Vehicular Volume, 2) Four-Hour Vehicular Volume, 3) Peak Hour, 4) Pedestrian Volume, 5) School Crossing, 6) Coordinated Signal System, 7) Crash Experience, 8) Roadway Network and 9) Intersection Near a Grade Crossing. Signalization of an intersection may be appropriate if one or more of the signal warrants are satisfied. However, the CA MUTCD also states that "[t]he satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic control signal" (Caltrans, 2021).

If traffic signal warrants are satisfied when a LOS threshold impact is identified at an unsignalized intersection, then installation of a traffic signal control may serve as an improvement measure. For instances where traffic signal warrants are satisfied, traffic signal control is not considered to be the default improvement measure. Since installation of a traffic signal control typically adds delay to the major street approaches, an attempt is made to improve the intersection approach lane geometrics in order to improve its LOS while maintaining the existing intersection controls. If the additional lanes did not result in acceptable LOS at the intersection, then in those cases implementation of a traffic signal control would be considered.

Warrant 3 was prepared for the unsignalized intersections under the Existing Traffic Conditions scenario. These warrants are contained in Appendix I. At present, Warrant 3 is met for the intersection of First Street at Kearney Boulevard during the AM peak period. Based on operational analysis and engineering judgement, the signalization of the unsignalized study intersections is not recommended since the unsignalized intersections operate at an acceptable LOS during both peak periods.

Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing Traffic Conditions daily segment volumes, peak hour turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix E. Table I presents a summary of the Existing peak hour LOS at the study intersections. Table II presents a summary of the Existing LOS at the study segments.

At present, all study intersections operate within their LOS threshold during both peak periods.

Table I: Existing Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 – 9) Peak Hour*		*PM (4 – 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Siskiyou Avenue / State Route 180	Traffic Signal	26.7	C	22.3	C
2	Siskiyou Avenue / Kearney Boulevard	All-Way Stop	13.0	B	9.3	A
3	Park Avenue / Kearney Boulevard	Two-Way Stop	15.9	C	12.7	B
4	Del Norte Avenue / Kearney Boulevard	All-Way Stop	13.0	B	9.5	A
5	First Street / Kearney Boulevard	All-Way Stop	14.2	B	10.1	B
6	Siskiyou Avenue / E Street	All-Way Stop	11.0	B	8.3	A
7	Siskiyou Avenue / Church Avenue	One-Way Stop	8.8	A	8.9	A
8	Siskiyou Avenue / Jensen Avenue	One-Way Stop	10.4	B	9.8	A

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

At present, all study segments operate at an acceptable LOS during both peak periods.

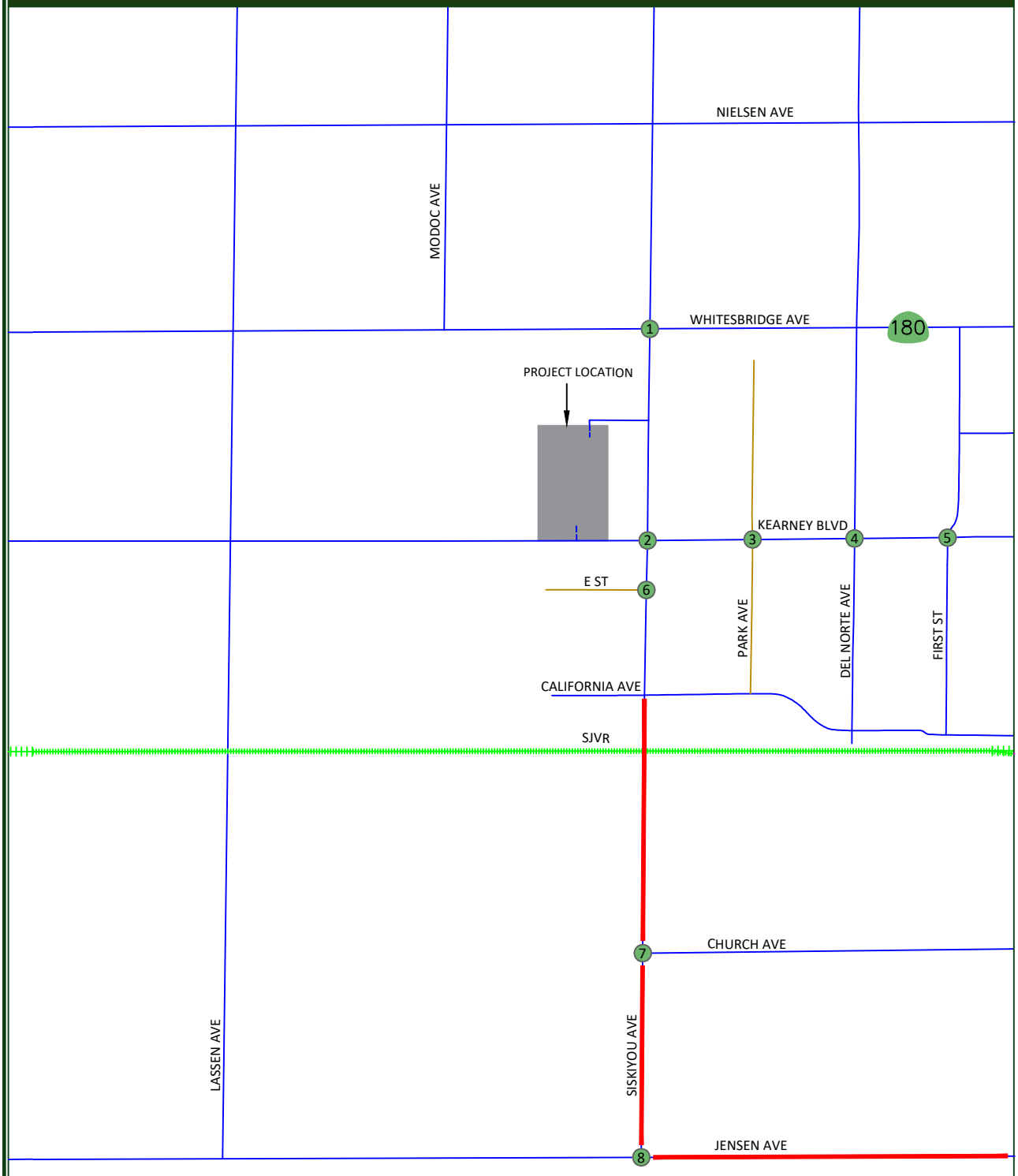
Table II: Existing Segment LOS Results

ID	*Intersection*	*Limits*	*Lanes*	*24-Hour Volume*	*AM Peak Volume*	*AM LOS*	*PM Peak Volume*	*PM LOS*
1	Siskiyou Avenue	California Avene and Church Avenue	2	1,140	78	A	114	A
2	Siskiyou Avenue	Church Avenue and Jensen Avenue	2	1,036	78	A	113	A
3	Jensen Avenue	Siskiyou Avenue and State Route 145	2	2,950	213	A	239	A

Note: LOS = Level of Service per HCS7 software
Peak volumes include the sum of peak hour volumes in each direction

Crown-Schaad Subdivision - City of Kerman
Vicinity Map

Figure 1



LEGEND

(#) = STUDY INTERSECTION

= STUDY SEGMENT

Not To Scale

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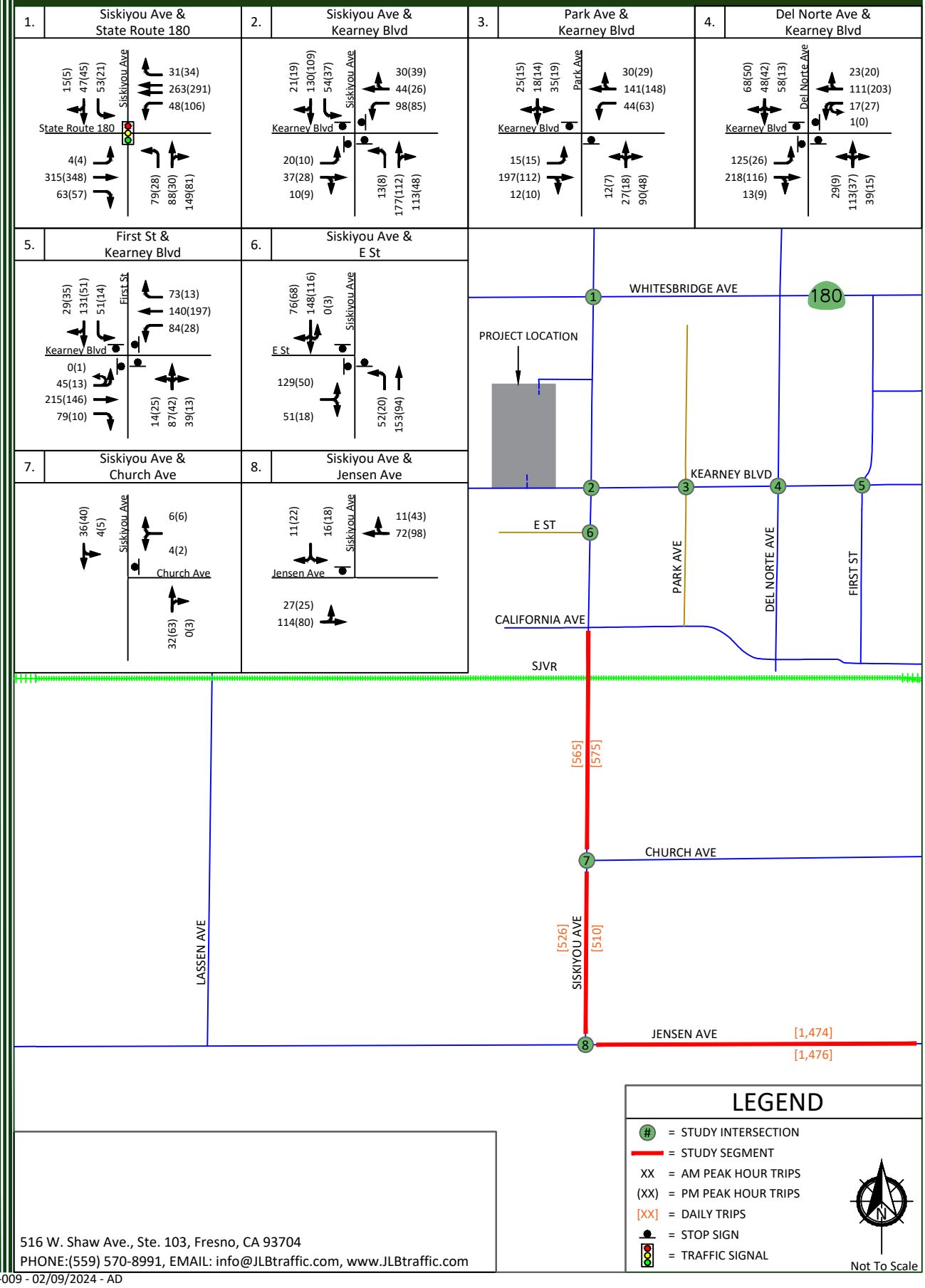
Crown-Schaad Subdivision - City of Kerman
Existing - Traffic Volumes, Geometrics and Controls

Figure 2



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Existing plus Project Traffic Conditions

Project Description

The Project proposes to develop approximately 31.2 net acres on the northwest quadrant of Siskiyou Avenue at Kearney Boulevard with 163 single-family residential detached dwelling units. Based on information provided to JLB, the Project is consistent with the *City of Kerman 2040 General Plan Update*. Figure 3 illustrates the latest Project Site Plan.

Project Access

Access to and from the Project site will be from two (2) access points with three (3) additional access points that are available for future connections. The first access point will be along the northern boundary of the Project connecting to the existing Kenneth Avenue. The second access point will be along the north side of Kearney Boulevard approximately 1,150 feet west of Siskiyou Avenue and is proposed as a full access point. The two (2) of the three (3) future access points are located along the western boundary of the Project boundary and the third is located along the northern side of the Project boundary.

A Project Site Plan can be found in Figure 3. JLB analyzed the location of the proposed access points relative to the roadways in the vicinity of the Project. A review of the access points to be constructed indicates that they are located at points that minimize traffic operational impacts to the existing roadway network. However, to further improve traffic safety, it is recommended that the following changes be implemented:

- Add a traffic calming feature, such as a mini circle, at the internal street intersections of Stanislaus Avenue at "B" Avenue and David Avenue at Kenneth Avenue.
- Modify the raised median island on the west left of the intersection of Kearny Boulevard at Kenneth Avenue to accommodate an eastbound left turn pocket with a storage capacity of 100 feet plus a bay taper to City of Kerman standards.

Trip Generation

Trip generation rates for the proposed Project were obtained from the 11th Edition of the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE). Table III presents the trip generation for all buildings in the proposed Project with trip generation rates for Single-Family Detached Housing (Land Use Code 210). At buildout, the Project is estimated to generate approximately 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips.

Table III: Project Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM (7-9) Peak Hour*						*PM (4-6) Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Single-Family Detached Housing (210)	163	d.u.	9.43	1,537	0.70	26	74	30	84	114	0.94	63	37	96	57	153
Total Driveway Trips				**1,537**				**30**	**84**	**114**				**96**	**57**	**153**

Note: d.u. = Dwelling Unit

Trip Distribution

The Project Only Trips to the study intersections were developed based on existing travel patterns, the Fresno COG Project Select Zone, the existing roadway network, knowledge of the study area, engineering judgment, existing residential densities and the *City of Kerman General Plan Update* Circulation Element in the vicinity of the Project site. Figure 4 illustrates the Project Only Trips to the study intersections. The Fresno COG Project Select Zone results are contained in Appendix C.

Bikeways

The *City of Kerman 2040 General Plan Update* classifies bicycle facilities into the following types:

- Class I Bikeway – A bike path or trail that is fully separated from automobile traffic. These are generally off-street trails and are often shared with pedestrians and sometimes equestrian users.
- Class II Bikeway – A dedicated bicycle space on a facility shared with vehicles. Most commonly, these are marked bicycle lanes or paved shoulders and are wide enough that vehicles can pass cyclists without leaving their lanes.
- Class III Bikeway – A roadway where bicycles and vehicles share the same lane. These are generally indicated with signage to "share the road" or by painted sharrows. Bicycles are granted full right of access to the street and are considered part of general traffic.
- Class IV Bikeways – A roadway designed with bicycle friendly features, but without striping, pavement markings, or informational markers indicating preferential or exclusive use for cyclists. These features include wide curb lands and bicycle safe drain gates.

Currently, bike lanes exist in the vicinity of the proposed Project site along Kearney Boulevard, Siskiyou Avenue, Del Norte Avenue and First Street as Class II Bikeways. The *City of Kerman 2040 General Plan Update* recommends bike lanes be implemented on the following: 1) State Route 180 as both Class II and Class III facilities, 2) Kearney Boulevard as both Class II and Class III facilities, 3) California Avenue as both Class I and Class II facilities, 4) Siskiyou Avenue as both Class II and Class III facilities, 5) Del Norte Avenue as Class II facilities and 6) First Street as a Class III facility. Therefore, it is recommended that the Project construct a Class II Bikeway along its frontage to Kearney Boulevard.

Transit

Fresno County Rural Transportation Agency (FCRTA) is the only public transit operator in the City of Kerman. The Westside route runs between the City of Firebaugh and the City of Fresno making two stops in the City of Kerman. The closest bus stop to the Project is located on the southwest corner of State Route 180 at State Route 145. This route runs twice daily from Firebaugh to Fresno, stopping in the City of Kerman a total of eight (8) times a day. The San Joaquin route provides service via dial-a-ride from San Joaquin and Tranquility to connections in Kerman offered on Monday, Wednesday, and Friday. Dial-A-Ride service may be requested daily. Direct service from San Joaquin and from surrounding communities to connections in Kerman requires a reservation made 24-Hour prior to scheduled pick up. Requests booked through the reservation service take priority over Dial-A-Ride service requests. Retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

Safe Routes to School

Kindergarten through 12th grade students from the Project will be served by the Kerman Unified School District (KUSD). KUSD provides transportation for students who live in excess of an established radius zone. The zone is a radius of 1.0 mile for grades Kindergarten through 6th, 1.5 miles for grades 7th through 8th and 2.0 miles for grades 9th through 12th.

Based on attendance area boundaries at the time of the preparation of this TIA, elementary school students would attend Liberty Elementary School located on the southwest corner of Siskiyou Avenue at E Street. Liberty Elementary School is located 0.2 and 0.5 from the nearest and farthest point of the Project. Therefore, it is anticipated that the majority of elementary school students will need to walk, bike or be driven to school. The most direct path from the Project to Liberty Elementary School campus would begin from the southern access point of the Project site located along the north side of Kearney Boulevard west of Siskiyou Avenue. Students would proceed east along the north side of Kearney Boulevard towards Siskiyou Avenue. The intersection of Siskiyou Avenue at Kearney Boulevard is controlled by an all-way stop and includes marked crosswalks on all legs. Students would cross the west leg of this intersection to reach the southwest corner. Students would proceed south along the west side of Siskiyou Avenue towards E Street. The intersection of Siskiyou Avenue at E Street is controlled by an all-way stop and includes marked crosswalks on all legs. Students would cross the west leg of this intersection to reach the southwest corner. Students would proceed south along the west side of Siskiyou Avenue to reach the nearest campus entrance.

Based on attendance area boundaries at the time of the preparation of this TIA, middle school students would attend Kerman Middle School located on the northwest corner of First Street at E Street. Kerman Middle School is located 0.8 and 1.0 from the nearest and farthest point of the Project. Therefore, it is anticipated that the majority of middle school students will need to walk, bike or be driven to school. The most direct path from the Project to Kerman Middle School campus would begin from the southern access point of the Project site located along the north side of Kearney Boulevard west of Siskiyou Avenue. Students would proceed east along the north side of Kearney Boulevard towards Siskiyou Avenue. The intersection of Siskiyou Avenue at Kearney Boulevard is controlled by an all-way stop and includes marked crosswalks on all legs. Students would cross the north leg of this intersection to reach the northeast corner. Students would proceed east along the north side of Keaney Boulevard towards Park Avenue. The intersection of Park Avenue at Kearney Boulevard is controlled by a two-way stop. Students would proceed east along the north side of Kearney Boulevard towards Del Norte Avenue. The intersection of Del Norte Avenue at Kearney Boulevard is controlled by an all-way stop and includes marked crosswalks on all legs. Students would cross the north leg of this intersection to reach the northeast corner. Students would proceed east along the north side of Kearney Boulevard towards First Street. The intersection of First Street at Kearney Boulevard is controlled by an all-way stop and includes high-visibility crosswalks on all legs. Students would cross the west leg of this intersection to reach the southwest corner. Students would proceed south along the west side of First Street to reach the nearest campus entrance.

Based on attendance area boundaries at the time of the preparation of this TIA, high school students would attend Kerman High School located on the southwest corner of First Street at State Route 180. Kerman High School is located 0.8 and 1.1 from the nearest and farthest point of the Project. Therefore, it

is anticipated that the majority of high school students will need to walk, bike or be driven to school. The most direct path from the Project to Kerman High School campus would begin from the southern access point of the Project site located along the north side of Kearney Boulevard west of Siskiyou Avenue. Students would proceed east along the north side of Kearney Boulevard towards Siskiyou Avenue. The intersection of Siskiyou Avenue at Kearney Boulevard is controlled by an all-way stop and includes marked crosswalks on all legs. Students would cross the north leg of this intersection to reach the northeast corner. Students would proceed east along the north side of Keaney Boulevard towards Park Avenue. The intersection of Park Avenue at Kearney Boulevard is controlled by a two-way stop. Students would proceed east along the north side of Kearney Boulevard towards Del Norte Avenue. The intersection of Del Norte Avenue at Kearney Boulevard is controlled by an all-way stop and includes marked crosswalks on all legs. Students would cross the north leg of this intersection to reach the northeast corner. Students would proceed east along the north side of Kearney Boulevard towards First Street. The intersection of First Street at Kearney Boulevard is controlled by an all-way stop and includes high-visibility crosswalks on all legs. Students would proceed north along the west side of First Street to reach the nearest campus entrance.

The intersection of Park Avenue at Kearney Boulevard does not contain marked crosswalks across the north and south legs. It is recommended that the Project and KUSD look into funding sources to add marked crosswalks across the north leg of Park Avenue to enhance pedestrian safety to and from KUSD campuses.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Existing plus Project Traffic Conditions scenario. These warrants are contained in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the study intersection of First Street at Kearney Boulevard is projected to satisfy Warrant 3 during the AM peak period. Based on the traffic signal warrants, operational analysis and engineering judgment, the signalization of the unsignalized study intersection is not recommended since the unsignalized intersection operates at an acceptable LOS during both peak periods.

Roadway Network

The Existing plus Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place with a few exceptions. This scenario assumes that the Project will build all driveways and internal roads. Figure 5 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Existing plus Project Level of Service Analysis

Figure 5 illustrates the Existing plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix F. Table IV presents a summary of the Existing plus Project peak hour LOS at the study intersections. Table V presents a summary of the Existing plus Project LOS at the study segments.

Under this scenario, all study intersections operate within their LOS threshold during both peak periods.

Table IV: Existing plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 – 9) Peak Hour		PM (4 – 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Siskiyou Avenue / State Route 180	Traffic Signal	28.6	C	24.6	C
2	Siskiyou Avenue / Kearney Boulevard	All-Way Stop	14.9	B	9.8	A
3	Park Avenue / Kearney Boulevard	Two-Way Stop	16.4	C	13.1	B
4	Del Norte Avenue / Kearney Boulevard	All-Way Stop	13.4	B	9.8	A
5	First Street / Kearney Boulevard	All-Way Stop	14.4	B	10.4	B
6	Siskiyou Avenue / E Street	All-Way Stop	12.0	B	8.4	A
7	Siskiyou Avenue / Church Avenue	One-Way Stop	8.9	A	8.9	A
8	Siskiyou Avenue / Jensen Avenue	One-Way Stop	11.0	B	9.9	A

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Under this scenario, all study segments operate at an acceptable LOS during both peak periods.

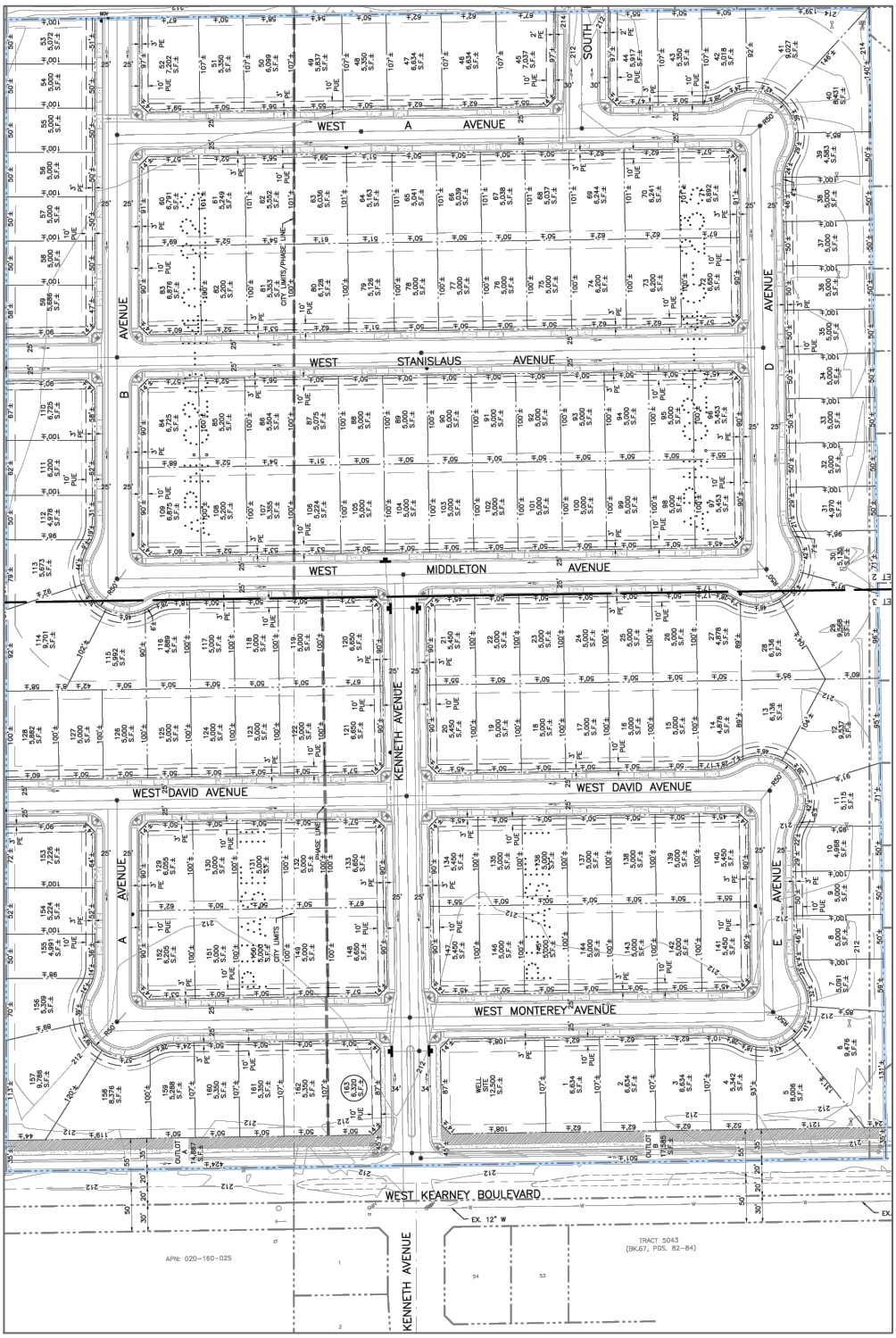
Table V: Existing plus Project Segment LOS Results

ID	Intersection	Limits	Lanes	24-Hour Volume	AM Peak Volume	AM LOS	PM Peak Volume	PM LOS
1	Siskiyou Avenue	California Avene and Church Avenue	2	1,370	96	A	136	A
2	Siskiyou Avenue	Church Avenue and Jensen Avenue	2	1,246	96	A	134	A
3	Jensen Avenue	Siskiyou Avenue and State Route 145	2	3,154	230	A	258	A

Note: LOS = Level of Service per HCS7 software
Peak volumes include the sum of peak hour volumes in each direction

Crown-Schaad Subdivision - City of Kerman
Project Site Plan

Figure 3



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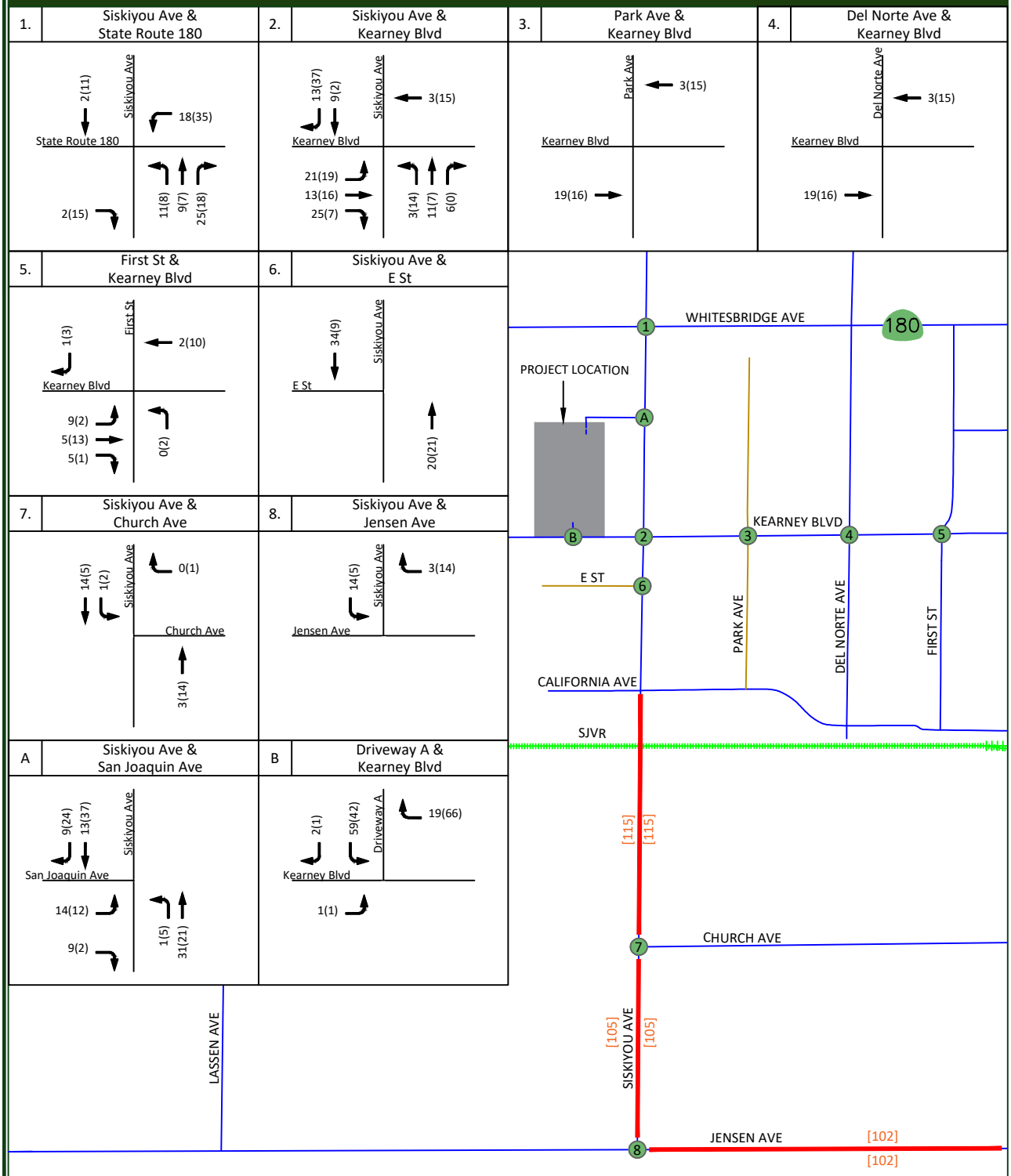
Crown-Schaad Subdivision - City of Kerman
Project Only Trips

Figure 4



LEGEND

- (#) = STUDY INTERSECTION
- = STUDY SEGMENT
- XX = AM PROJECT ONLY TRIPS
- (XX) = PM PROJECT ONLY TRIPS
- [XX] = DAILY PROJECT ONLY TRIPS

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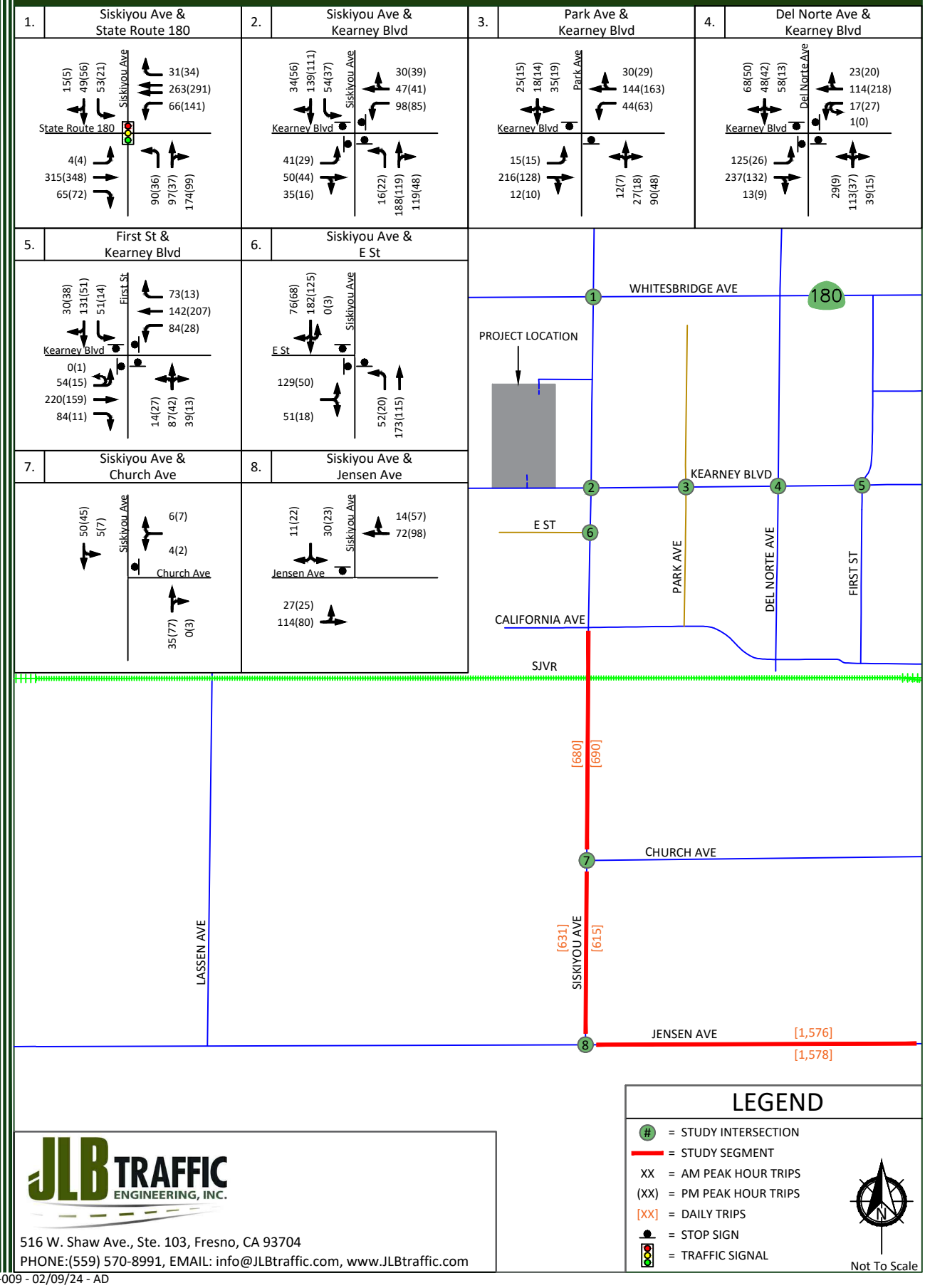
Crown-Schaad Subdivision - City of Kerman
Existing plus Project - Traffic Volumes, Geometrics and Controls

Figure 5



LEGEND

- # = STUDY INTERSECTION
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- XX = AM PEAK HOUR TRIPS
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- [XX] = DAILY TRIPS
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- = TRAFFIC SIGNAL

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Near Term plus Project Traffic Conditions

Description of Near Term Projects

Near Term Projects are approved and/or known Projects that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. County of Fresno, City of Kerman and Caltrans staff were consulted throughout the preparation of this TIA Report regarding Near Term Projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects. Therefore, the Near Term Projects listed in Table VI were approved, near approval, or in the pipeline within the proximity of the proposed Project.

The trip generation listed in Table VI is that which is anticipated to be added to the roadway network by the Near Term Projects between the time of the preparation of this Report and five years after buildout of the proposed Project. As shown in Table VI, the total trip generation for the Near Term Projects is 12,451 daily trips, 1,387 AM peak hour trips and 1,092 PM peak hour trips. Figure 6 illustrates the location of the Near Term Projects and their combined trip assignment to the study intersections and segments.

Table VI: Near Term Projects' Trip Generation

Near Term Project ID	*Near Term Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	Commercial Development (SEC Kline St and SR 180)[2]	2,296	261	204
B	KUSD Athletic Site & Elementary School[1]	1,897	563	188
C	Tract 6236[1]	5,669	358	438
D	Tract 6293[3]	802	63	84
E	Tract 6302[1]	179	14	19
F	Whispering Falls[2]	1,608	128	159
Total Approved and Pipeline Project Trips		**12,451**	**1,387**	**1,092**

Note: 1 = Trip Generation based on JLB Traffic Engineering, Inc. analysis
2 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
3 = Trip Generation based on an analysis by another firm

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Near Term plus Project Traffic Conditions scenario. These warrants are contained in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the study intersections of Siskiyou Avenue at Kearney Boulevard, Del Norte Avenue at Kearney Boulevard, First Street at Kearney Boulevard and Siskiyou Avenue at E Street are projected to satisfy Warrant 3 during one or both peak periods. Based on operational analysis and engineering judgement, signalization is not recommended for any unsignalized study intersections.

Roadway Network

The Near Term plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing plus Project Traffic Conditions scenario. Figure 7 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Near Term plus Project Level of Service Analysis

Figure 7 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project Traffic Conditions scenario are provided in Appendix G. Table VII presents a summary of the Near Term plus Project peak hour LOS at the study intersections. Table VIII presents a summary of the Near Term plus Project LOS at the study segments.

Under this scenario, the study intersection of Siskiyou Avenue at State Route 180 is projected to exceed its LOS threshold during both peak periods. It is recommended that the following improvements be implemented to improve the LOS at this intersection.

- Siskiyou Avenue / State Route 180
  - Stripe a second eastbound through lane;
  - Add a northbound right-turn lane;
  - Modify the northbound through-right lane to a through lane; and
  - Modify the traffic signal to accommodate the additional lanes.

Table VII: Near Term plus Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 – 9) Peak Hour*		*PM (4 – 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Siskiyou Avenue / State Route 180	Traffic Signal	**45.3**	**D**	**40.7**	**D**
		Traffic Signal (Improved)	29.3	C	30.8	C
2	Siskiyou Avenue / Kearney Boulevard	All-Way Stop	23.7	C	12.0	B
3	Park Avenue / Kearney Boulevard	Two-Way Stop	20.2	C	14.4	B
4	Del Norte Avenue / Kearney Boulevard	All-Way Stop	15.1	C	10.4	B
5	First Street / Kearney Boulevard	All-Way Stop	17.8	C	11.2	B
6	Siskiyou Avenue / E Street	All-Way Stop	13.4	B	9.6	A
7	Siskiyou Avenue / Church Avenue	One-Way Stop	8.9	A	9.1	A
8	Siskiyou Avenue / Jensen Avenue	One-Way Stop	11.4	B	10.2	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Under this scenario, all study segments operate at an acceptable LOS during both peak periods.

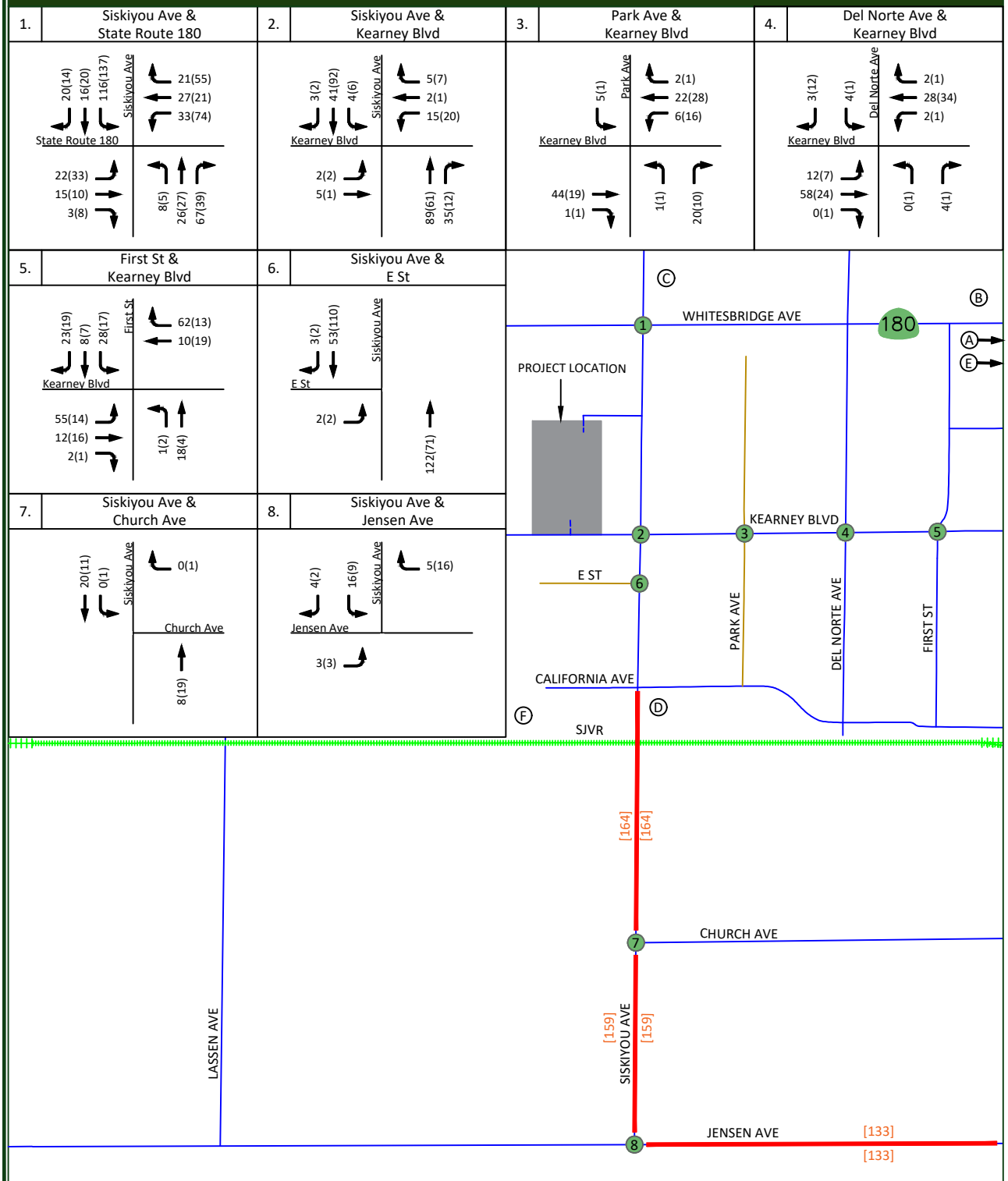
Table VIII: Near Term plus Project Segment LOS Results

ID	*Intersection*	*Limits*	*Lanes*	*24-Hour Volume*	*AM Peak Volume*	*AM LOS*	*PM Peak Volume*	*PM LOS*
1	Siskiyou Avenue	California Avene and Church Avenue	2	1,698	124	A	168	A
2	Siskiyou Avenue	Church Avenue and Jensen Avenue	2	1,564	124	A	165	A
3	Jensen Avenue	Siskiyou Avenue and State Route 145	2	3,420	251	A	283	A

Note: LOS = Level of Service per HCS7 software
Peak volumes include the sum of peak hour volumes in each direction.

Crown-Schaad Subdivision - City of Kerman
Near Term Projects' Trip Assignment

Figure 6



LEGEND

- (#) = STUDY INTERSECTION
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- XX = AM NEAR TERM TRIPS
- (XX) = PM NEAR TERM TRIPS
- [XX] = DAILY TRIPS
- (#) = NEAR TERM PROJECT LOCATION

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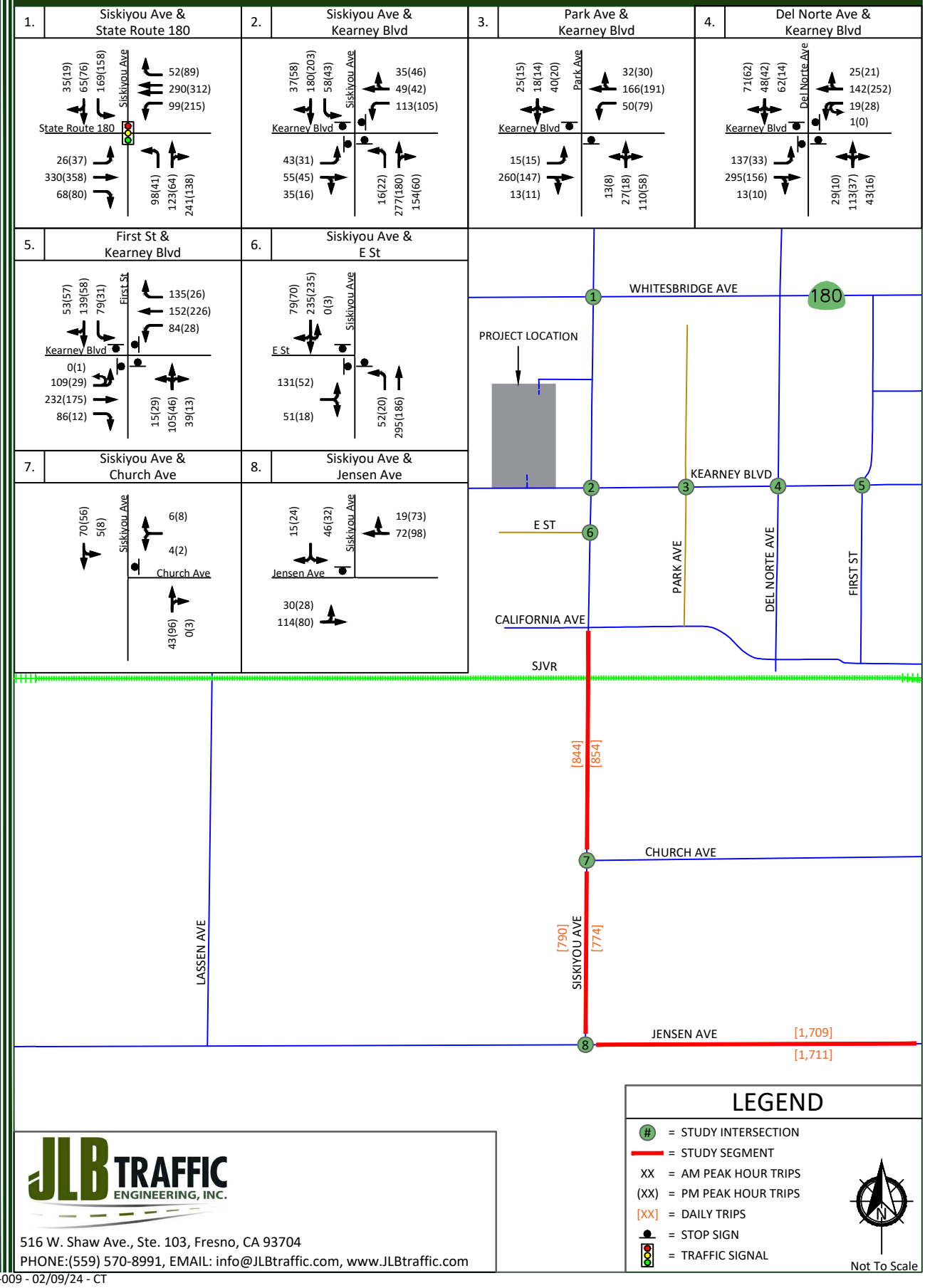
Crown-Schaad Subdivision - City of Kerman
Near Term plus Project - Traffic Volumes, Geometrics and Controls

Figure 7



LEGEND

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Cumulative Year 2046 plus Project Traffic Conditions

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Cumulative Year 2046 plus Project Traffic Conditions scenario. These warrants are contained in Appendix I. These warrants were prepared pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the study intersections of Siskiyou Avenue at Kearney Boulevard, Del Norte Avenue at Kearney Boulevard, First Street at Kearney Boulevard and Siskiyou Avenue at E Street are projected to satisfy Warrant 3 during one or both peak periods. Based on operational analysis and engineering judgement, signalization is not recommended for any unsignalized study intersections.

Roadway Network

The Cumulative Year 2046 plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Near Term plus Project Traffic Conditions scenario. Figure 8 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Cumulative Year 2046 plus Project Level of Service Analysis

Figure 8 illustrates the assumed intersection geometrics and traffic controls for the study intersections under this scenario. LOS worksheets for the Cumulative Year 2046 plus Project Traffic Conditions scenario are provided in Appendix H. Table IX presents a summary of the Cumulative Year 2046 plus Project peak hour LOS at the study intersections. Table X presents a summary of the Cumulative Year 2046 plus Project LOS at the study segments.

Under this scenario, the study intersection of Siskiyou Avenue at State Route 180 is projected to exceed its LOS threshold during both peak periods. It is recommended that the following improvements be implemented to improve the LOS at this intersection.

- Siskiyou Avenue / State Route 180
  - Stripe a second eastbound through lane;
  - Add a northbound right-turn lane;
  - Modify the northbound through-right lane to a through lane; and
  - Modify the traffic signal to accommodate the additional lanes.

Table IX: Cumulative Year 2046 plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 – 9) Peak Hour		PM (4 – 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Siskiyou Avenue / State Route 180	Traffic Signal	**52.6**	**D**	**43.1**	**D**
		Traffic Signal (Improved)	32.3	C	31.9	C
2	Siskiyou Avenue / Kearney Boulevard	All-Way Stop	24.1	C	12.0	B
3	Park Avenue / Kearney Boulevard	Two-Way Stop	21.7	C	15.7	C
4	Del Norte Avenue / Kearney Boulevard	All-Way Stop	17.9	C	11.1	B
5	First Street / Kearney Boulevard	All-Way Stop	18.7	C	11.3	B
6	Siskiyou Avenue / E Street	All-Way Stop	13.6	B	9.7	A
7	Siskiyou Avenue / Church Avenue	One-Way Stop	9.0	A	9.2	A
8	Siskiyou Avenue / Jensen Avenue	One-Way Stop	12.1	B	10.5	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Under this scenario, all study segments operate at an acceptable LOS during both peak periods.

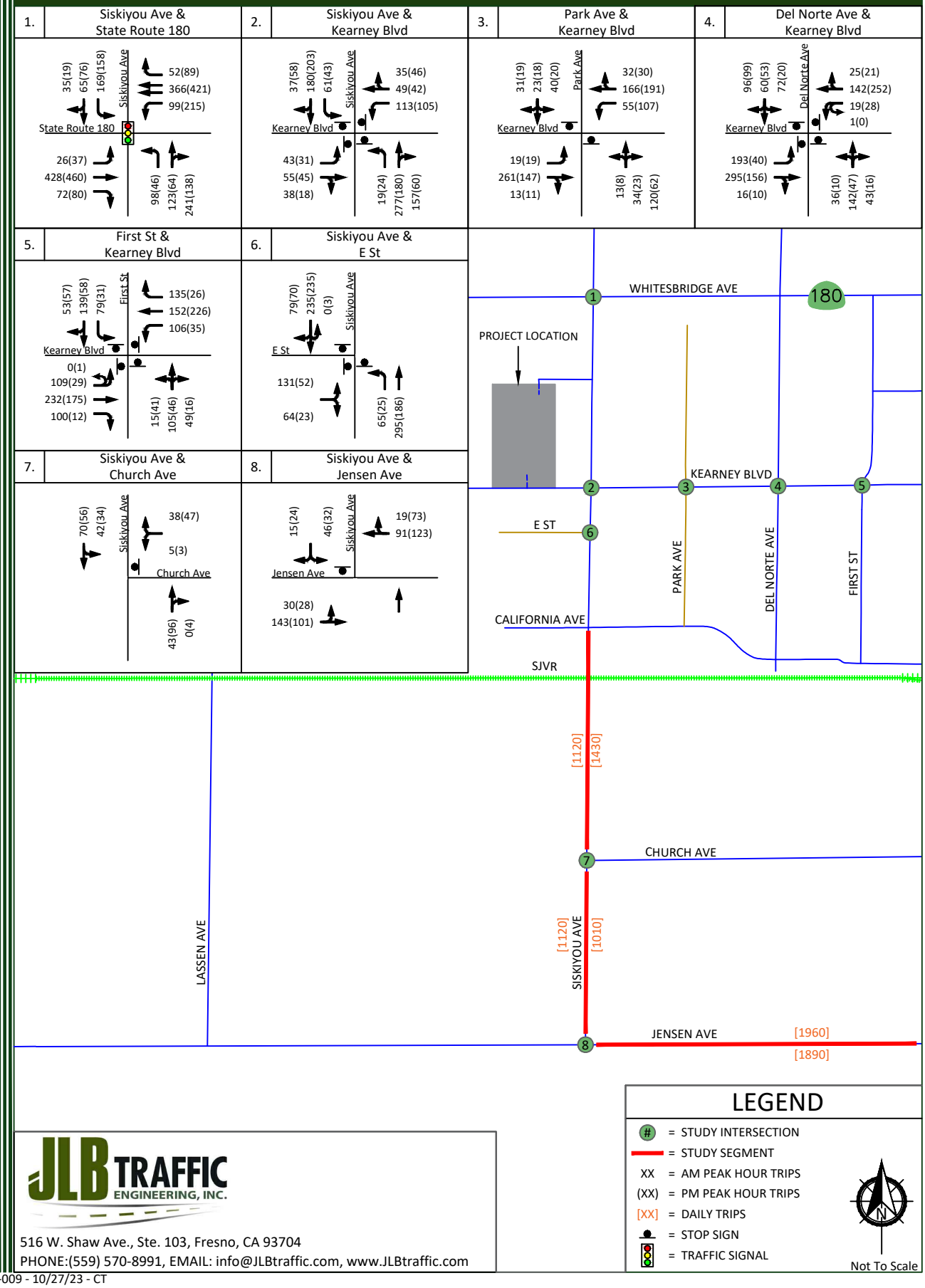
Table X: Cumulative Year 2046 plus Project Segment LOS Results

ID	Intersection	Limits	Lanes	24-Hour Volume	AM Peak Volume	AM LOS	PM Peak Volume	PM LOS
1	Siskiyou Avenue	California Avene and Church Avenue	2	2,550	193	A	233	A
2	Siskiyou Avenue	Church Avenue and Jensen Avenue	2	2,130	161	A	191	A
3	Jensen Avenue	Siskiyou Avenue and State Route 145	2	3,850	299	A	329	A

Note: LOS = Level of Service per HCS7 software
Peak volumes include the sum of peak hour volumes in each direction.

Crown-Schaad Subdivision - City of Kerman
Cumulative Year 2046 plus Project - Traffic Volumes, Geometrics and Controls

Figure 8



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Queuing Analysis

Table XI provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix D contains the methodologies used to evaluate these intersections. Queuing analyses were completed using SimTraffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the *Synchro Studio 11 User Guide*, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes" (Cubic ITS, Inc., 2019). The queues shown on Table XI are the 95th percentile queue lengths for the respective lane movements.

The CA HDM provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. According to the CA HDM, tapers for right-turn lanes are "usually unnecessary since main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane" (Caltrans, 2019). Therefore, a bay taper length pursuant to the CA HDM would need to be added, as necessary, to the recommended storage lengths presented in Table XI.

The storage capacity for the Cumulative Year 2046 plus Project Traffic Conditions shall be based on the SimTraffic output files and engineering judgement. The values in bold presented in Table XI are the projected queue lengths that will likely need to be accommodated by the Cumulative Year 2046 plus Project Traffic Conditions scenario. At the remaining approaches of the study intersections, the existing storage capacity will be sufficient to accommodate the maximum queue.

Table XI: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2046 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM
1	Siskiyou Avenue / State Route 180	Eastbound Left	475	12	13	27	23	57	66	53	51
		Eastbound Through	>500	221	229	195	298	128	118	175	191
		Eastbound Through	*	*	*	*	*	141	124	173	170
		Eastbound Right	300	46	40	47	57	55	48	67	57
		Westbound Left	475	59	110	81	160	124	231	118	217
		Westbound Through	>500	135	151	152	166	156	150	233	169
		Westbound Through	>500	59	75	77	59	64	94	108	91
		Westbound Right	475	40	33	32	38	45	37	34	40
		Northbound Left	150	112	58	105	74	112	54	141	72
		Northbound Through	*	*	*	*	*	114	80	178	83
		Northbound Through-Right	>500	158	98	162	125	*	*	*	*
		Northbound Right	*	*	*	*	*	83	71	**99**	74
		Southbound Left	100	63	42	65	30	148	155	133	**162**
		Southbound Through-Right	>500	78	60	67	52	154	181	97	151
2	Siskiyou Avenue / Kearney Boulevard	Eastbound Left	110	42	26	46	44	46	45	46	44
		Eastbound Through-Right	>500	56	50	67	59	70	56	58	55
		Westbound Left	150	54	52	55	52	62	64	58	60
		Westbound Through-Right	>500	61	54	62	51	60	49	67	60
		Northbound Left	100	30	20	35	41	66	42	35	45
		Northbound Through-Right	>500	80	59	91	68	146	67	139	73
		Southbound Left	115	48	42	55	49	51	42	53	50
		Southbound Through-Right	>500	62	69	92	83	101	114	99	96
3	Park Road / Kearney Boulevard	Eastbound Left	100	14	9	8	17	14	16	14	25
		Eastbound Through-Right	>500	10	0	0	10	7	7	0	10
		Westbound Left	100	26	27	25	22	27	36	30	45
		Westbound Though-Right	>500	7	9	0	0	0	7	7	0
		Northbound Left-Through-Right	>500	67	44	65	58	86	64	70	62
		Southbound Left-Through-Right	>500	66	48	57	52	60	56	63	64
4	Del Norte Avenue / Kearney Boulevard	Eastbound Left	100	68	42	63	42	63	42	78	43
		Eastbound Through-Right	>500	98	60	93	70	129	59	105	60
		Westbound Left	100	34	46	43	38	49	43	29	46
		Westbound Through-Right	>500	80	75	58	59	70	74	64	82
		Northbound Left-Through-Right	>500	92	53	81	58	90	50	100	57
		Southbound Left-Through-Right	>500	78	52	78	52	72	58	107	76

Note: * = Does not exist or is not projected to exist

Table XI: Queuing Analysis (Continued)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2046 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM
5	First Street / Kearney Boulevard	Eastbound Left	100	53	37	58	36	102	47	**102**	45
		Eastbound Through	>500	75	50	82	61	120	73	170	57
		Eastbound Right	100	55	21	61	31	54	35	86	31
		Westbound Left	60	59	42	59	37	79	41	**97**	54
		Westbound Through	>500	83	80	80	74	99	86	87	92
		Westbound Right	60	61	37	66	53	**84**	56	75	53
		Northbound Left-Through-Right	>500	70	40	71	59	73	42	91	41
		Southbound Left	100	44	24	56	32	63	37	47	39
		Southbound Through-Right	>500	85	45	63	48	87	52	87	58
6	Siskiyou Avenue / E Street	Eastbound Left-Right	>500	80	52	77	61	89	59	95	63
		Northbound Left	100	51	44	49	38	51	33	58	49
		Northbound Left	>500	59	58	64	65	95	69	83	70
		Southbound Through-Right	>500	72	55	72	44	98	66	96	71
7	Siskiyou Avenue / Church Avenue	Westbound Left-Right	>500	19	19	19	17	34	25	50	44
		Northbound Through-Right	>500	0	0	0	0	0	0	0	0
		Southbound Through-Right	>500	0	0	0	11	0	8	12	17
8	Jensen Avenue / Siskiyou Avenue	Eastbound Left-Through	>500	19	22	10	19	22	11	16	8
		Westbound Through-Right	>500	0	0	0	0	0	0	0	0
		Southbound Left-Right	>500	38	51	58	40	56	46	50	49

Note: * = Does not exist or is not projected to exist

Project's Pro-Rate Fair Share of Future Transportation Improvements

The Project's fair share percentage impact to the study intersection that currently operates below its LOS threshold, and which is not covered by an existing impact fee program, is provided in Table XII. The Project's fair share percentage impacts were calculated using the Caltrans pro-rata fair share formula. The Project's pro-rata fair shares were calculated utilizing the Existing, Project Only Trips and Cumulative Year 2046 plus Project volumes. Figure 2 illustrates the Existing traffic volumes, Figure 4 illustrates the Project Only Trips and Figure 8 illustrates the Cumulative Year 2046 plus Project traffic volumes. Since the critical peak period for the study facilities was determined to be during the PM peak period, the PM peak traffic volumes are utilized to determine the Project's pro-rata fair share.

It is recommended that the Project contribute its equitable fair share as listed in Table XII for the improvements necessary to return the intersection to an acceptable LOS. However, fair share contributions should only be made for those facilities or portion thereof not funded by the responsible agencies roadway impact fee program(s) or grant funding, as appropriate. For those improvements not presently covered by local and regional roadway impact fee programs or grant funding, it is recommended that the Project contribute its equitable fair share. Payment of the Project's equitable fair share in addition to the local and regional impact fee programs would satisfy the Project's traffic cumulative traffic impacts.

This study does not provide construction costs for the recommended mitigation measures; therefore, if the recommended improvement measures are implemented, it is recommended that the Project work with Caltrans and the City of Kerman to develop the estimated construction cost.

Table XII: Project's Fair Share of Future Roadway Improvements

ID	*Intersection*	*Existing Traffic Volumes (PM Peak)*	*Cumulative Year 2046 plus Project Traffic Volumes (PM Peak)*	*Project Only Trips (PM Peak)*	*Project's Fair Share (%)*
1	Siskiyou Avenue / State Route 180	1,050	1,803	94	12.5

Note: Project Fair Share = ((Project Only Trips) / (Cumulative Year 2046 plus Project Traffic Volumes – Existing Traffic Volumes)) x 100

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are presented below.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.
- At present, all study segments operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- At build-out, the Project is estimated to generate approximately 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips.
- It is recommended that the Project implements a Class II Bikeway along its frontage to Kearney Boulevard.
- To improve traffic safety, it is recommended that the following changes be implemented:
  - Add a traffic calming feature, such as a mini circle, at the internal street intersections of Stanislaus Avenue at "B" Avenue and David Avenue at Kenneth Avenue.
  - Modify the raised median island on the west left of the intersection of Kearny Boulevard at Kenneth Avenue to accommodate an eastbound left turn pocket with a storage capacity of 100 feet plus a bay taper to City of Kerman standards.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.
- Under this scenario, all study segments are projected to operate at an acceptable LOS during both peak periods.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 12,451 daily trips, 1,387 AM peak hour trips and 1,092 PM peak hour trips.
- Under this scenario, the study intersection of Siskiyou Avenue at State Route 180 is projected to exceed its LOS threshold during both peak periods. It is recommended that the following improvements be implemented to improve the LOS at this intersection.
  - Siskiyou Avenue / State Route 180
    - Stripe a second eastbound through lane;
    - Add a northbound right-turn lane;
    - Modify the northbound through-right lane to a through lane; and
    - Modify the traffic signal to accommodate the additional lanes.
- Under this scenario, all study segments are projected to operate at an acceptable LOS during both peak periods.

Cumulative Year 2046 plus Project Traffic Conditions

- Under this scenario, the study intersection of Siskiyou Avenue at State Route 180 is projected to exceed its LOS threshold during both peak periods. It is recommended that the following improvements be implemented to improve the LOS at this intersection.
  - Siskiyou Avenue / State Route 180
    - Stripe a second eastbound through lane;
    - Add a northbound right-turn lane;
    - Modify the northbound through-right lane to a through lane; and
    - Modify the traffic signal to accommodate the change in lanes.
- Under this scenario, all study segments are projected to operate at an acceptable LOS during both peak periods.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project's Equitable Fair Share

- It is recommended that the Project contribute its equitable Fair Share as presented in Table XII for those future improvements which are not covered by an existing impact fee program of grant funds.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, PE, TE	Project Manager
Matthew Arndt, EIT	Engineer I/II
Christian Sanchez	Engineer I/II
Adrian Benavides	Engineering Aide
Carlos Topete	Engineering Aide
Dennis Wynn	Sr. Engineering Technician

Persons Consulted:

Joseph Crown	Crawford & Bowen Planning, Inc.
Jerry Jones, PE	City of Kerman
Hector Luna	Fresno County
David Padilla	Caltrans
Kai Han, TE	Fresno COG
Santosh Bhattarai	Fresno COG

References

Caltrans. 2021. "California Manual on Uniform Traffic Control Devices". Sacramento: State of California.

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Appendix A: Scope of Work

June 19, 2023

Jerry Jones, P.E.
Yamabe and Horn Engineering, Inc.
Consultant City Engineer
2985 N Burl Ave., Suite 101
Fresno CA 93727

Via Email Only: jjones@yhmail.com

Subject: ***Proposed Scope of Work for the Preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision located on the Northwest Quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman (JLB Project 025-009)***

Dear Mr. Jones,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) for the Crown-Schaad Subdivision (Project) located at the northwest quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman. The Project proposes to develop 163 single family residential units on 31.2 net acres. Based on information provided to JLB, the proposed Project is consistent with the City of Kerman General Plan. An aerial of the Project vicinity is shown in Exhibits A.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. To evaluate the on-site and off-site traffic impacts of the proposed Project, JLB proposes the following Scope of Work.

Scope of Work

- JLB will request a Fresno Council of Governments (Fresno COG) traffic forecast model run for the Project (Select Zone Analysis) which will include the Project and the streets to be analyzed. The Fresno COG traffic forecasting model will be used to forecast traffic volumes for the Base Year (2019) and Cumulative Year (2046) Scenarios.
- JLB will obtain recent (less than 12 months) or schedule and conduct new traffic counts at the study facility(ies) as necessary. These counts will include pedestrians and vehicles.
- JLB will perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions including intersection geometrics and traffic controls will be verified.
- JLB will evaluate on-site circulation and provide recommendations as necessary to improve circulation to and within the Project site. Particular attention will be paid to conflicting traffic movements, location of local roadways to major streets, and onsite vehicular ingress and egress routes.

- JLB will prepare CA MUTCD Warrant 3 "Peak Hour" for unsignalized study intersections under all study scenarios.
- JLB will conduct a qualitative safe routes to school evaluation from the Project site to the K-12 school(s) which would most likely serve the Project on opening day.
- JLB will qualitatively analyze existing and planned transit routes in the vicinity of the Project.
- JLB will qualitatively analyze existing and planned bikeways in the vicinity of the Project.
- JLB will forecast trip distribution based on turn count information, knowledge of the existing and planned circulation network in the vicinity of the Project and the Fresno COG Select Zone.
- JLB will evaluate existing and forecasted levels of service (LOS) at the study intersection(s). JLB will use HCM 6th or HCM 2000 methodologies (as appropriate) within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.

Study Scenarios

1. Existing Traffic Conditions with needed improvements (if any);
2. Existing plus Project Traffic Conditions with proposed mitigation measures (if any);
3. Near Term plus Project Traffic Conditions with proposed mitigation measures (if any); and
4. Cumulative Year 2040 plus Project Traffic Conditions with proposed mitigation measures (if any).

CALTRANS REQUESTED CUMULATIVE YEAR 2040 WITHOUT PROJECT TRAFFIC CONDITIONS WITH PROPOSED MITIGATION MEASURES (IF ANY); SEE LETTER ATTACHED TO EMAIL

Weekday peak hours to be analyzed (Tuesday through Thursday only)

1. 7 - 9 AM peak hour
2. 4 - 6 PM peak hour

Study Intersections

1. Kearney Boulevard / Siskiyou Avenue
2. Kearney Boulevard / Park Avenue
3. Kearney Boulevard / Del Norte Avenue
4. Kearney Boulevard / First Street
5. E Street / Siskiyou Avenue

Queuing analysis is included in the proposed Scope of Work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left-turn and right-turn lanes at all study intersections.

Study Segments

1. none

Project Only Trip Assignment to the following State facilities

1. State Route 180 / Siskiyou Avenue

CALTRANS REQUESTED 180/SISKIYOU BE ADDED TO STUDY INTERSECTIONS; SEE LETTER ATTACHED TO EMAIL

Trip Generation

The trip generation rates for the proposed Project and the Existing General Plan land use designations were obtained from the 11th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table I presents the trip generation for the proposed Project with trip generation rates for Single-Family Detached Housing. At buildout, the proposed Project is estimated to generate approximately 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips.

Table I: Project Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In* %	*Out* %	*In*	*Out*	*Total*	*Trip Rate*	*In* %	*Out* %	*In*	*Out*	*Total*
Single-Family Detached Housing (210)	163	d.u.	9.43	1,537	0.70	26	74	30	84	114	0.94	63	37	96	57	153
Total Driveway Trips				**1,537**				**30**	**84**	**114**				**96**	**57**	**153**

Note: d.u. = Dwelling Units

Near Term Projects to be Included

Based on our local knowledge of the study area and consultation with City of Kerman Planning & Development staff, JLB proposes to include near term projects in the vicinity of the proposed Project under the Near Term plus Project scenario. The near term projects proposed to be included in the Near Term scenario are:

Project Name	General Location
1. Commercial Development	SEC Whitesbridge Avenue and Kline Street
2. Tract 6236 (portion of)	NEC Siskiyou Avenue and Whitesbridge Avenue
3. Tract 6302 (portion of)	SWQ Goldenrod Avenue and Whitesbridge Avenue
4. Tract 6293	SEQ of Siskiyou Avenue and California Avenue
5. KUSD Athletic Site & Elementary School	NWQ Madera Avenue and Whitesbridge Avenue

Other Near Term Projects the City, County or Caltrans has knowledge and for which it is anticipated that said project(s) is/are projected to be whole or partially built by the Near Term Project Year 2029. City, County and Caltrans as appropriate would provide JLB with project details such as a project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

ADD BOYD WHISPERING FALLS SUBDIVISION TO PROJECTS TO BE INCLUDED; SEE TIS SCOPING LETTER ATTACHED TO EMAIL

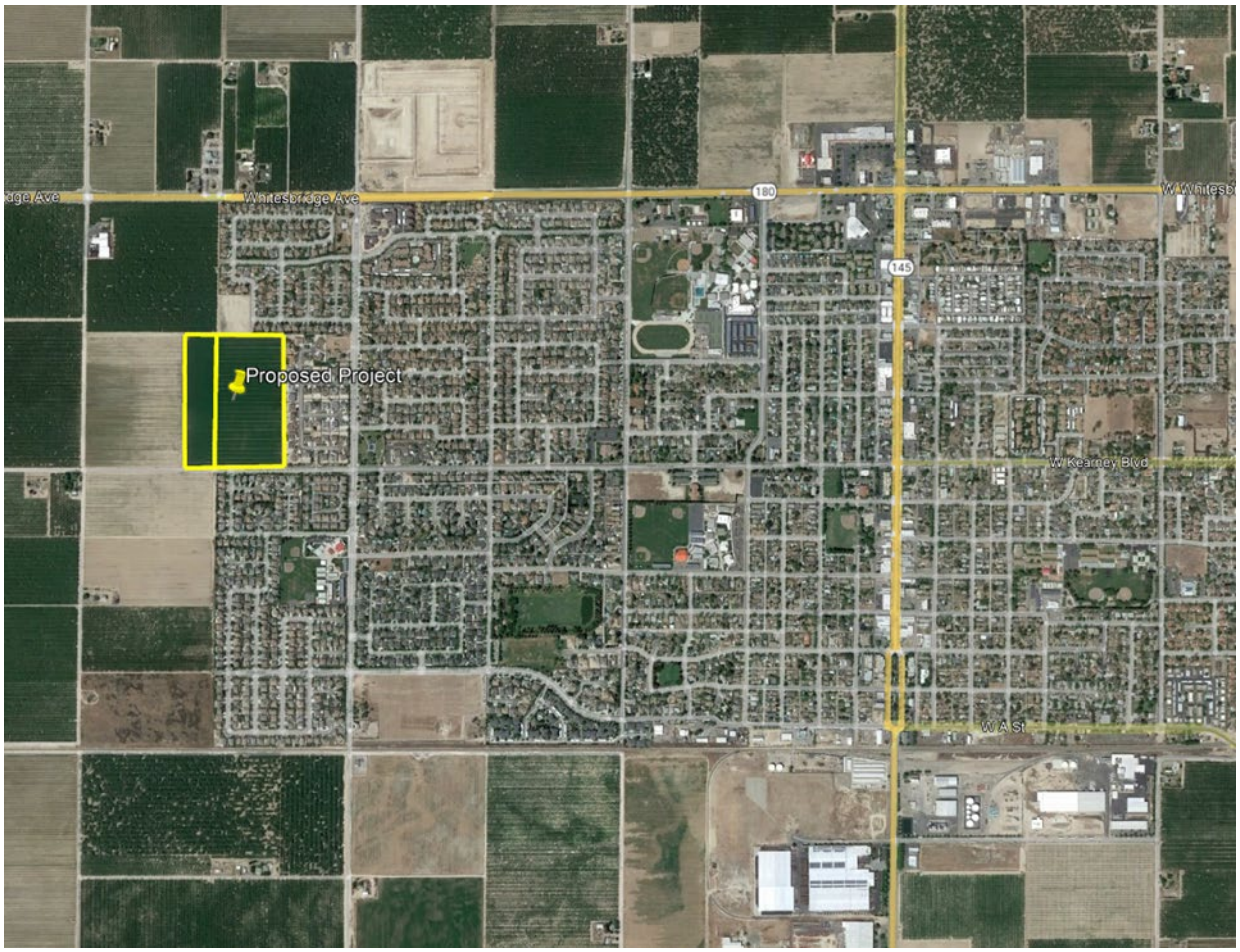
The Scope of Work is based on our understanding of this Project and our experience with similar TIAs. In the absence of comments by July 10, 2023 it will be assumed that the Scope of Work is acceptable to the agency(ies) that have not submitted any comments. If you have any questions or require additional information, please contact me by phone at (559) 317-6243, or via email at marndt@JLBtraffic.com.

Sincerely,

Matthew Arndt
Engineer I/II

cc: Jose Benavides, JLB Traffic Engineering Inc.
Hector Luna, County of Fresno
David Padilla, Caltrans

Exhibit A – Aerial



Matt Arndt

From: Luna, Hector <HLuna@fresnocountyca.gov>
Sent: Thursday, July 20, 2023 9:52 AM
To: Matt Arndt
Cc: Findley, Darren N; Hines, Brody; Ramirez, Augustine
Subject: RE: Crown-Schaad Subdivision Draft Scope of Work (025-009)

Good morning,

The county requests the following intersections and segments be analyzed in the TIS:

Intersections:

- Siskiyou Avenue and Church Avenue
- Siskiyou Avenue and Jensen Avenue

Segments:

- Siskiyou Avenue: California Avenue (City Limit) to Church Avenue
- Siskiyou Avenue: Church Avenue to Jensen Avenue
- Jensen Avenue: Siskiyou Avenue to SR 145

Regards,

Hector E. Luna | **Senior Planner**
Department of Public Works and Planning |
Water and Natural Resources Division |
Transportation Planning Unit
2220 Tulare St. 6th Floor Fresno, CA 93721
Main Office: (559) 600-4292 | Direct: (559) 600-9672
Email: hluna@FresnoCountyCa.gov
Your input matters! Customer Service Survey

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Friday, July 14, 2023 11:13 AM
To: Luna, Hector <HLuna@fresnocountyca.gov>
Subject: RE: Crown-Schaad Subdivision Draft Scope of Work (025-009)

Hello,

Can you let me know if you have any comments on the Draft Scope of Work?

Sincerely,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

From: Matt Arndt
Sent: Monday, July 3, 2023 4:47 PM
To: Luna, Hector <HLuna@fresnocountyca.gov>
Subject: RE: Crown-Schaad Subdivision Draft Scope of Work (025-009)

Hello,

Just following up with this Draft Scope of Work to see if you have had a chance to review it. Please let me know if you have any questions.

Sincerely,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

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Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

From: Matt Arndt
Sent: Monday, June 19, 2023 1:24 PM
To: Luna, Hector <HLuna@fresnocountyca.gov>
Subject: RE: Crown-Schaad Subdivision Draft Scope of Work (025-009)

Hello,

I realized I copied the wrong person in my previous email. Below this email is the original email chain I started.

Attached you will find the Draft Scope of Work for the preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision. The Crown-Schaad Subdivision is located on the northwest quadrant of Siskiyou Avenue and Kearney Boulevard in the City of Kerman.

We kindly ask that you take a moment to review and comment on the proposed Scope of Work. If you have any questions or require additional information, please contact me by phone at (559) 317-6243 or by responding to this email. We appreciate your time and attention to this matter and look forward to hearing from you soon.

Sincerely,

Matthew Arndt

JLB TRAFFIC ENGINEERING

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

From: Matt Arndt
Sent: Monday, June 19, 2023 1:17 PM
To: jjones@yhmail.com
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; Hector Guerra <hguerra@co.tulare.ca.us>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jenna Chilingerian <jchilingerian@precisioneng.net>; Bonique Emerson <bemerson@precisioneng.net>
Subject: Crown-Schaad Subdivision Draft Scope of Work (025-009)

Hello,

Attached you will find the Draft Scope of Work for the preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision. The Crown-Schaad Subdivision is located on the northwest quadrant of Siskiyou Avenue and Kearney Boulevard in the City of Kerman.

We kindly ask that you take a moment to review and comment on the proposed Scope of Work. If you have any questions or require additional information, please contact me by phone at (559) 317-6243 or by responding to this email. We appreciate your time and attention to this matter and look forward to hearing from you soon.

Sincerely,

Matthew Arndt

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California Department of Transportation

DISTRICT 6 OFFICE
1352 WEST OLIVE AVENUE | P.O. BOX 12616 | FRESNO, CA 93778-2616
(559) 981-7284 | FAX (559) 488-4088 | TTY 711
www.dot.ca.gov

August 16, 2023

FRE-180-41.381
Crown-Schaad Subdivision – 163 Single Family Residential lots
GTS #: https://ld-igr-gts.dot.ca.gov/district/6/report/30096

REVISED

SENT VIA EMAIL

Mr. Jerry Jones, P.E.
Contract City Engineer
City of Kerman
850 S. Madera Avenue
Kerman, Ca 93630
jjones@yhmail.com

Dear Mr. Jones:

Caltrans has completed a preliminary review of the Draft Scope of Work for preparation of a Traffic Impact Analysis (TIA) for Crown-Schaad Subdivision Map, developing two parcels totaling approximately 31.2-acres into a subdivision with 163 single-family residential units.

The project located at the northwest quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman approximately 2.5 miles south of CA-180 (Whitesbridge Avenue).

The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. The Local Development Review (LDR) process reviews land use projects and plans through the lenses of our mission and state planning priorities of infill, conservation, and travel-efficient development. To ensure a safe and efficient transportation system, we encourage early consultation and coordination with local jurisdictions and project proponents on all development projects that utilize the multimodal transportation network.

Caltrans provides the following comments consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

1. The consultant proposed to study the following scenarios: Existing Traffic Conditions with needed improvements (if any); Existing plus Project Traffic

Conditions with proposed mitigation measures (if any); Near-Term plus Project Traffic Conditions with proposed mitigation measures (if any); and Cumulative Year 2040 plus Project Traffic Conditions with proposed mitigation measures (if any). Caltrans agrees that these study scenarios are appropriate.

2. The consultant proposed the following study intersections which included queuing analysis: Kearney Boulevard/Siskiyou Avenue, Kearney Boulevard/Park Avenue, Kearney Boulevard/Del Norte Avenue, Kearney Boulevard/First Street, and E Street/Siskiyou Avenue. Caltrans concurs with the proposed study intersections.

3. The consultant proposed the following project only trip assignment to the following state facilities: State Route (SR) 180/Siskiyou Avenue. Caltrans recommends adding it to the study intersections.

4. The consultant proposed the trip generation for Crown-Schaad Residential Subdivision are estimated to generate approximately 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips. Caltrans concurs with the trip generations.

5. Please contact to the City of Kerman planning staff for near-term projects as they will have a better understanding of any pending/approved projects.

6. The Project might also consider coordinating connections to local and regional bicycle pathways to encourage the use of bicycles for commuter and recreational purposes.

7. If transit is not available within ¼-mile of the site, the city might consider transit be extended to provide services.

8. Active Transportation Plans (ATP) and Smart Growth efforts support the state's 2050 Climate goals. Caltrans supports reducing Vehicle Miles Traveled (VMT), and GHG emissions in ways that increase the likelihood people will use and benefit from a multimodal transportation network.

9. Alternative transportation policies should be applied to the development. An assessment of multi-modal facilities should be conducted to develop an integrated multi-modal transportation system to serve and help alleviate traffic congestion caused by the project and related development in this area of the city. The assessment should include the following:

    a. Pedestrian walkways should link this Project to transit facilities, bicycle pathways and other walkways in the surrounding area.

    b. Coordinating connections to local and regional bicycle pathways should be done to further encourage the use of bicycles for commuter and

recreational purposes.

c. Transit service and bus stop accommodations should be extended to within ¼-mile of the Project site.

10. Caltrans recommends the Project implement "smart growth" principles regarding parking solutions, providing alternative transportation choices to residents and employees. Alternative transportation choices may include but are not limited to parking for carpools/vanpools, car-share, and/or ride-share programs.

11. Based on Caltrans Vehicle Miles Traveled (VMT)-Focused Transportation Impact Study Guide, dated May 20, 2020, and effective as of July 1, 2020, Caltrans seeks to reduce single occupancy vehicle trips, provide a safe transportation system, reduce per capita VMT, increase accessibility to destinations via cycling, walking, carpooling, transit and reduce greenhouse gas (GHG) emissions. Caltrans recommends that the project proponent continue to work with the city to further implement improvements to reduce VMT and offer a variety of transportation modes.

If you have any other questions, please call or email: Keyomi Jones at (559) 981-7284 or keyomi.jones@dot.ca.gov.

Sincerely,

Mr. Dave Padilla, Branch Chief,
Transportation Planning – North

California Department of Transportation

DISTRICT 6 OFFICE
1352 WEST OLIVE AVENUE | P.O. BOX 12616 | FRESNO, CA 93778-2616
(559) 981-7284 | FAX (559) 488-4088 | TTY 711
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July 7, 2023

FRE-180-41.381
Crown-Schaad Subdivision – 163 Single Family Residential lots
GTS #: https://ld-igr-gts.dot.ca.gov/district/6/report/30096

SENT VIA EMAIL

Mr. Jerry Jones, P.E.
Contract City Engineer
City of Kerman
850 S. Madera Avenue
Kerman, Ca 93630
jjones@yhmail.com

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The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. The Local Development Review (LDR) process reviews land use projects and plans through the lenses of our mission and state planning priorities of infill, conservation, and travel-efficient development. To ensure a safe and efficient transportation system, we encourage early consultation and coordination with local jurisdictions and project proponents on all development projects that utilize the multimodal transportation network.

Caltrans provides the following comments consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

1. The consultant proposed to study the following scenarios: Existing Traffic Conditions with needed improvements (if any); Existing plus Project Traffic Conditions with proposed mitigation measures (if any); Near-Term plus Project

Traffic Conditions with proposed mitigation measures (if any); and Cumulative Year 2040 plus Project Traffic Conditions with proposed mitigation measures (if any). Caltrans recommends the following to be added to the consultant study scenarios: Cumulative Year 2040 without Project Traffic Conditions with proposed mitigation measures (if any).

2. The consultant proposed the following study intersections which included queuing analysis: Kearney Boulevard/Siskiyou Avenue, Kearney Boulevard/Park Avenue, Kearney Boulevard/Del Norte Avenue, Kearney Boulevard/First Street, and E Street/Siskiyou Avenue. Caltrans concurs with the proposed study intersections.

3. The consultant proposed the following project only trip assignment to the following state facilities: State Route (SR) 180/Siskiyou Avenue. Caltrans recommends adding it to the study intersections.

4. The consultant proposed the trip generation for Crown-Schaad Residential Subdivision are estimated to generate approximately 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips. Caltrans concurs with the trip generations.

5. Please contact District 6 Transportation Planning to check for other nearby IGRs/projects for the trip generation to include in the analysis.

6. The Project might also consider coordinating connections to local and regional bicycle pathways to encourage the use of bicycles for commuter and recreational purposes.

7. If transit is not available within ¼-mile of the site, the city might consider transit be extended to provide services.

8. Active Transportation Plans (ATP) and Smart Growth efforts support the state's 2050 Climate goals. Caltrans supports reducing Vehicle Miles Traveled (VMT), and GHG emissions in ways that increase the likelihood people will use and benefit from a multimodal transportation network.

9. Alternative transportation policies should be applied to the development. An assessment of multi-modal facilities should be conducted to develop an integrated multi-modal transportation system to serve and help alleviate traffic congestion caused by the project and related development in this area of the city. The assessment should include the following:

    a. Pedestrian walkways should link this Project to transit facilities, bicycle pathways and other walkways in the surrounding area.

    b. Coordinating connections to local and regional bicycle pathways should be

done to further encourage the use of bicycles for commuter and recreational purposes.

c. Transit service and bus stop accommodations should be extended to within ¼-mile of the Project site.

10. Caltrans recommends the Project implement "smart growth" principles regarding parking solutions, providing alternative transportation choices to residents and employees. Alternative transportation choices may include but are not limited to parking for carpools/vanpools, car-share, and/or ride-share programs.

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If you have any other questions, please call or email: Keyomi Jones at (559) 981-7284 or keyomi.jones@dot.ca.gov.

Sincerely,

Mr. Dave Padilla, Branch Chief,
Transportation Planning – North

Appendix B: Traffic Counts

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

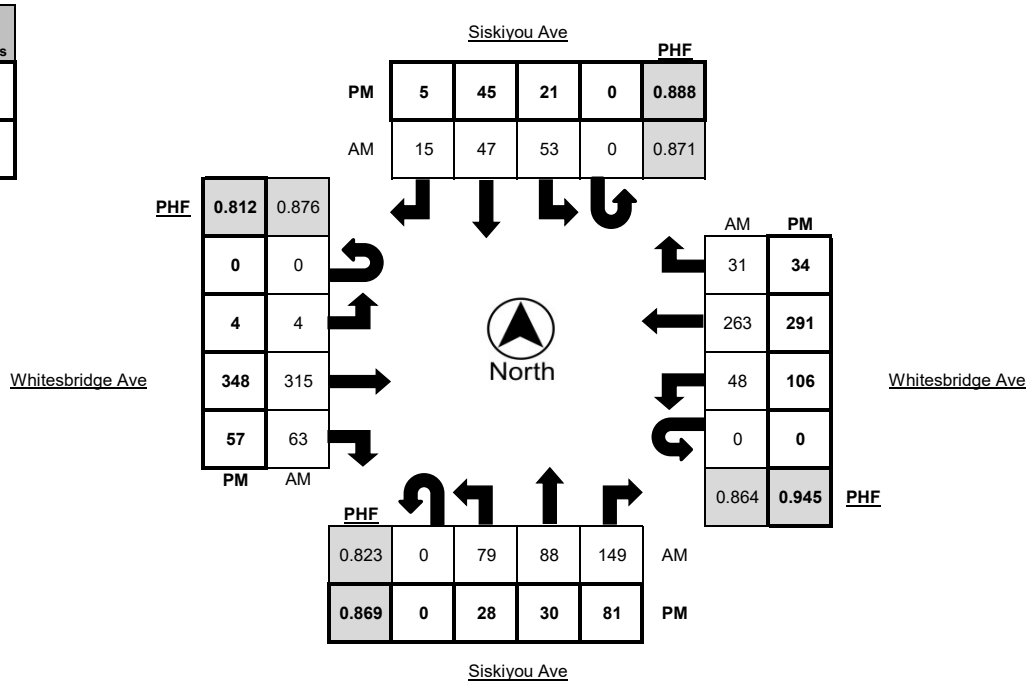
LOCATION Siskiyou Ave @ Whitesbridge Ave
LATITUDE 36.7347
COUNTY Fresno
LONGITUDE -120.0783
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	22	15	32	3	0	5	4	2	0	0	1	58	5	2	0	10	81	7	22
7:15 AM - 7:30 AM	0	27	19	38	1	0	12	7	6	0	0	1	76	10	5	0	13	85	1	3
7:30 AM - 7:45 AM	0	23	25	30	1	0	11	11	4	0	0	2	65	15	6	0	14	64	8	6
7:45 AM - 8:00 AM	0	22	30	44	2	0	13	19	1	1	0	1	86	17	8	0	9	58	6	8
8:00 AM - 8:15 AM	0	7	14	37	2	0	17	10	4	1	0	0	88	21	10	0	12	56	16	6
8:15 AM - 8:30 AM	0	5	4	34	2	0	14	1	1	0	0	0	79	4	5	0	8	53	8	10
8:30 AM - 8:45 AM	0	2	5	14	1	0	7	0	1	1	0	0	57	5	4	0	18	51	7	7
8:45 AM - 9:00 AM	0	2	5	20	0	0	4	3	3	0	0	1	46	2	0	0	9	56	6	13
TOTAL	**0**	**110**	**117**	**249**	**12**	**0**	**83**	**55**	**22**	**3**	**0**	**6**	**555**	**79**	**40**	**0**	**93**	**504**	**59**	**75**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	1	9	15	0	0	8	10	1	1	0	0	97	14	9	0	23	54	8	1
4:15 PM - 4:30 PM	0	5	10	17	0	0	7	14	0	1	0	1	84	14	6	0	28	54	14	4
4:30 PM - 4:45 PM	0	5	7	17	0	0	4	12	0	0	0	2	71	18	7	0	31	74	9	4
4:45 PM - 5:00 PM	0	5	11	24	1	0	6	10	1	0	0	2	114	10	6	0	18	65	9	4
5:00 PM - 5:15 PM	0	10	3	21	2	0	3	15	0	0	0	0	81	17	8	0	24	82	6	4
5:15 PM - 5:30 PM	0	8	9	19	0	0	8	8	4	1	0	0	82	12	2	0	33	70	10	2
5:30 PM - 5:45 PM	0	8	6	18	0	0	10	8	0	1	0	1	72	7	9	0	23	65	14	1
5:45 PM - 6:00 PM	0	5	9	19	1	0	7	15	2	1	0	1	65	14	7	0	19	79	9	4
TOTAL	**0**	**47**	**64**	**150**	**4**	**0**	**53**	**92**	**8**	**5**	**0**	**7**	**666**	**106**	**54**	**0**	**199**	**543**	**79**	**24**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	0	79	88	149	6	0	53	47	15	2	0	4	315	63	29	0	48	263	31	23
4:30 PM - 5:30 PM	0	28	30	81	3	0	21	45	5	1	0	4	348	57	23	0	106	291	34	14

	PHF	Trucks
AM	0.944	5.2%
PM	0.955	3.9%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

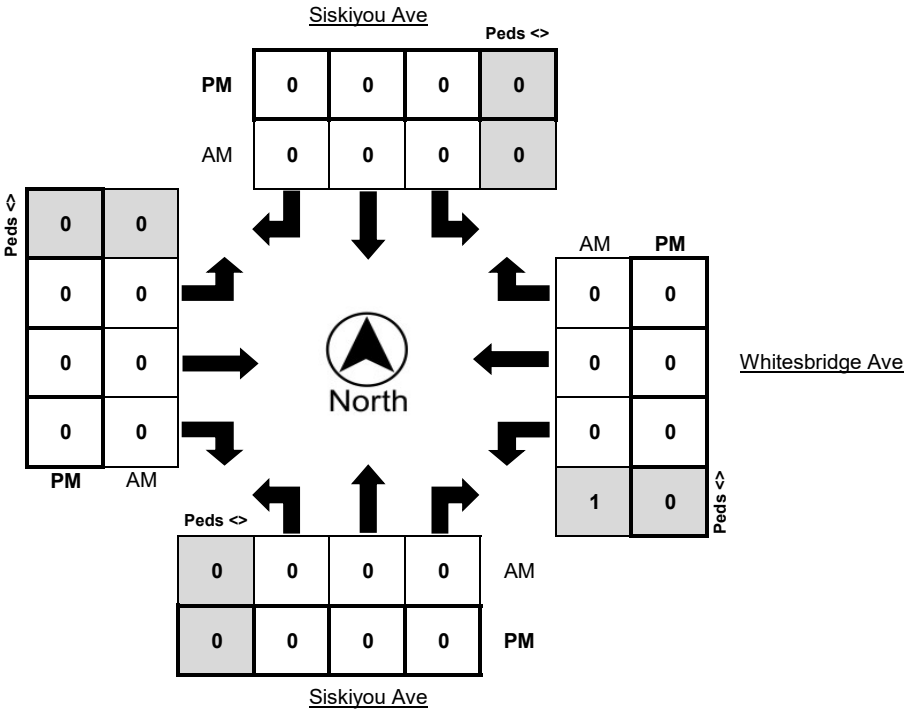
LOCATION Siskiyou Ave @ Whitesbridge Ave
LATITUDE 36.7347
COUNTY Fresno
LONGITUDE -120.0783
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	1
PM Peak Total	0	0



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

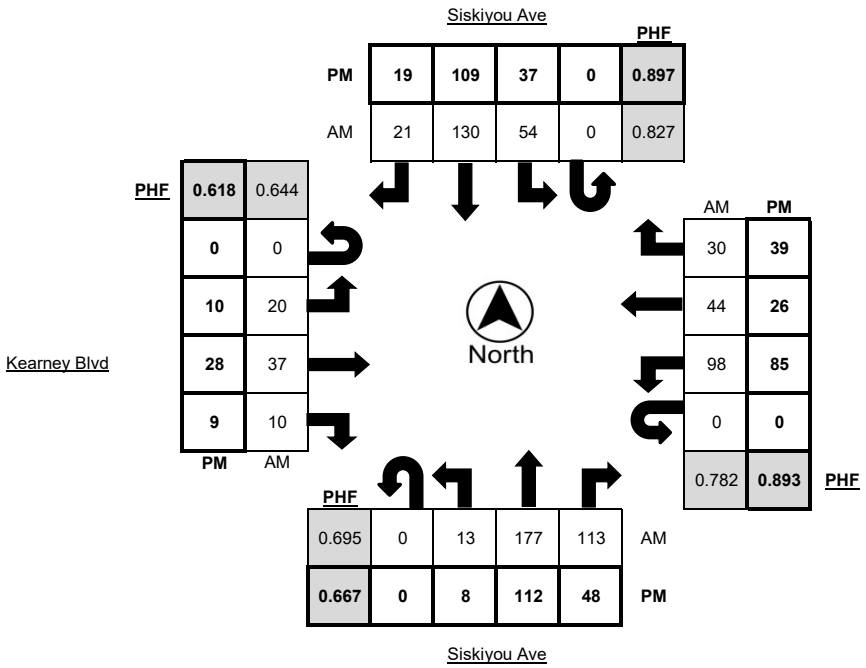
LOCATION Siskiyou Ave @ Kearney Blvd
LATITUDE 36.7275
COUNTY Fresno
LONGITUDE -120.0784
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	1	31	10	1	0	4	13	3	1	0	2	3	2	0	0	3	5	7	1
7:15 AM - 7:30 AM	0	2	33	12	0	0	10	35	1	1	0	3	2	1	1	0	25	6	6	1
7:30 AM - 7:45 AM	0	3	51	30	1	0	9	45	8	0	0	2	8	2	1	0	38	13	4	0
7:45 AM - 8:00 AM	0	6	58	45	1	0	20	30	9	1	0	8	14	4	2	0	30	11	6	0
8:00 AM - 8:15 AM	0	2	35	26	1	0	15	20	3	1	0	7	13	3	1	0	5	14	14	0
8:15 AM - 8:30 AM	0	0	20	22	0	0	12	10	1	0	0	0	12	1	0	0	20	10	13	1
8:30 AM - 8:45 AM	0	1	8	9	0	0	3	14	2	1	0	0	6	0	0	0	11	7	6	1
8:45 AM - 9:00 AM	0	1	21	3	1	0	4	9	1	0	0	0	10	2	0	0	6	4	2	0
TOTAL	**0**	**16**	**257**	**157**	**5**	**0**	**77**	**176**	**28**	**5**	**0**	**22**	**68**	**15**	**5**	**0**	**138**	**70**	**58**	**4**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	1	19	12	0	0	4	21	5	0	0	2	4	1	0	0	16	7	11	1
4:15 PM - 4:30 PM	0	3	23	9	1	0	9	29	2	0	0	0	5	0	0	0	14	8	11	0
4:30 PM - 4:45 PM	0	2	22	6	0	0	8	31	7	0	0	0	6	2	0	0	24	4	8	0
4:45 PM - 5:00 PM	0	5	39	19	0	0	8	23	5	1	0	1	6	0	0	0	22	5	11	0
5:00 PM - 5:15 PM	0	0	25	11	0	0	12	26	3	0	0	2	9	2	0	0	23	10	9	2
5:15 PM - 5:30 PM	0	1	26	12	2	0	9	29	4	2	0	7	7	5	0	0	16	7	11	0
5:30 PM - 5:45 PM	0	1	14	9	0	0	8	22	4	0	0	0	8	3	0	0	11	12	7	0
5:45 PM - 6:00 PM	0	4	21	11	0	0	9	28	2	0	0	6	7	2	0	0	17	6	9	1
TOTAL	**0**	**17**	**189**	**89**	**3**	**0**	**67**	**209**	**32**	**3**	**0**	**18**	**52**	**15**	**0**	**0**	**143**	**59**	**77**	**4**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	0	13	177	113	3	0	54	130	21	3	0	20	37	10	5	0	98	44	30	1
4:30 PM - 5:30 PM	0	8	112	48	2	0	37	109	19	3	0	10	28	9	0	0	85	26	39	2

	PHF	Trucks
AM	0.775	1.6%
PM	0.920	1.3%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

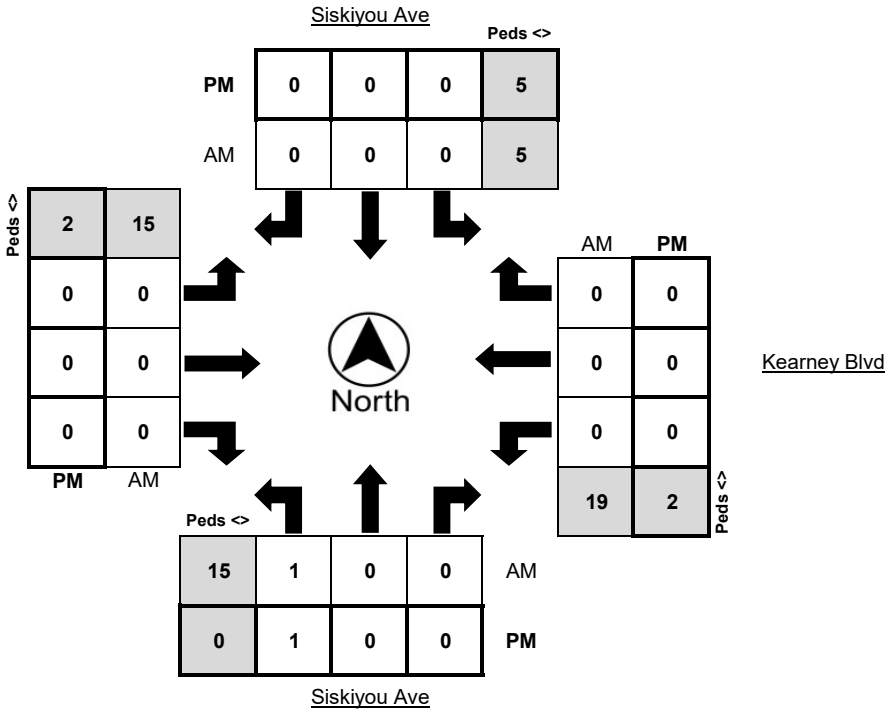
LOCATION Siskiyou Ave @ Kearney Blvd
LATITUDE 36.7275
COUNTY Fresno
LONGITUDE -120.0784
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	2	0	0	0	2	0	0	0	2	0	0	0	6
7:30 AM - 7:45 AM	0	0	0	1	0	0	0	5	0	0	0	16	0	0	0	3
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	2
8:00 AM - 8:15 AM	1	0	0	2	0	0	0	6	0	0	0	0	0	0	0	4
8:15 AM - 8:30 AM	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3
8:30 AM - 8:45 AM	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	**3**	**0**	**0**	**6**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**21**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	1	0	0	0	1	0	0	0	4	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
4:30 PM - 4:45 PM	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM - 5:00 PM	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM - 5:45 PM	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**1**	**0**	**0**	**7**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**2**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	1	0	0	5	0	0	0	15	0	0	0	19	0	0	0	15
4:30 PM - 5:30 PM	1	0	0	5	0	0	0	0	0	0	0	2	0	0	0	2

	Bikes	Peds
AM Peak Total	1	54
PM Peak Total	1	9



JLB Traffic Engineering, Inc.

516 West Shaw Avenue, Suite 103
Fresno, CA, 93704
Traffic Engineering, Transportation, & Parking Solutions
www.JLBtraffic.com

File Name : Park at Kearney
Site Code : 00000000
Start Date : 8/24/2023
Page No : 1

Groups Printed- Unshifted

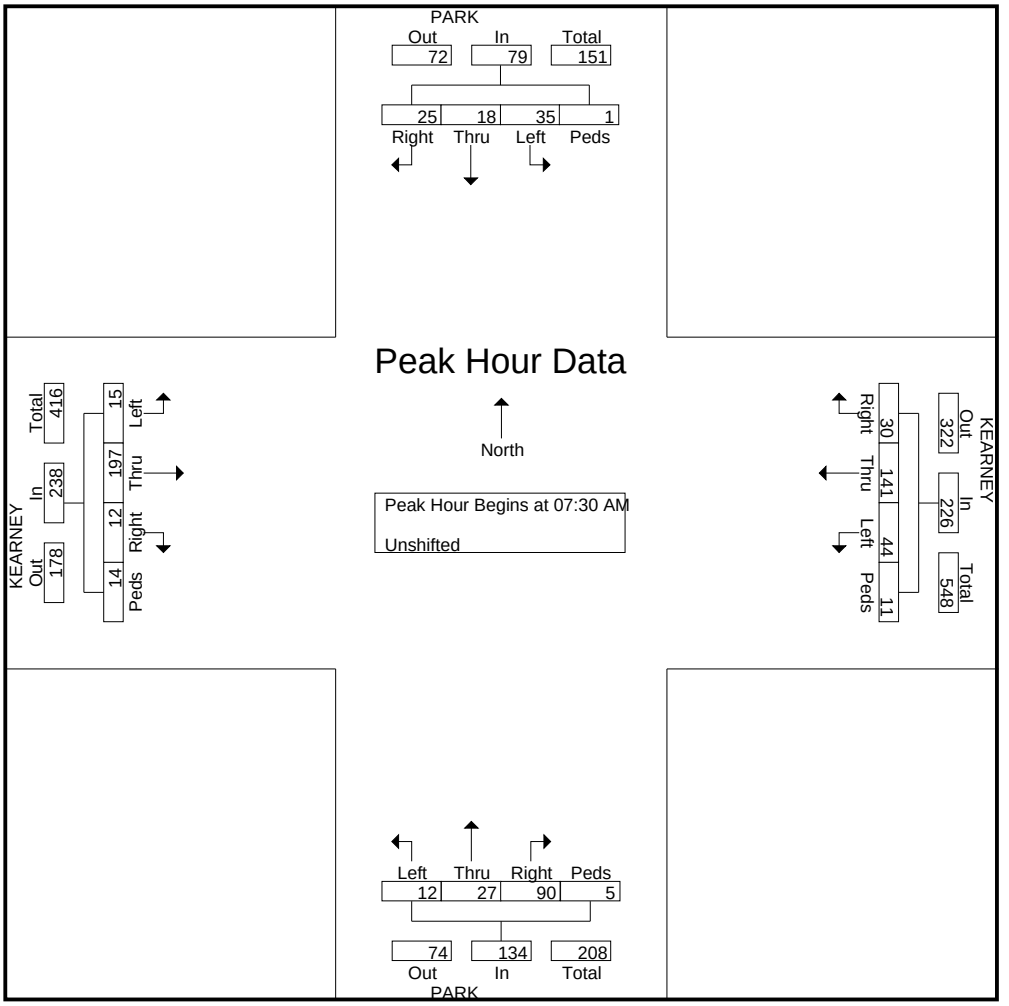
	PARK From North				KEARNEY From East				PARK From South				KEARNEY From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	4	4	6	0	3	11	4	1	11	2	4	0	0	19	1	2	72
07:15 AM	9	1	8	0	5	26	5	1	16	5	3	0	2	20	4	4	109
07:30 AM	12	2	5	0	1	37	4	2	14	6	4	0	2	45	4	2	140
07:45 AM	7	7	9	0	5	25	9	2	28	7	1	0	0	63	9	1	173
Total	32	14	28	0	14	99	22	6	69	20	12	0	4	147	18	9	494
08:00 AM	3	4	15	1	11	29	10	6	19	9	3	2	5	47	1	8	173
08:15 AM	3	5	6	0	13	50	21	1	29	5	4	3	5	42	1	3	191
08:30 AM	2	2	2	4	2	12	2	2	5	4	0	0	0	15	1	4	57
08:45 AM	0	2	5	0	2	11	7	1	4	2	1	0	0	13	0	1	49
Total	8	13	28	5	28	102	40	10	57	20	8	5	10	117	3	16	470
*** BREAK ***																	
04:00 PM	8	2	7	0	5	32	15	0	7	3	1	1	2	29	4	1	117
04:15 PM	5	3	6	0	6	39	14	0	6	2	1	0	1	19	7	0	109
04:30 PM	2	4	1	0	6	29	11	0	7	2	2	0	2	23	3	0	92
04:45 PM	8	2	5	0	8	34	16	0	12	3	0	0	5	37	2	1	133
Total	23	11	19	0	25	134	56	0	32	10	4	1	10	108	16	2	451
05:00 PM	4	1	2	3	6	40	22	0	15	3	0	0	2	25	6	0	129
05:15 PM	1	6	8	0	9	46	9	0	9	5	4	2	0	27	3	1	130
05:30 PM	2	5	4	0	6	28	16	0	12	7	3	1	3	23	4	0	114
05:45 PM	0	4	5	0	13	30	16	0	14	1	0	4	5	36	3	0	131
Total	7	16	19	3	34	144	63	0	50	16	7	7	10	111	16	1	504
Grand Total	70	54	94	8	101	479	181	16	208	66	31	13	34	483	53	28	1919
Apprch %	31	23.9	41.6	3.5	13	61.6	23.3	2.1	65.4	20.8	9.7	4.1	5.7	80.8	8.9	4.7	
Total %	3.6	2.8	4.9	0.4	5.3	25	9.4	0.8	10.8	3.4	1.6	0.7	1.8	25.2	2.8	1.5	

JLB Traffic Engineering, Inc.

516 West Shaw Avenue, Suite 103
Fresno, CA, 93704
Traffic Engineering, Transportation, & Parking Solutions
www.JLBtraffic.com

File Name : Park at Kearney
Site Code : 00000000
Start Date : 8/24/2023
Page No : 2

	PARK From North					KEARNEY From East					PARK From South					KEARNEY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**12**	2	5	0	19	1	37	4	2	44	14	6	**4**	0	24	2	45	4	2	53	140
07:45 AM	7	**7**	9	0	**23**	5	25	9	2	41	28	7	1	0	36	0	**63**	**9**	1	**73**	173
08:00 AM	3	4	**15**	**1**	23	11	29	10	**6**	56	19	**9**	3	2	33	**5**	47	1	**8**	61	173
08:15 AM	3	5	6	0	14	**13**	**50**	**21**	1	**85**	**29**	5	4	**3**	**41**	5	42	1	3	51	**191**
Total Volume	25	18	35	1	79	30	141	44	11	226	90	27	12	5	134	12	197	15	14	238	677
% App. Total	31.6	22.8	44.3	1.3		13.3	62.4	19.5	4.9		67.2	20.1	9	3.7		5	82.8	6.3	5.9		
PHF	.521	.643	.583	.250	.859	.577	.705	.524	.458	.665	.776	.750	.750	.417	.817	.600	.782	.417	.438	.815	.886



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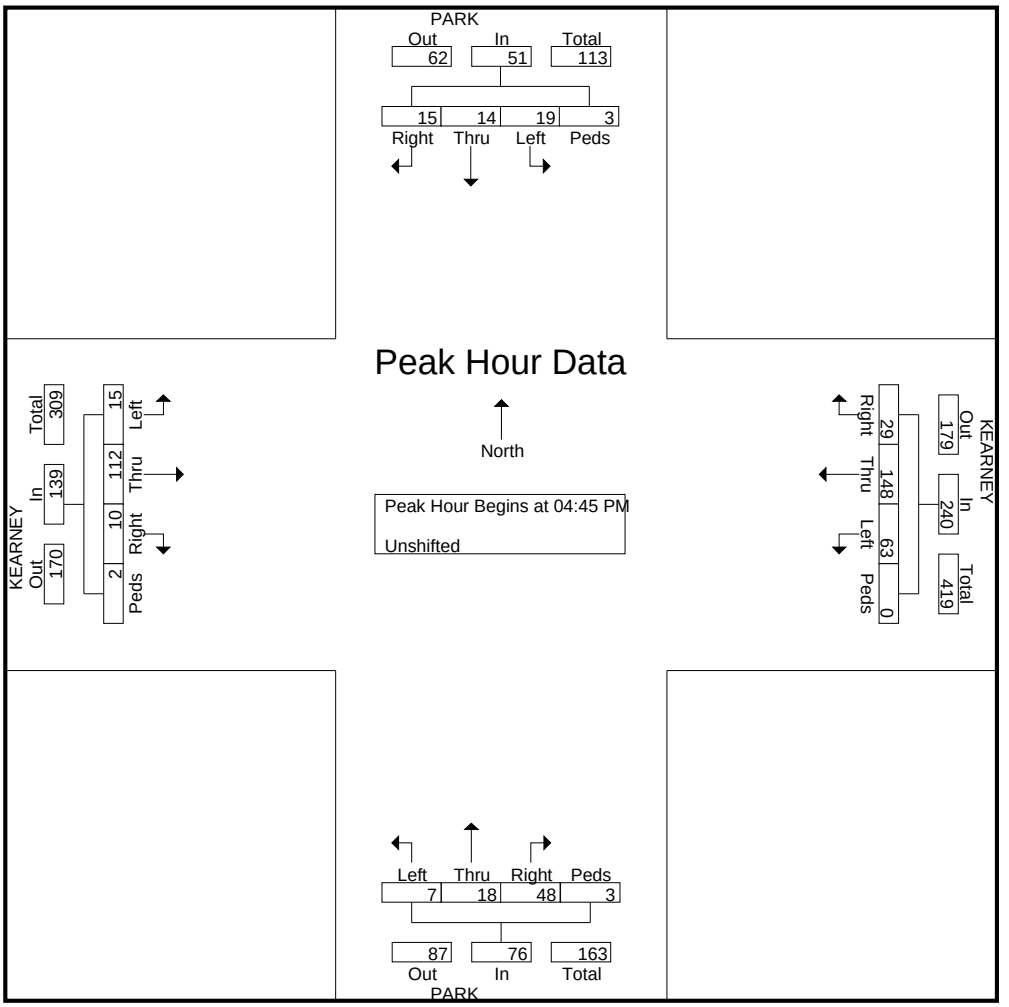
File Name : Park at Kearney
Site Code : 00000000
Start Date : 8/24/2023
Page No : 3

	PARK From North					KEARNEY From East					PARK From South					KEARNEY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**8**	2	5	0	**15**	8	34	16	0	58	12	3	0	0	15	**5**	**37**	2	**1**	**45**	**133**
05:00 PM	4	1	2	**3**	10	6	40	**22**	0	**68**	**15**	3	0	0	18	2	25	**6**	0	33	129
05:15 PM	1	**6**	**8**	0	15	**9**	**46**	9	0	64	9	5	**4**	**2**	20	0	27	3	1	31	130
05:30 PM	2	5	4	0	11	6	28	16	0	50	12	**7**	3	1	**23**	3	23	4	0	30	114
Total Volume	15	14	19	3	51	29	148	63	0	240	48	18	7	3	76	10	112	15	2	139	506
% App. Total	29.4	27.5	37.3	5.9		12.1	61.7	26.2	0		63.2	23.7	9.2	3.9		7.2	80.6	10.8	1.4		
PHF	.469	.583	.594	.250	.850	.806	.804	.716	.000	.882	.800	.643	.438	.375	.826	.500	.757	.625	.500	.772	.951



JLB Traffic Engineering, Inc.

516 West Shaw Avenue, Suite 103
Fresno, CA, 93704
Traffic Engineering, Transportation, & Parking Solutions
www.JLBtraffic.com

File Name : Park at Kearney
Site Code : 00000000
Start Date : 8/24/2023
Page No : 1

Groups Printed- Bank 2

	PARK From North				KEARNEY From East				PARK From South				KEARNEY From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
*** BREAK ***																	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
*** BREAK ***																	
08:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																	
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																	
Grand Total	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
Apprch %	0	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0	
Total %	0	33.3	0	0	0	0	0	0	0	0	0	0	0	66.7	0	0	

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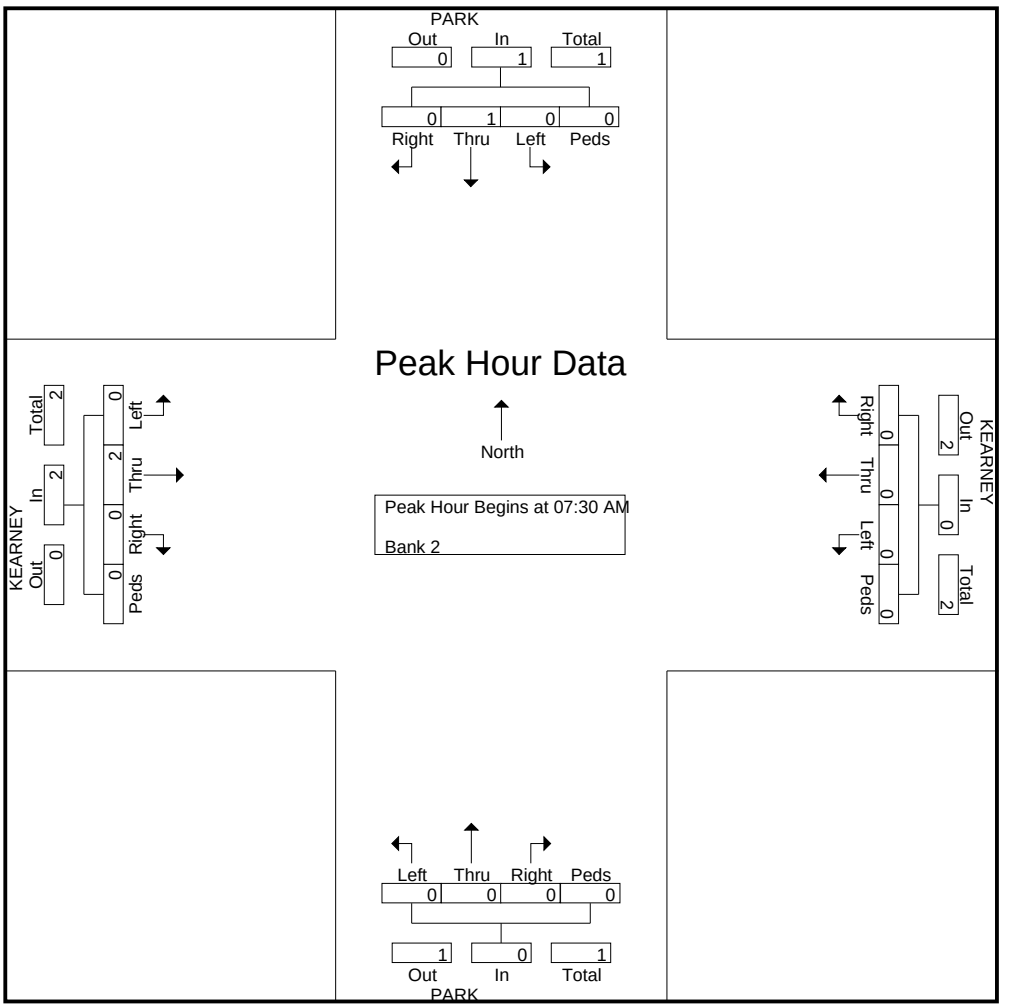
File Name : Park at Kearney
Site Code : 00000000
Start Date : 8/24/2023
Page No : 2

	PARK From North					KEARNEY From East					PARK From South					KEARNEY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	0	**2**	**2**
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.375



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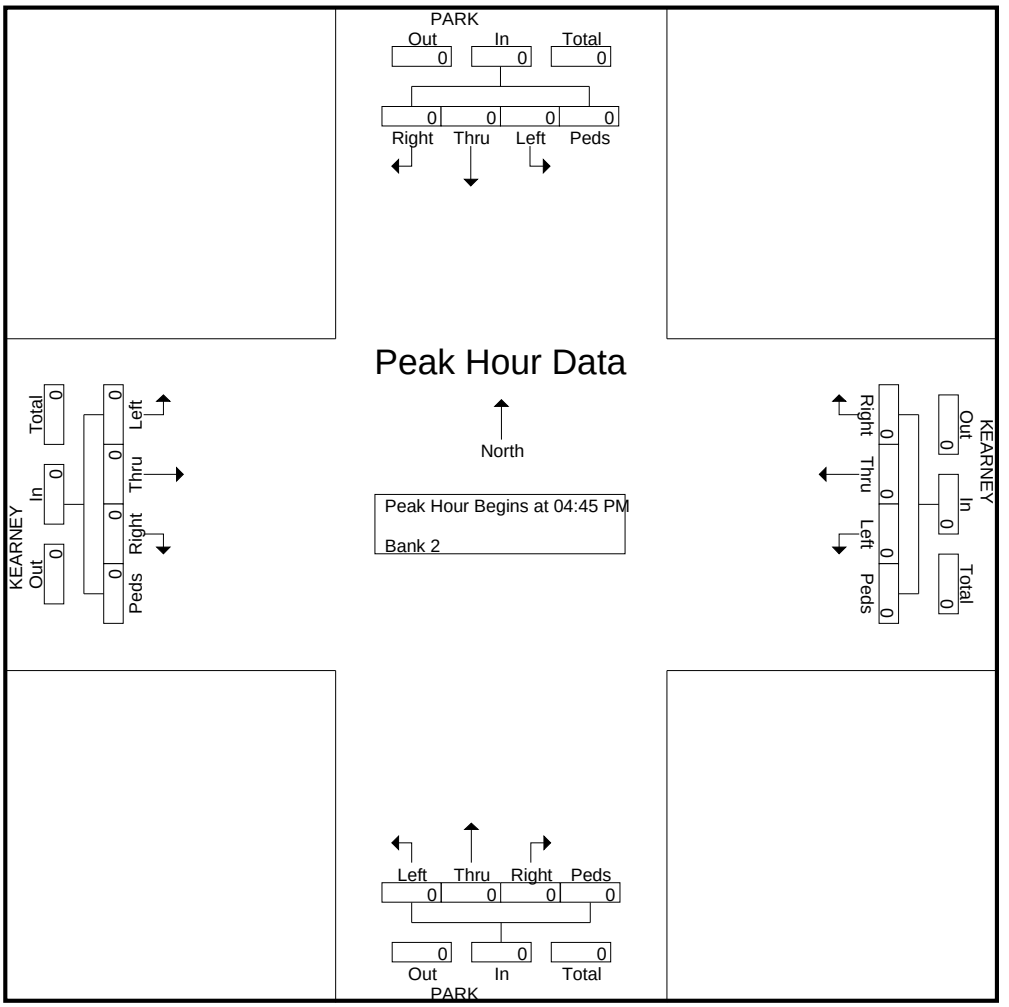
File Name : Park at Kearney
Site Code : 00000000
Start Date : 8/24/2023
Page No : 3

	PARK From North					KEARNEY From East					PARK From South					KEARNEY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

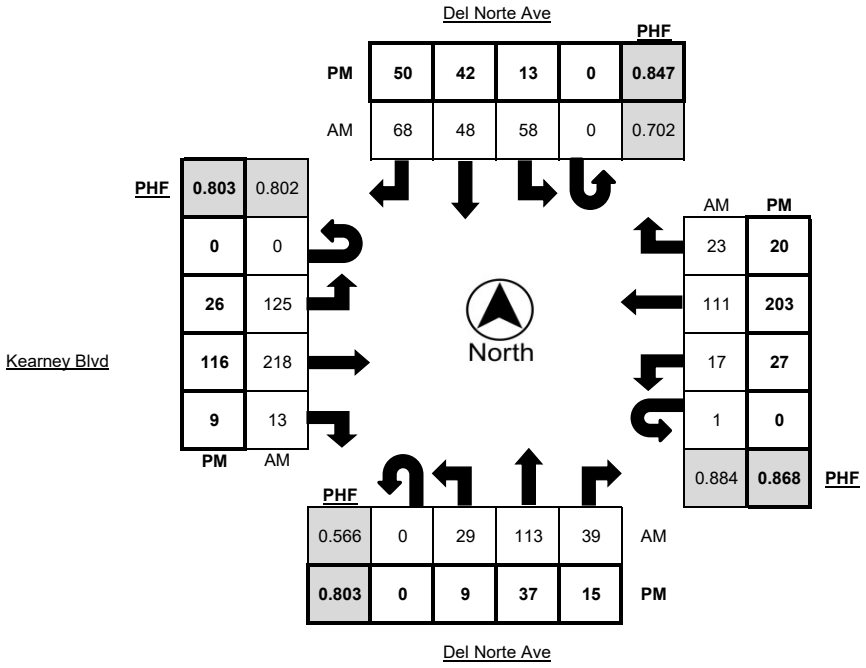
LOCATION Del Norte Ave @ Kearney Blvd
LATITUDE 36.7275
COUNTY Fresno
LONGITUDE -120.0693
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	0	4	2	0	0	2	2	6	0	0	19	28	2	0	0	2	6	4	0
7:15 AM - 7:30 AM	0	0	11	1	0	0	5	10	3	0	0	12	35	1	0	0	1	23	3	0
7:30 AM - 7:45 AM	0	3	15	6	1	0	12	6	14	0	0	27	51	1	0	0	3	26	5	0
7:45 AM - 8:00 AM	0	4	25	8	0	0	11	10	13	0	0	31	76	4	1	1	3	31	2	0
8:00 AM - 8:15 AM	0	6	24	10	1	0	18	14	14	1	0	30	52	2	0	0	0	26	12	0
8:15 AM - 8:30 AM	0	16	49	15	1	0	17	18	27	1	0	37	39	6	0	0	11	28	4	2
8:30 AM - 8:45 AM	0	1	8	2	0	0	4	7	6	0	0	9	15	0	1	0	3	24	6	0
8:45 AM - 9:00 AM	0	1	10	8	0	0	6	5	4	0	0	1	22	0	0	0	2	14	3	0
TOTAL	**0**	**31**	**146**	**52**	**3**	**0**	**75**	**72**	**87**	**2**	**0**	**166**	**318**	**16**	**2**	**1**	**25**	**178**	**39**	**2**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	3	16	4	0	0	4	11	15	0	0	5	21	0	0	0	6	49	9	1
4:15 PM - 4:30 PM	0	3	10	3	0	0	2	9	10	0	0	8	26	2	0	0	4	52	3	0
4:30 PM - 4:45 PM	0	1	11	7	0	0	3	12	7	1	0	6	23	3	0	0	7	49	3	0
4:45 PM - 5:00 PM	0	6	7	2	0	0	3	13	12	0	0	7	24	4	0	0	11	47	7	0
5:00 PM - 5:15 PM	0	1	9	3	0	0	4	9	18	0	0	7	29	1	0	0	4	63	5	0
5:15 PM - 5:30 PM	0	1	10	3	0	0	3	8	13	1	0	6	40	1	0	0	5	44	5	0
5:30 PM - 5:45 PM	0	1	8	1	0	0	11	8	8	0	0	3	24	2	0	0	9	43	3	0
5:45 PM - 6:00 PM	0	2	11	6	0	0	6	15	15	0	0	10	31	1	0	0	5	47	4	0
TOTAL	**0**	**18**	**82**	**29**	**0**	**0**	**36**	**85**	**98**	**2**	**0**	**52**	**218**	**14**	**0**	**0**	**51**	**394**	**39**	**1**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:30 AM - 8:30 AM	0	29	113	39	3	0	58	48	68	2	0	125	218	13	1	1	17	111	23	2
4:30 PM - 5:30 PM	0	9	37	15	0	0	13	42	50	2	0	26	116	9	0	0	27	203	20	0

	PHF	Trucks
AM	0.808	0.9%
PM	0.926	0.4%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

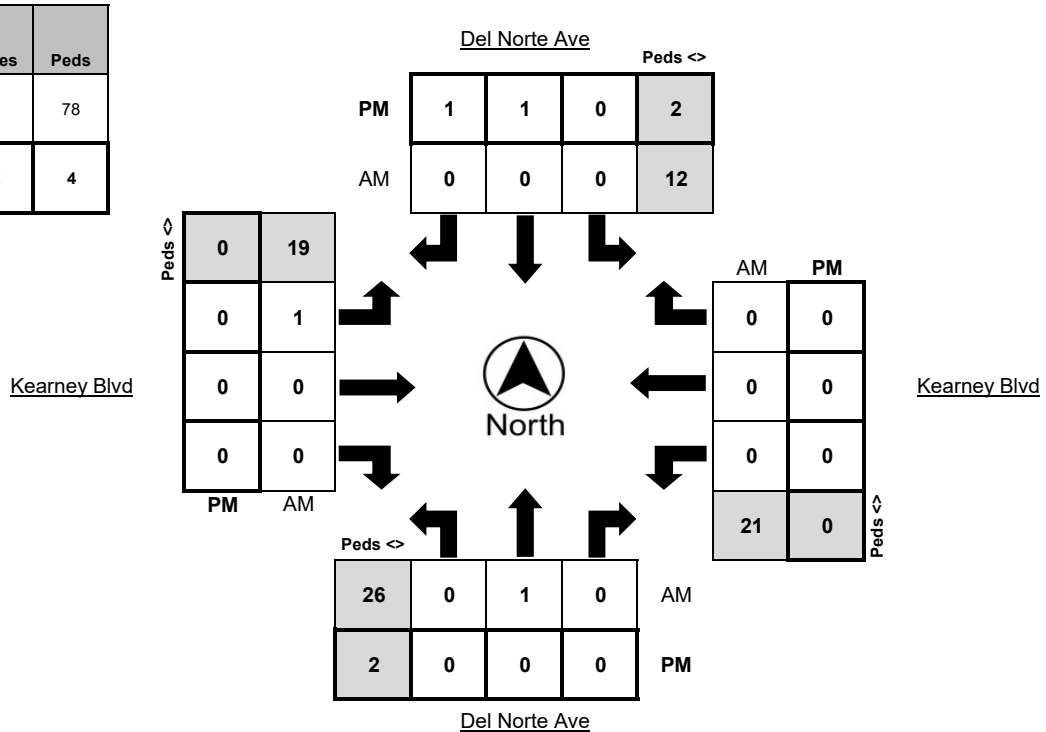
LOCATION Del Norte Ave @ Kearney Blvd
LATITUDE 36.7275
COUNTY Fresno
LONGITUDE -120.0693
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	1
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	3
7:45 AM - 8:00 AM	0	1	0	0	0	0	0	6	0	0	0	2	0	0	0	1
8:00 AM - 8:15 AM	0	0	0	11	0	0	0	13	1	0	0	10	0	0	0	10
8:15 AM - 8:30 AM	0	0	0	1	0	0	0	4	0	0	0	6	0	0	0	5
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
TOTAL	**0**	**1**	**0**	**12**	**0**	**0**	**0**	**29**	**1**	**0**	**0**	**24**	**0**	**0**	**0**	**20**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	1	1	2	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
TOTAL	**1**	**2**	**0**	**3**	**0**	**1**	**1**	**3**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	1	0	12	0	0	0	26	1	0	0	21	0	0	0	19
4:30 PM - 5:30 PM	0	0	0	2	0	1	1	2	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	2	78
PM Peak Total	2	4



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

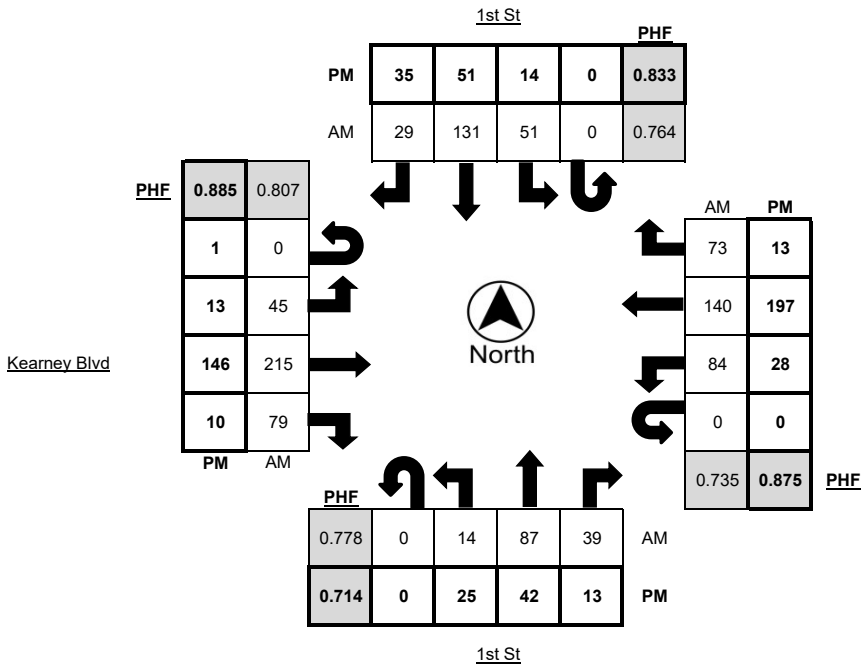
LOCATION 1st St @ Kearney Blvd
LATITUDE 36.7276
COUNTY Fresno
LONGITUDE -120.0652
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	3	10	2	0	0	3	3	1	0	0	2	28	3	0	0	3	9	3	1
7:15 AM - 7:30 AM	0	2	8	2	0	0	4	8	5	0	0	3	38	2	0	0	1	19	6	0
7:30 AM - 7:45 AM	0	2	14	10	0	0	11	22	6	0	0	11	64	7	0	0	5	36	0	0
7:45 AM - 8:00 AM	0	4	13	14	0	0	8	34	6	2	0	8	84	13	1	0	22	34	15	0
8:00 AM - 8:15 AM	0	5	22	11	0	0	9	40	6	7	0	12	30	36	0	0	19	40	25	2
8:15 AM - 8:30 AM	0	3	38	4	0	0	23	35	11	4	0	14	37	23	1	0	38	30	33	0
8:30 AM - 8:45 AM	0	6	19	2	0	0	7	10	6	3	0	3	24	2	1	0	3	15	4	0
8:45 AM - 9:00 AM	0	5	9	2	0	0	1	9	1	1	1	2	18	2	0	0	4	22	2	0
TOTAL	**0**	**30**	**133**	**47**	**0**	**0**	**66**	**161**	**42**	**17**	**1**	**55**	**323**	**88**	**3**	**0**	**95**	**205**	**88**	**3**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	5	11	5	0	0	9	17	5	0	0	4	24	4	0	0	9	55	6	1
4:15 PM - 4:30 PM	0	5	16	2	0	0	5	17	9	0	0	4	24	3	0	0	5	44	4	0
4:30 PM - 4:45 PM	0	8	10	3	0	0	2	9	9	0	0	2	32	3	0	0	7	43	4	0
4:45 PM - 5:00 PM	0	3	11	5	0	0	4	9	9	0	0	5	22	2	0	0	8	56	4	0
5:00 PM - 5:15 PM	0	9	6	3	0	0	4	11	8	0	0	1	36	3	0	0	5	58	5	0
5:15 PM - 5:30 PM	0	7	15	6	0	0	5	12	9	0	1	4	41	2	0	0	5	43	3	0
5:30 PM - 5:45 PM	0	4	13	3	0	0	2	13	6	0	0	1	34	2	0	0	7	55	3	0
5:45 PM - 6:00 PM	0	5	8	1	0	0	3	15	12	1	0	7	35	3	0	0	11	41	2	0
TOTAL	**0**	**46**	**90**	**28**	**0**	**0**	**34**	**103**	**67**	**1**	**1**	**28**	**248**	**22**	**0**	**0**	**57**	**395**	**31**	**1**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:30 AM - 8:30 AM	0	14	87	39	0	0	51	131	29	13	0	45	215	79	2	0	84	140	73	2
5:00 PM - 6:00 PM	0	25	42	13	0	0	14	51	35	1	1	13	146	10	0	0	28	197	13	0

	PHF	Trucks
AM	0.854	1.7%
PM	0.961	0.2%



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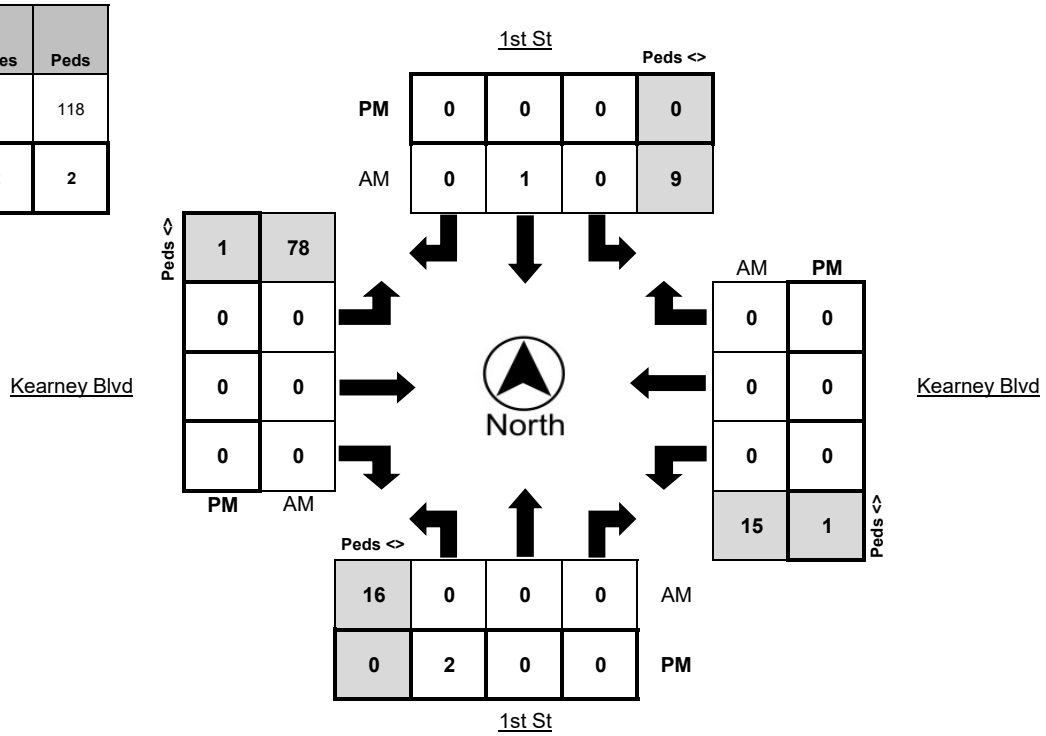
LOCATION 1st St @ Kearney Blvd
LATITUDE 36.7276
COUNTY Fresno
LONGITUDE -120.0652
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	2
7:15 AM - 7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM - 7:45 AM	0	0	0	1	0	1	0	2	0	0	0	1	0	0	0	5
7:45 AM - 8:00 AM	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	11
8:00 AM - 8:15 AM	0	0	0	5	0	0	0	9	0	0	0	9	0	0	0	38
8:15 AM - 8:30 AM	0	0	0	2	0	0	0	4	0	0	0	3	0	0	0	24
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM - 9:00 AM	0	0	0	2	0	0	0	1	0	1	0	0	0	0	0	1
TOTAL	**0**	**0**	**0**	**13**	**0**	**1**	**0**	**18**	**0**	**1**	**0**	**16**	**0**	**0**	**0**	**84**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM - 4:30 PM	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:45 PM - 6:00 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**2**	**0**	**0**	**4**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**3**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	9	0	1	0	16	0	0	0	15	0	0	0	78
5:00 PM - 6:00 PM	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1

	Bikes	Peds
AM Peak Total	1	118
PM Peak Total	2	2



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

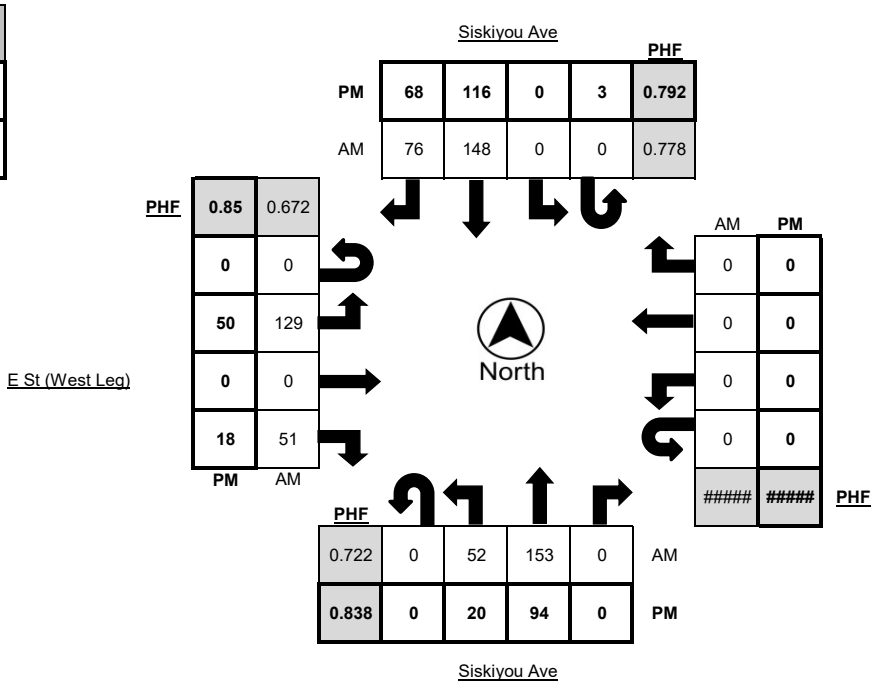
LOCATION Siskiyou Ave @ E St (West Leg)
LATITUDE 36.7258
COUNTY Fresno
LONGITUDE -120.0784
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	6	26	0	2	0	0	16	3	1	0	12	0	6	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	11	25	0	0	0	0	27	28	3	0	20	0	12	1	0	0	0	0	0
7:30 AM - 7:45 AM	0	13	38	0	1	0	0	52	20	0	0	40	0	14	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	21	50	0	1	0	0	46	22	1	0	49	0	18	1	0	0	0	0	0
8:00 AM - 8:15 AM	0	7	40	0	2	0	0	23	6	1	0	20	0	7	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	2	25	0	0	0	0	17	7	1	0	11	0	2	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	1	13	0	0	0	0	19	4	1	0	3	0	1	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	2	15	0	0	0	0	11	2	0	0	7	0	1	1	0	0	0	0	0
TOTAL	**0**	**63**	**232**	**0**	**6**	**0**	**0**	**211**	**92**	**8**	**0**	**162**	**0**	**61**	**3**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	4	18	0	0	0	0	18	14	1	0	21	0	7	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	7	24	0	2	0	0	29	10	0	0	10	0	5	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	3	16	0	0	0	0	43	16	0	0	10	0	1	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	2	32	0	0	0	0	25	15	0	0	16	0	4	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	9	24	0	0	1	0	20	19	0	0	14	0	6	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	6	22	0	0	2	0	28	18	0	0	10	0	7	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	6	16	0	0	1	0	21	10	0	0	8	0	2	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	1	25	0	0	0	0	30	13	0	0	5	0	1	0	0	0	0	0	0
TOTAL	**0**	**38**	**177**	**0**	**2**	**4**	**0**	**214**	**115**	**1**	**0**	**94**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	0	52	153	0	4	0	0	148	76	5	0	129	0	51	2	0	0	0	0	0
4:30 PM - 5:30 PM	0	20	94	0	0	3	0	116	68	0	0	50	0	18	0	0	0	0	0	0

	PHF	Trucks
AM	0.739	1.8%
PM	0.981	0.0%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

LOCATION Siskiyou Ave @ E St (West Leg) **LATITUDE** 36.7258

COUNTY Fresno **LONGITUDE** -120.0784

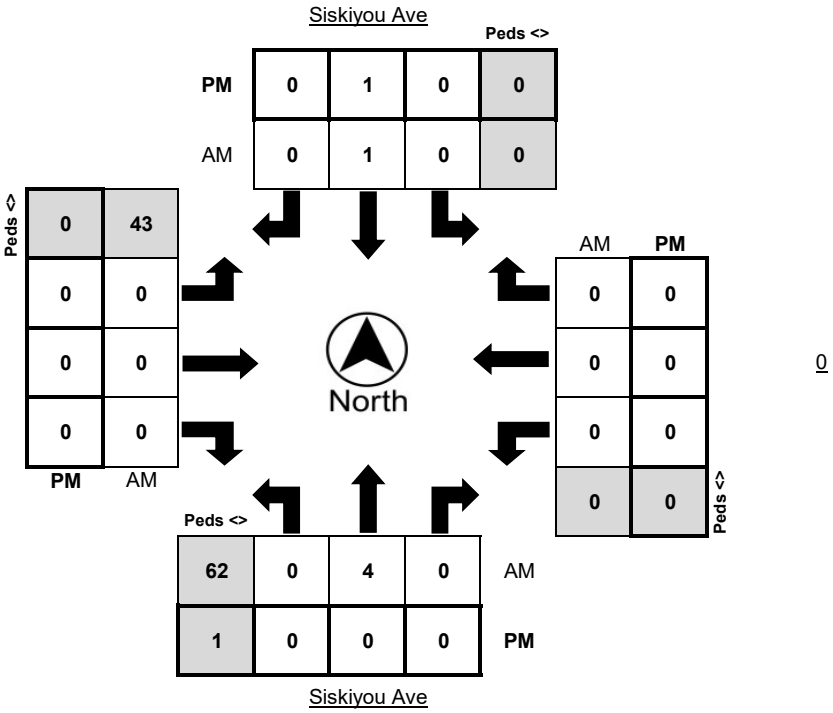
COLLECTION DATE Wednesday, August 30, 2023 **WEATHER** Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	3
7:30 AM - 7:45 AM	0	0	0	0	0	1	0	31	0	0	0	0	0	0	0	15
7:45 AM - 8:00 AM	0	2	0	0	0	0	0	26	0	0	0	0	0	0	0	24
8:00 AM - 8:15 AM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	1
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM - 9:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
TOTAL	**0**	**5**	**0**	**0**	**0**	**1**	**0**	**64**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**47**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	4	0	0	0	1	0	62	0	0	0	0	0	0	0	43
4:30 PM - 5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	5	105
PM Peak Total	1	1



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

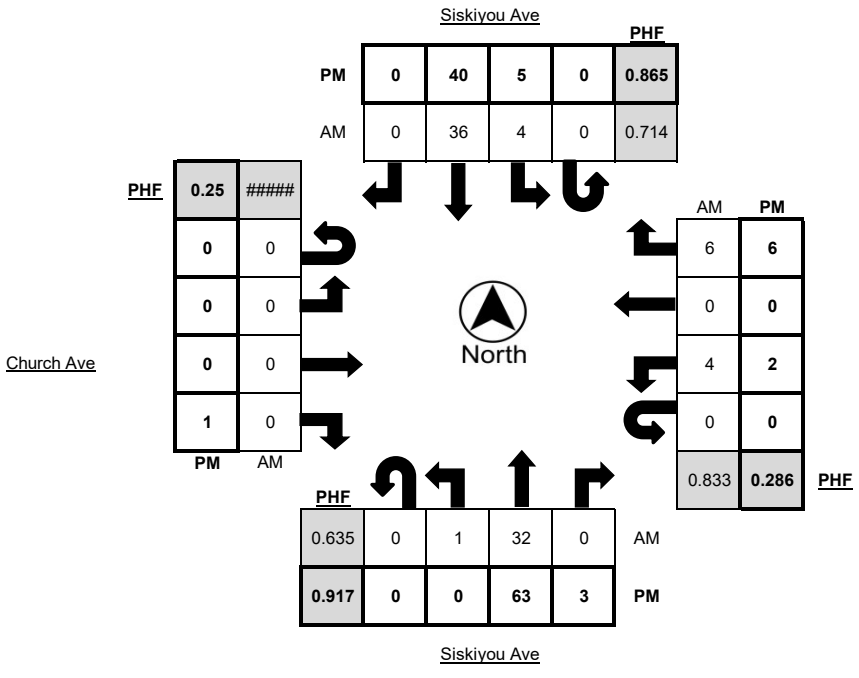
LOCATION Siskiyou Ave @ Church Ave
LATITUDE 36.7129
COUNTY Fresno
LONGITUDE -120.0786
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	1	7	0	1	0	2	9	0	0	0	0	0	0	0	0	1	0	2	0
7:15 AM - 7:30 AM	0	0	5	0	0	0	1	13	0	3	0	0	0	0	0	0	1	0	2	2
7:30 AM - 7:45 AM	0	0	7	0	1	0	0	7	0	0	0	0	0	0	0	0	0	0	2	0
7:45 AM - 8:00 AM	0	0	13	0	1	0	1	7	0	1	0	0	0	0	0	0	2	0	0	0
8:00 AM - 8:15 AM	0	0	10	0	0	0	2	7	0	0	0	0	0	0	0	0	0	0	3	1
8:15 AM - 8:30 AM	0	0	9	0	0	0	2	7	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	2	1	0	0	0	5	0	0	0	0	0	0	0	0	1	0	1	1
8:45 AM - 9:00 AM	0	0	4	2	1	0	0	7	0	0	0	0	0	0	0	0	1	0	1	0
TOTAL	**0**	**1**	**57**	**3**	**4**	**0**	**8**	**62**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**11**	**4**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	0	12	0	0	0	0	6	0	0	0	0	0	0	0	0	1	0	3	1
4:15 PM - 4:30 PM	0	0	9	3	3	0	2	7	0	0	0	0	0	0	0	0	0	0	4	0
4:30 PM - 4:45 PM	0	0	16	0	0	0	1	12	0	0	0	0	0	0	0	0	1	0	6	1
4:45 PM - 5:00 PM	0	0	16	0	0	0	1	12	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	14	2	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	17	1	1	0	3	10	0	0	0	0	0	1	0	0	1	0	0	0
5:30 PM - 5:45 PM	0	1	14	1	1	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0
5:45 PM - 6:00 PM	0	0	16	3	1	0	0	7	0	0	0	0	0	0	0	0	0	0	4	0
TOTAL	**0**	**1**	**114**	**10**	**6**	**0**	**7**	**62**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**17**	**2**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	0	1	32	0	3	0	4	36	0	4	0	0	0	0	0	0	4	0	6	2
4:30 PM - 5:30 PM	0	0	63	3	1	0	5	40	0	0	0	0	0	1	0	0	2	0	6	1

	PHF	Trucks
AM	0.902	10.8%
PM	0.833	1.7%



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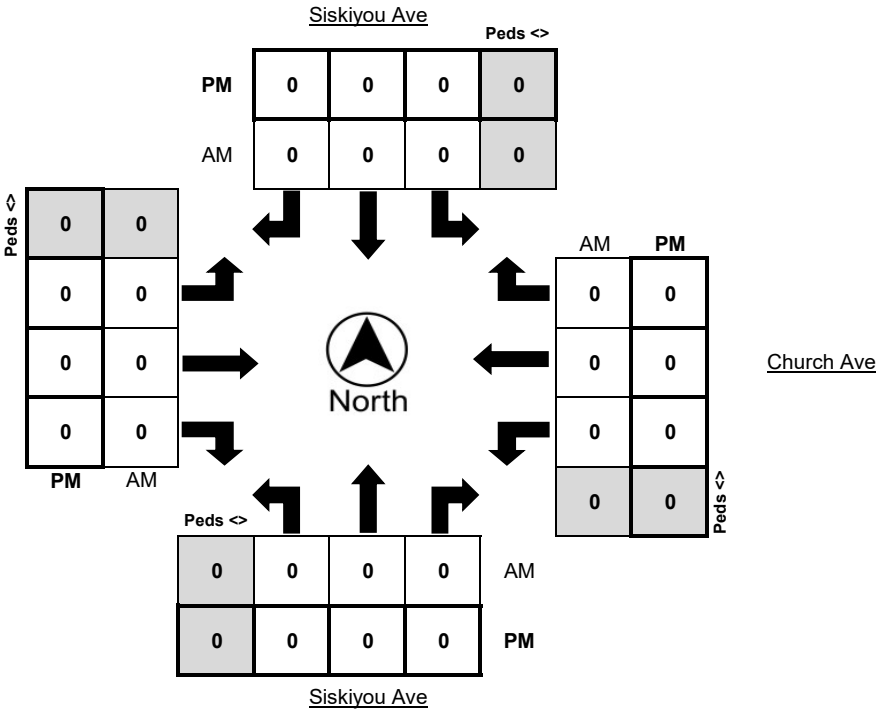
LOCATION Siskiyou Ave @ Church Ave
LATITUDE 36.7129
COUNTY Fresno
LONGITUDE -120.0786
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	**0**	**0**



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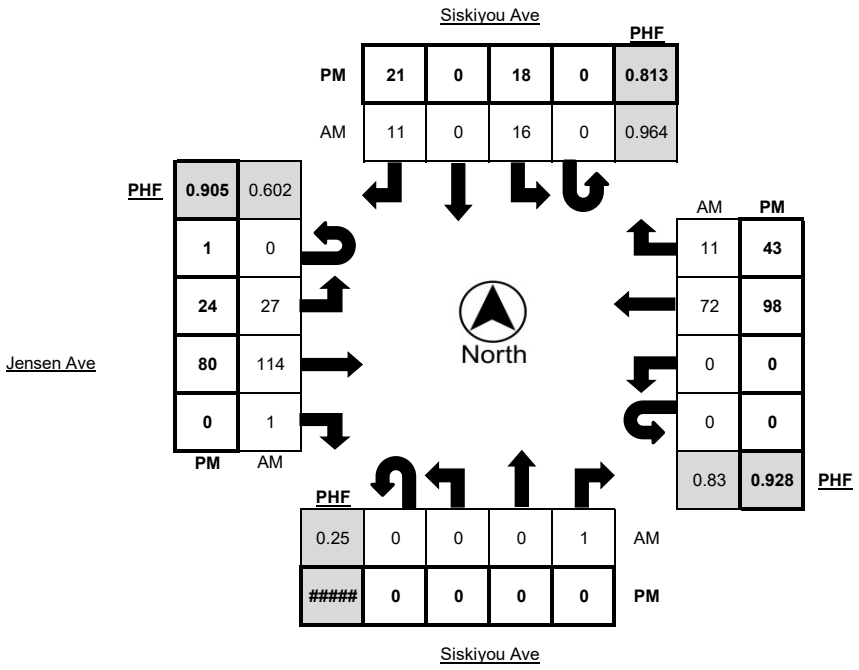
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	0	0	0	0	0	6	0	3	0	0	5	21	0	0	0	0	11	1	2
7:15 AM - 7:30 AM	0	0	0	0	0	0	10	0	6	2	0	2	19	0	1	0	0	8	3	3
7:30 AM - 7:45 AM	0	0	0	0	0	0	3	0	3	0	0	6	52	1	8	0	0	22	3	2
7:45 AM - 8:00 AM	0	0	0	0	0	0	4	0	3	1	0	8	18	0	6	0	0	16	5	3
8:00 AM - 8:15 AM	0	0	0	0	0	0	5	0	2	0	0	6	19	0	0	0	0	20	1	6
8:15 AM - 8:30 AM	0	0	0	1	0	0	4	0	3	0	0	7	25	0	5	0	0	14	2	3
8:30 AM - 8:45 AM	0	0	0	0	0	0	4	0	4	1	0	2	22	0	6	0	0	10	1	1
8:45 AM - 9:00 AM	0	0	2	0	0	0	6	0	2	0	0	4	16	1	4	0	0	8	0	3
TOTAL	**0**	**0**	**2**	**1**	**0**	**0**	**42**	**0**	**26**	**4**	**0**	**40**	**192**	**2**	**30**	**0**	**0**	**109**	**16**	**23**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	0	0	0	0	0	3	0	3	0	0	1	19	0	4	0	1	24	12	2
4:15 PM - 4:30 PM	0	0	0	0	0	0	3	0	5	1	0	2	15	0	3	0	0	22	8	3
4:30 PM - 4:45 PM	0	0	0	0	0	0	4	0	8	1	0	8	20	0	3	0	0	24	8	1
4:45 PM - 5:00 PM	0	0	0	0	0	0	4	0	6	0	0	7	22	0	5	0	0	29	9	2
5:00 PM - 5:15 PM	0	0	0	0	0	0	4	0	3	0	1	3	18	0	1	0	0	22	12	1
5:15 PM - 5:30 PM	0	0	0	0	0	0	6	0	4	0	0	6	20	0	3	0	0	23	14	4
5:30 PM - 5:45 PM	0	0	0	0	0	0	4	0	1	0	0	2	12	0	4	0	0	16	14	2
5:45 PM - 6:00 PM	0	0	0	0	0	0	5	0	2	0	0	8	17	0	2	0	0	25	13	3
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**	**32**	**2**	**1**	**37**	**143**	**0**	**25**	**0**	**1**	**185**	**90**	**18**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:30 AM - 8:30 AM	0	0	0	1	0	0	16	0	11	1	0	27	114	1	19	0	0	72	11	14
4:30 PM - 5:30 PM	0	0	0	0	0	0	18	0	21	1	1	24	80	0	12	0	0	98	43	8

	PHF	Trucks
AM	0.703	13.4%
PM	0.925	7.4%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
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Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

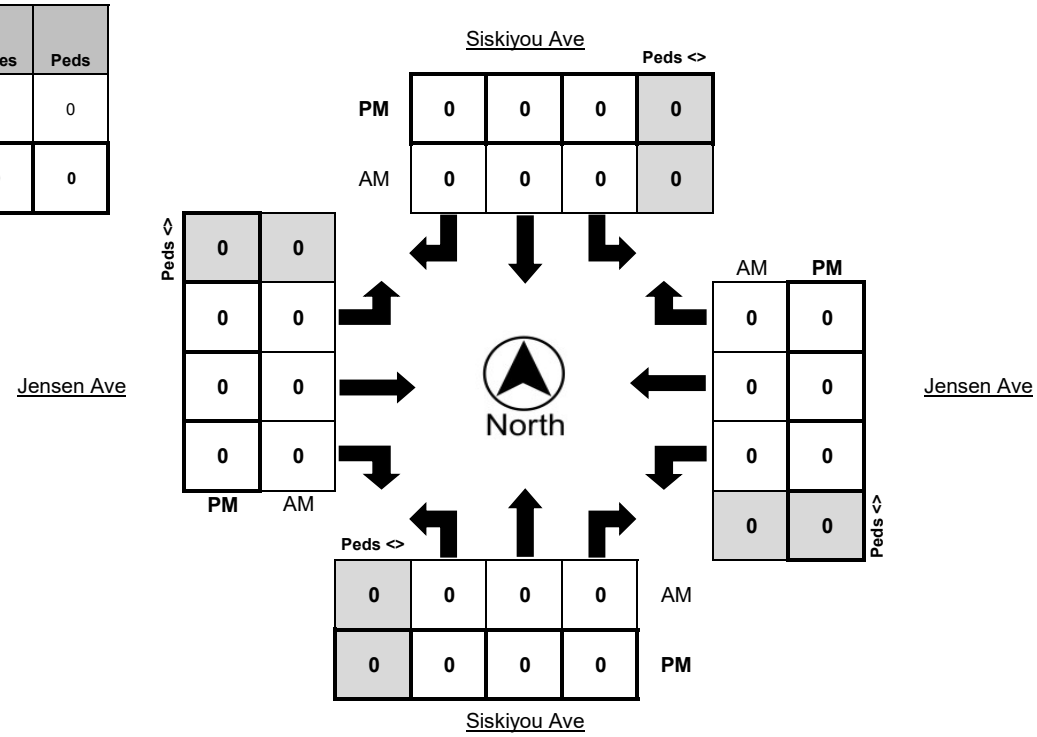
LOCATION Siskiyou Ave @ Jensen Ave
LATITUDE 36.7056
COUNTY Fresno
LONGITUDE -120.0787
COLLECTION DATE Wednesday, August 30, 2023
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	**0**	**0**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

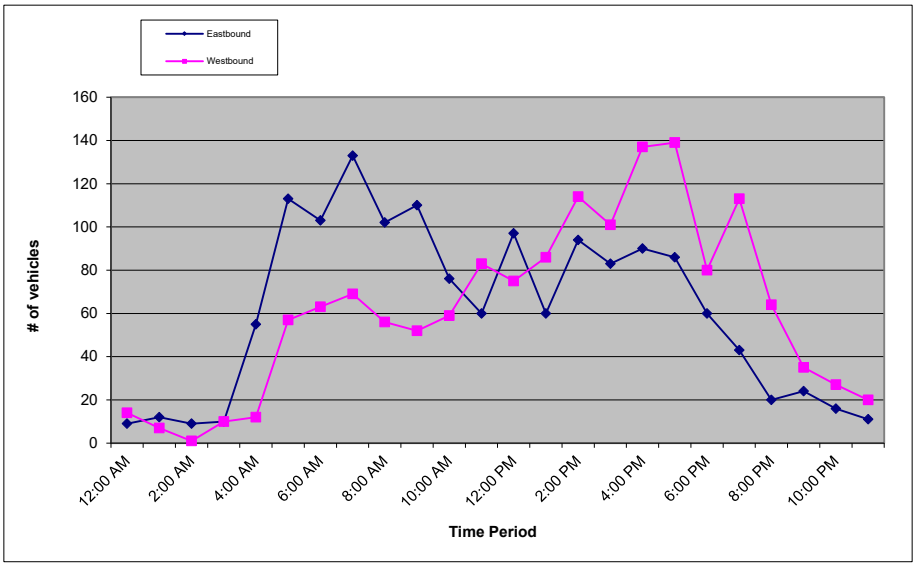
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Jensen Ave	**LATITUDE**	36.705641°
SEGMENT	btwn Siskiyou Ave / SR 145	**LONGITUDE**	-120.078509°
COLLECTION DATE	Wednesday, August 30, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	1	4	2	2	**9**	3	4	6	1	**14**	**23**
1:00 AM	2	3	3	4	**12**	1	1	3	2	**7**	**19**
2:00 AM	2	1	4	2	**9**	0	0	1	0	**1**	**10**
3:00 AM	2	1	3	4	**10**	0	1	4	5	**10**	**20**
4:00 AM	4	7	11	33	**55**	3	0	6	3	**12**	**67**
5:00 AM	17	28	40	28	**113**	8	19	14	16	**57**	**170**
6:00 AM	20	18	29	36	**103**	16	23	10	14	**63**	**166**
7:00 AM	27	29	55	22	**133**	12	11	25	21	**69**	**202**
8:00 AM	24	30	26	22	**102**	21	16	11	8	**56**	**158**
9:00 AM	31	31	27	21	**110**	15	14	4	19	**52**	**162**
10:00 AM	15	22	18	21	**76**	18	13	13	15	**59**	**135**
11:00 AM	9	6	22	23	**60**	15	25	21	22	**83**	**143**
12:00 PM	16	27	34	20	**97**	22	21	16	16	**75**	**172**
1:00 PM	7	16	21	16	**60**	13	35	17	21	**86**	**146**
2:00 PM	14	20	29	31	**94**	27	19	30	38	**114**	**208**
3:00 PM	21	21	21	20	**83**	21	23	25	32	**101**	**184**
4:00 PM	22	18	24	26	**90**	37	30	32	38	**137**	**227**
5:00 PM	22	26	16	22	**86**	34	37	30	38	**139**	**225**
6:00 PM	10	22	13	15	**60**	29	19	17	15	**80**	**140**
7:00 PM	11	14	7	11	**43**	18	46	33	16	**113**	**156**
8:00 PM	6	7	3	4	**20**	19	19	16	10	**64**	**84**
9:00 PM	7	8	5	4	**24**	9	9	8	9	**35**	**59**
10:00 PM	3	3	8	2	**16**	9	8	8	2	**27**	**43**
11:00 PM	2	4	4	1	**11**	8	8	2	2	**20**	**31**
Total	**50.0%**				**1476**	**50.0%**				**1474**	
	2950										

AM%	**43.2%**	**AM Peak**	**214**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.67**
PM%	**56.8%**	**PM Peak**	**239**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.93**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
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24 Hour Count Report

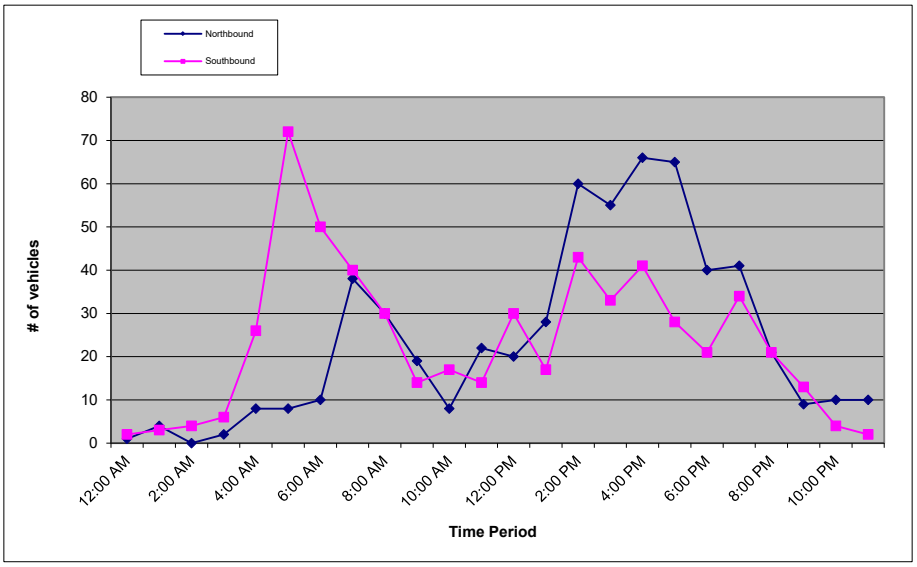
Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET Siskiyou Ave
SEGMENT btwn California Ave / Church Ave
COLLECTION DATE Wednesday, August 30, 2023
NUMBER OF LANES 2

LATITUDE 36.713095°
LONGITUDE -120.078608°
WEATHER Clear

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	0	0	1	0	**1**	1	1	0	0	**2**	**3**
1:00 AM	0	1	2	1	**4**	0	1	1	1	**3**	**7**
2:00 AM	0	0	0	0	**0**	1	1	2	0	**4**	**4**
3:00 AM	0	0	0	2	**2**	1	1	2	2	**6**	**8**
4:00 AM	4	0	3	1	**8**	0	6	4	16	**26**	**34**
5:00 AM	1	4	1	2	**8**	12	19	27	14	**72**	**80**
6:00 AM	3	3	1	3	**10**	12	8	11	19	**50**	**60**
7:00 AM	9	7	9	13	**38**	11	14	7	8	**40**	**78**
8:00 AM	13	9	3	5	**30**	9	9	5	7	**30**	**60**
9:00 AM	7	3	2	7	**19**	4	3	4	3	**14**	**33**
10:00 AM	2	1	3	2	**8**	5	4	2	6	**17**	**25**
11:00 AM	5	4	6	7	**22**	3	3	2	6	**14**	**36**
12:00 PM	6	4	4	6	**20**	7	9	6	8	**30**	**50**
1:00 PM	8	10	6	4	**28**	3	6	6	2	**17**	**45**
2:00 PM	8	16	14	22	**60**	10	7	13	13	**43**	**103**
3:00 PM	10	13	14	18	**55**	8	11	4	10	**33**	**88**
4:00 PM	15	13	22	16	**66**	6	9	13	13	**41**	**107**
5:00 PM	14	17	14	20	**65**	6	13	2	7	**28**	**93**
6:00 PM	10	11	5	14	**40**	8	4	6	3	**21**	**61**
7:00 PM	7	13	11	10	**41**	5	8	12	9	**34**	**75**
8:00 PM	7	6	6	2	**21**	3	9	5	4	**21**	**42**
9:00 PM	2	3	3	1	**9**	4	4	1	4	**13**	**22**
10:00 PM	4	3	3	0	**10**	2	0	1	1	**4**	**14**
11:00 PM	4	4	1	1	**10**	1	1	0	0	**2**	**12**
Total	**50.4%**				**575**	**49.6%**				**565**	
	1140										

AM%	**37.5%**	**AM Peak**	**82**	**5:15 am to 6:15 am**	**AM P.H.F.**	**0.73**
PM%	**62.5%**	**PM Peak**	**114**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.81**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

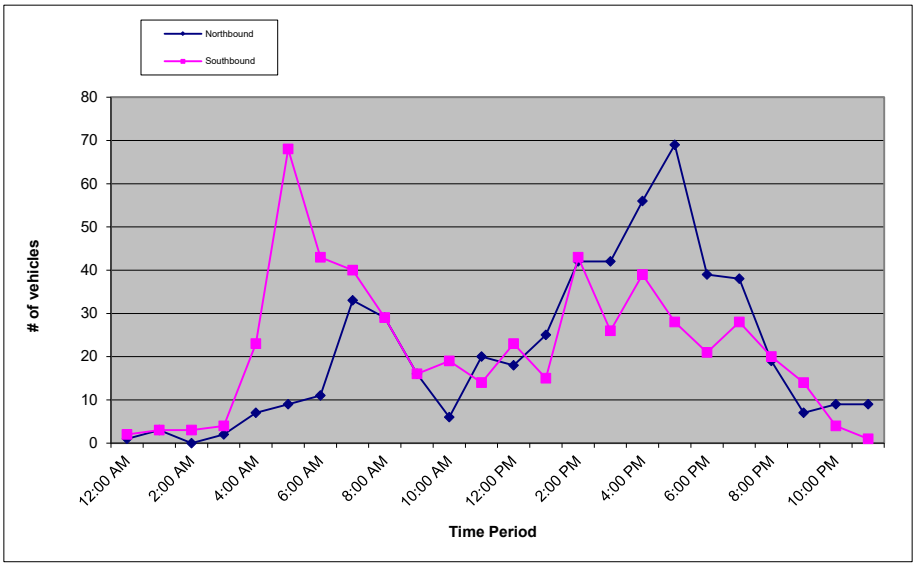
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Siskiyou Ave	**LATITUDE**	36.712768°
SEGMENT	btwn Church Ave / Jensen Ave	**LONGITUDE**	-120.078617°
COLLECTION DATE	Wednesday, August 30, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	0	0	1	0	**1**	1	1	0	0	**2**	**3**
1:00 AM	0	1	1	1	**3**	0	1	1	1	**3**	**6**
2:00 AM	0	0	0	0	**0**	1	1	1	0	**3**	**3**
3:00 AM	0	0	0	2	**2**	1	1	1	1	**4**	**6**
4:00 AM	4	0	2	1	**7**	0	6	4	13	**23**	**30**
5:00 AM	1	4	2	2	**9**	9	20	26	13	**68**	**77**
6:00 AM	3	4	1	3	**11**	12	6	11	14	**43**	**54**
7:00 AM	8	5	7	13	**33**	10	14	7	9	**40**	**73**
8:00 AM	10	9	4	6	**29**	7	7	7	8	**29**	**58**
9:00 AM	6	2	1	7	**16**	6	3	4	3	**16**	**32**
10:00 AM	2	1	2	1	**6**	5	4	2	8	**19**	**25**
11:00 AM	5	3	5	7	**20**	2	3	2	7	**14**	**34**
12:00 PM	4	4	4	6	**18**	4	8	5	6	**23**	**41**
1:00 PM	8	9	4	4	**25**	1	6	5	3	**15**	**40**
2:00 PM	6	7	10	19	**42**	9	9	12	13	**43**	**85**
3:00 PM	8	12	9	13	**42**	6	8	4	8	**26**	**68**
4:00 PM	12	12	16	16	**56**	7	7	13	12	**39**	**95**
5:00 PM	16	18	16	19	**69**	6	12	3	7	**28**	**97**
6:00 PM	11	9	6	13	**39**	8	4	4	5	**21**	**60**
7:00 PM	6	13	13	6	**38**	3	7	11	7	**28**	**66**
8:00 PM	7	6	3	3	**19**	4	8	5	3	**20**	**39**
9:00 PM	2	1	3	1	**7**	4	5	1	4	**14**	**21**
10:00 PM	4	2	3	0	**9**	2	0	1	1	**4**	**13**
11:00 PM	4	4	0	1	**9**	1	0	0	0	**1**	**10**
Total	**49.2%**				**510**	**50.8%**				**526**	
	1036										

AM%	**38.7%**	**AM Peak**	**82**	**5:15 am to 6:15 am**	**AM P.H.F.**	**0.73**
PM%	**61.3%**	**PM Peak**	**109**	**4:30 pm to 5:30 pm**	**PM P.H.F.**	**0.91**



Appendix C: Traffic Modeling

June 15, 2023

Santosh Bhattarai, TE
Council of Fresno County Governments
2035 Tulare Street, Suite 201
Fresno, CA 93721

Via Email Only: bhattarai@fresnocog.org

Subject: ***Traffic Modeling Request for the Preparation of a Traffic Impact Analysis for the Crown-Schaad Subdivision in the City of Kerman (JLB Project 025-009)***

Dear Mr. Bhattarai,

JLB Traffic Engineering, Inc. (JLB) hereby requests traffic modeling for the preparation of a Traffic Impact Analysis (TIA) for the Crown-Schaad Subdivision (Project) located on the northwest quadrant of Kearney Boulevard and Siskiyou Avenue in the City of Kerman. The Project proposes to construct 163 single-family housing units on approximately 31.2 acres for an average density of 5.22 units per acre. Based on information provided to JLB, the proposed Project is consistent with the City of Kerman General Plan. An aerial of the Project vicinity is shown in Exhibit A.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the on-going planning process.

Scenarios:

The following scenarios are requested:

1. Base Year 2019 No Project (with Link and TAZ modifications)
2. Base Year 2019 plus Project (with Link and TAZ modifications)
3. Cumulative Year 2046 plus Project Select Zone (with Link and TAZ modifications)
4. Differences between model runs 3 and 2 above

Changes and/or additions to the Model Network or TAZ's

JLB reviewed the Fresno COG model network for the Base Year 2019 and Cumulative Year 2046. Based on this review, JLB requests the following link and TAZ network modifications. Details on the requested Link and TAZ modifications for Base Year 2019 and Cumulative Year 2046 are illustrated in Exhibit B.

LINK and TAZ MODIFICATIONS (Base Year 2019 Scenarios Only):

1. Modify SR 180 as follows:
    a. Increase the westbound lanes between Node 41818 and Siskiyou Avenue to two lanes.
    b. Increase the eastbound lanes between Siskiyou Avenue and Del Norte Avenue to two lanes.
    c. Increase the speed between Siskiyou Avenue and Node 6787 to 55 MPH.

Link and TAZ MODIFICATIONS (Base Year 2019 and Cumulative Year 2046 Scenarios)

1. Increase the speed on SR 180 between Larson Avenue and Siskiyou Avenue to 55 MPH in both directions.
2. Increase the speed on Del Norte Avenue between SR 180 and Kearney Boulevard to 40 MPH in both directions.
3. Create Del Norte Avenue between SR 180 and Belmont Avenue as follows.
   a. Classification: Collector
   b. Lanes: One lane in each direction
   c. Speed: 40 MPH
4. Create TAZ A generally located 750 feet north of Kearney Boulevard and 1,200 feet west of Siskiyou Avenue. TAZ A shall have a TAZ connector to Kearney Boulevard.

Project Trip Generation

Table I presents the trip generation for TAZ A of the proposed Project pursuant to the 11th Edition of the Trip Generation Manual with trip generation rates for 163 Single-Family Detached Housing units. At buildout, TAZ A is estimated to generate approximately 1,537 daily trips, 114 AM peak hour trips and 153 PM peak hour trips.

Table I: TAZ A Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM (7-9) Peak Hour*						*PM (4-6) Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Single-Family Detached Housing (210)	163	d.u.	9.43	1,537	0.70	26	74	30	84	114	0.94	63	37	96	57	153
Total Project Trips				**1,537**				**30**	**84**	**114**				**96**	**57**	**153**

Note: d.u. = Dwelling Units

Project Trip Generation

JLB would like to receive the VMT per Capita for TAZ A in an excel sheet or PDF.

Please feel welcome to contact me if you have any questions or require additional information. I can be reached by phone at (559) 317-6243, or via email at marndt@jlbtraffic.com.

Sincerely,

Matthew Arndt
JLB Traffic Engineering, Inc.

cc: Kai Han, Fresno COG
Jose Luis Benavides, JLB Traffic Engineering

www.JLBtraffic.com
info@JLBtraffic.com
516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
(559) 570-8991

Exhibit A – Project Site Aerial

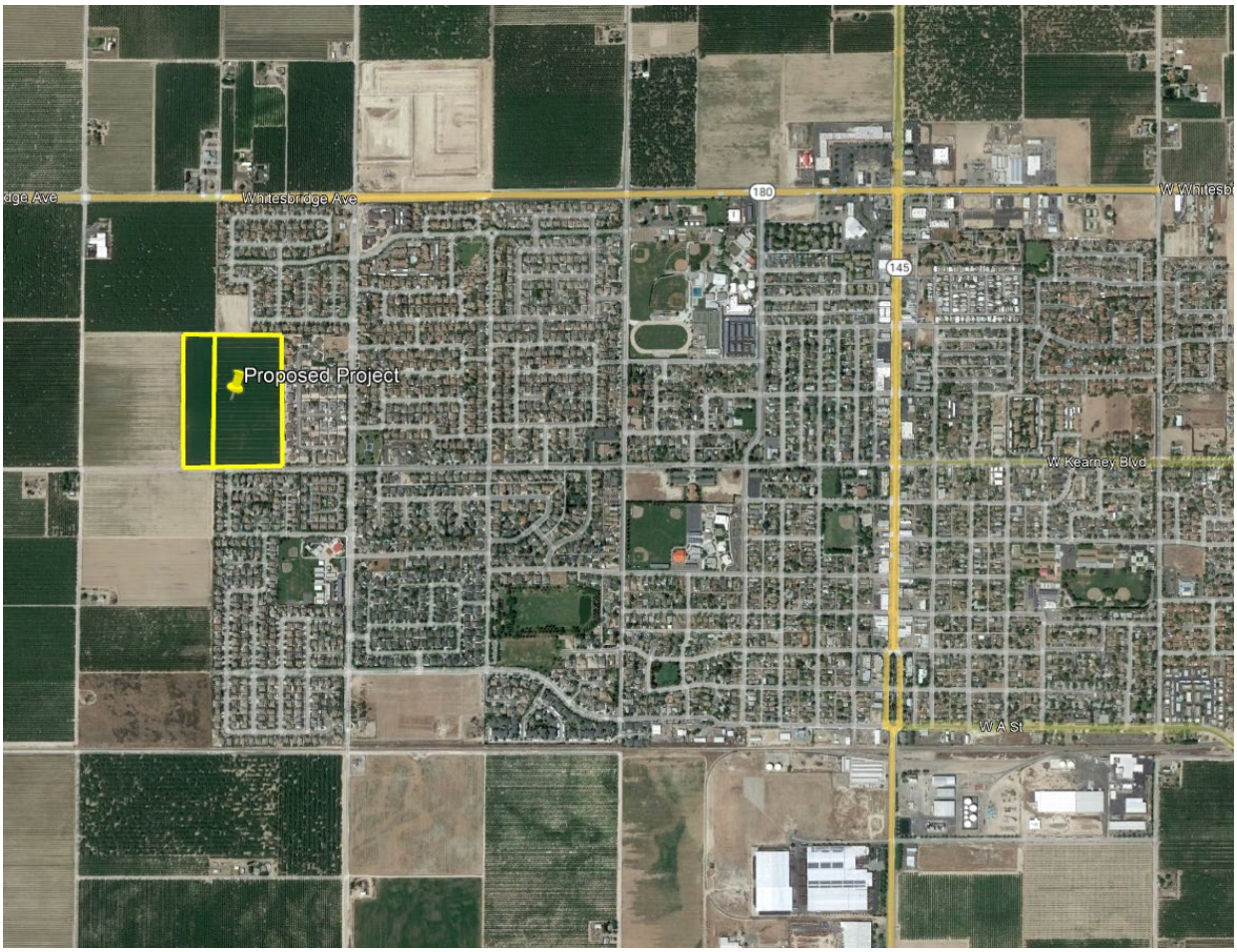
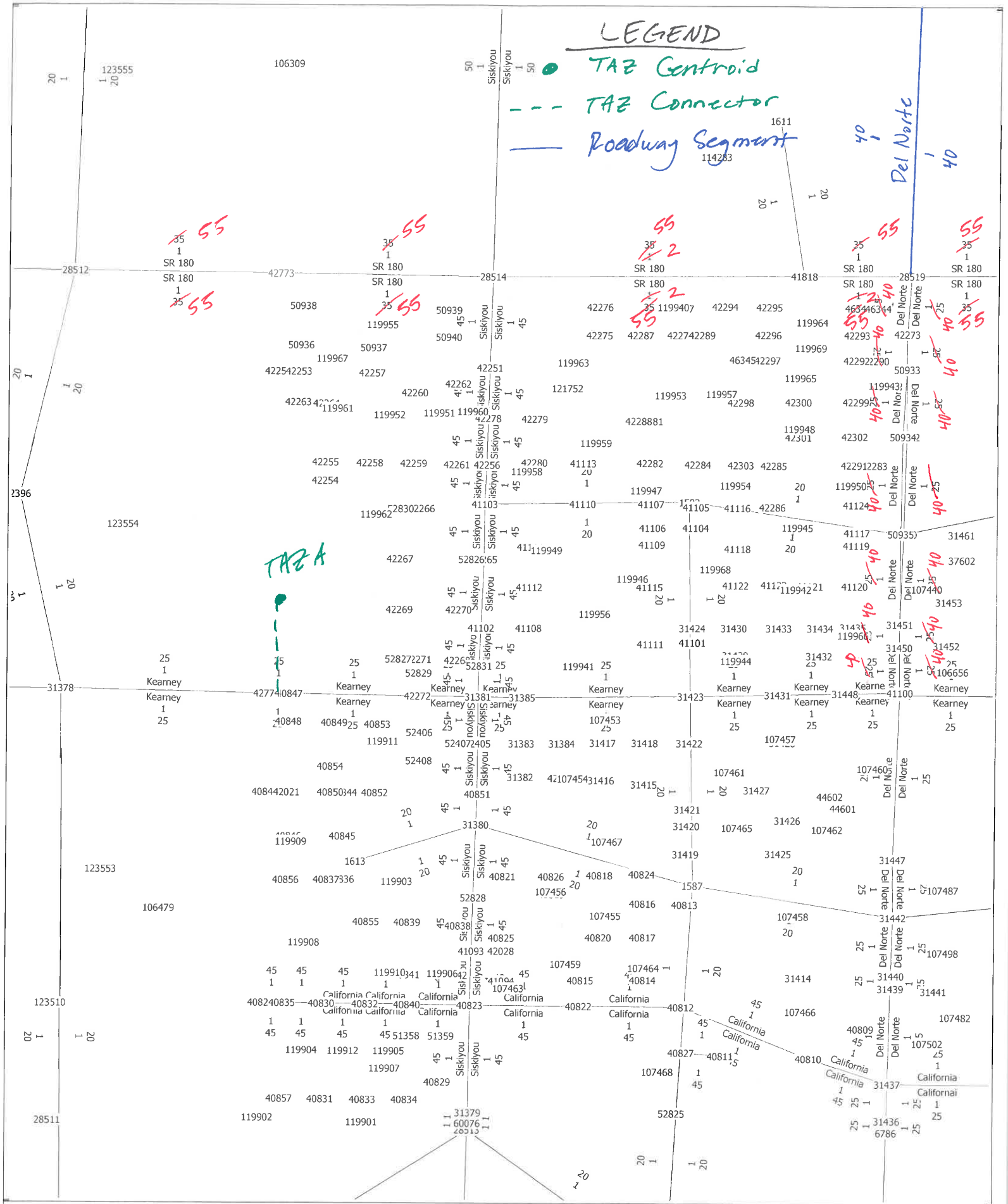


Exhibit B – Link and TAZ Modifications


LEGEND
TAZ Centroid
TAZ Connector
Roadway Segment
TAZ A
Del Norte
SR 180
Kearney
Siskiyou
California
28512
28514
41818
28519
31378
31380
31423
31442
28511
123555
106309
123554
123553
123510
106479
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114283
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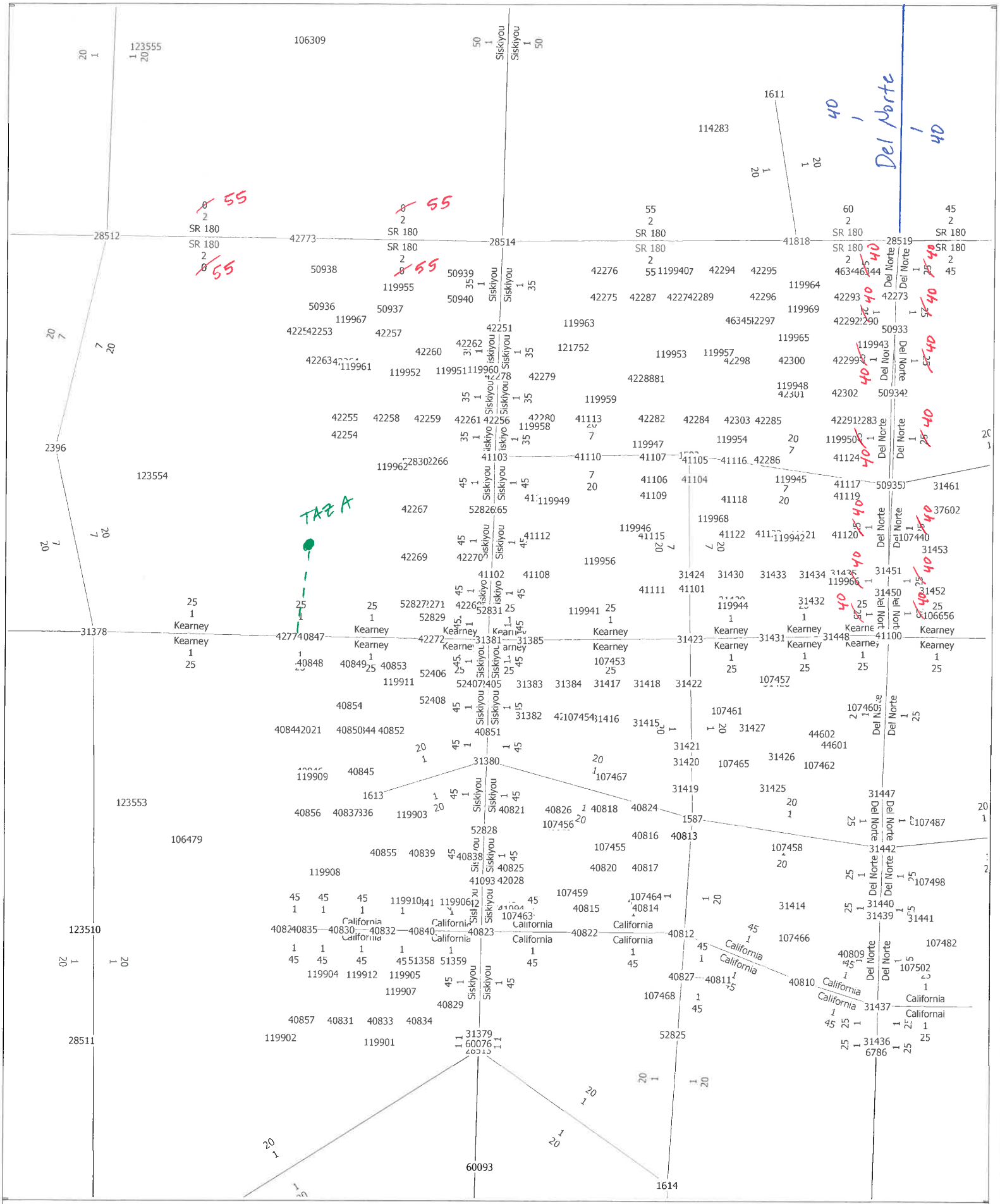
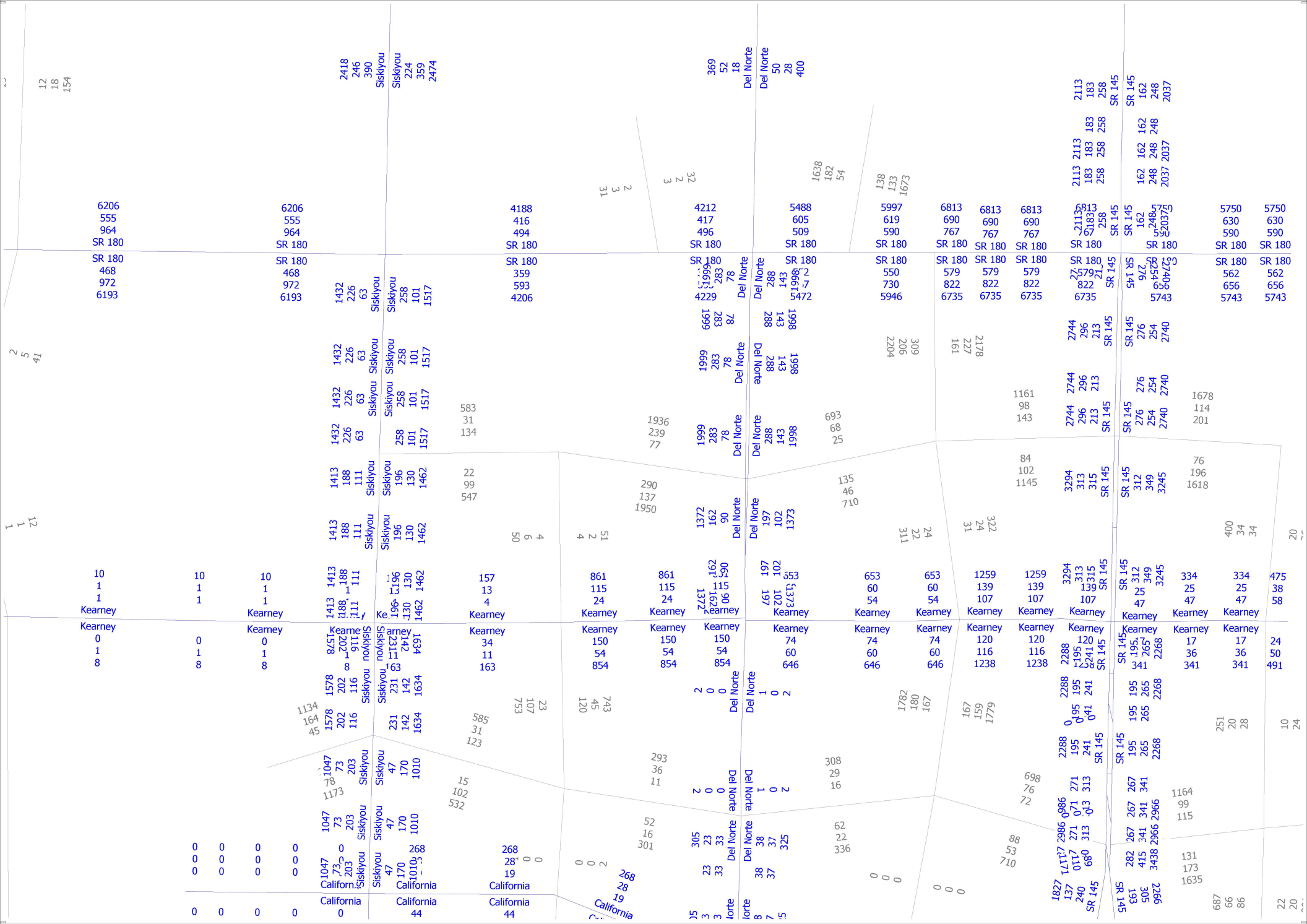


Cumulative Year 2046
Crown-Schaad Residential
Name, Lanes and Speed

cube



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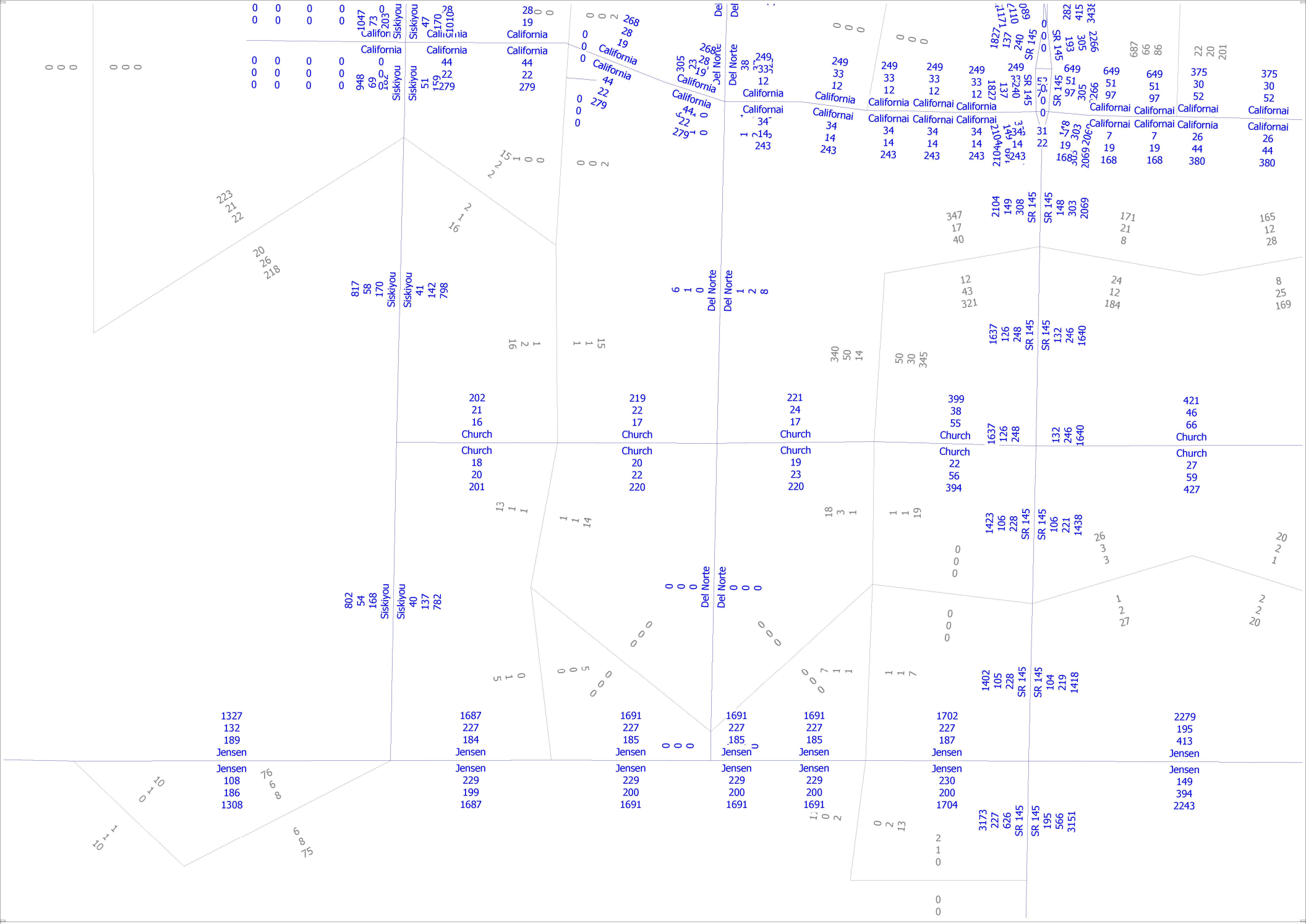
AM, PM and Daily Volume



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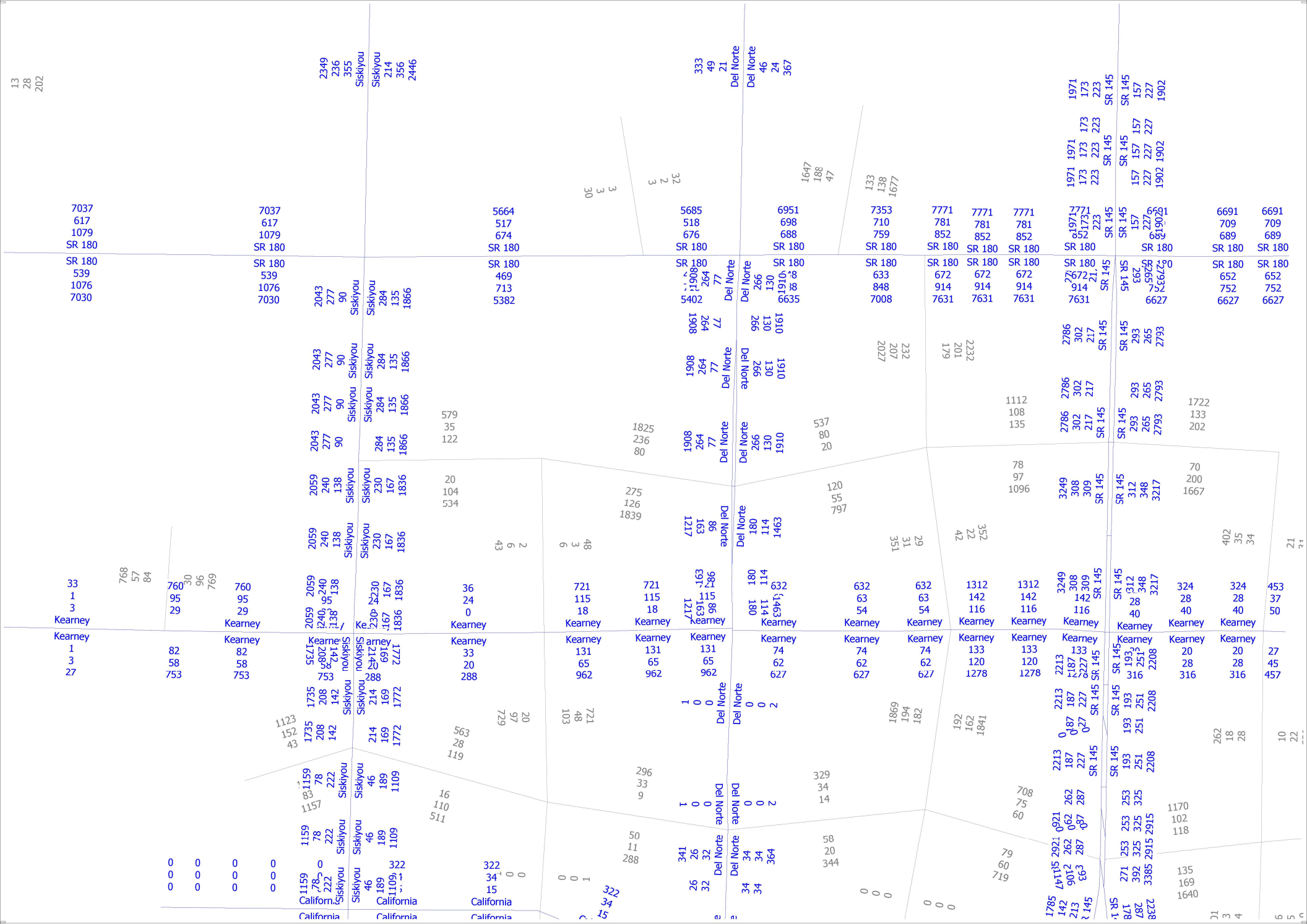

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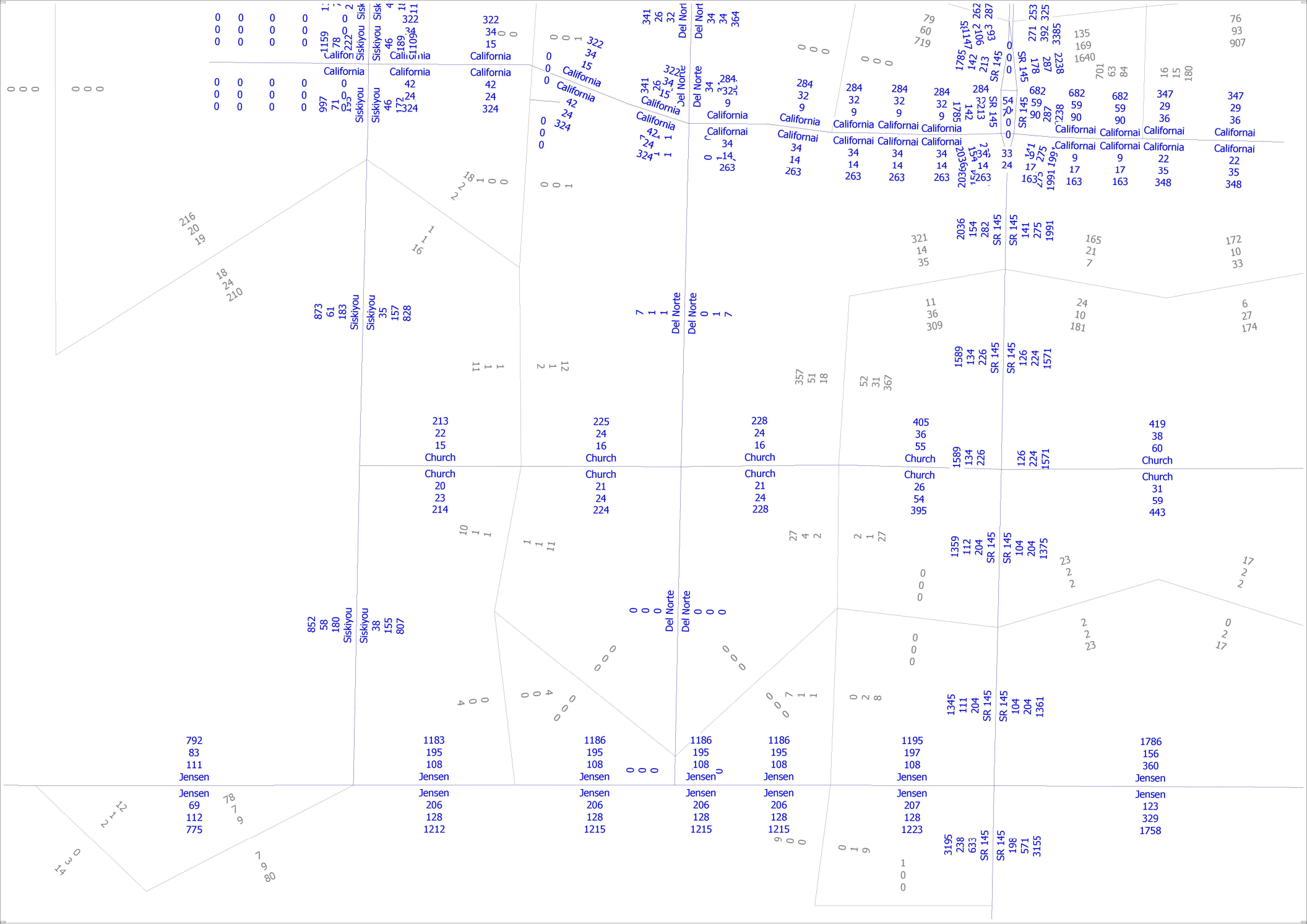

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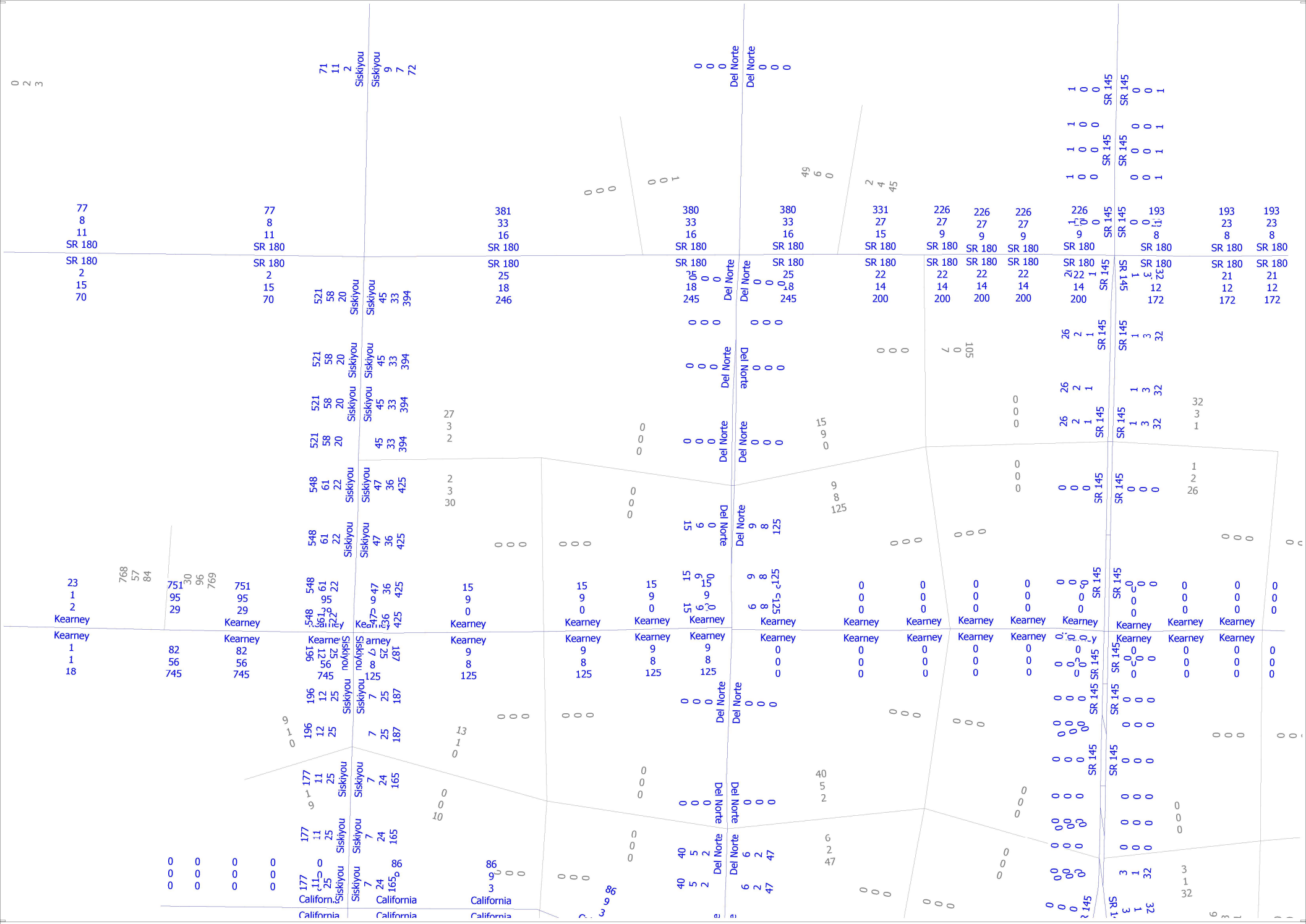

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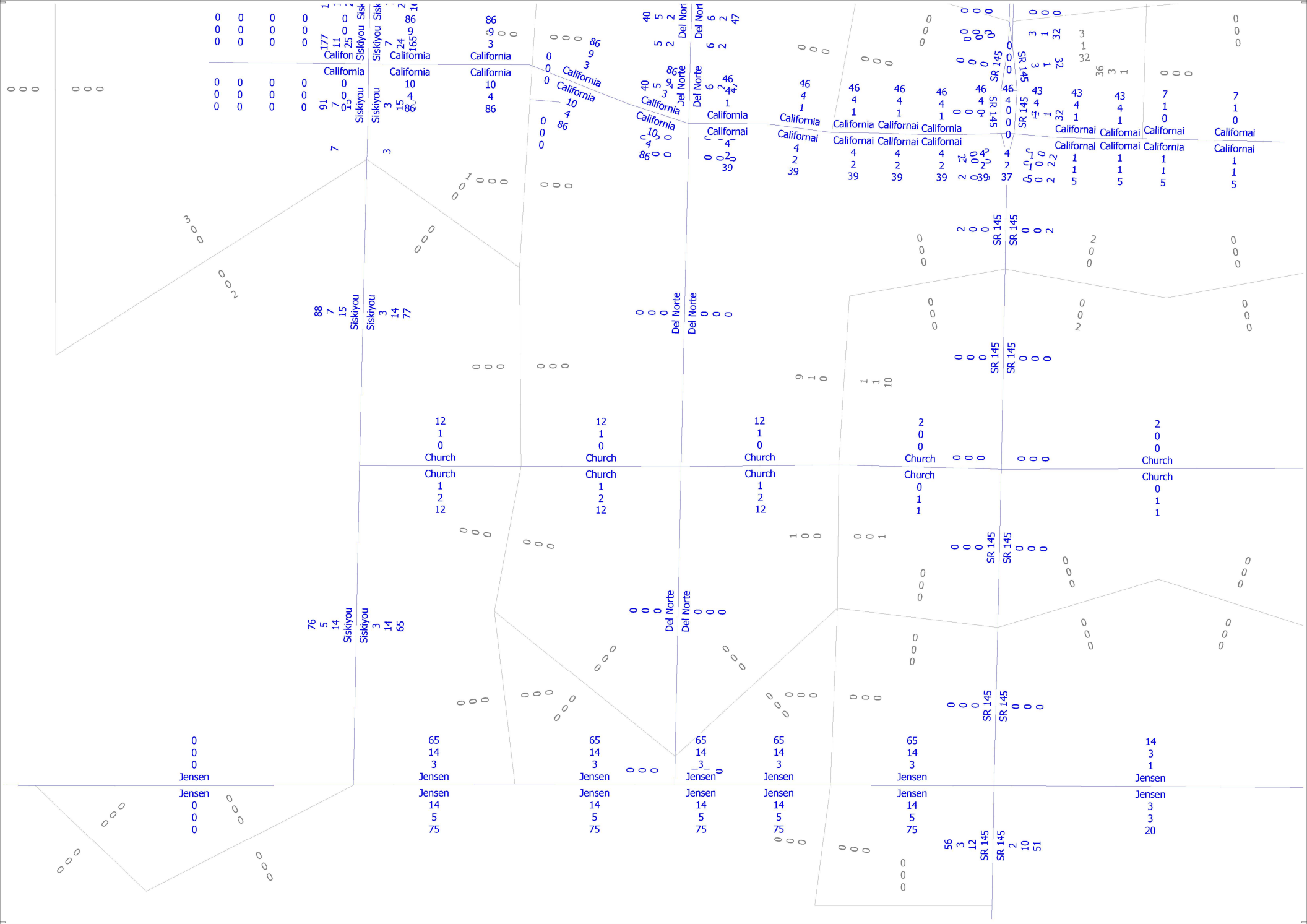

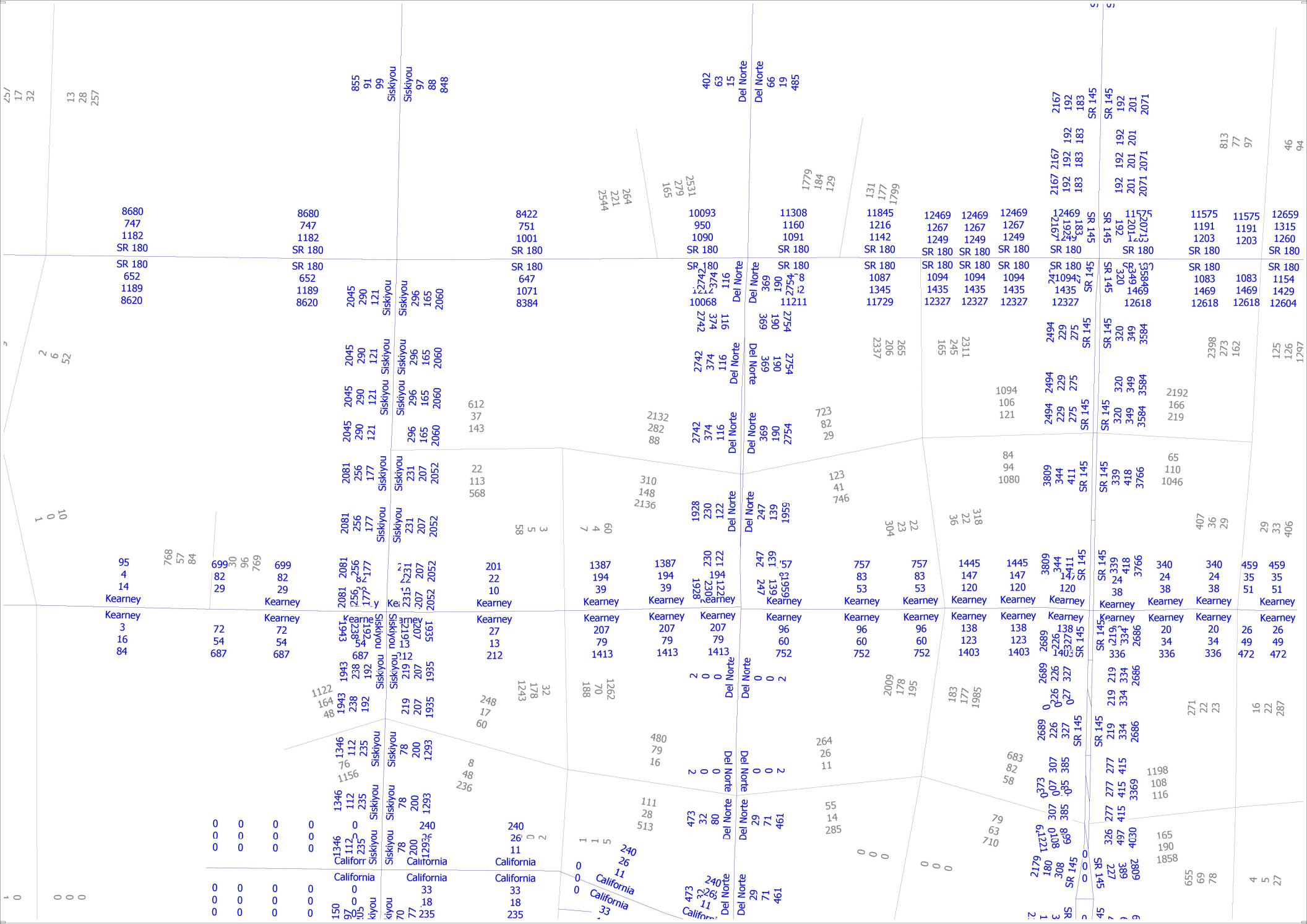

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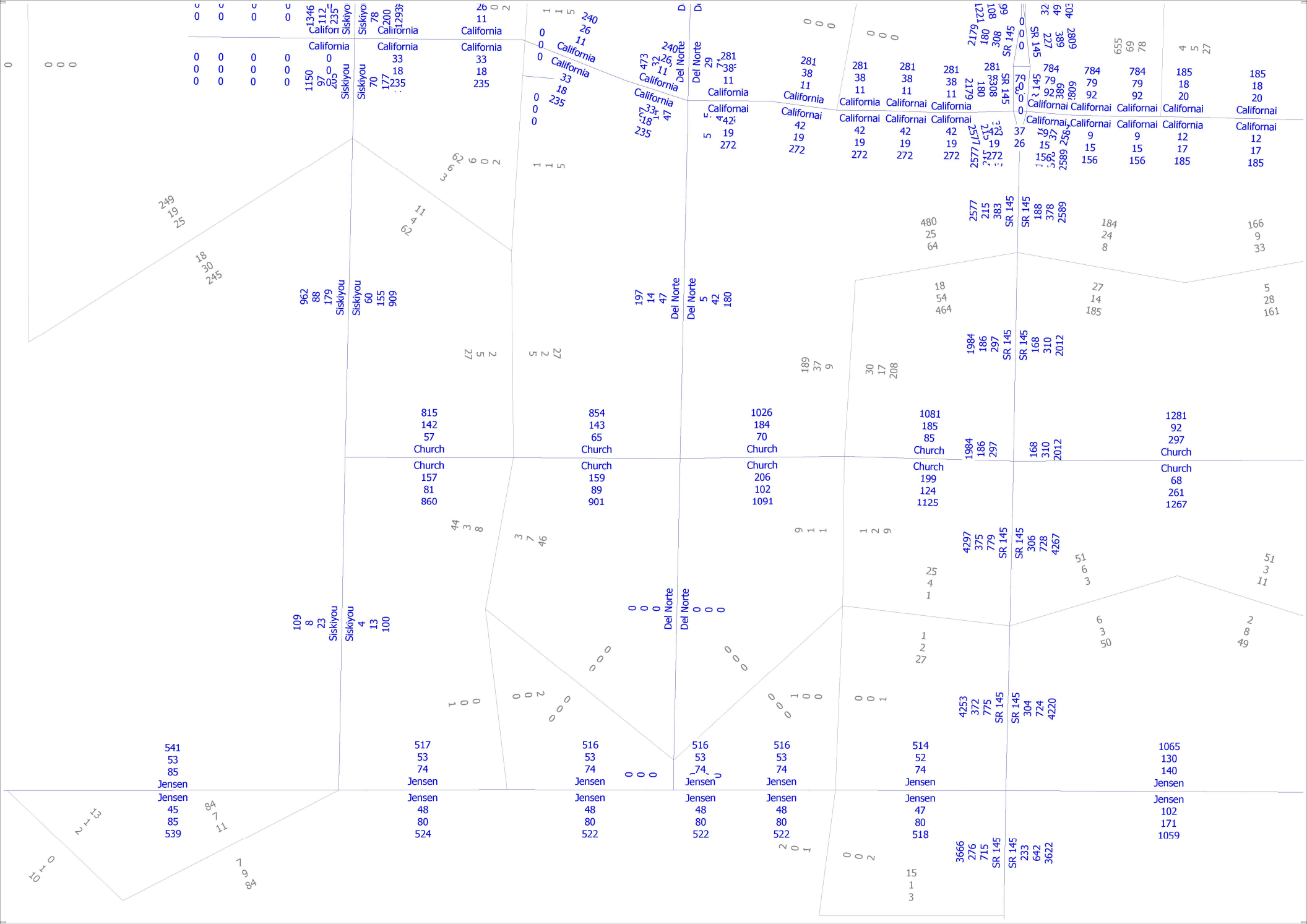
AM, PM and Daily Volumes



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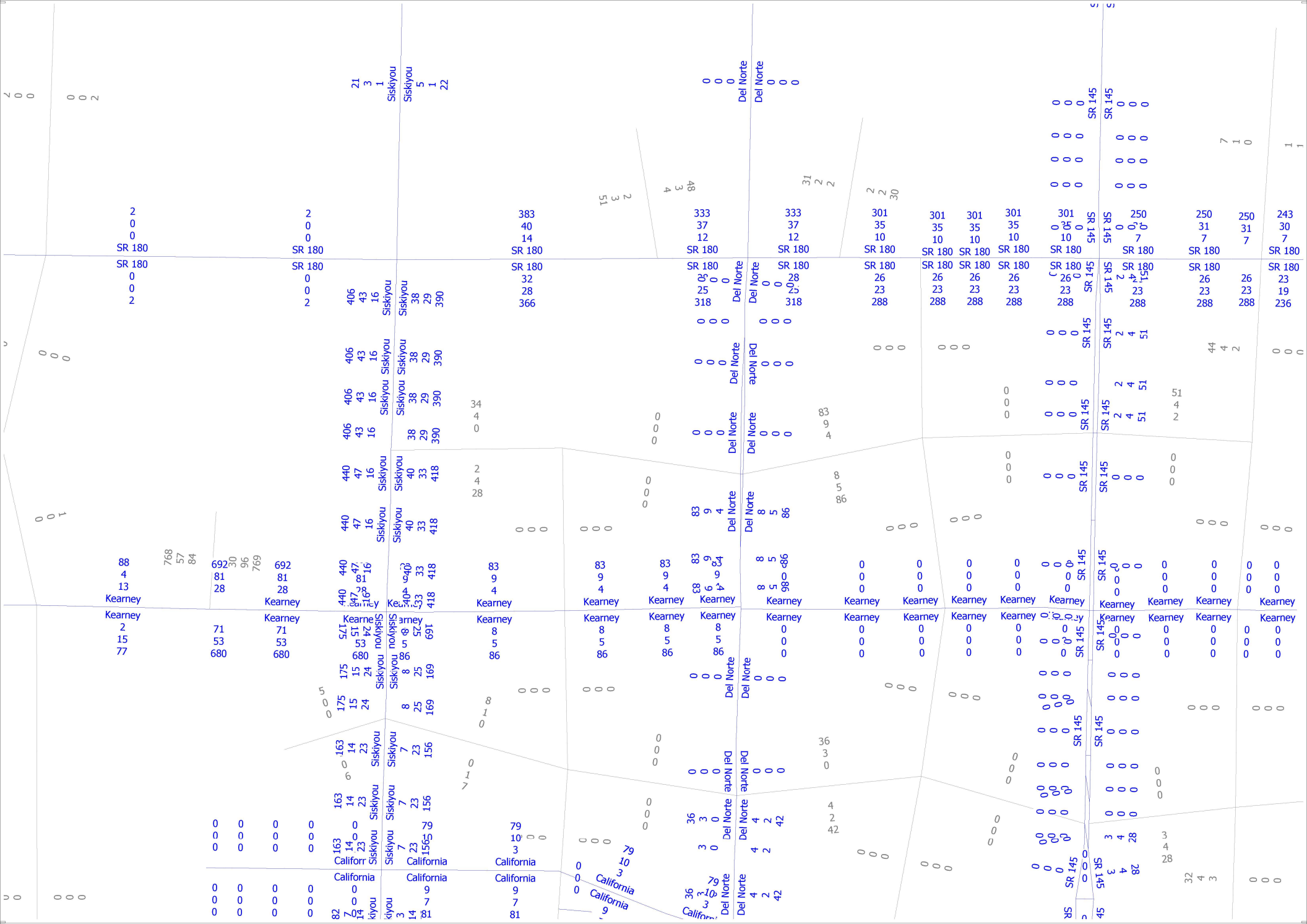

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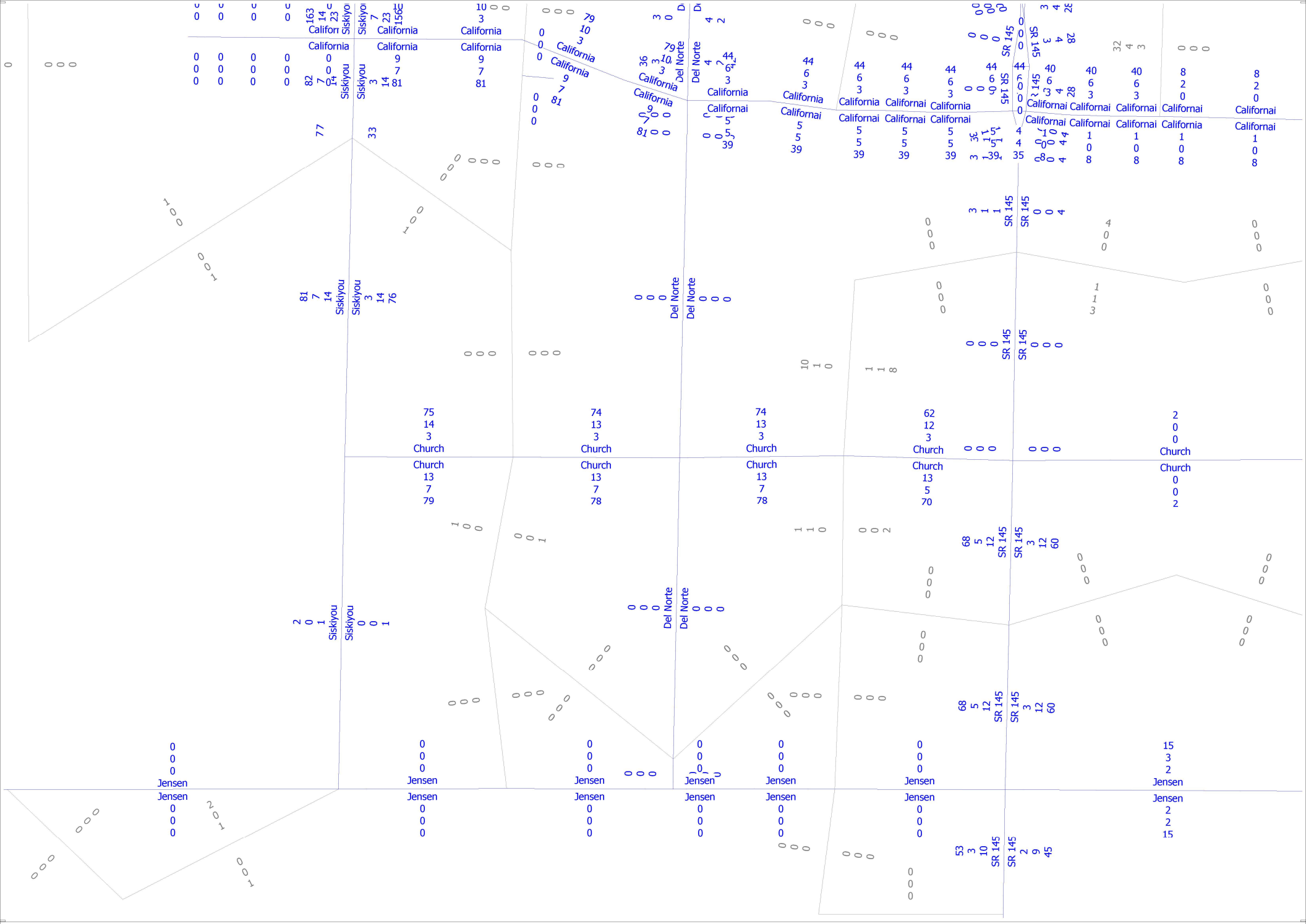

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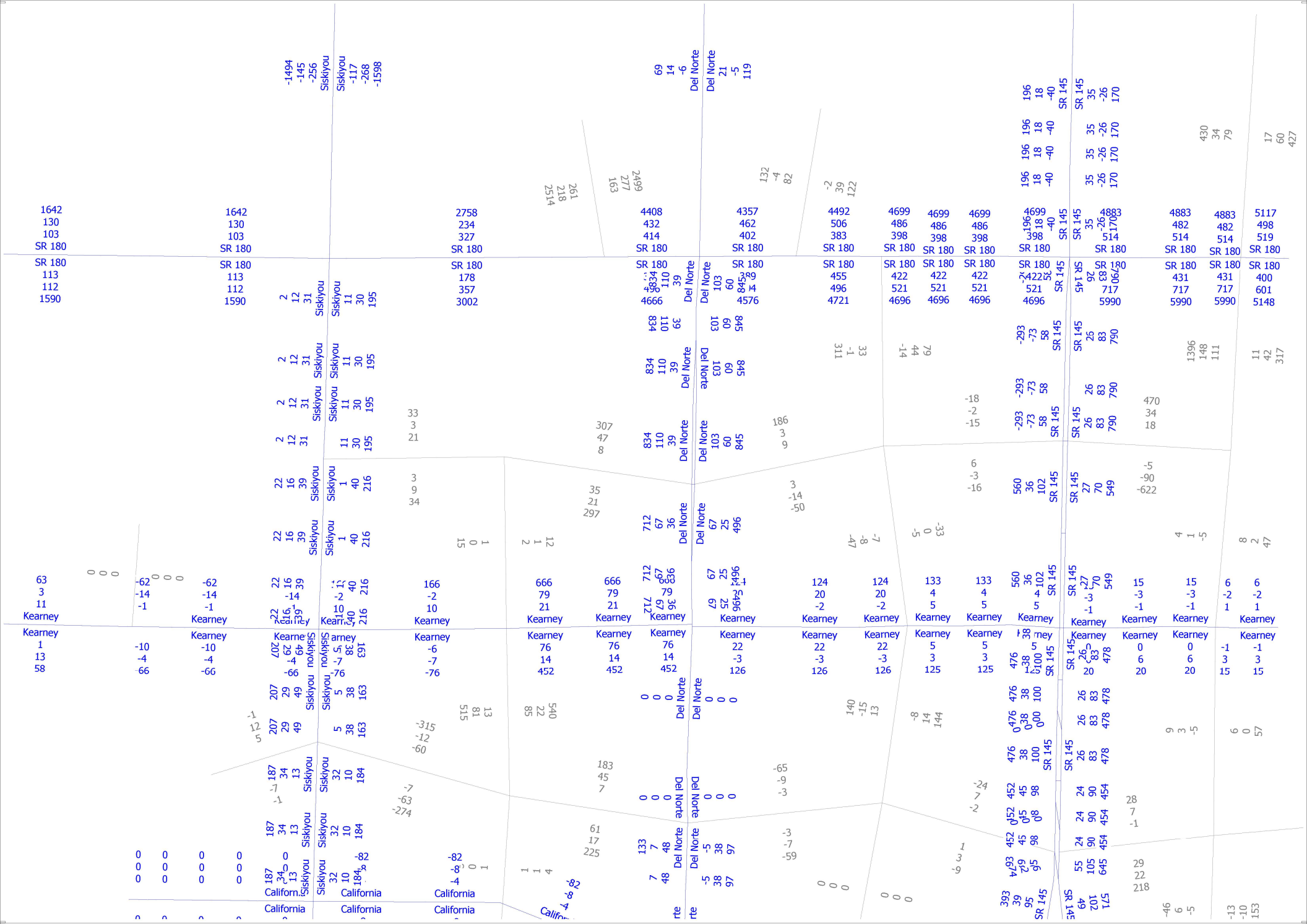

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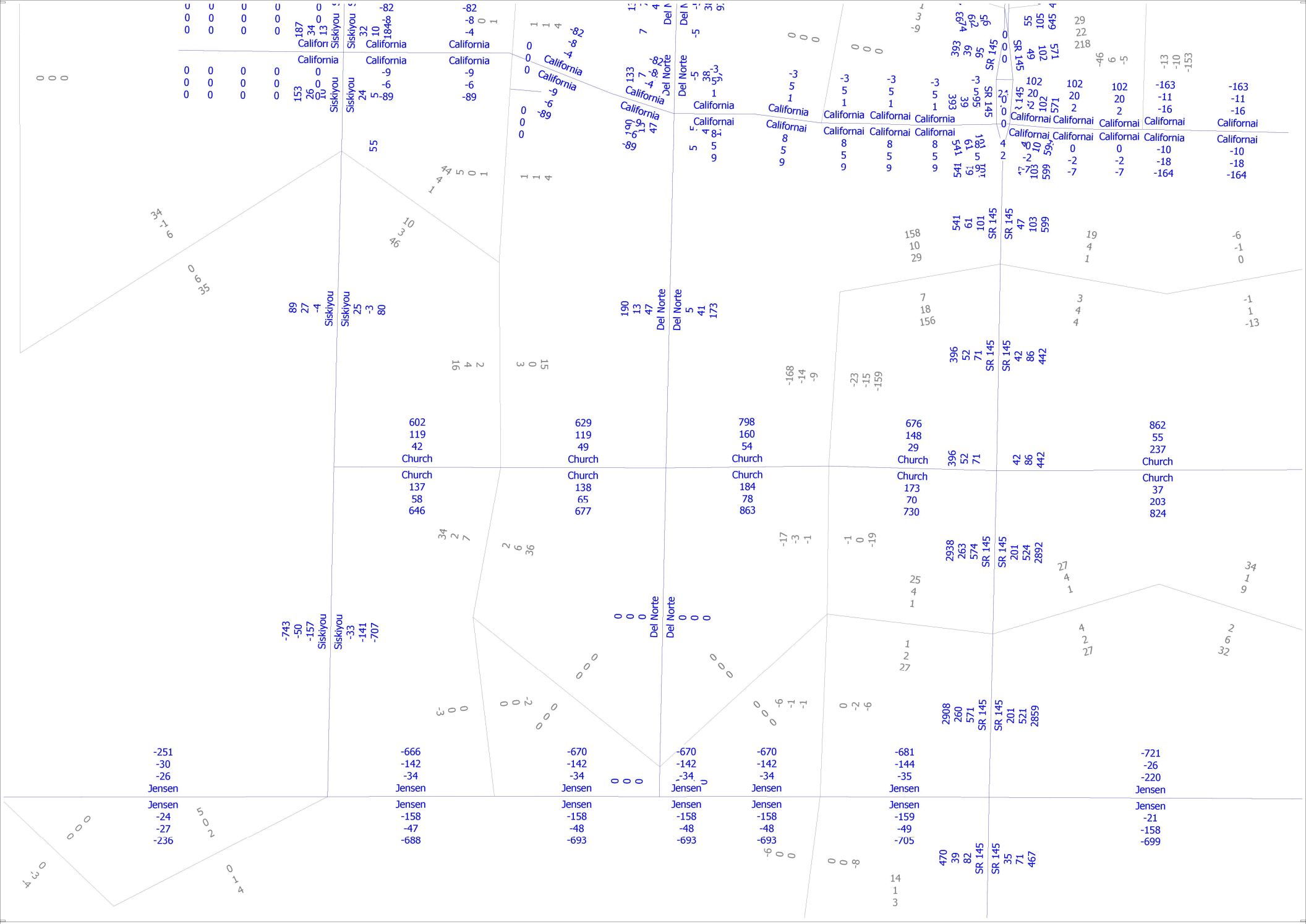
2046 Increment
AM, PM and Daily Volumes



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2046 Increment
AM, PM and Daily Volumes

Appendix D: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 6th Edition represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish an LOS.

Intersection Levels of Service

One of the more important elements limiting and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop signs and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections, the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay and bicycle perception score. LOS is also considered a performance measure. For the automobile mode, the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. An LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-1.

Table A-1: Signalized Intersection Levels of Service Description (Automobile Mode)

Level of Service	*Description*	*Average Control Delay (Seconds per Vehicle)*
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is really low and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0, the progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor and the cycle length is long. Most cycles fail to clear the queue.	>80

Note: Source: Highway Capacity Manual 6th Edition

Unsignalized Intersections

The HCM 6th Edition procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i.e., in the absence of traffic control, geometric delay, any incidents and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections are a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words, the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. An LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred to as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. An LOS for a TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-2 provides a description of LOS at unsignalized intersections.

Table A-2: Unsignalized Intersection Levels of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 20-2.

Roundabout Controlled Intersections

Roundabouts are intersections with a generally circular shape, characterized by yield on entry and circulation around a central island. Roundabouts have been used successfully throughout the world and are being used increasingly in the United States, especially since 1990. The procedure used to calculate LOS incorporates a combination of lane-based regression models and gap acceptance models for both single-lane and multi-lane roundabouts. As a result, the capacity models focus on one entry of a roundabout at a time. Table A-3 provides a description of LOS at roundabout intersections.

Table A-3: Roundabout Intersection Level of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 22-8.

Segment Levels of Service

Segments are portions of roads without any interruption of flow. These are typically studied as urban streets, basic freeways, multilane highways or two-lane highways. Each of these categories has further classification and the level of service analysis can differ between them.

Basic Freeway and Multilane Highway Segments

For segments of multilane highways and basic freeways outside the influence of merging, diverging and weaving maneuvers, LOS is defined by density. Density describes a motorist's proximity to other vehicles and is related to a motorist's freedom to maneuver within the traffic stream. Chapter 12 of the Highway Capacity Manual categorizes each LOS as follows:

LOS A describes free-flow operations. FFS prevails on the freeway or multilane highway, and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.

LOS B represents reasonably free-flow operations, and FFS on the freeway or multilane highway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents are still easily absorbed.

LOS C provides for flow with speeds near the FFS of the freeway or multilane highway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.

LOS D is the level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited, and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.

LOS E describes operation at or near capacity. Operations on the freeway or multilane highway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or an access point or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic stream. Toward the upper boundary of LOS E, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.

LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks. Breakdowns occur for a number of reasons:

- Traffic incidents can temporarily reduce the capacity of a short segment so that the number of vehicles arriving at a point is greater than the number of vehicles that can move through it.
- Points of recurring congestion, such as merge or weaving segments and lane drops, experience very high demand in which the number of vehicles arriving is greater than the number of vehicles that can be discharged.
- In analyses using forecast volumes, the projected flow rate can exceed the estimated capacity of a given location.

Basic Freeway

Basic Freeway segments generally have four to eight lanes and posted speed limits between 50 and 75 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, total ramp density, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Basic Freeway Segments.

Multilane Highway

Multilane Highway segments generally have four to six lanes and posted speed limits between 40 and 55 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, left side lateral clearance, access point density, terrain type, median type, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Multilane Highway Segments.

Table A-4: Basic Freeway and Multilane Highway Segment Level of Service Description

Level of Service	*Density (Passenger Cars per Mile per Lane)*
A	≤11
B	>11 to 18
C	>18 to 26
D	>26 to 35
E	>35 to 45
F	>45 or Demand Exceeds Capacity

Note: Source: HCM 6th Edition, Exhibit 12-15.

Two-Lane Highway Segments

Two-Lane Highways generally have one lane per direction and only allow passing maneuvers to take place in the opposing lane of traffic. If allowed, passing maneuvers are limited by the availability of gaps in the opposing traffic stream and by the availability of sufficient sight distance for a driver to discern the approach of an opposing vehicle safely. A principal measure of LOS is percent time spent following and follower density. This is the average percent of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Chapter 15 of the Highway Capacity Manual categorizes each LOS as follows:

At **LOS A**, motorists experience high operating speeds on Class I highways and little difficulty in passing. Platoons of three or more vehicles are rare. On Class II highways, speed is controlled primarily by roadway conditions, but a small amount of platooning would be expected. On Class III highways, motorists can maintain operating speeds at or near the facility's FFS.

At **LOS B**, passing demand and passing capacity are balanced. On both Class I and Class II highways, the degree of platooning becomes noticeable. Some speed reductions are present on Class I highways. On Class III highways, maintenance of FFS operation becomes difficult, but the speed reduction is still relatively small.

At **LOS C**, most vehicles travel in platoons. Speeds are noticeably curtailed on all three classes of highways.

At **LOS D**, platooning increases significantly. Passing demand is high on both Class I and Class II facilities, but passing capacity approaches zero. A high percentage of vehicles travels in platoons, and PTSF is noticeable. On Class III highways, the fall-off from FFS is significant.

At **LOS E**, demand is approaching capacity. Passing on Class I and II highways is virtually impossible, and PTSF is more than 80%. Speeds are seriously curtailed. On Class III highways, speed is less than two-thirds of the FFS. The lower limit of LOSE represents capacity.

LOS F exists whenever demand flow in one or both directions exceeds the segment's capacity. Operating conditions are unstable and heavy congestion exists on all classes of two-lane highways.

Two-Lane Highway

The performance measures include average travel speed, segment travel time, percent followers, volume to capacity ratio, follower density and LOS. The LOS is dependent on Highway Class (I, II, or III), lane width, shoulder width, access point density, terrain type, free flow speed, passing lane length, demand flow rate, opposing demand flow rate peak hour factor and total truck percentage. Tables A-5 and A-6 provide a description of LOS for Two-Lane Highway Segments.

Table A-5: Two-Lane Highway Segment Level of Service Description

LOS	*Class I Highways*		*Class II Highways*	*Class III Highways*
	ATS (Mile per Hour)	*PTSF (%)*	*PTSF (%)*	*PFFS (%)*
A	>55	≤35	≤40	>91.7
B	>50 to 55	>35 to 50	>40 to 55	>83.3 to 91.7
C	>45 to 50	>50 to 65	>55 to 70	>75.0 to 83.3
D	>40 to 45	>65 to 80	>70 to 85	>66.7 to 75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: ATS = Average Travel Speed
PTSF = Percent Time Spent Following
PFFS = Percent of Free Flow Speed
Source: HCM 6th Edition, Exhibit 15-3.

Table A-6: Two-Lane Highway Segment Level of Service Description

LOS	*Follower Density (Followers per Mile per Lane)*	
	High Speed Highways Posted Speed Limit ≥ 50 miles per hour	*High Speed Highways Posted Speed Limit < 50 miles per hour*
A	≤2.0	≤2.0
B	>2.0 to 4.0	>2.5 to 5.0
C	>4.0 to 8.0	>5.0 to 10.0
D	>8.0 to 12.0	>10.0 to 15.0
E	>12.0	>15.0

Note: Source: NCHRP 'Improved Analysis of Two-Lane Highway Capacity and Operational Performance, Table 3-23.

Urban Streets (Automobile Mode)

The term “urban streets” refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials.

They not only move through traffic but also provide access to local businesses for passenger cars, transit buses and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) force a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Urban Street Segments LOS

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections. Table A-7 provides a description of LOS for Urban Street Segments.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 80 percent of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 80 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes or inappropriate signal timing at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized as an unstable operation and has significant delay. Such operations may be due to some combination of adverse progression, high volume and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

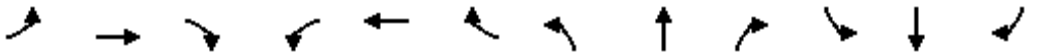
LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-7: Urban Street Levels of Service (Automobile Mode)

LOS	***Travel Speed Threshold by Base Free-Flow Speed (miles/hour)***							***Volume-to-Capacity Ratio***
	55	**50**	**45**	**40**	**35**	**30**	**25**	
A	>44	>40	>36	>32	>28	>24	>20	≤ 1.0
B	>37	>34	>30	>27	>23	>20	>17	
C	>28	>25	>23	>20	>18	>15	>13	
D	>22	>20	>18	>16	>14	>12	>10	
E	>17	>15	>14	>12	>11	>9	>8	
F	≤17	≤15	≤14	≤12	≤11	≤9	≤8	
F	Any							> 1.0

Note: a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 6th Edition, Exhibit 16-3.

Appendix E: Existing Traffic Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	315	63	48	263	31	79	88	149	53	47	15
Future Volume (veh/h)	4	315	63	48	263	31	79	88	149	53	47	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	4	335	67	51	280	33	84	94	159	56	50	16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	9	480	406	80	1052	469	107	133	224	84	265	85
Arrive On Green	0.01	0.26	0.26	0.05	0.30	0.30	0.06	0.22	0.22	0.05	0.20	0.20
Sat Flow, veh/h	1739	1826	1547	1739	3469	1547	1739	609	1030	1739	1325	424
Grp Volume(v), veh/h	4	335	67	51	280	33	84	0	253	56	0	66
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	1735	1547	1739	0	1639	1739	0	1750
Q Serve(g_s), s	0.2	11.0	2.2	1.9	4.1	1.0	3.2	0.0	9.5	2.1	0.0	2.1
Cycle Q Clear(g_c), s	0.2	11.0	2.2	1.9	4.1	1.0	3.2	0.0	9.5	2.1	0.0	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	1.00		0.24
Lane Grp Cap(c), veh/h	9	480	406	80	1052	469	107	0	357	84	0	350
V/C Ratio(X)	0.43	0.70	0.16	0.64	0.27	0.07	0.79	0.00	0.71	0.66	0.00	0.19
Avail Cap(c_a), veh/h	131	744	630	141	1434	640	206	0	936	162	0	947
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	33.0	22.1	18.9	31.2	17.6	16.5	30.8	0.0	24.1	31.1	0.0	22.1
Incr Delay (d2), s/veh	11.2	8.2	0.9	3.1	0.6	0.3	4.7	0.0	5.0	3.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.0	0.8	0.8	1.4	0.4	1.4	0.0	3.9	0.9	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	30.3	19.8	34.3	18.2	16.8	35.5	0.0	29.1	34.4	0.0	23.3
LnGrp LOS	D	C	B	C	B	B	D	A	C	C	A	C
Approach Vol, veh/h		406			364			337			122	
Approach Delay, s/veh		28.7			20.3			30.7			28.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	25.0	10.7	21.2	7.0	27.7	9.5	22.4
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 5.4	27.1	* 7.9	36.0	* 5	27.5	* 6.2	38.0
Max Q Clear Time (g_c+I1), s	3.9	13.0	5.2	4.1	2.2	6.1	4.1	11.5
Green Ext Time (p_c), s	0.0	4.5	0.0	0.8	0.0	4.5	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	37	10	98	44	30	13	177	113	54	130	21
Future Vol, veh/h	20	37	10	98	44	30	13	177	113	54	130	21
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	26	47	13	126	56	38	17	227	145	69	167	27
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	11.3	15.7	11.2
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%	59%	0%	86%
Vol Right, %	0%	39%	0%	21%	0%	41%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	290	20	47	98	74	54	151
LT Vol	13	0	20	0	98	0	54	0
Through Vol	0	177	0	37	0	44	0	130
RT Vol	0	113	0	10	0	30	0	21
Lane Flow Rate	17	372	26	60	126	95	69	194
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.03	0.583	0.052	0.111	0.245	0.164	0.127	0.321
Departure Headway (Hd)	6.429	5.647	7.309	6.647	7.024	6.228	6.579	5.974
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	557	639	489	537	510	575	544	600
Service Time	4.17	3.388	5.071	4.409	4.777	3.98	4.325	3.719
HCM Lane V/C Ratio	0.031	0.582	0.053	0.112	0.247	0.165	0.127	0.323
HCM Control Delay	9.4	16	10.5	10.2	12.1	10.2	10.3	11.5
HCM Lane LOS	A	C	B	B	B	B	B	B
HCM 95th-tile Q	0.1	3.8	0.2	0.4	1	0.6	0.4	1.4

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	197	12	44	141	30	12	27	90	35	18	25
Future Vol, veh/h	15	197	12	44	141	30	12	27	90	35	18	25
Conflicting Peds, #/hr	11	0	14	14	0	11	1	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	17	221	13	49	158	34	13	30	101	39	20	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	248	0	0	574	577	247	616	566	187
Stage 1	-	-	-	-	-	-	276	276	-	284	284	-
Stage 2	-	-	-	-	-	-	298	301	-	332	282	-
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	1363	-	-	1312	-	-	428	426	789	401	432	852
Stage 1	-	-	-	-	-	-	728	680	-	721	675	-
Stage 2	-	-	-	-	-	-	709	663	-	679	676	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1349	-	-	1295	-	-	377	395	775	311	401	842
Mov Cap-2 Maneuver	-	-	-	-	-	-	377	395	-	311	401	-
Stage 1	-	-	-	-	-	-	709	662	-	704	643	-
Stage 2	-	-	-	-	-	-	638	631	-	554	658	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13	15.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	596	1349	-	-	1295	-	-	417
HCM Lane V/C Ratio	0.243	0.012	-	-	0.038	-	-	0.21
HCM Control Delay (s)	13	7.7	-	-	7.9	-	-	15.9
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.8

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	125	218	13	1	17	111	23	29	113	39	58	48
Future Vol, veh/h	125	218	13	1	17	111	23	29	113	39	58	48
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	154	269	16	1	21	137	28	36	140	48	72	59
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	11.8	12.7	12.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	100%	0%	100%	0%	33%
Vol Thru, %	62%	0%	94%	0%	83%	28%
Vol Right, %	22%	0%	6%	0%	17%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	181	125	231	18	134	174
LT Vol	29	125	0	18	0	58
Through Vol	113	0	218	0	111	48
RT Vol	39	0	13	0	23	68
Lane Flow Rate	223	154	285	22	165	215
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.373	0.288	0.489	0.044	0.298	0.356
Departure Headway (Hd)	6.016	6.717	6.168	7.115	6.481	5.969
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	594	532	582	501	551	599
Service Time	4.096	4.484	3.934	4.896	4.262	4.049
HCM Lane V/C Ratio	0.375	0.289	0.49	0.044	0.299	0.359
HCM Control Delay	12.7	12.2	14.8	10.2	12	12.4
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.7	1.2	2.7	0.1	1.2	1.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	68
Future Vol, veh/h	68
Peak Hour Factor	0.81
Heavy Vehicles, %	3
Mvmt Flow	84
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	45	215	79	84	140	73	14	87	39	51	131	29
Future Vol, veh/h	0	45	215	79	84	140	73	14	87	39	51	131	29
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	53	253	93	99	165	86	16	102	46	60	154	34
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	15.1	12.8	14.5	14.3
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	10%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	62%	0%	100%	0%	0%	100%	0%	0%	82%
Vol Right, %	28%	0%	0%	100%	0%	0%	100%	0%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	45	215	79	84	140	73	51	160
LT Vol	14	45	0	0	84	0	0	51	0
Through Vol	87	0	215	0	0	140	0	0	131
RT Vol	39	0	0	79	0	0	73	0	29
Lane Flow Rate	165	53	253	93	99	165	86	60	188
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.35	0.115	0.511	0.169	0.217	0.339	0.159	0.135	0.391
Departure Headway (Hd)	7.647	7.79	7.278	6.561	7.915	7.402	6.684	8.104	7.471
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	469	460	496	546	454	486	536	442	482
Service Time	5.406	5.542	5.029	4.312	5.67	5.156	4.438	5.861	5.227
HCM Lane V/C Ratio	0.352	0.115	0.51	0.17	0.218	0.34	0.16	0.136	0.39
HCM Control Delay	14.5	11.6	17.4	10.7	12.9	13.9	10.7	12.1	15
HCM Lane LOS	B	B	C	B	B	B	B	B	B
HCM 95th-tile Q	1.6	0.4	2.9	0.6	0.8	1.5	0.6	0.5	1.8

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	129	51	52	153	148	76
Future Vol, veh/h	129	51	52	153	148	76
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	174	69	70	207	200	103
Number of Lanes	1	0	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	11.3	10.5	11.3
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	72%	0%
Vol Thru, %	0%	100%	0%	66%
Vol Right, %	0%	0%	28%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	153	180	224
LT Vol	52	0	129	0
Through Vol	0	153	0	148
RT Vol	0	0	51	76
Lane Flow Rate	70	207	243	303
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.117	0.316	0.357	0.409
Departure Headway (Hd)	6.001	5.496	5.287	4.86
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	592	647	674	733
Service Time	3.792	3.286	3.375	2.943
HCM Lane V/C Ratio	0.118	0.32	0.361	0.413
HCM Control Delay	9.6	10.8	11.3	11.3
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.4	1.4	1.6	2

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	32	0	4	36
Future Vol, veh/h	4	6	32	0	4	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	4	7	36	0	4	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	84	36	0	0	36	0
Stage 1	36	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.51	6.31	-	-	4.21	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.399	-	-	2.299	-
Pot Cap-1 Maneuver	896	1011	-	-	1519	-
Stage 1	964	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	893	1011	-	-	1519	-
Mov Cap-2 Maneuver	893	-	-	-	-	-
Stage 1	964	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	960	1519	-
HCM Lane V/C Ratio	-	-	0.012	0.003	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

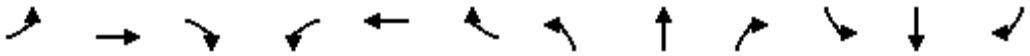
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	114	72	11	16	11
Future Vol, veh/h	27	114	72	11	16	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	13	13	13	13	13	13
Mvmt Flow	39	163	103	16	23	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	119	0	-	0	352	111
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	241	-
Critical Hdwy	4.23	-	-	-	6.53	6.33
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.317	-	-	-	3.617	3.417
Pot Cap-1 Maneuver	1403	-	-	-	624	913
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1403	-	-	-	605	913
Mov Cap-2 Maneuver	-	-	-	-	605	-
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1403	-	-	-	701
HCM Lane V/C Ratio	0.027	-	-	-	0.055
HCM Control Delay (s)	7.6	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	348	57	106	291	34	28	30	81	21	45	5
Future Volume (veh/h)	4	348	57	106	291	34	28	30	81	21	45	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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	4	362	59	110	303	35	29	31	84	22	47	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	9	533	451	141	1274	568	56	51	138	45	171	18
Arrive On Green	0.01	0.29	0.29	0.08	0.36	0.36	0.03	0.12	0.12	0.03	0.10	0.10
Sat Flow, veh/h	1753	1841	1560	1753	3497	1560	1753	439	1188	1753	1635	174
Grp Volume(v), veh/h	4	362	59	110	303	35	29	0	115	22	0	52
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1753	1749	1560	1753	0	1627	1753	0	1809
Q Serve(g_s), s	0.1	10.1	1.6	3.6	3.5	0.8	0.9	0.0	3.9	0.7	0.0	1.5
Cycle Q Clear(g_c), s	0.1	10.1	1.6	3.6	3.5	0.8	0.9	0.0	3.9	0.7	0.0	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		0.10
Lane Grp Cap(c), veh/h	9	533	451	141	1274	568	56	0	189	45	0	189
V/C Ratio(X)	0.42	0.68	0.13	0.78	0.24	0.06	0.51	0.00	0.61	0.49	0.00	0.27
Avail Cap(c_a), veh/h	151	826	700	284	1835	818	151	0	1019	151	0	1124
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	28.7	18.2	15.2	26.2	12.8	12.0	27.6	0.0	24.3	27.9	0.0	23.9
Incr Delay (d2), s/veh	10.8	6.8	0.6	3.6	0.4	0.2	2.7	0.0	6.0	3.0	0.0	3.6
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	4.4	0.6	1.4	1.1	0.3	0.4	0.0	1.7	0.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	25.1	15.8	29.7	13.3	12.2	30.3	0.0	30.4	30.9	0.0	27.5
LnGrp LOS	D	C	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		425			448			144			74	
Approach Delay, s/veh		23.9			17.2			30.3			28.5	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	24.3	8.5	14.0	6.9	28.6	7.8	14.6
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 9.4	26.0	* 5	36.0	* 5	30.4	* 5	36.3
Max Q Clear Time (g_c+I1), s	5.6	12.1	2.9	3.5	2.1	5.5	2.7	5.9
Green Ext Time (p_c), s	0.0	4.7	0.0	0.6	0.0	5.2	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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	10	28	9	85	26	39	8	112	48	37	109	19
Future Vol, veh/h	10	28	9	85	26	39	8	112	48	37	109	19
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	11	30	10	92	28	42	9	122	52	40	118	21
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	8.7	9.3	9.5	9.2
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%	70%	0%	76%	0%	40%	0%	85%
Vol Right, %	0%	30%	0%	24%	0%	60%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	160	10	37	85	65	37	128
LT Vol	8	0	10	0	85	0	37	0
Through Vol	0	112	0	28	0	26	0	109
RT Vol	0	48	0	9	0	39	0	19
Lane Flow Rate	9	174	11	40	92	71	40	139
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.014	0.247	0.019	0.061	0.155	0.1	0.065	0.201
Departure Headway (Hd)	5.82	5.106	6.171	5.495	6.023	5.097	5.814	5.206
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	613	701	577	648	593	699	614	686
Service Time	3.573	2.859	3.941	3.265	3.782	2.855	3.568	2.96
HCM Lane V/C Ratio	0.015	0.248	0.019	0.062	0.155	0.102	0.065	0.203
HCM Control Delay	8.7	9.5	9.1	8.6	9.9	8.4	9	9.3
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0	1	0.1	0.2	0.5	0.3	0.2	0.7

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	112	10	63	148	29	7	18	48	19	14	15
Future Vol, veh/h	15	112	10	63	148	29	7	18	48	19	14	15
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	118	11	66	156	31	7	19	51	20	15	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	187	0	0	131	0	0	480	477	129	498	467	175
Stage 1	-	-	-	-	-	-	158	158	-	304	304	-
Stage 2	-	-	-	-	-	-	322	319	-	194	163	-
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	1381	-	-	1448	-	-	494	486	918	481	492	866
Stage 1	-	-	-	-	-	-	842	765	-	703	661	-
Stage 2	-	-	-	-	-	-	688	651	-	805	761	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1381	-	-	1445	-	-	451	457	914	420	463	864
Mov Cap-2 Maneuver	-	-	-	-	-	-	451	457	-	420	463	-
Stage 1	-	-	-	-	-	-	831	754	-	695	631	-
Stage 2	-	-	-	-	-	-	628	621	-	731	750	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	2	11	12.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	680	1381	-	-	1445	-	-	517
HCM Lane V/C Ratio	0.113	0.011	-	-	0.046	-	-	0.098
HCM Control Delay (s)	11	7.6	-	-	7.6	-	-	12.7
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.3

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	26	116	9	0	27	203	20	9	37	15	13	42
Future Vol, veh/h	26	116	9	0	27	203	20	9	37	15	13	42
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	28	125	10	0	29	218	22	10	40	16	14	45
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	9.1	10.2	8.6	8.8
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	15%	100%	0%	100%	0%	12%
Vol Thru, %	61%	0%	93%	0%	91%	40%
Vol Right, %	25%	0%	7%	0%	9%	48%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	26	125	27	223	105
LT Vol	9	26	0	27	0	13
Through Vol	37	0	116	0	203	42
RT Vol	15	0	9	0	20	50
Lane Flow Rate	66	28	134	29	240	113
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.092	0.045	0.194	0.046	0.339	0.152
Departure Headway (Hd)	5.048	5.75	5.196	5.649	5.083	4.839
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	706	620	687	632	705	737
Service Time	3.107	3.507	2.953	3.401	2.835	2.892
HCM Lane V/C Ratio	0.093	0.045	0.195	0.046	0.34	0.153
HCM Control Delay	8.6	8.8	9.2	8.7	10.4	8.8
HCM Lane LOS	A	A	A	A	B	A
HCM 95th-tile Q	0.3	0.1	0.7	0.1	1.5	0.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	50
Future Vol, veh/h	50
Peak Hour Factor	0.93
Heavy Vehicles, %	3
Mvmt Flow	54
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	13	146	10	28	197	13	25	42	13	14	51	35
Future Vol, veh/h	1	13	146	10	28	197	13	25	42	13	14	51	35
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	14	152	10	29	205	14	26	44	14	15	53	36
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	10.1	10.5	9.8	9.4
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	31%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	53%	0%	100%	0%	0%	100%	0%	0%	59%
Vol Right, %	16%	0%	0%	100%	0%	0%	100%	0%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	14	146	10	28	197	13	14	86
LT Vol	25	14	0	0	28	0	0	14	0
Through Vol	42	0	146	0	0	197	0	0	51
RT Vol	13	0	0	10	0	0	13	0	35
Lane Flow Rate	83	15	152	10	29	205	14	15	90
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.141	0.025	0.244	0.015	0.049	0.315	0.018	0.026	0.142
Departure Headway (Hd)	6.083	6.278	5.774	5.068	6.138	5.634	4.929	6.508	5.723
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	592	574	625	711	587	642	731	552	629
Service Time	3.797	3.978	3.474	2.768	3.838	3.334	2.629	4.224	3.438
HCM Lane V/C Ratio	0.14	0.026	0.243	0.014	0.049	0.319	0.019	0.027	0.143
HCM Control Delay	9.8	9.1	10.3	7.8	9.2	10.9	7.7	9.4	9.4
HCM Lane LOS	A	A	B	A	A	B	A	A	A
HCM 95th-tile Q	0.5	0.1	1	0	0.2	1.3	0.1	0.1	0.5

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	50	18	20	94	3	116	68
Future Vol, veh/h	50	18	20	94	3	116	68
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	51	18	20	96	3	118	69
Number of Lanes	1	0	1	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.1	8.3	8.3
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	74%	0%
Vol Thru, %	0%	100%	0%	63%
Vol Right, %	0%	0%	26%	37%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	94	68	187
LT Vol	20	0	50	0
Through Vol	0	94	0	118
RT Vol	0	0	18	69
Lane Flow Rate	20	96	69	191
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.03	0.127	0.089	0.214
Departure Headway (Hd)	5.275	4.773	4.627	4.038
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	672	742	779	874
Service Time	3.059	2.557	2.627	2.137
HCM Lane V/C Ratio	0.03	0.129	0.089	0.219
HCM Control Delay	8.2	8.3	8.1	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.4	0.3	0.8

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	6	63	3	5	40
Future Vol, veh/h	2	6	63	3	5	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	2	7	76	4	6	48

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	138	78	0	0	80	0
Stage 1	78	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	853	980	-	-	1512	-
Stage 1	943	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	850	980	-	-	1512	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	944	1512	-
HCM Lane V/C Ratio	-	-	0.01	0.004	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	80	98	43	18	22
Future Vol, veh/h	25	80	98	43	18	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	27	86	105	46	19	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	151	0	-	0	268	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	4.17	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.263	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1400	-	-	-	711	909
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	875	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1400	-	-	-	697	909
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	875	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1400	-	-	-	800
HCM Lane V/C Ratio	0.019	-	-	-	0.054
HCM Control Delay (s)	7.6	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	24	216	53	91	139	126	50	139	204	112	124
Average Queue (ft)	2	124	22	27	76	16	13	65	85	29	26
95th Queue (ft)	12	221	46	59	135	59	40	112	158	63	78
Link Distance (ft)		653			2532	2532			2566		2593
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	475		300	475			475	150		100	
Storage Blk Time (%)								1	1	0	1
Queuing Penalty (veh)								2	1	0	1

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	52	95	77	77	31	101	52	90
Average Queue (ft)	15	27	35	36	9	52	29	39
95th Queue (ft)	42	56	54	61	30	80	48	62
Link Distance (ft)		2584		1287		557		2566
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)		0				0		
Queuing Penalty (veh)		0				0		

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	31	31	49	22	78	76
Average Queue (ft)	2	1	5	1	40	36
95th Queue (ft)	14	10	26	7	67	66
Link Distance (ft)		1287		1251	994	1417
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	78	160	31	91	110	91
Average Queue (ft)	45	55	11	46	52	49
95th Queue (ft)	68	98	34	80	92	78
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)		2		0		
Queuing Penalty (veh)		2		0		

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	54	97	78	72	92	72	83	47	106
Average Queue (ft)	23	51	34	36	52	34	38	23	46
95th Queue (ft)	53	75	55	59	83	61	70	44	85
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)		0		1	3	0			0
Queuing Penalty (veh)		0		1	4	1			0

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	77	54	74	79
Average Queue (ft)	52	34	39	46
95th Queue (ft)	80	51	59	72
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB
Directions Served	LR
Maximum Queue (ft)	25
Average Queue (ft)	4
95th Queue (ft)	19
Link Distance (ft)	2620
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	48	49
Average Queue (ft)	2	14
95th Queue (ft)	19	38
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 12

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	24	251	31	137	178	142	43	73	134	66	81
Average Queue (ft)	2	134	18	69	77	16	11	23	53	16	25
95th Queue (ft)	13	229	40	110	151	75	33	58	98	42	60
Link Distance (ft)		653			2532	2532			2566		2593
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	475		300	475			475	150		100	
Storage Blk Time (%)									0		0
Queuing Penalty (veh)									0		0

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	28	53	53	55	30	68	31	78
Average Queue (ft)	7	21	31	31	4	39	18	44
95th Queue (ft)	26	50	52	54	20	59	42	69
Link Distance (ft)		2584		1287		557		2566
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	28	31	26	51	56
Average Queue (ft)	1	7	1	27	22
95th Queue (ft)	9	27	9	44	48
Link Distance (ft)			1251	994	1417
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100	100			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	31	72	47	90	53	56
Average Queue (ft)	21	38	20	49	28	35
95th Queue (ft)	42	60	46	75	53	52
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	31	58	28	48	95	31	44	24	80
Average Queue (ft)	13	35	5	15	55	13	24	7	22
95th Queue (ft)	37	50	21	42	80	37	40	24	45
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)				0	3				
Queuing Penalty (veh)				0	1				

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	UTR
Maximum Queue (ft)	55	50	78	79
Average Queue (ft)	26	18	34	36
95th Queue (ft)	52	44	58	55
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB
Directions Served	LR
Maximum Queue (ft)	25
Average Queue (ft)	4
95th Queue (ft)	19
Link Distance (ft)	2620
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

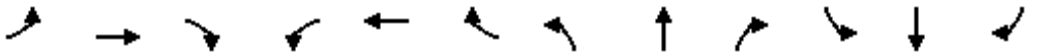
Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	53	72
Average Queue (ft)	3	23
95th Queue (ft)	22	51
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

Appendix F: Existing plus Project Traffic Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	315	65	66	263	31	90	97	174	53	49	15
Future Volume (veh/h)	4	315	65	66	263	31	90	97	174	53	49	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	4	335	69	70	280	33	96	103	185	56	52	16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	9	472	400	92	1061	473	122	140	251	82	283	87
Arrive On Green	0.01	0.26	0.26	0.05	0.31	0.31	0.07	0.24	0.24	0.05	0.21	0.21
Sat Flow, veh/h	1739	1826	1547	1739	3469	1547	1739	585	1050	1739	1340	412
Grp Volume(v), veh/h	4	335	69	70	280	33	96	0	288	56	0	68
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	1735	1547	1739	0	1635	1739	0	1752
Q Serve(g_s), s	0.2	11.7	2.4	2.8	4.3	1.1	3.8	0.0	11.4	2.2	0.0	2.2
Cycle Q Clear(g_c), s	0.2	11.7	2.4	2.8	4.3	1.1	3.8	0.0	11.4	2.2	0.0	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		0.24
Lane Grp Cap(c), veh/h	9	472	400	92	1061	473	122	0	390	82	0	370
V/C Ratio(X)	0.43	0.71	0.17	0.76	0.26	0.07	0.79	0.00	0.74	0.68	0.00	0.18
Avail Cap(c_a), veh/h	124	717	608	134	1383	617	183	0	873	153	0	898
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	34.8	23.7	20.2	32.8	18.4	17.3	32.1	0.0	24.7	32.9	0.0	22.7
Incr Delay (d2), s/veh	11.2	8.8	0.9	7.2	0.6	0.3	6.3	0.0	5.3	3.6	0.0	1.1
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	0.1	5.4	0.9	1.2	1.5	0.4	1.7	0.0	4.7	0.9	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	32.4	21.2	40.0	19.0	17.6	38.5	0.0	30.0	36.6	0.0	23.8
LnGrp LOS	D	C	C	D	B	B	D	A	C	D	A	C
Approach Vol, veh/h		408			383			384			124	
Approach Delay, s/veh		30.7			22.7			32.1			29.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	25.6	11.5	22.7	7.0	29.0	9.6	24.7
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 5.4	27.6	* 7.4	36.0	* 5	28.0	* 6.2	37.5
Max Q Clear Time (g_c+I1), s	4.8	13.7	5.8	4.2	2.2	6.3	4.2	13.4
Green Ext Time (p_c), s	0.0	4.4	0.0	0.8	0.0	4.5	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	50	35	98	47	30	16	188	119	54	139	34
Future Vol, veh/h	41	50	35	98	47	30	16	188	119	54	139	34
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	53	64	45	126	60	38	21	241	153	69	178	44
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	11.3	12	19.3	12.7
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%	59%	0%	61%	0%	80%
Vol Right, %	0%	39%	0%	41%	0%	39%	0%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	307	41	85	98	77	54	173
LT Vol	16	0	41	0	98	0	54	0
Through Vol	0	188	0	50	0	47	0	139
RT Vol	0	119	0	35	0	30	0	34
Lane Flow Rate	21	394	53	109	126	99	69	222
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.039	0.659	0.111	0.205	0.26	0.182	0.134	0.39
Departure Headway (Hd)	6.807	6.024	7.586	6.781	7.437	6.649	6.987	6.338
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	523	598	469	525	480	536	510	563
Service Time	4.58	3.797	5.384	4.577	5.229	4.44	4.772	4.123
HCM Lane V/C Ratio	0.04	0.659	0.113	0.208	0.263	0.185	0.135	0.394
HCM Control Delay	9.9	19.8	11.3	11.3	12.9	10.9	10.9	13.2
HCM Lane LOS	A	C	B	B	B	B	B	B
HCM 95th-tile Q	0.1	4.9	0.4	0.8	1	0.7	0.5	1.8

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	216	12	44	144	30	12	27	90	35	18	25
Future Vol, veh/h	15	216	12	44	144	30	12	27	90	35	18	25
Conflicting Peds, #/hr	11	0	14	14	0	11	1	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	17	243	13	49	162	34	13	30	101	39	20	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	207	0	0	270	0	0	600	603	269	642	592	191
Stage 1	-	-	-	-	-	-	298	298	-	288	288	-
Stage 2	-	-	-	-	-	-	302	305	-	354	304	-
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	1358	-	-	1288	-	-	411	412	767	386	418	848
Stage 1	-	-	-	-	-	-	709	665	-	717	672	-
Stage 2	-	-	-	-	-	-	705	660	-	661	661	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1344	-	-	1271	-	-	362	382	753	297	387	838
Mov Cap-2 Maneuver	-	-	-	-	-	-	362	382	-	297	387	-
Stage 1	-	-	-	-	-	-	691	648	-	701	639	-
Stage 2	-	-	-	-	-	-	634	628	-	536	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13.3	16.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	578	1344	-	-	1271	-	-	402
HCM Lane V/C Ratio	0.251	0.013	-	-	0.039	-	-	0.218
HCM Control Delay (s)	13.3	7.7	-	-	7.9	-	-	16.4
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.8

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	125	237	13	1	17	114	23	29	113	39	58	48
Future Vol, veh/h	125	237	13	1	17	114	23	29	113	39	58	48
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	154	293	16	1	21	141	28	36	140	48	72	59
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	14.6	12	12.9	12.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	100%	0%	100%	0%	33%
Vol Thru, %	62%	0%	95%	0%	83%	28%
Vol Right, %	22%	0%	5%	0%	17%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	181	125	250	18	137	174
LT Vol	29	125	0	18	0	58
Through Vol	113	0	237	0	114	48
RT Vol	39	0	13	0	23	68
Lane Flow Rate	223	154	309	22	169	215
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.378	0.289	0.531	0.044	0.307	0.361
Departure Headway (Hd)	6.096	6.742	6.196	7.171	6.54	6.049
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	585	531	580	496	546	591
Service Time	4.18	4.513	3.967	4.959	4.327	4.134
HCM Lane V/C Ratio	0.381	0.29	0.533	0.044	0.31	0.364
HCM Control Delay	12.9	12.3	15.8	10.3	12.2	12.6
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	1.8	1.2	3.1	0.1	1.3	1.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	68
Future Vol, veh/h	68
Peak Hour Factor	0.81
Heavy Vehicles, %	3
Mvmt Flow	84
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	54	220	84	84	142	73	14	87	39	51	131	30
Future Vol, veh/h	0	54	220	84	84	142	73	14	87	39	51	131	30
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	64	259	99	99	167	86	16	102	46	60	154	35
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	15.4	13	14.7	14.6
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	10%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	62%	0%	100%	0%	0%	100%	0%	0%	81%
Vol Right, %	28%	0%	0%	100%	0%	0%	100%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	54	220	84	84	142	73	51	161
LT Vol	14	54	0	0	84	0	0	51	0
Through Vol	87	0	220	0	0	142	0	0	131
RT Vol	39	0	0	84	0	0	73	0	30
Lane Flow Rate	165	64	259	99	99	167	86	60	189
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.354	0.138	0.526	0.181	0.219	0.347	0.161	0.137	0.398
Departure Headway (Hd)	7.74	7.828	7.315	6.598	7.995	7.482	6.764	8.195	7.557
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	464	457	492	543	449	479	529	437	475
Service Time	5.503	5.583	5.07	4.352	5.755	5.241	4.522	5.953	5.314
HCM Lane V/C Ratio	0.356	0.14	0.526	0.182	0.22	0.349	0.163	0.137	0.398
HCM Control Delay	14.7	11.8	18	10.8	13	14.2	10.8	12.3	15.3
HCM Lane LOS	B	B	C	B	B	B	B	B	C
HCM 95th-tile Q	1.6	0.5	3	0.7	0.8	1.5	0.6	0.5	1.9

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	129	51	52	173	182	76
Future Vol, veh/h	129	51	52	173	182	76
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	174	69	70	234	246	103
Number of Lanes	1	0	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	11.9	11.2	12.8
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	72%	0%
Vol Thru, %	0%	100%	0%	71%
Vol Right, %	0%	0%	28%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	173	180	258
LT Vol	52	0	129	0
Through Vol	0	173	0	182
RT Vol	0	0	51	76
Lane Flow Rate	70	234	243	349
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.12	0.368	0.375	0.49
Departure Headway (Hd)	6.173	5.667	5.556	5.057
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	582	636	647	718
Service Time	3.899	3.393	3.588	3.057
HCM Lane V/C Ratio	0.12	0.368	0.376	0.486
HCM Control Delay	9.7	11.7	11.9	12.8
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.4	1.7	1.7	2.7

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	35	0	5	50
Future Vol, veh/h	4	6	35	0	5	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	4	7	39	0	6	56

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	107	39	0	0	39	0
Stage 1	39	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.51	6.31	-	-	4.21	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.399	-	-	2.299	-
Pot Cap-1 Maneuver	869	1007	-	-	1515	-
Stage 1	961	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	866	1007	-	-	1515	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	961	-	-	-	-	-
Stage 2	928	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	945	1515	-
HCM Lane V/C Ratio	-	-	0.012	0.004	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

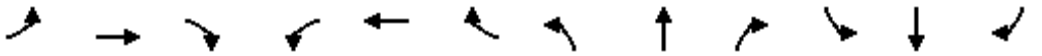
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	114	72	14	30	11
Future Vol, veh/h	27	114	72	14	30	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	13	13	13	13	13	13
Mvmt Flow	39	163	103	20	43	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	123	0	-	0	354	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	241	-
Critical Hdwy	4.23	-	-	-	6.53	6.33
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.317	-	-	-	3.617	3.417
Pot Cap-1 Maneuver	1399	-	-	-	622	911
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1399	-	-	-	603	911
Mov Cap-2 Maneuver	-	-	-	-	603	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1399	-	-	-	663
HCM Lane V/C Ratio	0.028	-	-	-	0.088
HCM Control Delay (s)	7.6	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	348	72	141	291	34	36	37	99	21	56	5
Future Volume (veh/h)	4	348	72	141	291	34	36	37	99	21	56	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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	4	362	75	147	303	35	38	39	103	22	58	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	9	518	439	185	1335	595	68	61	160	45	197	17
Arrive On Green	0.01	0.28	0.28	0.11	0.38	0.38	0.04	0.14	0.14	0.03	0.12	0.12
Sat Flow, veh/h	1753	1841	1560	1753	3497	1560	1753	447	1181	1753	1671	144
Grp Volume(v), veh/h	4	362	75	147	303	35	38	0	142	22	0	63
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1753	1749	1560	1753	0	1628	1753	0	1815
Q Serve(g_s), s	0.1	11.0	2.3	5.1	3.7	0.9	1.3	0.0	5.2	0.8	0.0	2.0
Cycle Q Clear(g_c), s	0.1	11.0	2.3	5.1	3.7	0.9	1.3	0.0	5.2	0.8	0.0	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		0.08
Lane Grp Cap(c), veh/h	9	518	439	185	1335	595	68	0	221	45	0	214
V/C Ratio(X)	0.43	0.70	0.17	0.79	0.23	0.06	0.56	0.00	0.64	0.49	0.00	0.29
Avail Cap(c_a), veh/h	140	764	648	263	1698	757	140	0	944	140	0	1043
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	20.1	17.0	27.3	13.1	12.2	29.6	0.0	25.6	30.1	0.0	25.3
Incr Delay (d2), s/veh	10.9	7.6	0.8	6.6	0.4	0.2	2.7	0.0	6.0	3.1	0.0	3.5
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	0.1	4.9	0.8	2.2	1.2	0.3	0.6	0.0	2.2	0.3	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	27.8	17.8	34.0	13.5	12.4	32.3	0.0	31.6	33.3	0.0	28.7
LnGrp LOS	D	C	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		441			485			180			85	
Approach Delay, s/veh		26.2			19.6			31.7			29.9	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	25.1	9.0	15.3	6.9	31.4	7.9	16.4
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 9.4	26.0	* 5	36.0	* 5	30.4	* 5	36.3
Max Q Clear Time (g_c+I1), s	7.1	13.0	3.3	4.0	2.1	5.7	2.8	7.2
Green Ext Time (p_c), s	0.0	4.6	0.0	0.8	0.0	5.2	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	44	16	85	41	39	22	119	48	37	111	56
Future Vol, veh/h	29	44	16	85	41	39	22	119	48	37	111	56
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	32	48	17	92	45	42	24	129	52	40	121	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	9.3	9.7	10	9.9
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%	71%	0%	73%	0%	51%	0%	66%
Vol Right, %	0%	29%	0%	27%	0%	49%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	167	29	60	85	80	37	167
LT Vol	22	0	29	0	85	0	37	0
Through Vol	0	119	0	44	0	41	0	111
RT Vol	0	48	0	16	0	39	0	56
Lane Flow Rate	24	182	32	65	92	87	40	182
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.04	0.27	0.057	0.105	0.161	0.131	0.067	0.267
Departure Headway (Hd)	6.058	5.351	6.486	5.792	6.261	5.413	6.038	5.298
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	585	664	555	623	567	655	588	670
Service Time	3.853	3.145	4.186	3.492	4.061	3.211	3.832	3.091
HCM Lane V/C Ratio	0.041	0.274	0.058	0.104	0.162	0.133	0.068	0.272
HCM Control Delay	9.1	10.1	9.6	9.2	10.3	9	9.3	10
HCM Lane LOS	A	B	A	A	B	A	A	A
HCM 95th-tile Q	0.1	1.1	0.2	0.4	0.6	0.4	0.2	1.1

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	15	128	10	63	163	29	7	18	48	19	14	15
Future Vol, veh/h	15	128	10	63	163	29	7	18	48	19	14	15
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	135	11	66	172	31	7	19	51	20	15	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	148	0	0	513	510	146	531	500	191
Stage 1	-	-	-	-	-	-	175	175	-	320	320	-
Stage 2	-	-	-	-	-	-	338	335	-	211	180	-
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	1363	-	-	1427	-	-	470	465	898	457	471	848
Stage 1	-	-	-	-	-	-	824	752	-	690	651	-
Stage 2	-	-	-	-	-	-	674	641	-	789	749	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1363	-	-	1424	-	-	428	438	894	398	443	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	428	438	-	398	443	-
Stage 1	-	-	-	-	-	-	812	741	-	682	621	-
Stage 2	-	-	-	-	-	-	614	612	-	715	739	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1.9	11.2	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	657	1363	-	-	1424	-	-	494
HCM Lane V/C Ratio	0.117	0.012	-	-	0.047	-	-	0.102
HCM Control Delay (s)	11.2	7.7	-	-	7.7	-	-	13.1
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.3

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	26	132	9	0	27	218	20	9	37	15	13	42
Future Vol, veh/h	26	132	9	0	27	218	20	9	37	15	13	42
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	28	142	10	0	29	234	22	10	40	16	14	45
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	9.4	10.6	8.7	8.9
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	15%	100%	0%	100%	0%	12%
Vol Thru, %	61%	0%	94%	0%	92%	40%
Vol Right, %	25%	0%	6%	0%	8%	48%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	26	141	27	238	105
LT Vol	9	26	0	27	0	13
Through Vol	37	0	132	0	218	42
RT Vol	15	0	9	0	20	50
Lane Flow Rate	66	28	152	29	256	113
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.094	0.045	0.22	0.046	0.363	0.154
Departure Headway (Hd)	5.134	5.773	5.225	5.674	5.111	4.923
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	694	618	684	629	701	725
Service Time	3.197	3.534	2.984	3.429	2.866	2.98
HCM Lane V/C Ratio	0.095	0.045	0.222	0.046	0.365	0.156
HCM Control Delay	8.7	8.8	9.5	8.7	10.8	8.9
HCM Lane LOS	A	A	A	A	B	A
HCM 95th-tile Q	0.3	0.1	0.8	0.1	1.7	0.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	50
Future Vol, veh/h	50
Peak Hour Factor	0.93
Heavy Vehicles, %	3
Mvmt Flow	54
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	15	159	11	28	207	13	27	42	13	14	51	38
Future Vol, veh/h	1	15	159	11	28	207	13	27	42	13	14	51	38
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	16	166	11	29	216	14	28	44	14	15	53	40
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	10.4	10.9	10	9.6
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	51%	0%	100%	0%	0%	100%	0%	0%	57%
Vol Right, %	16%	0%	0%	100%	0%	0%	100%	0%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	16	159	11	28	207	13	14	89
LT Vol	27	16	0	0	28	0	0	14	0
Through Vol	42	0	159	0	0	207	0	0	51
RT Vol	13	0	0	11	0	0	13	0	38
Lane Flow Rate	85	17	166	11	29	216	14	15	93
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.147	0.029	0.268	0.016	0.05	0.342	0.019	0.027	0.15
Departure Headway (Hd)	6.194	6.325	5.821	5.114	6.212	5.708	5.002	6.608	5.808
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	580	567	618	700	580	634	720	543	618
Service Time	3.925	4.053	3.548	2.842	3.912	3.408	2.702	4.337	3.538
HCM Lane V/C Ratio	0.147	0.03	0.269	0.016	0.05	0.341	0.019	0.028	0.15
HCM Control Delay	10	9.2	10.7	7.9	9.2	11.3	7.8	9.5	9.6
HCM Lane LOS	A	A	B	A	A	B	A	A	A
HCM 95th-tile Q	0.5	0.1	1.1	0	0.2	1.5	0.1	0.1	0.5

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	50	18	20	115	3	125	68
Future Vol, veh/h	50	18	20	115	3	125	68
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	51	18	20	117	3	128	69
Number of Lanes	1	0	1	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.2	8.5	8.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	74%	0%
Vol Thru, %	0%	100%	0%	65%
Vol Right, %	0%	0%	26%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	115	68	196
LT Vol	20	0	50	0
Through Vol	0	115	0	127
RT Vol	0	0	18	69
Lane Flow Rate	20	117	69	200
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.03	0.156	0.091	0.232
Departure Headway (Hd)	5.279	4.778	4.699	4.168
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	670	740	765	866
Service Time	3.074	2.572	2.71	2.176
HCM Lane V/C Ratio	0.03	0.158	0.09	0.231
HCM Control Delay	8.2	8.5	8.2	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.6	0.3	0.9

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	7	77	3	7	45
Future Vol, veh/h	2	7	77	3	7	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	2	8	93	4	8	54

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	165	95	0	0	97	0
Stage 1	95	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	823	959	-	-	1490	-
Stage 1	926	-	-	-	-	-
Stage 2	950	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	818	959	-	-	1490	-
Mov Cap-2 Maneuver	818	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	944	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	924	1490	-
HCM Lane V/C Ratio	-	-	0.012	0.006	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	80	98	57	23	22
Future Vol, veh/h	25	80	98	57	23	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	27	86	105	61	25	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	166	0	-	0	276	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	4.17	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.263	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1382	-	-	-	703	900
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	875	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1382	-	-	-	688	900
Mov Cap-2 Maneuver	-	-	-	-	688	-
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	875	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1382	-	-	-	778
HCM Lane V/C Ratio	0.019	-	-	-	0.062
HCM Control Delay (s)	7.7	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	50	226	52	91	166	159	43	126	234	72	83
Average Queue (ft)	5	125	26	47	88	16	10	51	89	29	34
95th Queue (ft)	27	195	47	81	152	77	32	105	162	65	67
Link Distance (ft)		653			2532	2532			2566		2593
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	475		300	475			475	150		100	
Storage Blk Time (%)									1		0
Queuing Penalty (veh)									1		0

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	53	96	55	90	31	94	75	102
Average Queue (ft)	23	39	35	35	11	57	29	55
95th Queue (ft)	46	67	55	62	35	91	55	92
Link Distance (ft)		2584		1287		557		2566
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)		0				0		0
Queuing Penalty (veh)		0				0		0

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	25	31	91	54
Average Queue (ft)	1	6	41	36
95th Queue (ft)	8	25	65	57
Link Distance (ft)			994	1417
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	91	118	71	72	99	77
Average Queue (ft)	38	53	14	39	53	48
95th Queue (ft)	63	93	43	58	81	78
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)	0	2				
Queuing Penalty (veh)	0	2				

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	98	96	73	69	91	114	86	65	63
Average Queue (ft)	32	54	39	32	44	34	38	28	37
95th Queue (ft)	58	82	61	59	80	66	71	56	63
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)	0	0		1	2	0			
Queuing Penalty (veh)	0	0		2	3	1			

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	91	53	74	79
Average Queue (ft)	49	31	44	46
95th Queue (ft)	77	49	64	72
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB
Directions Served	LR
Maximum Queue (ft)	25
Average Queue (ft)	4
95th Queue (ft)	19
Link Distance (ft)	2620
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	31	76
Average Queue (ft)	1	24
95th Queue (ft)	10	58
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 10

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	27	390	74	171	177	86	43	95	200	46	102
Average Queue (ft)	6	165	30	87	89	20	14	28	61	12	18
95th Queue (ft)	23	298	57	160	166	59	38	74	125	30	52
Link Distance (ft)		653			2532	2532			2566		2593
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	475		300	475			475	150		100	
Storage Blk Time (%)		2							1		1
Queuing Penalty (veh)		1							0		0

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	50	56	54	53	49	95	65	96
Average Queue (ft)	20	36	32	35	15	42	23	51
95th Queue (ft)	44	59	52	51	41	68	49	83
Link Distance (ft)		2584		1287		557		2566
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)						0		0
Queuing Penalty (veh)						0		0

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	30	31	30	67	56
Average Queue (ft)	3	1	5	33	27
95th Queue (ft)	17	10	22	58	52
Link Distance (ft)		1287		994	1417
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100		100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	31	103	31	65	78	74
Average Queue (ft)	18	42	13	40	32	35
95th Queue (ft)	42	70	38	59	58	52
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	31	78	30	30	105	118	80	45	60
Average Queue (ft)	13	40	9	13	46	14	27	11	23
95th Queue (ft)	36	61	31	37	74	53	59	32	48
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)					2				
Queuing Penalty (veh)					1				

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	UTR
Maximum Queue (ft)	68	48	77	54
Average Queue (ft)	33	12	41	33
95th Queue (ft)	61	38	65	44
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	25	24
Average Queue (ft)	3	2
95th Queue (ft)	17	11
Link Distance (ft)	2620	2569
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

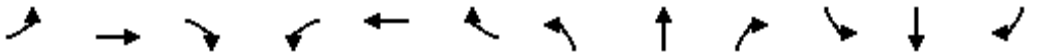
Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	44	43
Average Queue (ft)	3	19
95th Queue (ft)	19	40
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2

Appendix G: Near Term plus Project Traffic Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	330	68	99	290	52	98	123	241	169	65	35
Future Volume (veh/h)	26	330	68	99	290	52	98	123	241	169	65	35
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	28	351	72	105	309	55	104	131	256	180	69	37
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	47	424	360	131	1005	448	495	153	299	211	109	58
Arrive On Green	0.03	0.23	0.23	0.08	0.29	0.29	0.28	0.28	0.28	0.12	0.10	0.10
Sat Flow, veh/h	1739	1826	1547	1739	3469	1547	1739	552	1079	1739	1118	600
Grp Volume(v), veh/h	28	351	72	105	309	55	104	0	387	180	0	106
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	1735	1547	1739	0	1630	1739	0	1718
Q Serve(g_s), s	1.6	18.1	3.7	5.9	6.9	2.6	4.5	0.0	22.4	10.1	0.0	5.9
Cycle Q Clear(g_c), s	1.6	18.1	3.7	5.9	6.9	2.6	4.5	0.0	22.4	10.1	0.0	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.66	1.00		0.35
Lane Grp Cap(c), veh/h	47	424	360	131	1005	448	495	0	452	211	0	167
V/C Ratio(X)	0.59	0.83	0.20	0.80	0.31	0.12	0.21	0.00	0.86	0.85	0.00	0.63
Avail Cap(c_a), veh/h	110	507	430	165	1072	478	495	0	591	257	0	635
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	47.8	36.2	30.7	45.2	27.5	26.0	27.0	0.0	34.0	42.8	0.0	43.1
Incr Delay (d2), s/veh	4.4	16.7	1.2	15.8	0.8	0.6	0.1	0.0	12.1	17.5	0.0	16.8
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	0.7	9.4	1.5	3.0	2.8	1.0	1.9	0.0	10.1	5.1	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	52.9	31.9	61.0	28.3	26.5	27.1	0.0	46.1	60.3	0.0	59.9
LnGrp LOS	D	D	C	E	C	C	C	A	D	E	A	E
Approach Vol, veh/h		451			469			491			286	
Approach Delay, s/veh		49.5			35.4			42.1			60.2	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	30.6	36.2	17.6	9.3	36.3	18.4	35.4
Change Period (Y+Rc), s	7.5	* 7.5	7.9	* 7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	9.4	* 28	13.7	* 37	* 6.3	30.7	* 15	36.0
Max Q Clear Time (g_c+I1), s	7.9	20.1	6.5	7.9	3.6	8.9	12.1	24.4
Green Ext Time (p_c), s	0.0	2.9	0.1	1.4	0.0	5.2	0.1	3.0

Intersection Summary	
HCM 6th Ctrl Delay	45.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	55	35	113	49	35	16	277	154	58	180	37
Future Vol, veh/h	43	55	35	113	49	35	16	277	154	58	180	37
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	50	64	41	131	57	41	19	322	179	67	209	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	12.1	13.1	37.5	14.5
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%	64%	0%	61%	0%	58%	0%	83%
Vol Right, %	0%	36%	0%	39%	0%	42%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	431	43	90	113	84	58	217
LT Vol	16	0	43	0	113	0	58	0
Through Vol	0	277	0	55	0	49	0	180
RT Vol	0	154	0	35	0	35	0	37
Lane Flow Rate	19	501	50	105	131	98	67	252
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.037	0.878	0.114	0.216	0.292	0.195	0.138	0.472
Departure Headway (Hd)	7.071	6.307	8.219	7.424	8.007	7.194	7.366	6.733
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	509	576	436	482	448	498	486	535
Service Time	4.771	4.007	5.979	5.184	5.763	4.95	5.115	4.481
HCM Lane V/C Ratio	0.037	0.87	0.115	0.218	0.292	0.197	0.138	0.471
HCM Control Delay	10	38.5	12	12.2	14.1	11.7	11.3	15.4
HCM Lane LOS	A	E	B	B	B	B	B	C
HCM 95th-tile Q	0.1	10	0.4	0.8	1.2	0.7	0.5	2.5

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	15	260	13	50	166	32	13	27	110	40	18	25
Future Vol, veh/h	15	260	13	50	166	32	13	27	110	40	18	25
Conflicting Peds, #/hr	11	0	14	14	0	11	1	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	17	292	15	56	187	36	15	30	124	45	20	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	234	0	0	321	0	0	690	694	319	744	683	217
Stage 1	-	-	-	-	-	-	348	348	-	328	328	-
Stage 2	-	-	-	-	-	-	342	346	-	416	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	1328	-	-	1233	-	-	358	365	719	329	370	820
Stage 1	-	-	-	-	-	-	666	632	-	683	645	-
Stage 2	-	-	-	-	-	-	671	634	-	612	628	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1314	-	-	1217	-	-	311	336	706	238	340	811
Mov Cap-2 Maneuver	-	-	-	-	-	-	311	336	-	238	340	-
Stage 1	-	-	-	-	-	-	649	616	-	667	609	-
Stage 2	-	-	-	-	-	-	597	598	-	472	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.6	14.7	20.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	540	1314	-	-	1217	-	-	330
HCM Lane V/C Ratio	0.312	0.013	-	-	0.046	-	-	0.283
HCM Control Delay (s)	14.7	7.8	-	-	8.1	-	-	20.2
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.3	0	-	-	0.1	-	-	1.1

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	137	295	13	1	19	142	25	29	113	43	62	48
Future Vol, veh/h	137	295	13	1	19	142	25	29	113	43	62	48
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	159	343	15	1	22	165	29	34	131	50	72	56
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	17.4	13	13.4	13.2
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	100%	0%	100%	0%	34%
Vol Thru, %	61%	0%	96%	0%	85%	27%
Vol Right, %	23%	0%	4%	0%	15%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	185	137	308	20	167	181
LT Vol	29	137	0	20	0	62
Through Vol	113	0	295	0	142	48
RT Vol	43	0	13	0	25	71
Lane Flow Rate	215	159	358	23	194	210
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.383	0.306	0.634	0.048	0.364	0.372
Departure Headway (Hd)	6.411	6.912	6.372	7.365	6.746	6.369
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	561	523	569	487	534	564
Service Time	4.451	4.612	4.072	5.106	4.486	4.409
HCM Lane V/C Ratio	0.383	0.304	0.629	0.047	0.363	0.372
HCM Control Delay	13.4	12.6	19.5	10.5	13.3	13.2
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	1.8	1.3	4.4	0.2	1.7	1.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	71
Future Vol, veh/h	71
Peak Hour Factor	0.86
Heavy Vehicles, %	3
Mvmt Flow	83
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	17.8
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	109	232	86	84	152	135	15	105	39	79	139	53
Future Vol, veh/h	0	109	232	86	84	152	135	15	105	39	79	139	53
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	127	270	100	98	177	157	17	122	45	92	162	62
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	19.1	15.5	18.7	18.5
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	9%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	66%	0%	100%	0%	0%	100%	0%	0%	72%
Vol Right, %	25%	0%	0%	100%	0%	0%	100%	0%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	159	109	232	86	84	152	135	79	192
LT Vol	15	109	0	0	84	0	0	79	0
Through Vol	105	0	232	0	0	152	0	0	139
RT Vol	39	0	0	86	0	0	135	0	53
Lane Flow Rate	185	127	270	100	98	177	157	92	223
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.453	0.308	0.617	0.209	0.243	0.414	0.336	0.233	0.522
Departure Headway (Hd)	8.823	8.751	8.234	7.509	8.942	8.423	7.698	9.125	8.418
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	409	411	440	478	401	428	468	394	429
Service Time	6.577	6.499	5.982	5.257	6.69	6.171	5.445	6.877	6.17
HCM Lane V/C Ratio	0.452	0.309	0.614	0.209	0.244	0.414	0.335	0.234	0.52
HCM Control Delay	18.7	15.4	23.4	12.2	14.6	17	14.3	14.6	20.1
HCM Lane LOS	C	C	C	B	B	C	B	B	C
HCM 95th-tile Q	2.3	1.3	4	0.8	0.9	2	1.5	0.9	2.9

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	131	51	52	295	235	79
Future Vol, veh/h	131	51	52	295	235	79
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	152	59	60	343	273	92
Number of Lanes	1	0	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	11.9	13.9	13.6
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	72%	0%
Vol Thru, %	0%	100%	0%	75%
Vol Right, %	0%	0%	28%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	295	182	314
LT Vol	52	0	131	0
Through Vol	0	295	0	235
RT Vol	0	0	51	79
Lane Flow Rate	60	343	212	365
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.103	0.535	0.343	0.519
Departure Headway (Hd)	6.12	5.614	5.828	5.12
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	587	645	618	705
Service Time	3.847	3.341	3.861	3.148
HCM Lane V/C Ratio	0.102	0.532	0.343	0.518
HCM Control Delay	9.6	14.6	11.9	13.6
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.3	3.2	1.5	3

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	43	0	5	70
Future Vol, veh/h	4	6	43	0	5	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	4	7	48	0	6	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	138	48	0	0	48	0
Stage 1	48	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.51	6.31	-	-	4.21	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.399	-	-	2.299	-
Pot Cap-1 Maneuver	834	996	-	-	1503	-
Stage 1	952	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	831	996	-	-	1503	-
Mov Cap-2 Maneuver	831	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	923	1503	-
HCM Lane V/C Ratio	-	-	0.012	0.004	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

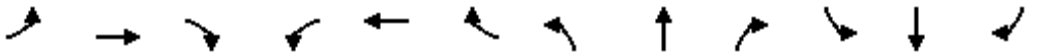
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	114	72	19	46	15
Future Vol, veh/h	30	114	72	19	46	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	13	13	13	13	13	13
Mvmt Flow	43	163	103	27	66	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	130	0	-	0	366	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	249	-
Critical Hdwy	4.23	-	-	-	6.53	6.33
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.317	-	-	-	3.617	3.417
Pot Cap-1 Maneuver	1390	-	-	-	612	906
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	767	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1390	-	-	-	591	906
Mov Cap-2 Maneuver	-	-	-	-	591	-
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	767	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1390	-	-	-	646
HCM Lane V/C Ratio	0.031	-	-	-	0.135
HCM Control Delay (s)	7.7	0	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	358	80	215	312	89	41	64	138	158	76	19
Future Volume (veh/h)	37	358	80	215	312	89	41	64	138	158	76	19
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	39	373	83	224	325	93	43	67	144	165	79	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	61	466	395	258	1279	570	65	88	190	192	339	86
Arrive On Green	0.03	0.25	0.25	0.15	0.37	0.37	0.04	0.17	0.17	0.11	0.24	0.24
Sat Flow, veh/h	1753	1841	1560	1753	3497	1560	1753	521	1119	1753	1417	359
Grp Volume(v), veh/h	39	373	83	224	325	93	43	0	211	165	0	99
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1753	1749	1560	1753	0	1639	1753	0	1776
Q Serve(g_s), s	1.9	16.8	3.7	11.0	5.7	3.6	2.1	0.0	10.8	8.2	0.0	4.0
Cycle Q Clear(g_c), s	1.9	16.8	3.7	11.0	5.7	3.6	2.1	0.0	10.8	8.2	0.0	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.68	1.00		0.20
Lane Grp Cap(c), veh/h	61	466	395	258	1279	570	65	0	278	192	0	424
V/C Ratio(X)	0.64	0.80	0.21	0.87	0.25	0.16	0.66	0.00	0.76	0.86	0.00	0.23
Avail Cap(c_a), veh/h	137	575	487	266	1350	602	143	0	668	192	0	768
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	42.1	30.9	26.0	36.8	19.6	18.9	42.0	0.0	35.0	38.6	0.0	27.1
Incr Delay (d2), s/veh	4.1	13.4	1.2	23.5	0.5	0.6	4.3	0.0	8.0	28.7	0.0	1.3
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	0.9	8.4	1.5	6.0	2.2	1.3	1.0	0.0	4.8	4.8	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	44.3	27.2	60.3	20.1	19.5	46.3	0.0	43.0	67.3	0.0	28.4
LnGrp LOS	D	D	C	E	C	B	D	A	D	E	A	C
Approach Vol, veh/h		495			642			254			264	
Approach Delay, s/veh		41.6			34.0			43.6			52.7	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	29.9	9.9	29.0	9.7	39.8	16.0	22.9
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 13	27.6	* 7.2	38.2	* 6.9	34.1	* 9.7	36.0
Max Q Clear Time (g_c+I1), s	13.0	18.8	4.1	6.0	3.9	7.7	10.2	12.8
Green Ext Time (p_c), s	0.0	3.6	0.0	1.4	0.0	6.5	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	45	16	105	42	46	22	180	60	43	203	58
Future Vol, veh/h	31	45	16	105	42	46	22	180	60	43	203	58
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	34	49	17	114	46	50	24	196	65	47	221	63
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	10.9	12.5	12.8
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%	75%	0%	74%	0%	48%	0%	78%
Vol Right, %	0%	25%	0%	26%	0%	52%	0%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	240	31	61	105	88	43	261
LT Vol	22	0	31	0	105	0	43	0
Through Vol	0	180	0	45	0	42	0	203
RT Vol	0	60	0	16	0	46	0	58
Lane Flow Rate	24	261	34	66	114	96	47	284
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.043	0.422	0.067	0.119	0.221	0.161	0.084	0.455
Departure Headway (Hd)	6.507	5.823	7.177	6.481	6.957	6.078	6.443	5.779
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	550	618	498	552	516	589	556	624
Service Time	4.247	3.563	4.932	4.235	4.704	3.824	4.182	3.518
HCM Lane V/C Ratio	0.044	0.422	0.068	0.12	0.221	0.163	0.085	0.455
HCM Control Delay	9.5	12.8	10.5	10.1	11.7	10	9.8	13.3
HCM Lane LOS	A	B	B	B	B	A	A	B
HCM 95th-tile Q	0.1	2.1	0.2	0.4	0.8	0.6	0.3	2.4

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	147	11	79	191	30	8	18	58	20	14	15
Future Vol, veh/h	15	147	11	79	191	30	8	18	58	20	14	15
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	155	12	83	201	32	8	19	61	21	15	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	233	0	0	169	0	0	597	594	166	619	584	220
Stage 1	-	-	-	-	-	-	195	195	-	383	383	-
Stage 2	-	-	-	-	-	-	402	399	-	236	201	-
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	1329	-	-	1402	-	-	413	417	876	400	422	817
Stage 1	-	-	-	-	-	-	804	737	-	638	610	-
Stage 2	-	-	-	-	-	-	623	600	-	765	733	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1399	-	-	370	387	872	338	392	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	370	387	-	338	392	-
Stage 1	-	-	-	-	-	-	793	727	-	630	574	-
Stage 2	-	-	-	-	-	-	558	565	-	683	723	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	2	11.7	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	624	1329	-	-	1399	-	-	433
HCM Lane V/C Ratio	0.142	0.012	-	-	0.059	-	-	0.119
HCM Control Delay (s)	11.7	7.7	-	-	7.7	-	-	14.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.2	-	-	0.4

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	33	156	10	0	28	252	21	10	37	16	14	42
Future Vol, veh/h	33	156	10	0	28	252	21	10	37	16	14	42
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	35	168	11	0	30	271	23	11	40	17	15	45
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	9.8	11.5	9	9.3
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	100%	0%	100%	0%	12%
Vol Thru, %	59%	0%	94%	0%	92%	36%
Vol Right, %	25%	0%	6%	0%	8%	53%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	63	33	166	28	273	118
LT Vol	10	33	0	28	0	14
Through Vol	37	0	156	0	252	42
RT Vol	16	0	10	0	21	62
Lane Flow Rate	68	35	178	30	294	127
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.101	0.058	0.264	0.048	0.425	0.179
Departure Headway (Hd)	5.344	5.876	5.329	5.769	5.211	5.08
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	664	605	669	617	687	700
Service Time	3.431	3.652	3.105	3.539	2.981	3.156
HCM Lane V/C Ratio	0.102	0.058	0.266	0.049	0.428	0.181
HCM Control Delay	9	9	10	8.8	11.8	9.3
HCM Lane LOS	A	A	A	A	B	A
HCM 95th-tile Q	0.3	0.2	1.1	0.2	2.1	0.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	62
Future Vol, veh/h	62
Peak Hour Factor	0.93
Heavy Vehicles, %	3
Mvmt Flow	67
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	29	175	12	28	226	26	29	46	13	31	58	57
Future Vol, veh/h	1	29	175	12	28	226	26	29	46	13	31	58	57
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	30	182	13	29	235	27	30	48	14	32	60	59
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	11.2	11.8	10.6	10.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	52%	0%	100%	0%	0%	100%	0%	0%	50%
Vol Right, %	15%	0%	0%	100%	0%	0%	100%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	30	175	12	28	226	26	31	115
LT Vol	29	30	0	0	28	0	0	31	0
Through Vol	46	0	175	0	0	226	0	0	58
RT Vol	13	0	0	12	0	0	26	0	57
Lane Flow Rate	92	31	182	12	29	235	27	32	120
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.167	0.058	0.31	0.019	0.053	0.391	0.04	0.062	0.2
Departure Headway (Hd)	6.554	6.628	6.122	5.414	6.49	5.985	5.277	6.87	6.021
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	546	540	587	660	552	600	677	521	595
Service Time	4.303	4.37	3.864	3.155	4.231	3.725	3.017	4.617	3.768
HCM Lane V/C Ratio	0.168	0.057	0.31	0.018	0.053	0.392	0.04	0.061	0.202
HCM Control Delay	10.6	9.8	11.6	8.3	9.6	12.5	8.2	10.1	10.3
HCM Lane LOS	B	A	B	A	A	B	A	B	B
HCM 95th-tile Q	0.6	0.2	1.3	0.1	0.2	1.9	0.1	0.2	0.7

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	52	18	20	186	3	235	70
Future Vol, veh/h	52	18	20	186	3	235	70
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	53	18	20	190	3	240	71
Number of Lanes	1	0	1	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.7	9.3	10
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	74%	0%
Vol Thru, %	0%	100%	0%	77%
Vol Right, %	0%	0%	26%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	186	70	308
LT Vol	20	0	52	0
Through Vol	0	186	0	237
RT Vol	0	0	18	71
Lane Flow Rate	20	190	71	314
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.031	0.262	0.102	0.379
Departure Headway (Hd)	5.464	4.962	5.122	4.341
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	656	725	699	830
Service Time	3.188	2.686	3.158	2.362
HCM Lane V/C Ratio	0.03	0.262	0.102	0.378
HCM Control Delay	8.4	9.4	8.7	10
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1	0.3	1.8

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	8	96	3	8	56
Future Vol, veh/h	2	8	96	3	8	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	2	10	116	4	10	67

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	205	118	0	0	120	0
Stage 1	118	-	-	-	-	-
Stage 2	87	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	781	931	-	-	1462	-
Stage 1	905	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	776	931	-	-	1462	-
Mov Cap-2 Maneuver	776	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	927	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	895	1462	-
HCM Lane V/C Ratio	-	-	0.013	0.007	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

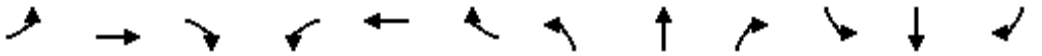
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	80	98	73	32	24
Future Vol, veh/h	28	80	98	73	32	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	30	86	105	78	34	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	183	0	-	0	290	144
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	4.17	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.263	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1362	-	-	-	690	890
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	869	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1362	-	-	-	674	890
Mov Cap-2 Maneuver	-	-	-	-	674	-
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	869	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1362	-	-	-	752
HCM Lane V/C Ratio	0.022	-	-	-	0.08
HCM Control Delay (s)	7.7	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3



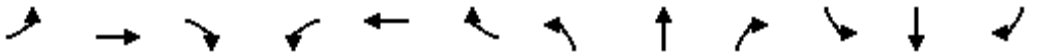
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	330	68	99	290	52	98	123	241	169	65	35
Future Volume (veh/h)	26	330	68	99	290	52	98	123	241	169	65	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	28	351	72	105	309	55	104	131	256	180	69	37
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	52	687	307	133	893	399	133	333	282	219	255	137
Arrive On Green	0.03	0.20	0.20	0.08	0.26	0.26	0.08	0.18	0.18	0.13	0.23	0.23
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	1739	1826	1545	1739	1118	600
Grp Volume(v), veh/h	28	351	72	105	309	55	104	131	256	180	0	106
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1739	1826	1545	1739	0	1718
Q Serve(g_s), s	1.1	6.3	1.8	4.2	5.1	1.9	4.1	4.4	7.3	7.1	0.0	3.6
Cycle Q Clear(g_c), s	1.1	6.3	1.8	4.2	5.1	1.9	4.1	4.4	7.3	7.1	0.0	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	52	687	307	133	893	399	133	333	282	219	0	392
V/C Ratio(X)	0.54	0.51	0.23	0.79	0.35	0.14	0.78	0.39	0.91	0.82	0.00	0.27
Avail Cap(c_a), veh/h	127	1317	587	159	1381	616	241	938	794	266	0	900
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	0.00	1.00
Uniform Delay (d), s/veh	33.5	25.1	10.1	31.8	21.2	20.0	31.8	25.2	11.4	29.9	0.0	22.2
Incr Delay (d2), s/veh	3.2	2.7	1.8	16.3	1.1	0.7	3.8	1.5	18.3	13.2	0.0	1.7
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	0.5	2.5	1.1	2.2	1.9	0.7	1.8	1.9	5.1	3.4	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	27.8	11.9	48.1	22.3	20.8	35.6	26.7	29.7	43.0	0.0	23.9
LnGrp LOS	D	C	B	D	C	C	D	C	C	D	A	C
Approach Vol, veh/h		451			469			491			286	
Approach Delay, s/veh		25.8			27.9			30.2			36.0	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	21.4	11.9	23.9	8.7	25.5	15.1	20.7
Change Period (Y+Rc), s	7.5	* 7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	6.4	* 27	* 9.7	36.7	* 5.1	27.9	* 11	36.0
Max Q Clear Time (g_c+I1), s	6.2	8.3	6.1	5.6	3.1	7.1	9.1	9.3
Green Ext Time (p_c), s	0.0	5.6	0.0	1.5	0.0	5.1	0.0	3.3

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	358	80	215	312	89	41	64	138	158	76	19
Future Volume (veh/h)	37	358	80	215	312	89	41	64	138	158	76	19
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	39	373	83	224	325	93	43	67	144	165	79	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	66	720	321	265	1118	499	70	254	215	202	297	75
Arrive On Green	0.04	0.21	0.21	0.15	0.32	0.32	0.04	0.14	0.14	0.12	0.21	0.21
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1753	1841	1560	1753	1417	359
Grp Volume(v), veh/h	39	373	83	224	325	93	43	67	144	165	0	99
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1753	1841	1560	1753	0	1776
Q Serve(g_s), s	1.6	6.9	3.2	9.0	5.1	3.1	1.8	2.4	6.4	6.7	0.0	3.4
Cycle Q Clear(g_c), s	1.6	6.9	3.2	9.0	5.1	3.1	1.8	2.4	6.4	6.7	0.0	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	66	720	321	265	1118	499	70	254	215	202	0	372
V/C Ratio(X)	0.59	0.52	0.26	0.85	0.29	0.19	0.61	0.26	0.67	0.82	0.00	0.27
Avail Cap(c_a), veh/h	166	1329	593	323	1642	732	174	912	773	234	0	934
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	0.00	1.00
Uniform Delay (d), s/veh	34.4	25.6	24.2	30.0	18.5	17.9	34.3	28.0	29.7	31.4	0.0	24.1
Incr Delay (d2), s/veh	3.2	2.7	1.9	13.5	0.7	0.8	3.2	1.1	6.8	15.2	0.0	1.7
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	0.7	2.8	1.3	4.4	1.8	1.2	0.8	1.1	2.7	3.4	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	28.3	26.1	43.5	19.2	18.7	37.6	29.1	36.6	46.6	0.0	25.8
LnGrp LOS	D	C	C	D	B	B	D	C	D	D	A	C
Approach Vol, veh/h		495			642			254			264	
Approach Delay, s/veh		28.7			27.6			34.8			38.8	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	22.5	9.5	23.1	9.3	30.7	14.7	17.9
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 13	27.6	* 7.2	38.2	* 6.9	34.1	* 9.7	36.0
Max Q Clear Time (g_c+I1), s	11.0	8.9	3.8	5.4	3.6	7.1	8.7	8.4
Green Ext Time (p_c), s	0.1	6.1	0.0	1.4	0.0	6.6	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	91	150	191	100	138	173	115	45	130	129	119	174
Average Queue (ft)	20	87	82	26	67	101	18	18	54	59	42	88
95th Queue (ft)	57	128	141	55	124	156	64	45	112	114	83	148
Link Distance (ft)		653	653			2523	2523			2553		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	475			300	475			475	150		150	100
Storage Blk Time (%)												9
Queuing Penalty (veh)												9

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	SB
Directions Served	TR
Maximum Queue (ft)	247
Average Queue (ft)	65
95th Queue (ft)	154
Link Distance (ft)	2593
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	3
Queuing Penalty (veh)	5

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	54	96	76	69	154	171	53	117
Average Queue (ft)	27	39	39	35	18	80	29	57
95th Queue (ft)	46	70	62	60	66	146	51	101
Link Distance (ft)		2584		1287		557		2553
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)		0				7		0
Queuing Penalty (veh)		0				1		0

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	30	22	30	100	78
Average Queue (ft)	2	1	7	52	34
95th Queue (ft)	14	7	27	86	60
Link Distance (ft)		1287		994	1417
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100		100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	76	163	78	79	98	93
Average Queue (ft)	39	78	17	45	55	45
95th Queue (ft)	63	129	49	70	90	72
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)		4				
Queuing Penalty (veh)		5				

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	159	170	55	119	138	120	90	84	132
Average Queue (ft)	50	66	29	44	52	46	40	34	48
95th Queue (ft)	102	120	54	79	99	84	73	63	87
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)	1	2		1	6	1		0	0
Queuing Penalty (veh)	2	5		3	13	4		0	0

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	109	53	105	120
Average Queue (ft)	52	27	65	59
95th Queue (ft)	89	51	95	98
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)			1	
Queuing Penalty (veh)			0	

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB
Directions Served	LR
Maximum Queue (ft)	43
Average Queue (ft)	11
95th Queue (ft)	34
Link Distance (ft)	2620
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	62	50
Average Queue (ft)	3	29
95th Queue (ft)	22	56
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 47

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	74	141	159	54	316	147	165	66	71	105	83	174
Average Queue (ft)	27	74	68	29	121	83	30	13	23	37	35	83
95th Queue (ft)	66	118	124	48	231	150	94	37	54	80	71	155
Link Distance (ft)		653	653			2523	2523			2553		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	475			300	475			475	150		150	100
Storage Blk Time (%)												12
Queuing Penalty (veh)												12

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	SB
Directions Served	TR
Maximum Queue (ft)	296
Average Queue (ft)	59
95th Queue (ft)	181
Link Distance (ft)	2593
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	3
Queuing Penalty (veh)	4

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	52	55	76	54	50	91	31	158
Average Queue (ft)	19	27	38	32	16	43	18	73
95th Queue (ft)	45	56	64	49	42	67	42	114
Link Distance (ft)		2584		1287		557		2553
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)						0		1
Queuing Penalty (veh)						0		0

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	29	20	52	22	74	55
Average Queue (ft)	3	1	10	1	36	32
95th Queue (ft)	16	7	36	7	64	56
Link Distance (ft)		1287		1251	994	1417
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	31	76	31	90	54	73
Average Queue (ft)	19	39	19	46	25	38
95th Queue (ft)	42	59	43	74	50	58
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	52	114	31	30	121	79	45	45	67
Average Queue (ft)	21	44	12	19	51	25	26	15	27
95th Queue (ft)	47	73	35	41	86	56	42	37	52
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)		0			2	0			
Queuing Penalty (veh)		0			1	0			

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	UTR
Maximum Queue (ft)	66	31	76	77
Average Queue (ft)	36	10	47	45
95th Queue (ft)	59	33	69	66
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	25	23
Average Queue (ft)	7	1
95th Queue (ft)	25	8
Link Distance (ft)	2620	2569
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

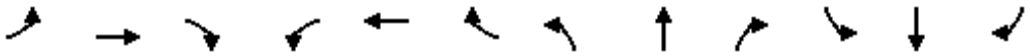
Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	23	52
Average Queue (ft)	2	26
95th Queue (ft)	11	46
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 18

Appendix H: Cumulative Year 2046 plus Project Traffic Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	428	72	99	366	52	98	123	241	169	65	35
Future Volume (veh/h)	26	428	72	99	366	52	98	123	241	169	65	35
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	28	455	77	105	389	55	104	131	256	180	69	37
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	46	495	420	124	1126	502	484	149	292	204	106	57
Arrive On Green	0.03	0.27	0.27	0.07	0.32	0.32	0.28	0.27	0.27	0.12	0.09	0.09
Sat Flow, veh/h	1739	1826	1547	1739	3469	1547	1739	552	1078	1739	1118	600
Grp Volume(v), veh/h	28	455	77	105	389	55	104	0	387	180	0	106
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	1735	1547	1739	0	1630	1739	0	1718
Q Serve(g_s), s	1.7	26.2	4.1	6.5	9.2	2.7	5.0	0.0	24.6	11.0	0.0	6.4
Cycle Q Clear(g_c), s	1.7	26.2	4.1	6.5	9.2	2.7	5.0	0.0	24.6	11.0	0.0	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.66	1.00		0.35
Lane Grp Cap(c), veh/h	46	495	420	124	1126	502	484	0	441	204	0	163
V/C Ratio(X)	0.61	0.92	0.18	0.85	0.35	0.11	0.21	0.00	0.88	0.88	0.00	0.65
Avail Cap(c_a), veh/h	100	511	433	124	1126	502	484	0	542	204	0	607
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	52.2	38.3	30.3	49.7	27.8	25.6	30.0	0.0	37.8	47.1	0.0	47.3
Incr Delay (d2), s/veh	4.9	24.5	1.0	38.0	0.8	0.4	0.1	0.0	15.2	32.3	0.0	18.3
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	0.8	14.2	1.6	4.0	3.7	1.0	2.1	0.0	11.4	6.4	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	62.8	31.2	87.8	28.7	26.1	30.1	0.0	53.0	79.4	0.0	65.6
LnGrp LOS	E	E	C	F	C	C	C	A	D	E	A	E
Approach Vol, veh/h		560			549			491			286	
Approach Delay, s/veh		58.2			39.7			48.2			74.3	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	36.9	38.0	18.2	9.4	42.6	19.0	37.2
Change Period (Y+Rc), s	7.5	* 7.5	7.9	* 7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	7.7	* 30	10.1	* 38	* 6.2	31.8	* 13	36.0
Max Q Clear Time (g_c+I1), s	8.5	28.2	7.0	8.4	3.7	11.2	13.0	26.6
Green Ext Time (p_c), s	0.0	1.2	0.0	1.4	0.0	6.3	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	24.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	55	38	113	49	35	19	277	157	61	180	37
Future Vol, veh/h	43	55	38	113	49	35	19	277	157	61	180	37
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	50	64	44	131	57	41	22	322	183	71	209	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	12.3	13.1	38.2	14.6
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%	64%	0%	59%	0%	58%	0%	83%
Vol Right, %	0%	36%	0%	41%	0%	42%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	434	43	93	113	84	61	217
LT Vol	19	0	43	0	113	0	61	0
Through Vol	0	277	0	55	0	49	0	180
RT Vol	0	157	0	38	0	35	0	37
Lane Flow Rate	22	505	50	108	131	98	71	252
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.043	0.883	0.115	0.224	0.294	0.196	0.146	0.475
Departure Headway (Hd)	7.064	6.298	8.254	7.445	8.049	7.236	7.403	6.77
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	575	434	481	447	495	484	532
Service Time	4.802	4.036	6.009	5.199	5.801	4.988	5.149	4.515
HCM Lane V/C Ratio	0.043	0.878	0.115	0.225	0.293	0.198	0.147	0.474
HCM Control Delay	10.1	39.4	12.1	12.4	14.1	11.8	11.4	15.5
HCM Lane LOS	B	E	B	B	B	B	B	C
HCM 95th-tile Q	0.1	10.2	0.4	0.9	1.2	0.7	0.5	2.5

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	261	13	55	166	32	13	34	120	40	23	31
Future Vol, veh/h	19	261	13	55	166	32	13	34	120	40	23	31
Conflicting Peds, #/hr	11	0	14	14	0	11	1	0	5	5	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	21	293	15	62	187	36	15	38	135	45	26	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	234	0	0	322	0	0	718	715	320	774	704	217
Stage 1	-	-	-	-	-	-	357	357	-	340	340	-
Stage 2	-	-	-	-	-	-	361	358	-	434	364	-
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	1328	-	-	1232	-	-	343	355	718	314	360	820
Stage 1	-	-	-	-	-	-	659	627	-	673	637	-
Stage 2	-	-	-	-	-	-	655	626	-	598	622	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1314	-	-	1216	-	-	289	324	705	216	328	811
Mov Cap-2 Maneuver	-	-	-	-	-	-	289	324	-	216	328	-
Stage 1	-	-	-	-	-	-	640	609	-	656	599	-
Stage 2	-	-	-	-	-	-	569	588	-	444	604	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.8	15.7	21.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	522	1314	-	-	1216	-	-	320
HCM Lane V/C Ratio	0.359	0.016	-	-	0.051	-	-	0.33
HCM Control Delay (s)	15.7	7.8	-	-	8.1	-	-	21.7
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.6	0.1	-	-	0.2	-	-	1.4

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	193	295	16	1	19	142	25	36	142	43	72	60
Future Vol, veh/h	193	295	16	1	19	142	25	36	142	43	72	60
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	224	343	19	1	22	165	29	42	165	50	84	70
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	20.6	14.6	16.4	16.3
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	100%	0%	100%	0%	32%
Vol Thru, %	64%	0%	95%	0%	85%	26%
Vol Right, %	19%	0%	5%	0%	15%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	193	311	20	167	228
LT Vol	36	193	0	20	0	72
Through Vol	142	0	295	0	142	60
RT Vol	43	0	16	0	25	96
Lane Flow Rate	257	224	362	23	194	265
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.49	0.459	0.685	0.052	0.398	0.497
Departure Headway (Hd)	6.87	7.371	6.822	8.009	7.386	6.751
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	524	489	528	446	485	533
Service Time	4.925	5.124	4.575	5.771	5.148	4.805
HCM Lane V/C Ratio	0.49	0.458	0.686	0.052	0.4	0.497
HCM Control Delay	16.4	16.3	23.2	11.2	15	16.3
HCM Lane LOS	C	C	C	B	B	C
HCM 95th-tile Q	2.7	2.4	5.2	0.2	1.9	2.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	96
Future Vol, veh/h	96
Peak Hour Factor	0.86
Heavy Vehicles, %	3
Mvmt Flow	112
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	18.7
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	109	232	100	106	152	135	15	105	49	79	139	53
Future Vol, veh/h	0	109	232	100	106	152	135	15	105	49	79	139	53
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	127	270	116	123	177	157	17	122	57	92	162	62
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	19.8	16.2	20.2	19.4
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	9%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	62%	0%	100%	0%	0%	100%	0%	0%	72%
Vol Right, %	29%	0%	0%	100%	0%	0%	100%	0%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	169	109	232	100	106	152	135	79	192
LT Vol	15	109	0	0	106	0	0	79	0
Through Vol	105	0	232	0	0	152	0	0	139
RT Vol	49	0	0	100	0	0	135	0	53
Lane Flow Rate	197	127	270	116	123	177	157	92	223
Geometry Grp	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.491	0.316	0.633	0.249	0.312	0.423	0.344	0.239	0.538
Departure Headway (Hd)	9.002	8.965	8.446	7.72	9.127	8.607	7.88	9.383	8.674
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	401	401	426	465	394	419	457	383	415
Service Time	6.764	6.719	6.2	5.474	6.882	6.363	5.635	7.142	6.433
HCM Lane V/C Ratio	0.491	0.317	0.634	0.249	0.312	0.422	0.344	0.24	0.537
HCM Control Delay	20.2	15.8	24.7	13	16	17.6	14.7	15.1	21.1
HCM Lane LOS	C	C	C	B	C	C	B	C	C
HCM 95th-tile Q	2.6	1.3	4.2	1	1.3	2.1	1.5	0.9	3.1

Intersection	
Intersection Delay, s/veh	13.6
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	131	64	65	295	235	79
Future Vol, veh/h	131	64	65	295	235	79
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	152	74	76	343	273	92
Number of Lanes	1	0	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	12.2	14	13.9
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	67%	0%
Vol Thru, %	0%	100%	0%	75%
Vol Right, %	0%	0%	33%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	295	195	314
LT Vol	65	0	131	0
Through Vol	0	295	0	235
RT Vol	0	0	64	79
Lane Flow Rate	76	343	227	365
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.13	0.541	0.367	0.526
Departure Headway (Hd)	6.182	5.676	5.825	5.19
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	581	638	617	694
Service Time	3.91	3.403	3.861	3.219
HCM Lane V/C Ratio	0.131	0.538	0.368	0.526
HCM Control Delay	9.8	14.9	12.2	13.9
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.4	3.2	1.7	3.1

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	38	43	0	42	70
Future Vol, veh/h	5	38	43	0	42	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	11	11	11	11
Mvmt Flow	6	42	48	0	47	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	220	48	0	0	48	0
Stage 1	48	-	-	-	-	-
Stage 2	172	-	-	-	-	-
Critical Hdwy	6.51	6.31	-	-	4.21	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.399	-	-	2.299	-
Pot Cap-1 Maneuver	749	996	-	-	1503	-
Stage 1	952	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	724	996	-	-	1503	-
Mov Cap-2 Maneuver	724	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	809	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	1503	-
HCM Lane V/C Ratio	-	-	0.05	0.031	-
HCM Control Delay (s)	-	-	9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

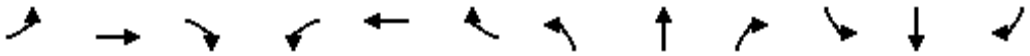
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	143	91	19	46	15
Future Vol, veh/h	30	143	91	19	46	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	13	13	13	13	13	13
Mvmt Flow	43	204	130	27	66	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	157	0	-	0	434	144
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	4.23	-	-	-	6.53	6.33
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.317	-	-	-	3.617	3.417
Pot Cap-1 Maneuver	1358	-	-	-	559	875
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	735	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1358	-	-	-	539	875
Mov Cap-2 Maneuver	-	-	-	-	539	-
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	735	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1358	-	-	-	595
HCM Lane V/C Ratio	0.032	-	-	-	0.146
HCM Control Delay (s)	7.7	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	460	80	215	421	89	46	64	138	158	76	19
Future Volume (veh/h)	37	460	80	215	421	89	46	64	138	158	76	19
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	39	479	83	224	439	93	48	67	144	165	79	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	58	546	463	255	1431	638	64	85	184	195	334	85
Arrive On Green	0.03	0.30	0.30	0.15	0.41	0.41	0.04	0.16	0.16	0.11	0.24	0.24
Sat Flow, veh/h	1753	1841	1560	1753	3497	1560	1753	521	1119	1753	1417	359
Grp Volume(v), veh/h	39	479	83	224	439	93	48	0	211	165	0	99
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1753	1749	1560	1753	0	1639	1753	0	1776
Q Serve(g_s), s	2.2	24.8	4.0	12.5	8.5	3.8	2.7	0.0	12.4	9.2	0.0	4.5
Cycle Q Clear(g_c), s	2.2	24.8	4.0	12.5	8.5	3.8	2.7	0.0	12.4	9.2	0.0	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.68	1.00		0.20
Lane Grp Cap(c), veh/h	58	546	463	255	1431	638	64	0	269	195	0	419
V/C Ratio(X)	0.67	0.88	0.18	0.88	0.31	0.15	0.74	0.00	0.78	0.85	0.00	0.24
Avail Cap(c_a), veh/h	124	590	500	285	1442	643	159	0	589	215	0	690
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	47.9	33.5	26.2	41.9	20.0	18.6	47.8	0.0	40.2	43.7	0.0	31.0
Incr Delay (d2), s/veh	5.0	17.8	0.8	22.0	0.6	0.5	6.2	0.0	9.4	21.9	0.0	1.3
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	1.0	12.8	1.5	6.6	3.2	1.4	1.3	0.0	5.6	5.0	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	51.3	27.0	64.0	20.6	19.1	54.0	0.0	49.5	65.5	0.0	32.3
LnGrp LOS	D	D	C	E	C	B	D	A	D	E	A	C
Approach Vol, veh/h		601			756			259			264	
Approach Delay, s/veh		48.1			33.2			50.4			53.1	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.2	37.2	10.3	31.5	9.9	48.5	17.5	24.3
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 16	32.1	* 9.1	38.9	* 7.1	41.3	* 12	36.0
Max Q Clear Time (g_c+I1), s	14.5	26.8	4.7	6.5	4.2	10.5	11.2	14.4
Green Ext Time (p_c), s	0.1	2.9	0.0	1.4	0.0	9.2	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	45	18	105	42	46	24	180	60	43	203	58
Future Vol, veh/h	31	45	18	105	42	46	24	180	60	43	203	58
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	34	49	20	114	46	50	26	196	65	47	221	63
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	10.9	12.5	12.8
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%	75%	0%	71%	0%	48%	0%	78%
Vol Right, %	0%	25%	0%	29%	0%	52%	0%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	240	31	63	105	88	43	261
LT Vol	24	0	31	0	105	0	43	0
Through Vol	0	180	0	45	0	42	0	203
RT Vol	0	60	0	18	0	46	0	58
Lane Flow Rate	26	261	34	68	114	96	47	284
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.047	0.422	0.067	0.123	0.221	0.162	0.084	0.456
Departure Headway (Hd)	6.513	5.829	7.182	6.469	6.966	6.086	6.452	5.789
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	549	616	498	553	515	588	555	621
Service Time	4.257	3.574	4.94	4.226	4.715	3.836	4.195	3.531
HCM Lane V/C Ratio	0.047	0.424	0.068	0.123	0.221	0.163	0.085	0.457
HCM Control Delay	9.6	12.8	10.5	10.1	11.7	10	9.8	13.3
HCM Lane LOS	A	B	B	B	B	A	A	B
HCM 95th-tile Q	0.1	2.1	0.2	0.4	0.8	0.6	0.3	2.4

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	19	147	11	107	191	30	8	23	62	20	18	19
Future Vol, veh/h	19	147	11	107	191	30	8	23	62	20	18	19
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	20	155	12	113	201	32	8	24	65	21	19	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	233	0	0	169	0	0	669	662	166	692	652	220
Stage 1	-	-	-	-	-	-	203	203	-	443	443	-
Stage 2	-	-	-	-	-	-	466	459	-	249	209	-
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	1329	-	-	1402	-	-	370	381	876	357	386	817
Stage 1	-	-	-	-	-	-	797	732	-	592	574	-
Stage 2	-	-	-	-	-	-	575	565	-	753	727	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1399	-	-	320	344	872	289	349	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	320	344	-	289	349	-
Stage 1	-	-	-	-	-	-	783	720	-	583	528	-
Stage 2	-	-	-	-	-	-	496	519	-	661	715	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	2.5	12.6	15.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	571	1329	-	-	1399	-	-	396
HCM Lane V/C Ratio	0.171	0.015	-	-	0.081	-	-	0.152
HCM Control Delay (s)	12.6	7.8	-	-	7.8	-	-	15.7
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.3	-	-	0.5

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	40	156	10	0	28	252	21	10	47	16	20	53
Future Vol, veh/h	40	156	10	0	28	252	21	10	47	16	20	53
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	43	168	11	0	30	271	23	11	51	17	22	57
Number of Lanes	1	1	0	0	1	1	0	0	1	0	0	1

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	10.4	12.4	9.5	10.2
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	14%	100%	0%	100%	0%	12%
Vol Thru, %	64%	0%	94%	0%	92%	31%
Vol Right, %	22%	0%	6%	0%	8%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	40	166	28	273	172
LT Vol	10	40	0	28	0	20
Through Vol	47	0	156	0	252	53
RT Vol	16	0	10	0	21	99
Lane Flow Rate	78	43	178	30	294	185
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.123	0.074	0.28	0.051	0.45	0.268
Departure Headway (Hd)	5.63	6.199	5.65	6.08	5.52	5.217
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	637	579	637	590	655	690
Service Time	3.664	3.924	3.375	3.802	3.242	3.246
HCM Lane V/C Ratio	0.122	0.074	0.279	0.051	0.449	0.268
HCM Control Delay	9.5	9.4	10.6	9.1	12.7	10.2
HCM Lane LOS	A	A	B	A	B	B
HCM 95th-tile Q	0.4	0.2	1.1	0.2	2.3	1.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	99
Future Vol, veh/h	99
Peak Hour Factor	0.93
Heavy Vehicles, %	3
Mvmt Flow	106
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	29	175	12	35	226	26	41	46	16	31	58	57
Future Vol, veh/h	1	29	175	12	35	226	26	41	46	16	31	58	57
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	30	182	13	36	235	27	43	48	17	32	60	59
Number of Lanes	0	1	1	1	1	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	3	3
HCM Control Delay	11.3	11.9	11	10.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	45%	0%	100%	0%	0%	100%	0%	0%	50%
Vol Right, %	16%	0%	0%	100%	0%	0%	100%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	30	175	12	35	226	26	31	115
LT Vol	41	30	0	0	35	0	0	31	0
Through Vol	46	0	175	0	0	226	0	0	58
RT Vol	16	0	0	12	0	0	26	0	57
Lane Flow Rate	107	31	182	12	36	235	27	32	120
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.197	0.058	0.315	0.019	0.067	0.396	0.04	0.062	0.203
Departure Headway (Hd)	6.624	6.722	6.215	5.506	6.569	6.063	5.354	6.957	6.108
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	541	533	578	649	545	593	668	514	587
Service Time	4.373	4.465	3.959	3.249	4.308	3.802	3.094	4.705	3.855
HCM Lane V/C Ratio	0.198	0.058	0.315	0.018	0.066	0.396	0.04	0.062	0.204
HCM Control Delay	11	9.9	11.8	8.4	9.8	12.7	8.3	10.2	10.4
HCM Lane LOS	B	A	B	A	A	B	A	B	B
HCM 95th-tile Q	0.7	0.2	1.3	0.1	0.2	1.9	0.1	0.2	0.8

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	52	23	25	186	3	235	70
Future Vol, veh/h	52	23	25	186	3	235	70
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	53	23	26	190	3	240	71
Number of Lanes	1	0	1	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.8	9.4	10.1
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	SBLn1
Vol Left, %	100%	0%	69%	0%
Vol Thru, %	0%	100%	0%	77%
Vol Right, %	0%	0%	31%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	186	75	308
LT Vol	25	0	52	0
Through Vol	0	186	0	237
RT Vol	0	0	23	71
Lane Flow Rate	26	190	77	314
Geometry Grp	5	5	2	4a
Degree of Util (X)	0.039	0.262	0.108	0.381
Departure Headway (Hd)	5.479	4.976	5.096	4.36
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	655	723	703	827
Service Time	3.203	2.7	3.131	2.38
HCM Lane V/C Ratio	0.04	0.263	0.11	0.38
HCM Control Delay	8.4	9.5	8.8	10.1
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	1	0.4	1.8

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	47	96	4	34	56
Future Vol, veh/h	3	47	96	4	34	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	4	57	116	5	41	67

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	268	119	0	0	121	0
Stage 1	119	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	719	930	-	-	1460	-
Stage 1	904	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	698	930	-	-	1460	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	851	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	912	1460	-
HCM Lane V/C Ratio	-	-	0.066	0.028	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

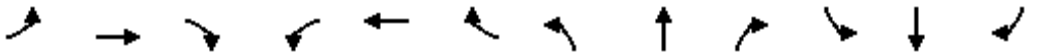
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	101	123	73	32	24
Future Vol, veh/h	28	101	123	73	32	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	30	109	132	78	34	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	210	0	-	0	340	171
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	169	-
Critical Hdwy	4.17	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.263	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1331	-	-	-	646	860
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	849	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1331	-	-	-	630	860
Mov Cap-2 Maneuver	-	-	-	-	630	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	849	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1331	-	-	-	712
HCM Lane V/C Ratio	0.023	-	-	-	0.085
HCM Control Delay (s)	7.8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3



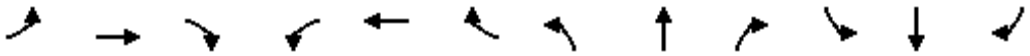
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	428	72	99	366	52	98	123	241	169	65	35
Future Volume (veh/h)	26	428	72	99	366	52	98	123	241	169	65	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	28	455	77	105	389	55	104	131	256	180	69	37
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	50	758	338	133	962	429	416	401	339	217	118	63
Arrive On Green	0.03	0.22	0.22	0.08	0.28	0.28	0.24	0.22	0.22	0.12	0.11	0.11
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	1739	1826	1545	1739	1118	600
Grp Volume(v), veh/h	28	455	77	105	389	55	104	131	256	180	0	106
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1739	1826	1545	1739	0	1718
Q Serve(g_s), s	1.3	9.6	3.3	4.9	7.5	1.3	4.0	4.9	12.7	8.3	0.0	4.8
Cycle Q Clear(g_c), s	1.3	9.6	3.3	4.9	7.5	1.3	4.0	4.9	12.7	8.3	0.0	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	50	758	338	133	962	429	416	401	339	217	0	181
V/C Ratio(X)	0.56	0.60	0.23	0.79	0.40	0.13	0.25	0.33	0.75	0.83	0.00	0.59
Avail Cap(c_a), veh/h	134	1128	503	200	1260	562	416	804	680	334	0	792
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	0.00	1.00
Uniform Delay (d), s/veh	39.2	28.7	26.3	37.1	24.1	7.7	25.2	26.8	29.8	34.9	0.0	34.9
Incr Delay (d2), s/veh	3.6	3.5	1.6	6.1	1.3	0.6	0.1	0.9	6.5	5.8	0.0	13.2
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	0.6	4.0	1.3	2.1	2.9	0.8	1.6	2.2	5.1	3.5	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	32.2	27.8	43.2	25.3	8.3	25.3	27.7	36.3	40.7	0.0	48.1
LnGrp LOS	D	C	C	D	C	A	C	C	D	D	A	D
Approach Vol, veh/h		560			549			491			286	
Approach Delay, s/veh		32.2			27.0			31.7			43.5	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	25.4	26.2	16.5	9.0	30.2	16.8	25.9
Change Period (Y+Rc), s	7.5	* 7.5	6.6	* 7.9	* 6.6	7.5	6.6	* 7.9
Max Green Setting (Gmax), s	9.4	* 27	13.7	* 38	* 6.3	29.7	15.7	* 36
Max Q Clear Time (g_c+I1), s	6.9	11.6	6.0	6.8	3.3	9.5	10.3	14.7
Green Ext Time (p_c), s	0.0	6.2	0.1	1.5	0.0	6.3	0.1	3.1

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	460	80	215	421	89	46	64	138	158	76	19
Future Volume (veh/h)	37	460	80	215	421	89	46	64	138	158	76	19
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	39	479	83	224	439	93	48	67	144	165	79	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	64	826	368	263	1222	545	73	248	210	201	289	73
Arrive On Green	0.04	0.24	0.24	0.15	0.35	0.35	0.04	0.13	0.13	0.11	0.20	0.20
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1753	1841	1560	1753	1417	359
Grp Volume(v), veh/h	39	479	83	224	439	93	48	67	144	165	0	99
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1753	1841	1560	1753	0	1776
Q Serve(g_s), s	1.7	9.4	3.3	9.7	7.2	3.2	2.1	2.5	6.8	7.1	0.0	3.6
Cycle Q Clear(g_c), s	1.7	9.4	3.3	9.7	7.2	3.2	2.1	2.5	6.8	7.1	0.0	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	64	826	368	263	1222	545	73	248	210	201	0	362
V/C Ratio(X)	0.61	0.58	0.23	0.85	0.36	0.17	0.66	0.27	0.68	0.82	0.00	0.27
Avail Cap(c_a), veh/h	156	1244	555	303	1536	685	199	854	723	219	0	837
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	0.00	1.00
Uniform Delay (d), s/veh	36.8	26.2	23.9	32.2	18.8	17.5	36.7	30.1	32.0	33.6	0.0	26.0
Incr Delay (d2), s/veh	3.4	3.0	1.4	16.6	0.8	0.7	3.7	1.1	7.4	18.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.8	1.3	4.9	2.7	1.2	0.9	1.2	0.4	3.8	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	29.2	25.3	48.7	19.6	18.2	40.4	31.3	39.4	51.9	0.0	27.9
LnGrp LOS	D	C	C	D	B	B	D	C	D	D	A	C
Approach Vol, veh/h		601			756			259			264	
Approach Delay, s/veh		29.4			28.1			37.5			42.9	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.2	25.8	9.8	23.7	9.4	34.6	15.2	18.4
Change Period (Y+Rc), s	* 6.6	7.5	* 6.6	7.9	* 6.6	7.5	* 6.3	7.9
Max Green Setting (Gmax), s	* 13	27.6	* 8.8	36.6	* 6.9	34.1	* 9.7	36.0
Max Q Clear Time (g_c+I1), s	11.7	11.4	4.1	5.6	3.7	9.2	9.1	8.8
Green Ext Time (p_c), s	0.1	6.9	0.0	1.3	0.0	8.3	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	31.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	52	199	185	89	130	259	184	40	224	293	118	170
Average Queue (ft)	23	115	114	32	66	143	41	12	71	72	58	85
95th Queue (ft)	53	175	173	67	118	233	108	34	141	178	99	133
Link Distance (ft)		653	653			2523	2523			2553		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	475			300	475			475	150		150	100
Storage Blk Time (%)									1	1		6
Queuing Penalty (veh)									5	2		6

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	SB
Directions Served	TR
Maximum Queue (ft)	124
Average Queue (ft)	47
95th Queue (ft)	97
Link Distance (ft)	2593
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	1
Queuing Penalty (veh)	2

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	55	76	72	78	31	178	67	117
Average Queue (ft)	20	37	36	39	11	86	28	63
95th Queue (ft)	46	58	58	67	35	139	53	99
Link Distance (ft)		2584		1287		557		2553
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)						5		0
Queuing Penalty (veh)						1		0

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	30	31	21	76	56
Average Queue (ft)	2	8	1	46	32
95th Queue (ft)	14	30	7	70	63
Link Distance (ft)			1251	994	1417
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100	100			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	94	137	31	77	143	161
Average Queue (ft)	50	69	8	41	60	63
95th Queue (ft)	78	105	29	64	100	107
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)	0	1				
Queuing Penalty (veh)	0	3				

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	160	264	160	112	132	79	111	49	102
Average Queue (ft)	49	87	39	53	50	50	47	29	53
95th Queue (ft)	102	170	86	97	87	75	91	47	87
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)		10	0	5	2	3			0
Queuing Penalty (veh)		21	0	16	5	7			0

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	117	55	93	115
Average Queue (ft)	58	31	60	60
95th Queue (ft)	95	58	83	96
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	53	24
Average Queue (ft)	28	2
95th Queue (ft)	50	12
Link Distance (ft)	2620	2569
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	24	61
Average Queue (ft)	3	30
95th Queue (ft)	16	50
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 69

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	70	228	206	76	221	170	128	62	93	90	85	158
Average Queue (ft)	21	122	116	26	130	110	37	17	30	41	36	97
95th Queue (ft)	51	191	170	57	217	169	91	40	72	83	74	162
Link Distance (ft)		653	653			2523	2523			2553		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	475			300	475			475	150		150	100
Storage Blk Time (%)												18
Queuing Penalty (veh)												17

Intersection: 1: Siskiyou Avenue & State Route 180

Movement	SB
Directions Served	TR
Maximum Queue (ft)	174
Average Queue (ft)	67
95th Queue (ft)	151
Link Distance (ft)	2593
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	3
Queuing Penalty (veh)	5

Intersection: 2: Siskiyou Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	54	55	66	76	51	97	55	123
Average Queue (ft)	19	30	35	37	19	47	26	61
95th Queue (ft)	44	55	60	60	45	73	50	96
Link Distance (ft)		2584		1287		557		2553
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110		150		100		115	
Storage Blk Time (%)						0		0
Queuing Penalty (veh)						0		0

Intersection: 3: Park Avenue & Kearney Boulevard

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	30	29	51	77	91
Average Queue (ft)	6	1	21	38	32
95th Queue (ft)	25	10	45	62	64
Link Distance (ft)		1287		994	1417
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100		100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Del Norte Avenue & Kearney Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	UL	TR	LTR	LTR
Maximum Queue (ft)	31	55	51	102	67	101
Average Queue (ft)	20	41	19	53	29	49
95th Queue (ft)	43	60	46	82	57	76
Link Distance (ft)		1251		1119	1006	1584
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100		100			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 5: First Street & Kearney Boulevard

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	R	L	T	R	LTR	L	TR
Maximum Queue (ft)	50	55	31	53	105	89	55	47	79
Average Queue (ft)	24	39	9	25	55	20	24	18	31
95th Queue (ft)	45	57	31	54	92	53	41	39	58
Link Distance (ft)		1119			1353		978		1025
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100	60		60		100	
Storage Blk Time (%)				0	3	0			
Queuing Penalty (veh)				0	2	1			

Intersection: 6: Siskiyou Avenue & E Street

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	UTR
Maximum Queue (ft)	79	68	80	77
Average Queue (ft)	33	20	47	48
95th Queue (ft)	63	49	70	71
Link Distance (ft)	1304		2000	557
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Siskiyou Avenue & Church Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	53	25
Average Queue (ft)	23	3
95th Queue (ft)	44	17
Link Distance (ft)	2620	2569
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Jensen Avenue & Siskiyou Avenue

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	25	61
Average Queue (ft)	1	26
95th Queue (ft)	8	49
Link Distance (ft)	2634	2601
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 25

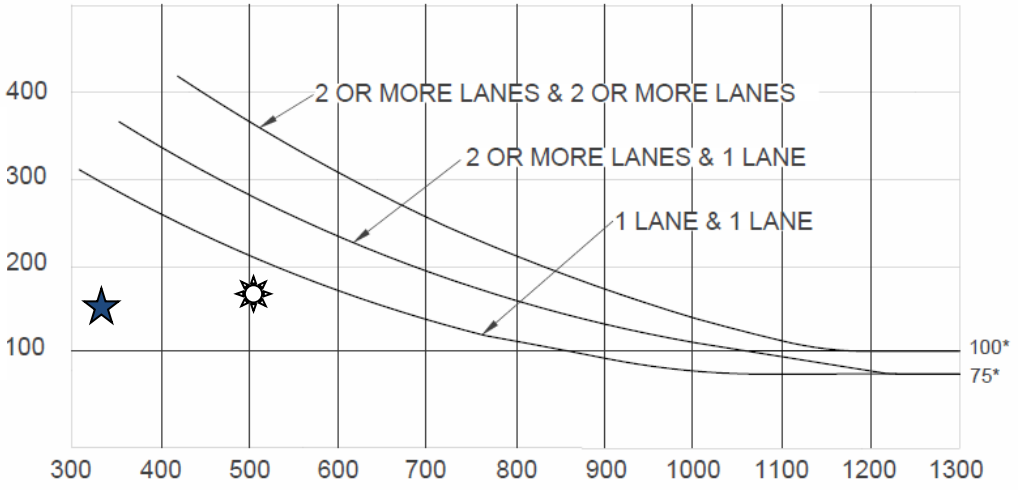
Appendix I: Traffic Signal Warrants

Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
2. Siskiyou Avenue / Kearney Boulevard
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Kearney Boulevard Highest Approach Volume = 172 (150) VPH



Siskiyou Avenue Total of Both Approaches =

508 (333) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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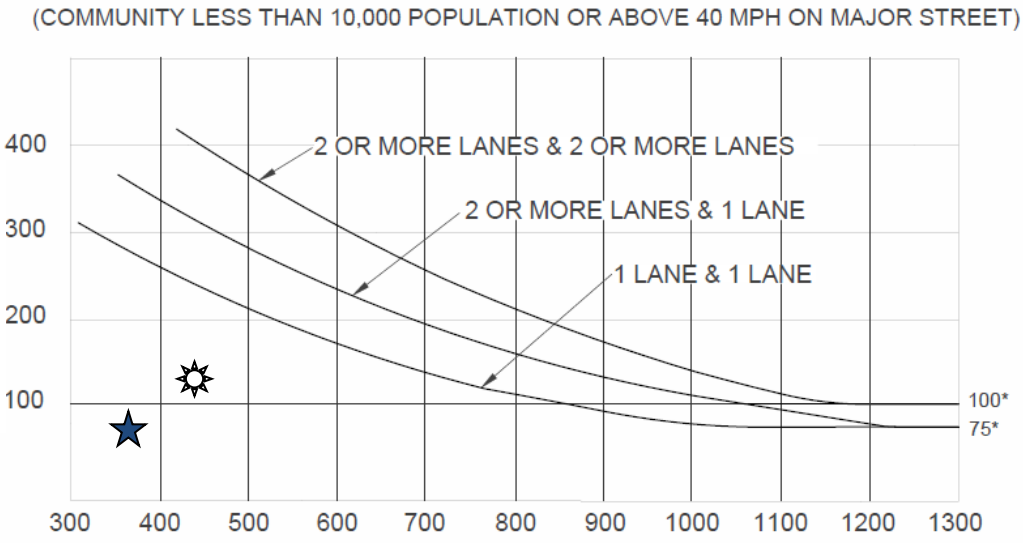
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
3. Park Avenue / Kearney Boulevard
AM (PM) Peak Hour

Park Avenue Highest Approach Volume = 129 (73) VPH



Kearney Boulevard Total of Both Approaches = 439 (377) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met
PM Peak Hour – Signal Warrant is Not Met

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Warrant 3: Peak Hour (Rural)

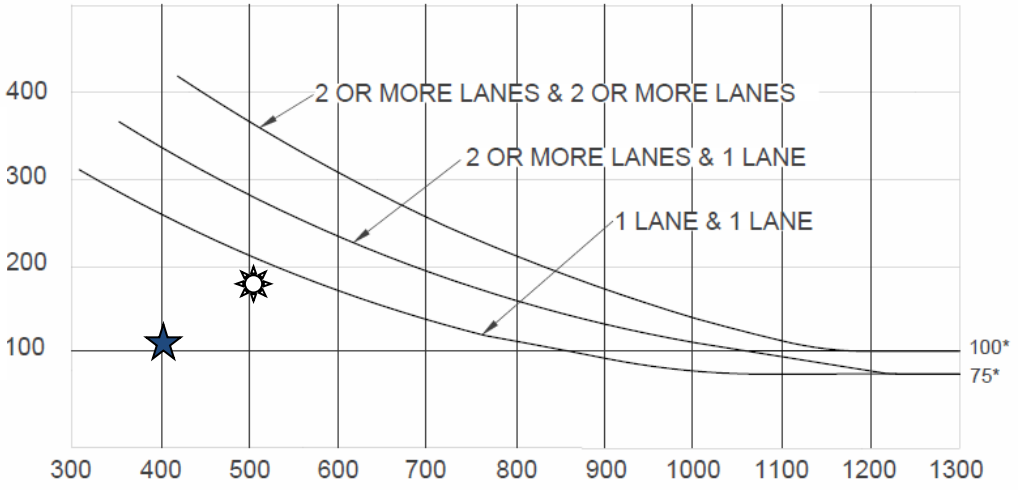
Existing Traffic Conditions
4. Del Norte Avenue / Kearney Boulevard
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Del Norte Avenue

Highest Approach Volume =

181 (105) VPH



Kearney Boulevard Total of Both Approaches =

508 (401) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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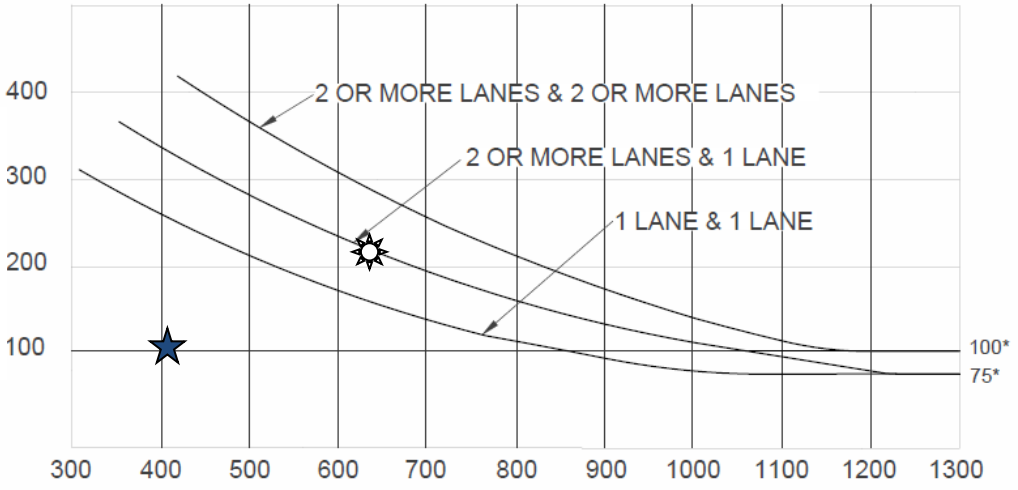
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
5. First Street / Kearney Boulevard
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

First Street Highest Approach Volume = 211 (100) VPH



Kearney Boulevard Total of Both Approaches = 636 (408) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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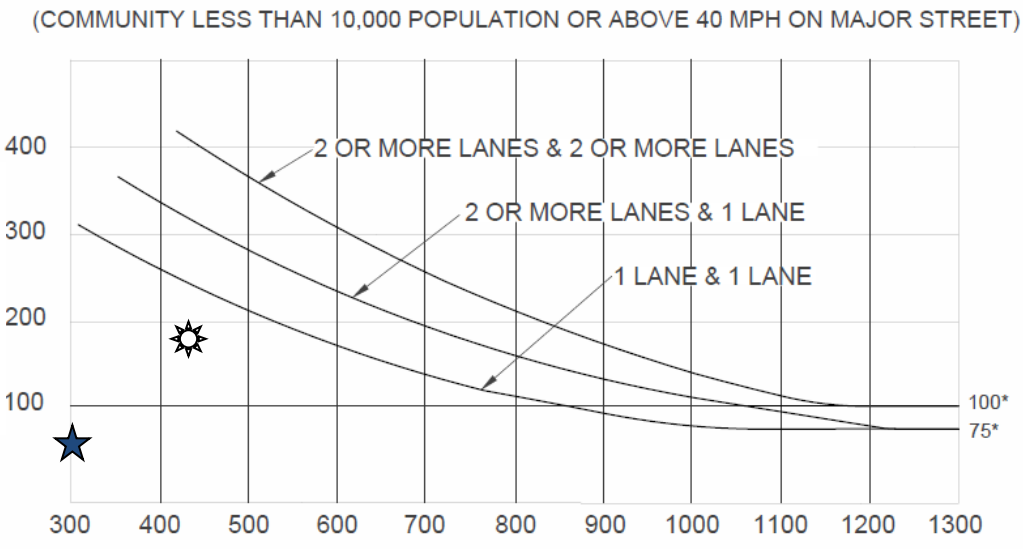
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
6. Siskiyou Avenue / E Street
AM (PM) Peak Hour

E Street Highest Approach Volume = 180 (68) VPH



Siskiyou Avenue Total of Both Approaches = 429 (301) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met
PM Peak Hour – Signal Warrant is Not Met

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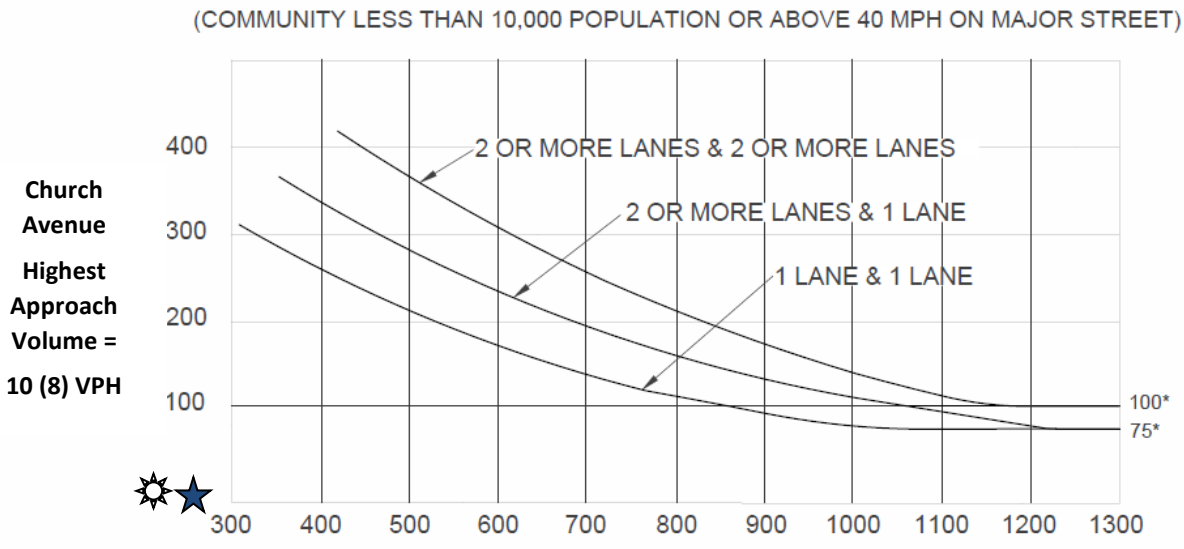
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
7. Siskiyou Avenue / Church Avenue
AM (PM) Peak Hour



Church Avenue Highest Approach Volume = 10 (8) VPH

Siskiyou Avenue Total of Both Approaches = 72 (111) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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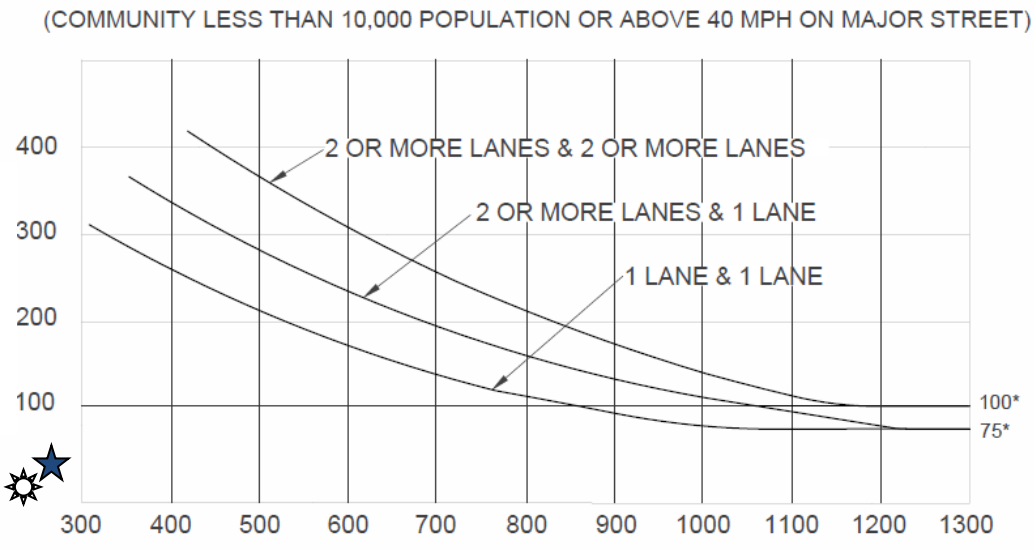
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
8. Siskiyou Avenue / Jensen Avenue
AM (PM) Peak Hour

Siskiyou Avenue Highest Approach Volume = 27 (40) VPH



Jensen Avenue Total of Both Approaches =

224 (246) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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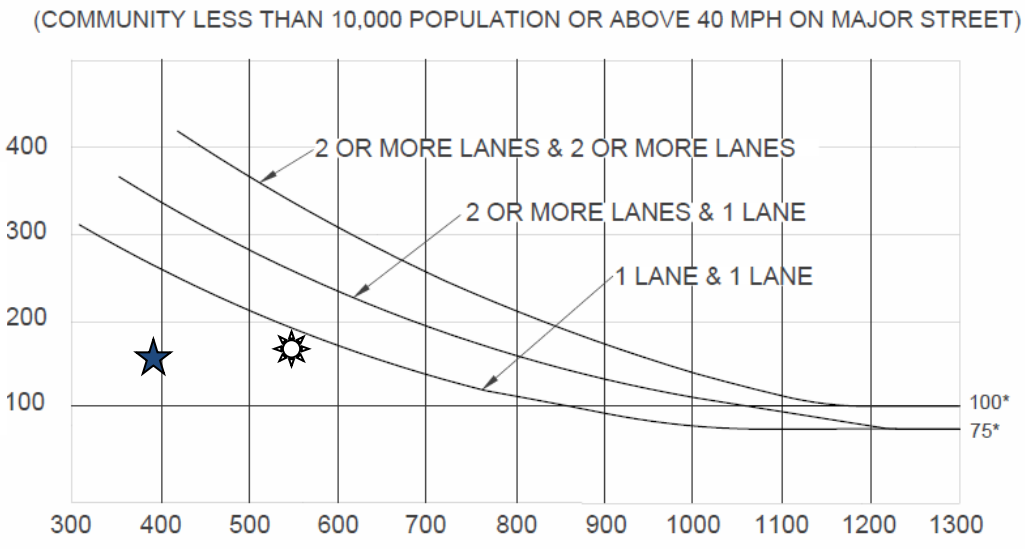
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
2. Siskiyou Avenue / Kearney Boulevard
AM (PM) Peak Hour



Kearney Boulevard Highest Approach Volume = 175 (165) VPH

Siskiyou Avenue Total of Both Approaches = 550 (393) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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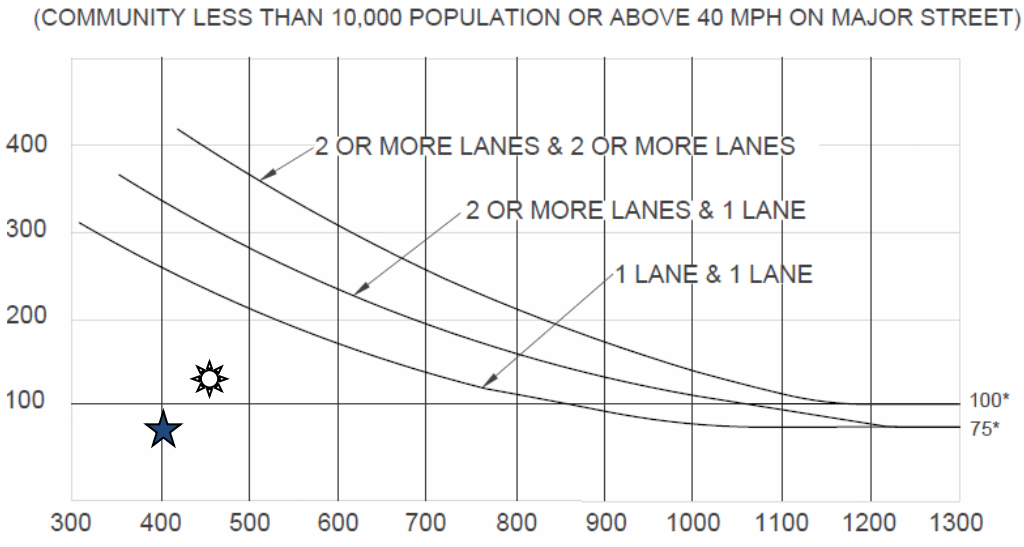
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
3. Park Avenue / Kearney Boulevard
AM (PM) Peak Hour

Park Avenue Highest Approach Volume = 129 (73) VPH



Kearney Boulevard Total of Both Approaches = 461 (408) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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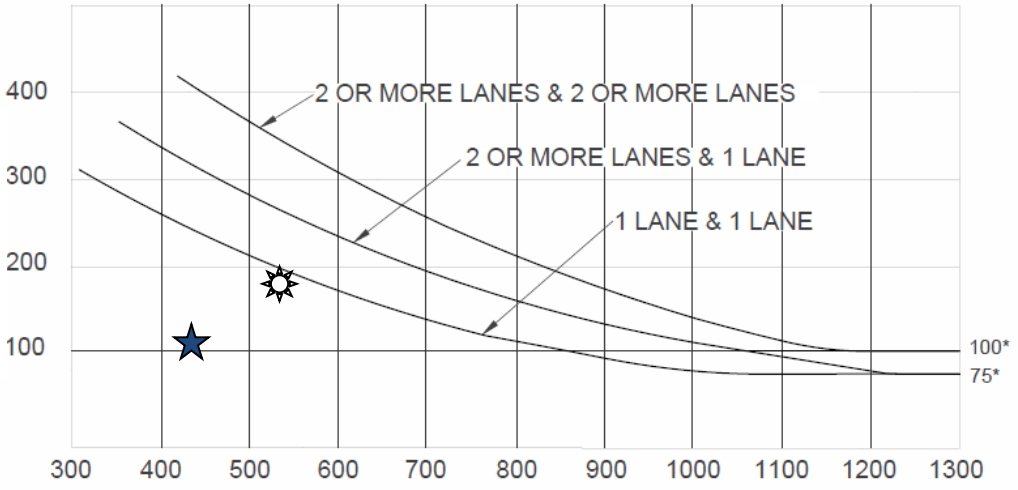
(559) 570-8991

Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
4. Del Norte Avenue / Kearney Boulevard
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Del Norte Avenue Highest Approach Volume = 181 (105) VPH



Kearney Boulevard Total of Both Approaches = 530 (432) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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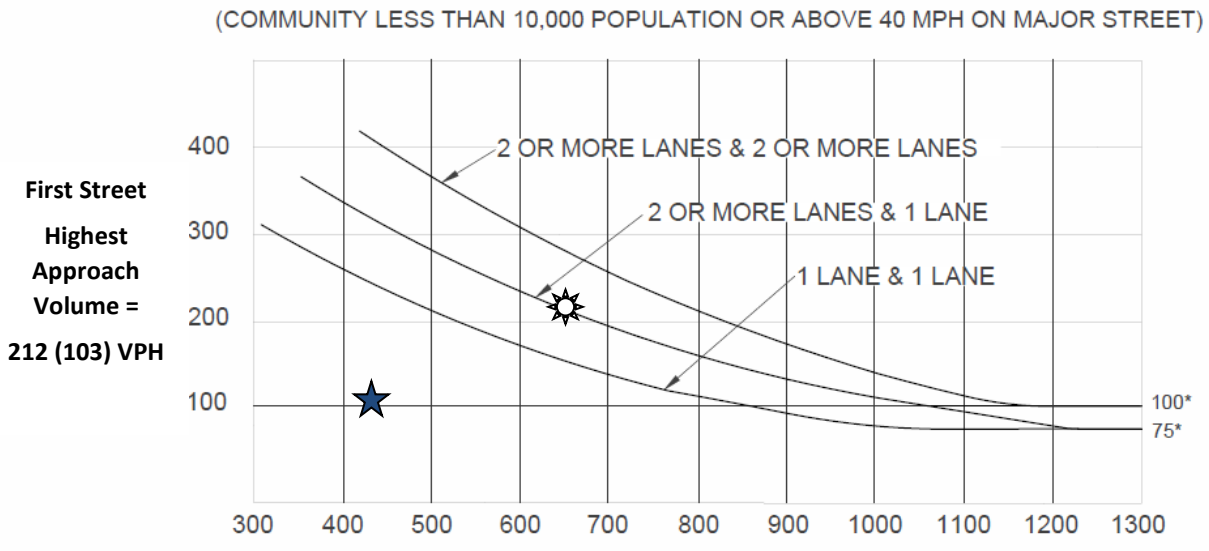
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
5. First Street / Kearney Boulevard
AM (PM) Peak Hour



Kearney Boulevard Total of Both Approaches =

657 (434) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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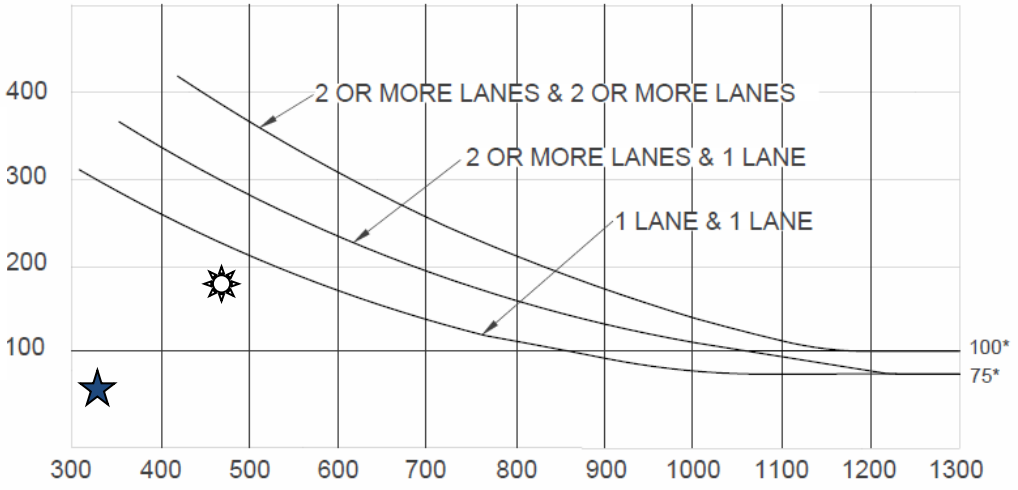
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
6. Siskiyou Avenue / E Street
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

E Street Highest Approach Volume = 180 (68) VPH



Siskiyou Avenue Total of Both Approaches = 483 (331) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met
PM Peak Hour – Signal Warrant is Not Met

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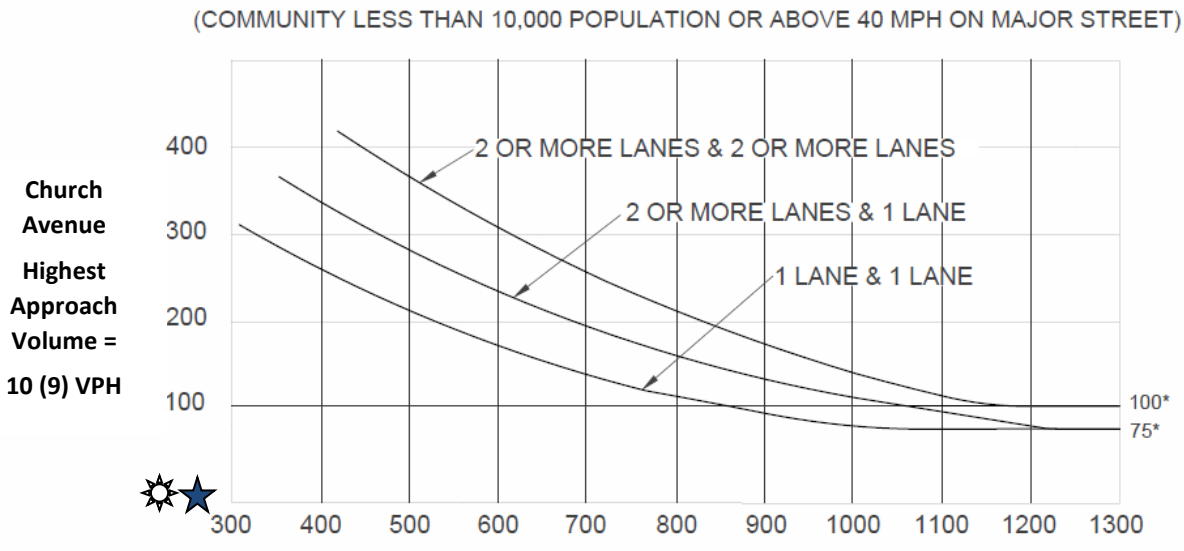
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
7. Siskiyou Avenue / Church Avenue
AM (PM) Peak Hour



Siskiyou Avenue Total of Both Approaches =

90 (132) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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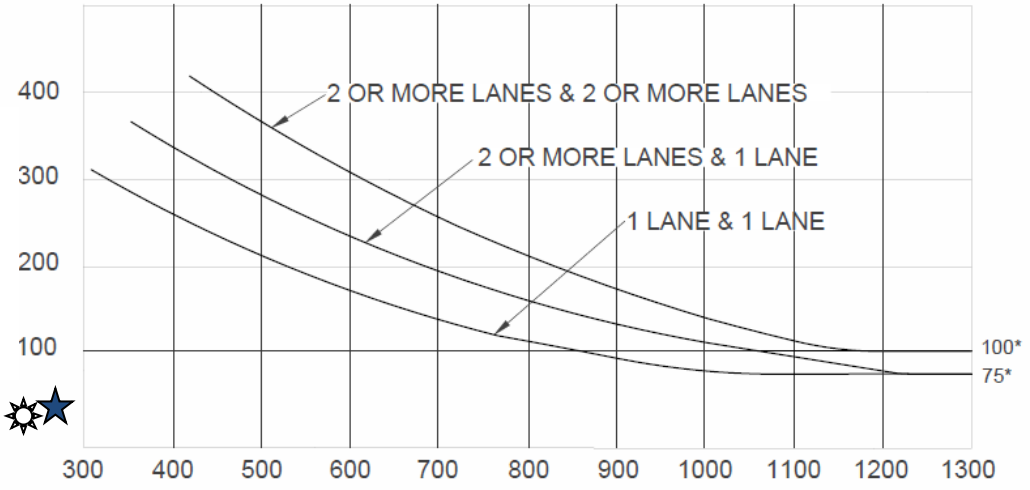
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
8. Siskiyou Avenue / Jensen Avenue
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Siskiyou Avenue Highest Approach Volume = 41 (45) VPH



Jensen Avenue Total of Both Approaches =

227 (260) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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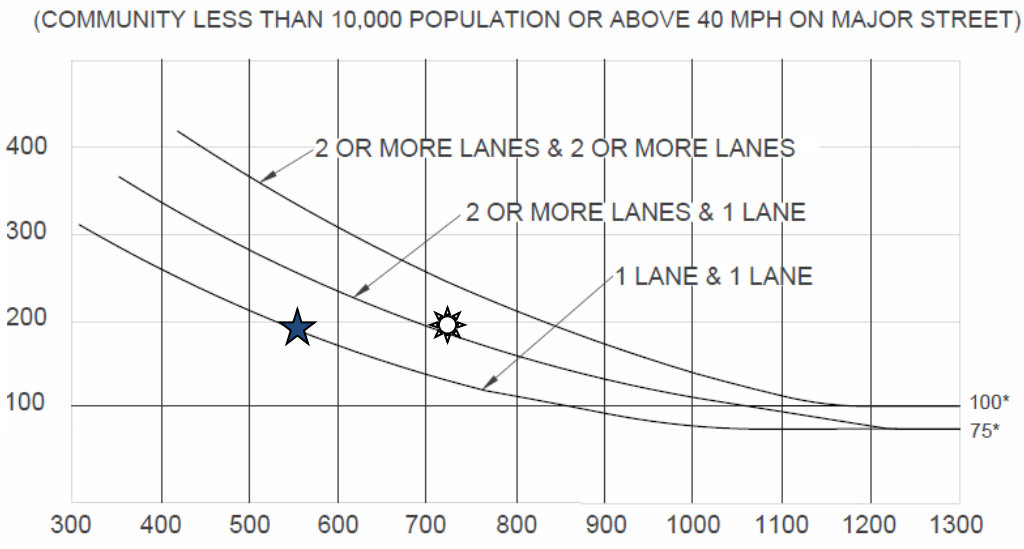
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
2. Siskiyou Avenue / Kearney Boulevard
AM (PM) Peak Hour

Kearney Boulevard Highest Approach Volume = 197 (193) VPH



Siskiyou Avenue Total of Both Approaches =

722 (566) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

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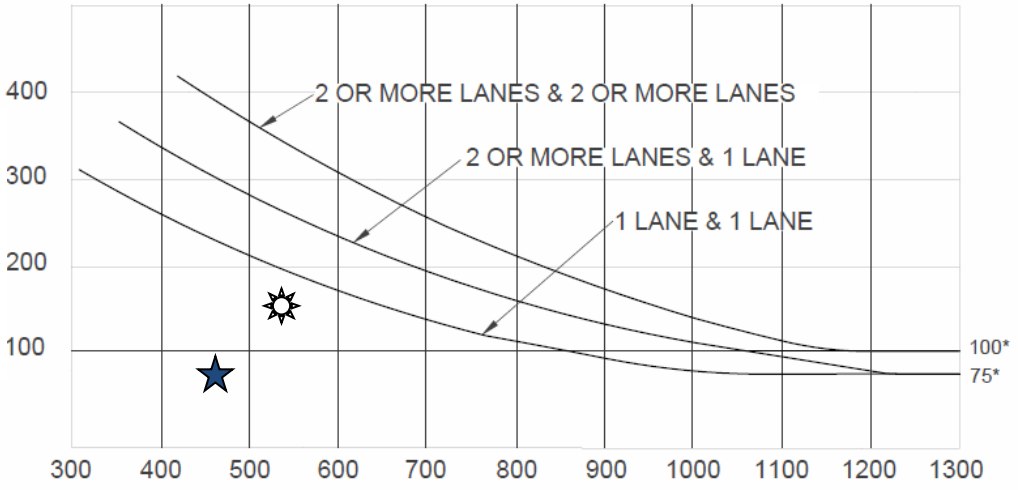
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
3. Park Avenue / Kearney Boulevard
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Park Avenue Highest Approach Volume = 150 (84) VPH



Kearney Boulevard Total of Both Approaches = 536 (473) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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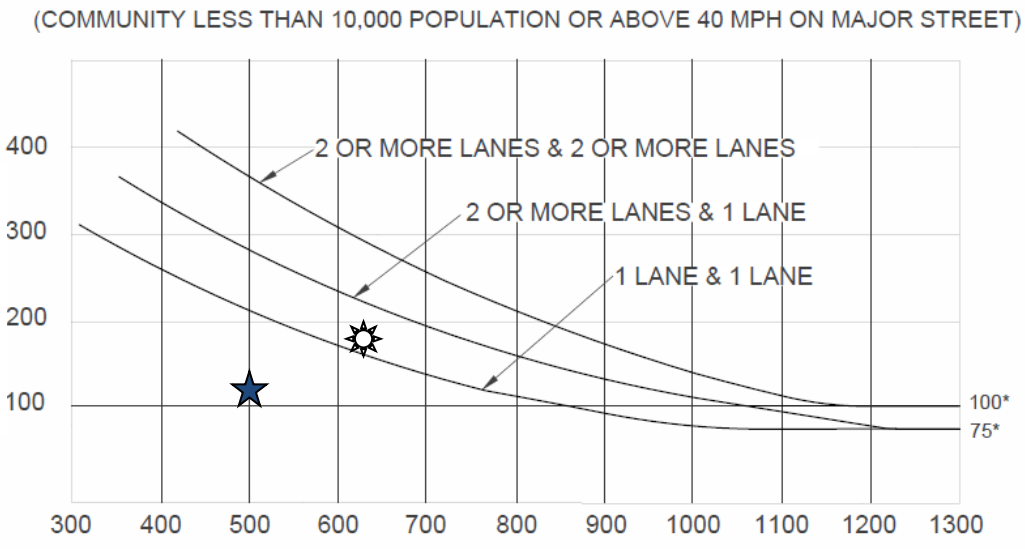
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
4. Del Norte Avenue / Kearney Boulevard
AM (PM) Peak Hour



Del Norte Avenue

Highest Approach Volume =

185 (118) VPH

Kearney Boulevard Total of Both Approaches =

632 (500) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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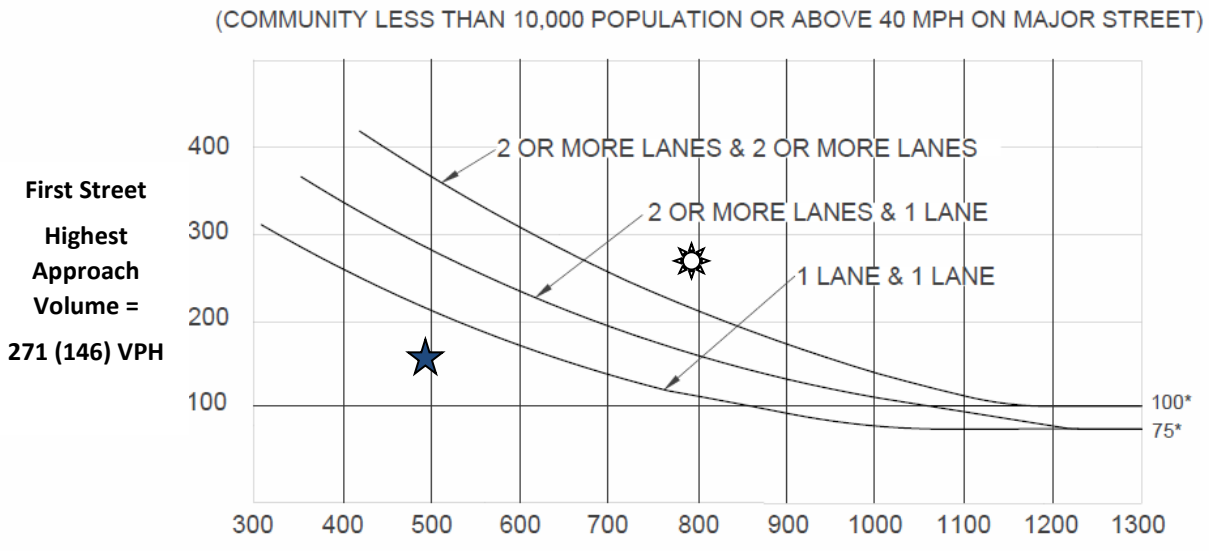
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
5. First Street / Kearney Boulevard
AM (PM) Peak Hour



Kearney Boulevard Total of Both Approaches =

798 (497) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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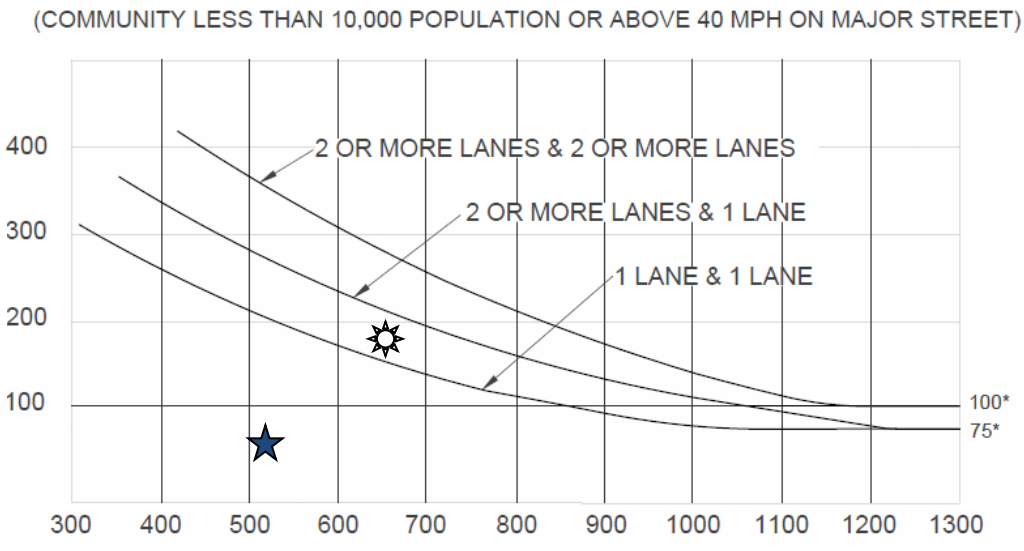
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
6. Siskiyou Avenue / E Street
AM (PM) Peak Hour

E Street Highest Approach Volume = 182 (70) VPH



Siskiyou Avenue Total of Both Approaches = 661 (514) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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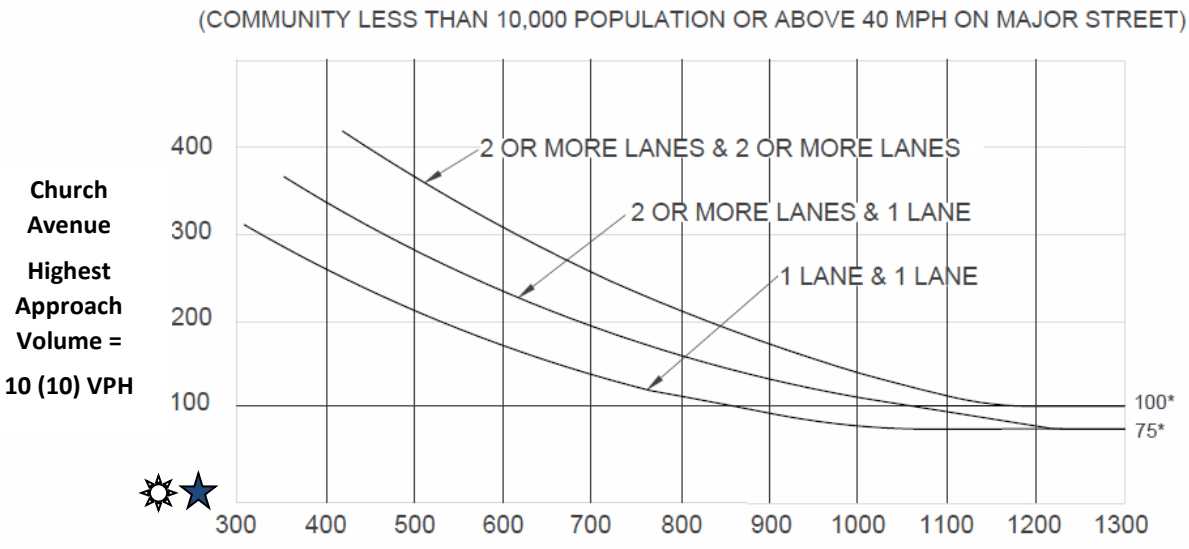
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
7. Siskiyou Avenue / Church Avenue
AM (PM) Peak Hour



Siskiyou Avenue Total of Both Approaches =

118 (163) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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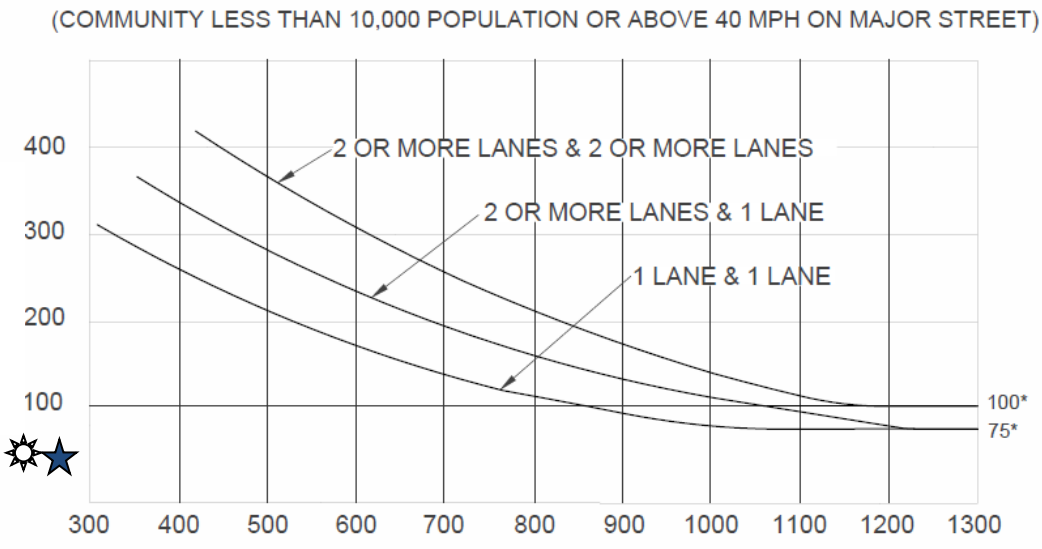
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
8. Siskiyou Avenue / Jensen Avenue
AM (PM) Peak Hour



Siskiyou Avenue Highest Approach Volume = 61 (56) VPH

Jensen Avenue Total of Both Approaches = 235 (279) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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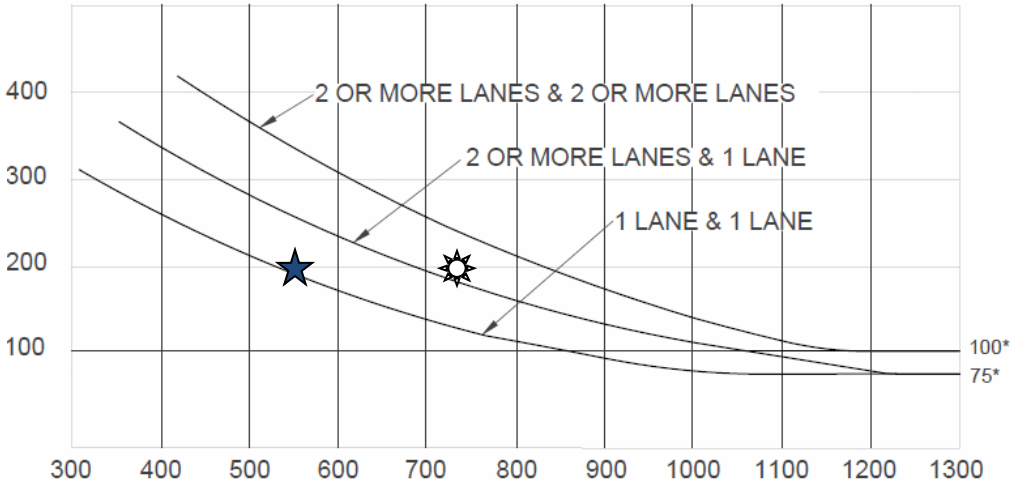
Warrant 3: Peak Hour (Rural)

Cumulative Year 2046 plus Project Traffic Conditions
2. Siskiyou Avenue / Kearney Boulevard
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Kearney Boulevard Highest Approach Volume = 197 (193) VPH



Siskiyou Avenue Total of Both Approaches =

731 (568) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

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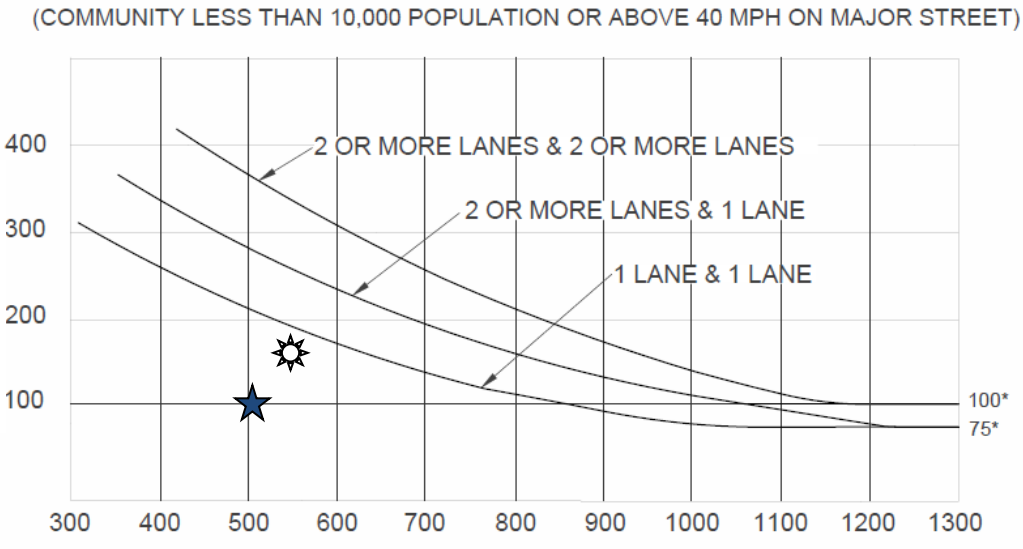
Warrant 3: Peak Hour (Rural)

Cumulative Year 2046 plus Project Traffic Conditions
3. Park Avenue / Kearney Boulevard
AM (PM) Peak Hour

Park Avenue Highest Approach Volume = 167 (93) VPH



Kearney Boulevard Total of Both Approaches = 546 (505) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met
PM Peak Hour – Signal Warrant is Not Met

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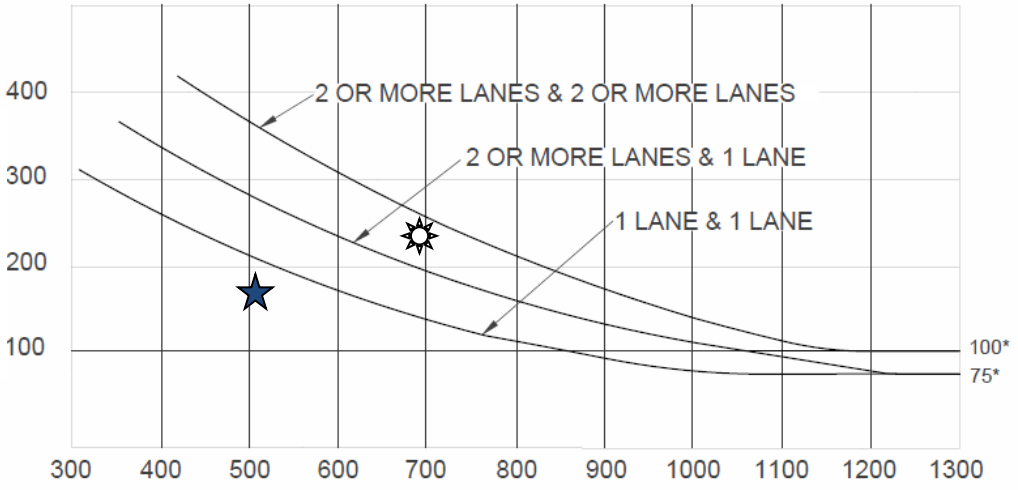
Warrant 3: Peak Hour (Rural)

Cumulative Year 2046 plus Project Traffic Conditions
4. Del Norte Avenue / Kearney Boulevard
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Del Norte Avenue Highest Approach Volume = 228 (172) VPH



Kearney Boulevard Total of Both Approaches = 691 (507) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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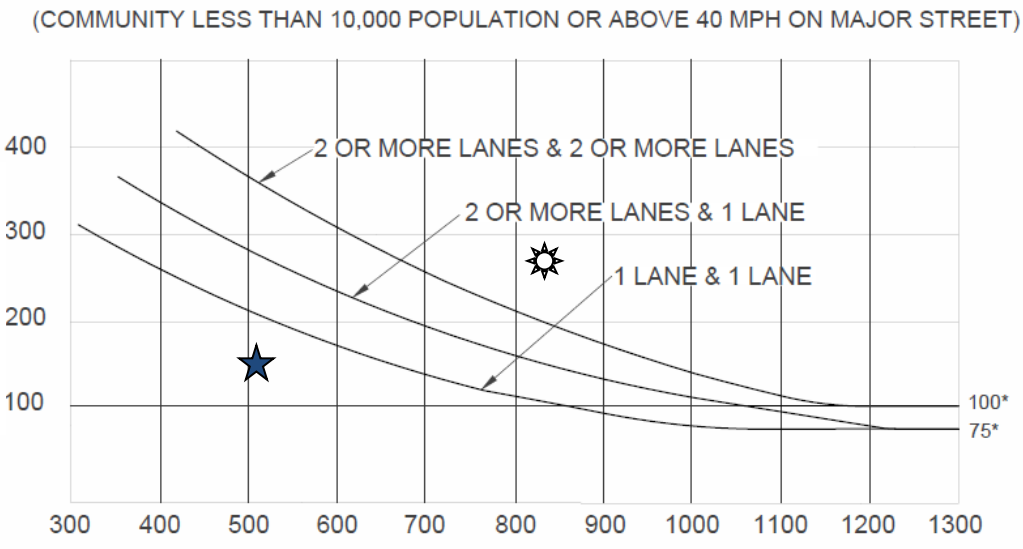
Warrant 3: Peak Hour (Rural)

Cumulative Year 2046 plus Project Traffic Conditions
5. First Street / Kearney Boulevard
AM (PM) Peak Hour



First Street Highest Approach Volume = 271 (146) VPH

Kearney Boulevard Total of Both Approaches = 834 (504) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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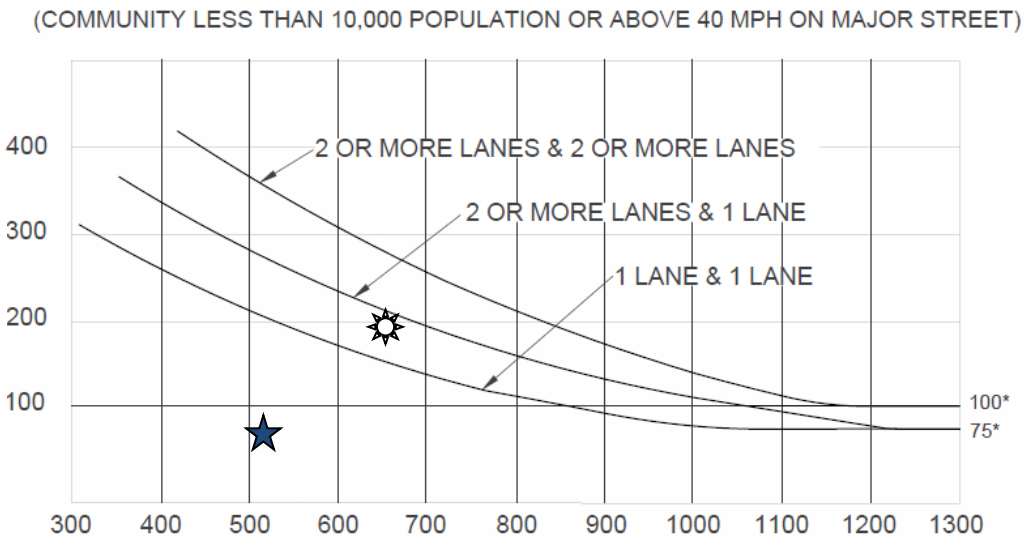
Warrant 3: Peak Hour (Rural)

Cumulative Year 2046 plus Project Traffic Conditions
6. Siskiyou Avenue / E Street
AM (PM) Peak Hour

E Street Highest Approach Volume = 195 (75) VPH



Siskiyou Avenue Total of Both Approaches =

674 (519) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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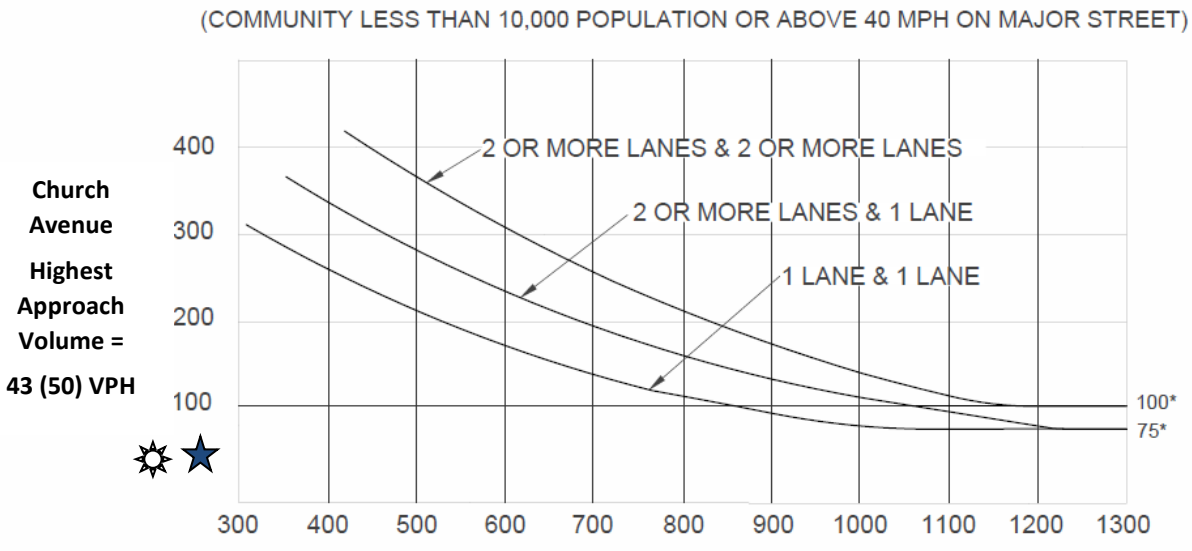
Warrant 3: Peak Hour (Rural)

Cumulative Year 2046 plus Project Traffic Conditions
7. Siskiyou Avenue / Church Avenue
AM (PM) Peak Hour



Siskiyou Avenue Total of Both Approaches =

155 (190) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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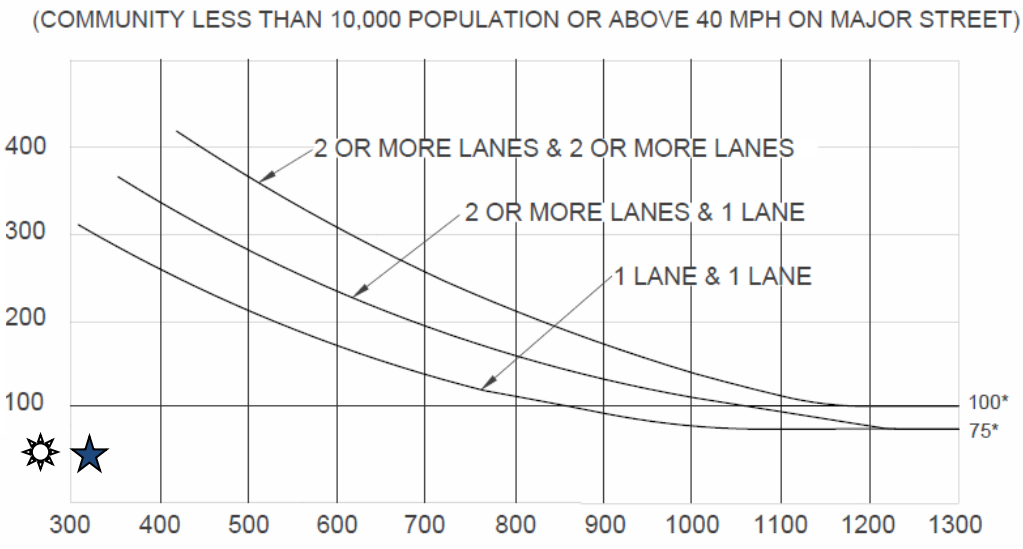
Warrant 3: Peak Hour (Rural)

Cumulative Year 2046 plus Project Traffic Conditions
8. Siskiyou Avenue / Jensen Avenue
AM (PM) Peak Hour

Siskiyou Avenue Highest Approach Volume = 61 (56) VPH



Jensen Avenue Total of Both Approaches =

283 (325) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

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7.7 Appendix G: Phase I Environmental Site Assessment

Prepared by See's Consulting and Testing, Inc. dated May 15, 2023.

Prepared For

JOSEPH CROWN CONSTRUCTION AND DEVELOPMENT, INC.
5320 E. PINE AVENUE
FRESNO, CA 93727

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

SUBDIVISION AT KEARNEY BOULEVARD AND KENNETH AVENUE APNS 020-140-22S AND 020-140-23S KERMAN, CALIFORNIA

Date Issued: May 15, 2023
Project Number 023050P

Prepared By

SEE'S CONSULTING & TESTING, INC.
P.O. BOX 28246
FRESNO, CALIFORNIA 93729
TEL (559) 452-0100 FAX (559) 452-0400

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EXECUTIVE SUMMARY

See's Consulting & Testing (SEE's) has performed a Phase I Environmental Site Assessment (ESA) in general accordance with the scope of work and limitations set forth by Joseph Crown Construction and Development, Inc. for the property identified as Fresno County Recorder's Office as assessor's parcel numbers (APNs) 020-140-22s and 020-140-23s, Kerman, California (the "Subject Property").

The Phase I Environmental Site Assessment is designed to provide Joseph Crown Construction and Development, Inc. with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the Subject Property. This assessment was conducted utilizing generally accepted ESA industry standards in accordance with ASTM E1527-21, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312).

The Subject Property includes two parcels of land totaling approximately 31.2± acres located on the north side of north side of Kearney Boulevard at the T intersection of South Kenneth Avenue and West Kearney Boulevard in Kearney, California. The Subject Property is identified as Fresno County Recorder's Office as APNs 020-140-22s and 020-140-23s.

The Subject Property consists of agricultural and vacant land. The vacant land area on the central northeast portion of the Subject Property included a mounded pile of soil. According to the owner of the Subject Property, the mounded soil originated from the vacant land area of the site during pre-grading activities conducted in late April 2023. The owner indicated the mounded soil is to be utilized as fill soil for an off-site residential development. Improvements to the Subject Property were limited to one irrigation standpipe and valve located on the south-central area of the Subject Property and one irrigation standpipe and valve located on the northeast corner of the Subject Property.

Based on available historical documentation, the Subject Property was range land in 1946 and has consisted of agricultural since at least the mid-1950s.

The Subject Property is situated within a residential and agricultural area of Kerman, California. The Subject Property is bound to the north by vacant land, single-family residences, and agricultural land; to the east by single-family residences; to the south by Kearney Boulevard followed by agricultural land and single-family residences; and to the west by agricultural land.

According to Geotracker leaking underground fuel tank (LUFT) database available via the California Regional Water Quality Control Board, Central Valley Region (RWQCB) Internet Website, groundwater in the area approximately 0.85 miles southeast of the Subject Property was at a depth of approximately 90 feet below ground surface, and direction of flow was west southwest in 2010.

SEE's obtained and reviewed a database report from Environmental Risk Information Services (ERIS) for the Property and the surrounding area. The subject Property was not identified in the database. The ERIS database identified one ENVIROSTOR, one LUST, one HHSS, one HIST TANK, one SCH, and one EMISSIONS listing located within the prescribed search radii. Based on review of regulatory documentation, off-site location, and/or estimated direction of groundwater flow, these facilities do not represent an environmental condition or concern.

Conclusions

SEE's has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-21 of the property identified as APNs 020-140-22s and 020-140-23s, Kerman, California, the Subject Property. Any exceptions to or deletions from this practice are described in Section 1.4 of this report.

Recognized Environmental Conditions (RECs) are defined by the ASTM Standard Practice E1527-21 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. SEE's assessment has revealed the following RECs associated with the Subject Property or nearby properties:

- No on-site RECs were identified during the course of this assessment.

Controlled Recognized Environmental Conditions (CRECs) are defined by the ASTM Standard Practice E1527-21 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 limitations or other property use limitations). SEE's assessment has revealed the following CRECs associated with the Subject Property or nearby properties:

- No on-site CRECs were identified during the course of this assessment.

Historical Recognized Environmental Condition (HREC) is defined by the ASTM Standard Practice E1527-21 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). SEE's assessment has revealed the following HRECs associated with the Subject Property or nearby properties:

- No on-site HRECs were identified during the course of this assessment.

Business Environmental Risk (BER) is defined by the ASTM Standard Practice E1527-21 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, not necessarily related to those environmental issues required to be investigated in this practice. BERs do not qualify as recognized environmental conditions, as defined by the ASTM Standard Practice E1527-21. SEE's investigation has revealed the following BERs associated with the Subject Property or nearby properties:

- Based on historical documentation, the Subject Property was used for agricultural purposes since at least the mid 1950s. There is a potential that agricultural related chemicals may have been used onsite.

Non-ASTM Considerations may include the presence of environmental conditions such as asbestos containing materials, lead-based paint, radon, mold, lead in drinking water, etc. which can affect the liabilities and financial obligations of the client, the health & safety of site occupants, and the value and marketability of the subject property. SEE's assessment has revealed the following Non-ASTM considerations associated with the Subject Property:

- No on-site Non-ASTM considerations were identified during the course of this assessment.

Recommendations

Based on the information available at the time of this assessment, SEE's recommends the following:

- If redevelopment activities for residential use are planned, it should be determined whether sampling relating to the former agricultural use is required by the local planning department or other applicable oversight agency.

1.0 INTRODUCTION

SEE's was retained by Joseph Crown Construction and Development, Inc. to conduct a Phase I Environmental Site Assessment (ESA) of the property identified as APNs 020-140-23s and 020-140-22s, Kerman, California (Subject Property). The protocol used for this assessment is in general conformance with ASTM E1527-21, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312).

On May 8, 2023, SEE's conducted a site reconnaissance to assess the possible presence of petroleum products and hazardous substances at the Subject Property. SEE's investigation included a review of aerial photographs, a reconnaissance of adjacent properties, background research, and a review of available local, state, and federal regulatory records regarding the presence of petroleum products and/or hazardous substances at the Subject Property.

SEE's contracted ERIS, to perform a computer database search for local, state, and Federal regulatory records pertaining to environmental concerns for the Subject Property and properties in the vicinity of the Subject Property (see Section 3.0).

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) was to identify Recognized Environmental Conditions (as defined by ASTM Standard E-1527-21) in connection with the Subject Property.

1.2 Detailed Scope of Services

The purpose of the Phase I Environmental Site Assessment is to assist the client in identifying potential environmental liabilities associated with the presence of any hazardous substances or petroleum products, their use, storage, and disposal at and in the vicinity of the subject property that may have occurred at the subject property. Property assessment activities focused on: 1) a review of federal, state, tribal and local databases that identify and describe underground fuel tank sites, leaking underground fuel tank sites, hazardous waste generation sites, and hazardous waste storage and disposal facility sites within the ASTM approximate minimum search distance; 2) a property and surrounding site reconnaissance, and interviews with the past and present owners and current occupants and operators to identify potential environmental contamination; and 3) a review of historical sources to help ascertain previous land use at the site and in the surrounding area.

The goal of SEE's in conducting the Phase I Environmental Site Assessment was to identify *(1)* the presence of *hazardous sub- stances* 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.*

No other warranties are implied or expressed.

1.3 Significant Assumptions

There is a possibility that even with the proper application of these methodologies there may exist on the Subject Property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. SEE's believes that the information obtained from the record review and the interviews concerning the site is reliable. However, SEE's cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The methodologies of this assessment are not intended to produce all inclusive or comprehensive results, but rather to provide Joseph Crown Construction and Development, Inc. with information relating to the Subject Property.

1.4 Limitations and Exceptions

- SEE's was not able to document the historical use of the Subject Property prior to 1946, since aerial photographs were not reasonably ascertainable from local agencies and other historical sources were not available. In our professional opinion, data failure, as defined in the ASTM guidelines, has occurred in attempting to document the history of the Subject Property back to 1940 or the first developed usage of the Subject Property. Since the Subject Property appeared as range land in 1946 and to be in use as agricultural land by the mid-1950s, this data failure is not critical and does not alter the conclusions or recommendations of this assessment.

1.5 Special Terms and Conditions

The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the client. No subsurface exploratory drilling or sampling was done under the scope of this work. Unless specifically stated otherwise in the report, no chemical analyses have been performed during the course of this ESA.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

1.6 Use Reliance

All reports, both verbal and written, are for the benefit of Joseph Crown Construction and Development, Inc. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of SEE's.

2.0 SITE DESCRIPTION

2.1 Location and Legal Description

The Subject Property is located on the north side of Kearney Boulevard at the T intersection of South Kenneth Avenue and West Kearney Boulevard in Kearney, California. The Subject Property is identified as Fresno County Recorder's Office as APNs 020-140-22s and 020-140-23s.

2.2 Site and Vicinity General Characteristics

The Subject Property is located in a residential and agricultural area consisting of vacant and agricultural land and residences to the north, single-family residences to the east and south, and agricultural land to the west.

2.3 Current Use of the Subject Property

The Subject Property is in use as agricultural and vacant land.

2.4 Description of Site Improvements

The Subject Property consists of agricultural and vacant land. The vacant land area on the central northeast portion of the Subject Property included a mounded pile of soil. According to the owner of the Subject Property, the mounded soil originated from the vacant land area of the site during pre-grading activities conducted in late April 2023. The owner indicated the mounded soil is to be utilized as fill soil for an off-site residential development. Improvements to the Subject Property were limited to one irrigation standpipe and valve located on the south-central area of the Subject Property and one irrigation standpipe and valve located on the northeast corner of the Subject Property.

2.5 Current Use of Adjoining Properties

During the vicinity reconnaissance, SEE's observed the following land use on properties in the immediate vicinity of the Subject Property.

North: Vacant land, single-family residences, and agricultural land

East: Single-family residences

South: Kearney Boulevard followed by agricultural land and single-family residences

West: Agricultural land

3.0 USER PROVIDED INFORMATION

Pursuant to ASTM E1527-21, SEE's requested the following site information from Joseph Crown Construction and Development, Inc. (User of this report).

3.1 Title Records

SEE's requested title records from the User; however, a 50-year chain of title was not available at the Subject Property and was not provided for review.

3.2 Environmental Liens or Activity and Use Limitation

SEE's requested information from the User regarding knowledge of environmental liens, activity and use limitations for the Subject Property. The User had no knowledge of any environmental liens or use or activity limitations.

3.3 Specialized Knowledge

SEE's inquired with the User regarding any specialized knowledge of environmental conditions associated with the Subject Property. The User was not aware of any environmental conditions associated with the Subject Property.

3.4 Commonly Known or Reasonably Ascertainable Information

SEE's inquired with the User regarding any commonly known or *reasonably ascertainable* information within the local community about the Subject Property that is material to *recognized environmental conditions* in connection with the Subject Property. The User had no reasonably ascertainable information within the local community about the Subject Property that is material to recognized environmental conditions in connection with the Subject Property.

3.5 Valuation Reduction for Environmental Issues

SEE's inquired with the User regarding any knowledge of reductions in property value due to environmental issues. The User was not aware of any valuation reductions associated with the Subject Property.

3.6 Owner, Property Manager, and Occupant Information

The following information regarding the Owner, Subject Property Manager and Occupants was provided by the User and Key Site Manager.

Subject Property Owner:	Joseph Crown Construction and Development, Inc.
Subject Property Manager:	Joseph Crown
Occupants:	None – agricultural and vacant land

3.7 Reason for Performing Phase I ESA

The purpose of this ESA was to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E-1527-21) in connection with the Subject Property. This ESA was also performed to permit the *User* to satisfy one of the requirements to qualify for the *innocent landowner*, *contiguous property owner*, or *bona fide prospective purchaser* limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"). ASTM Standard E-1527-13 constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

4.0 RECORDS REVIEW

4.1 Standard Environmental Record Sources

Information from standard Federal and state environmental record sources was provided through ERIS. Data from governmental agency lists are updated and integrated into one database, which is updated as these data are released. This integrated database also contains postal service data in order to enhance address matching. Records from one government source are compared to records from another to clarify any address ambiguities. The demographic and geographic information available provides assistance in identifying and managing risk. The accuracy of the geocoded locations is approximately +/-300 feet.

In some cases, location information supplied by the regulatory agencies is insufficient to allow the database companies to geocode facility locations. These facilities are listed under the unmappables ("orphan sites") section within the ERIS report. A review of the unmappable facilities indicated that none of these facilities are within the ASTM minimum search distance from the Subject Property.

Regulatory information from the database sources regarding possible recognized environmental conditions, within the ASTM minimum search distance from the Subject Property, was reviewed. Specific facilities are discussed below the Table if determined likely that a potential recognized environmental condition has resulted at the Subject Property from the listed facilities. Please refer to Appendix C for a complete listing.

Database	Search Distance (Miles)	Subject Property Listed	Total Number of Listings	Potential Environmental Concern to the Subject Property
NPL, PROPOSED NPL	1	No	0	
DELISTED NPL	0.5	No	0	
SEMS, SEMS ARCHIVE	0.5	No	0	
CERCLIS, CERCLIS NFRAP, CERCLIS LIENS	0.5	No	0	
RCRA CORRACTS	1	No	0	
RCRA-TSD	0.5	No	0	
RCRA LQG, SQG, CESQGs, VGN, NLR, NON GEN	0.25	No	0	
FED ENG, FED INST	TP	No	0	
ERNS	TP	No	0	
FED BROWNFIELDS	0.5	No	0	
STATE/TRIBAL HWS (includes RESPONSE, Envirostor, DELISTED ENVS)	1	No	1	No

Database	Search Distance (Miles)	Subject Property Listed	Total Number of Listings	Potential Environmental Concern to the Subject Property
SWF/LF	0.5	No	0	
HWP	1	No	0	
LDS	0.5	No	0	
LUST, DELISTED LST	0.5	No	1	No
UST, UST SWEEPS	0.25	No	0	
UST CLOSURE	0.5	No	0	
HHSS, AST, DELISTED TNK, CERS TANK	0.25	No	1	No
DELISTED HAZ, LUR, HLUR, DEED, VCP	0.5	No	0	
CLEANUP SITES, DELISTED CLEANUP	0.5	No	0	
CERS HAZ	0.125	No	0	
DELISTED CTNK, HIST TANK	0.25	No	1	No
TRIBAL LISTINGS	0.25-0.5	No	0	
DELISTED COUNTY, CUPA	0.25	No	0	
EMISSIONS	0.25	No	1	No
Additional State & Federal Listings	PO-1	No	1	No

The subject Property was not identified in the database. The ERIS database identified one ENVIROSTOR, one LUST, one HHSS, one HIST TANK, one SCH, and one EMISSIONS listing located within the prescribed search radii. Based on review of regulatory documentation, off-site location, and/or estimated direction of groundwater flow, these facilities do not represent an environmental condition or concern.

4.2 Additional Environmental Record Sources

4.2.1 County Recorder/ Assessor

According to the Fresno County Recorder's Office, no environmentally related liens or deed restrictions have been recorded against the Subject Property.

4.2.2 Fire Officials

Records from the City of Kerman Fire Department were reviewed for evidence indicating the presence of underground storage tanks and for the use of hazardous substances. No record was found for the Subject Property.

4.2.3 Building Department

Records from the City of Kerman Building and Planning Department were reviewed for evidence indicating the developmental history of the Subject Property, and for the presence of documentation relative to underground storage tanks. No records indicative of the current or past presence of USTs were noted.

4.2.4 Other Agencies

SEE's May 12, 2023, review of SWRCB Geotracker records of the leaking underground fuel tank (LUFT) database indicated that no record of LUFTs are on file with the RWQCB for the Subject Property.

SEE's May 12, 2023, review of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) Envirostor California cleanup sites database available via the DTSC Internet Website indicated that no records of cleanup sites are on file with the DTSC for the Subject Property.

4.3 Physical Setting Sources

4.3.1 Topography

The USGS, Kerman, California Quadrangle 7.5 minute series topographic map was reviewed for this ESA. The Kerman, California Quadrangle map was published by the USGS in 1963, photorevised 1981. According to the contour lines on the topographic map, the elevation of the Subject Property is approximately 210 feet above mean sea level (MSL). The contour lines in the area of the Subject Property indicate the area is sloping gently to the west southwest. The Subject Property is depicted as having no structures or improvements.

4.3.2 Soils/Geology

The Subject Property is located within the Great Valley geomorphic province, a long structural trough situated between the Sierra Nevada Mountains to the east, the Coast Range Mountains to the west and Tehachapi Mountains to the south. In the Kerman area, the sediments consist of recent and older alluvium derived primarily from the Sierra Nevada Mountains. Older (Pleistocene) alluvium unconformably overlies Pliocene-Pleistocene continental and marine deposits. The valley basement, consisting of pre-Tertiary granitic and metamorphic rocks, underlies the clastic section at a depth in excess of 2,000 feet below ground surface. Shallow soil stratigraphy in the Fresno County area is primarily sandy soils and sand-silt combination soils.

4.3.3 Hydrology

The site is located in the San Joaquin Valley groundwater basin, which is part of the San Joaquin Basin Hydrologic Study Area (HSA). Twenty-six ground-water basins and areas of potential groundwater storage have been identified in the San Joaquin Basin HSA. The HSA is bounded by the Sacramento-San Joaquin Delta to the north, the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coastal Ranges to the west. Groundwater in the vicinity of the site is found within the Central Valley regional aquifer system, an unconfined to semi-confined aquifer system within the older alluvium and deeper

continental deposits. According to the online database known as Geotracker maintained by the SWRCB, groundwater in the area approximately 0.85 miles southeast of the Subject Property was at a depth of approximately 90 feet below ground surface, and direction of flow was west southwest in 2010.

No settling ponds, surface impoundments, wetlands or natural catchbasins were observed at the Subject Property during this investigation.

4.3.4 Flood Zone Information

A review of the Flood Insurance Rate Maps, published by the Federal Emergency Management Agency, was performed. According to Panel Number 06019C2075H, dated February 18, 2009, the Subject Property is located in Flood Zone X.

4.3.5 Oil and Gas Exploration

The on-site reconnaissance addressed oil and gas exploration at the Subject Property. According to the California Department of Conservation Geologic Energy Management, no operating or abandoned oil or gas wells are on or adjacent to the Subject Property.

4.3.6 Vapor Encroachment

A Tier 1 Vapor Encroachment Screen (VES) pursuant to ASTM E2600-10 was performed as part of this assessment to determine whether a potential *vapor encroachment condition* (VEC) exists at the subject Property. The VES included the review of reasonably ascertainable information for the subject Property and nearby properties. During the course of this assessment, a reasonable probability was not identified to indicate that a VEC exists at the subject Property.

4.4 Historical Use Information: Subject Property and Adjoining Properties

Based on available historical documentation, the Subject Property was range land in 1946 and has consisted of agricultural since at least the mid-1950s.

Based on available historical documentation, the adjoining properties consisted of range and agricultural land in the mid-1940s and agricultural land by the mid 1950s. Residential use of the adjoining properties began by the early to mid-2000s.

4.4.1 Aerial Photographs

Available aerial photographs dated 1946, 1954, 1957, 1962, 1971, 1981, 1987, 1998, 2004, 2005, 2006, 2009, 2010, 2012, 2014, 2016, 2018, 2020, and 2022, from ERIS were reviewed for this ESA. Copies of selected photographs are included in Appendix B-1 of this report. The photographs are discussed below:

Date:	1946
Scale:	1” = 500’
Photo ID:	USGS
Description:	This photograph depicts the Subject Property as range land. The adjoining properties appear as agricultural land. An unpaved

roadway is present along the south boundary of the Subject Property.

Date: 1954
Scale: 1" = 500'
Photo ID: AMS
Description: This photograph depicts the Subject Property and adjoining properties as agricultural land. A roadway is present along the south boundary of the Subject Property.

Date: 1957
Scale: 1" = 500'
Photo ID: CAS
Description: This photograph depicts the Subject Property and adjoining properties as in the 1954 photograph.

Date: 1962
Scale: 1" = 500'
Photo ID: USGS
Description: This photograph depicts the Subject Property and adjoining properties as in the 1957 photograph.

Date: 1971
Scale: 1" = 500'
Photo ID: NASA
Description: This photograph depicts the Subject Property and adjoining properties as in the 1962 photograph.

Date: 1981
Scale: 1" = 500'
Photo ID: USGS
Description: This photograph depicts the Subject Property and adjoining properties as in the 1971 photograph. A farm structure is located on a portion of the west adjoining property.

Date: 1987
Scale: 1" = 500'
Photo ID: USGS
Description: This photograph depicts the Subject Property and adjoining properties as in the 1981 photograph.

Date: 1998
Scale: 1" = 500'
Photo ID: USGS
Description: This photograph depicts the Subject Property and the north, east, and south adjoining properties as in the 1987 photograph. The west adjoining property appears as agricultural land.

Date:	2004, 2005
Scale:	1” = 500’
Photo ID:	USDA
Description:	These photographs depict the Subject Property and the north, east, and west adjoining properties as noted in the 1998 photograph. The south adjoining property appears as a roadway followed by single-family residences and agricultural land.

Date:	2006
Scale:	1” = 500’
Photo ID:	USDA
Description:	This photograph depicts the Subject Property and the south and west adjoining properties as noted in the 2004 and 2005 photographs. The north adjoining property appears as agricultural land and land graded for residential development. The east adjoining property appears as graded for residential development.

Date:	2009, 2010, 2012, 2014, 2016, 2018, 2020
Scale:	1” = 500’
Photo ID:	USDA
Description:	These photographs depict the Subject Property and the west adjoining property as agricultural land. The north adjoining property appears as agricultural land, vacant land, and single-family residences. The east adjoining property appears as the start of residential development. The south adjoining property appears as a roadway followed by single-family residences and agricultural land.

Date:	2022
Scale:	1” = 500’
Photo ID:	MAZAR
Description:	This photograph depicts the Subject Property and the west adjoining property as agricultural land. The north adjoining property appears as agricultural land, vacant land, and single-family residences. The east adjoining property appears as single-family residences. The south adjoining property appears as a roadway followed by single-family residences and agricultural land.

4.4.2 Fire Insurance Maps

Historical Sanborn Fire Insurance maps were reviewed online at http://www.spl.org/. Fire insurance maps, which commonly date back to the 1800s, are typically reviewed in order to evaluate whether past usage or construction on the Property or within the near vicinity is environmentally noteworthy. Fire insurance map coverage of the area of the Property was not identified.

4.4.3 City Directories

Historical City directories published by Haines were reviewed at the Fresno County Library in Fresno, California for past names and business that were listed for the Property. The findings are presented in the following table:

YEAR	ON-SITE
1982, 1992, 2001, 2015, 2019	No listing in likely address range of the Subject Property

4.4.4 Historical Topographic Maps

The review of historical topographic maps was not reviewed for this study. Historical use of the Subject Property was researched using other standard historical sources.

4.4.5 Additional Historical Record Sources

Additional historical record sources were not reviewed.

4.4.6 Prior Assessment Reports

No prior reports or relevant documentation in association with the Subject Property were made available to SEE's during the course of this assessment.

5.0 SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

The Subject Property was inspected by Paul Humphrey on May 8, 2023. The weather at the time of the site visit was clear and approximately 70 degrees.

5.2 General Site Setting

The Subject Property is located within residential and agricultural area on the north side of Kearney Boulevard at the T intersection of South Kenneth Avenue and West Kearney Boulevard in Kearney, California.

5.3 Exterior Observations

5.3.1 Solid Waste Disposal

Solid waste is not generated on the Subject Property. No indication of potentially hazardous material disposal was noted during the site reconnaissance.

5.3.2 Surface Water Drainage

Drainage appears sufficient as no areas of ponding or standing water were noted during the site visit.

5.3.3 Wells and Cisterns

No aboveground evidence of wells or cisterns was observed during the site reconnaissance.

5.3.4 Wastewater

No indications of industrial wastewater disposal or treatment facilities were observed during the onsite reconnaissance.

5.3.5 Additional Site Observations

Improvements to the Subject Property were limited to one irrigation standpipe and valve located on the south-central area of the Subject Property and one irrigation standpipe and valve located on the northeast corner of the Subject Property.

5.4 Interior Observations

The Subject Property has no buildings or structures.

5.5 Potential Environmental Conditions

5.5.1 Hazardous Substances and Petroleum Products Used or Stored at the Site

No evidence of the use of hazardous substances or petroleum products use or storage was observed on the Subject Property.

5.5.1.1 Unlabeled Containers and Drums

No unlabeled containers or drums were observed during the site reconnaissance.

5.5.1.2 Disposal Locations of Regulated/ Hazardous Waste

No obvious indications of hazardous waste disposal were observed on the Subject Property or were indicated during interviews.

5.5.2 Evidence of Releases

No obvious indications of hazardous material or petroleum product releases, such as stained areas or stressed vegetation, was observed during the site reconnaissance or reported during interviews.

5.5.3 Polychlorinated Biphenyls (PCBs)

Older transformers and other electrical equipment could contain polychlorinated biphenyls (PCBs) at a level that subjects them to regulation by the U.S. EPA. PCBs in electrical equipment are controlled by United States Environmental Protection Agency regulations 40 CFR, Part 761. Under the regulations, there are three categories into which electrical equipment can be classified:

- Less than 50 parts per million (PPM) of PCBs – "*Non-PCB" transformer*
- 50 ppm-500 ppm – "*PCB-Contaminated" electrical equipment*
- Greater than 500 ppm – "*PCB" transformer*

No potential PCB-containing equipment such as transformers, oil-filled switches, hoists, lifts, dock levelers, hydraulic elevators, etc., is present.

5.5.4 Landfills

No evidence of on-site landfilling was observed or reported during the site reconnaissance.

5.5.5 Pits, Ponds, Lagoons, Sumps, and Catch Basins

No evidence of on-site pits, ponds, lagoons, sumps or catch basins was observed or reported during the site reconnaissance.

5.5.6 On-Site ASTs and USTs

No evidence of ASTs or current USTs was observed during the Subject Property reconnaissance or reported during interviews.

5.5.7 Radiological Hazards

No radiological substances or equipment was observed or reported stored on the subject site.

5.5.8 Drinking Water

Drinking water is not supplied to the Subject Property.

5.5.9 Additional Hazard Observations

No additional hazards were observed on the site.

5.5.10 Asbestos-Containing Materials (ACM)

An evaluation of ACM was not included in the scope of services and was not conducted.

5.5.11 Radon

The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, Zone 1 being those areas with the average predicted indoor radon concentration in residential dwellings exceeding the EPA Action limit of 4.0 picoCuries per Liter (pCi/L). It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the EPA recommends site specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures. Review of the EPA Map of Radon Zones places the Subject Property in Zone 2, where average predicted radon levels are between 2.0 and 4.0 pCi/L.

5.5.12 Lead-Based Paint

An evaluation of lead-based paint was not included in the scope of services and was not conducted.

5.5.13 Mold Evaluation

A mold evaluation was not included in the scope of services and was not conducted.

6.0 INTERVIEWS

6.1 Interview with Owner

The owner of the Subject Property was identified as Joseph Crown. Mr. Crown indicated he was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Subject Property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Subject Property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

According to Mr. Crown, the on-site mounded soil originated from the vacant land area of the site during pre-grading activities conducted in late April 2023. He also indicated the mounded soil is to be utilized as fill soil for an off-site residential development.

6.2 Interview with Site Manager

See Section 6.1 Above.

6.3 Interview with Occupants

The Subject Property is not occupied.

6.4 Interview with Local Government Officials

An interview was conducted with the Fresno County Environmental Health Department. According to FCEHD staff, no records were identified for the Property.

An interview was conducted with a clerk at the Kerman Planning and Development Department. According to the clerk, no records of environmental concern were identified for the Subject Property.

An interview was conducted with the City of Kerman Fire Department (CKFD). According to CKFD staff, no records were identified for the Subject Property.

6.5 Interview with Others

The prior owner of the Subject Property was identified as Steve Schaad. Mr. Schaad indicated he was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Subject Property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Subject Property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

According to Mr. Schaad, the Subject Property was in agricultural use prior to his purchase in the early 2000s. Mr. Schaad indicated there are no wells or septic systems on the Subject Property and the only on-site improvements are two standpipes with valves for irrigation district water.

7.0 FINDINGS AND CONCLUSIONS

7.1 Findings

7.1.1 On-Site Environmental Conditions

No on-site recognized environmental conditions were identified during the course of this assessment.

7.1.2 Off-Site Environmental Conditions

No off-site RECs were identified that were considered likely to impact the Subject Property.

7.1.3 Controlled Recognized Environmental Conditions

No on-site CRECs were identified during the course of this assessment.

7.1.4 Historical Recognized Environmental Conditions

No on-site HRECs were identified during the course of this assessment.

7.1.5 De Minimis Environmental Conditions

No *de minimis* environmental conditions were identified in connection with the Subject Property during the course of this assessment.

7.2 Opinion

Based on our professional opinion, no recognized environmental conditions in connection with the Subject Property were identified during the course of this assessment.

7.3 Conclusions

SEE's has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-21 of the property identified as APNs 020-140-22s and 020-140-23s, Kerman, California, the Subject Property. Any exceptions to or deletions from this practice are described in Section 1.4 of this report.

This assessment has revealed no evidence of recognized environmental conditions in connection with the Property.

SEE's investigation has revealed the following BERs associated with the Subject Property or nearby properties:

- Based on historical documentation, the Subject Property was used for agricultural purposes since at least the mid 1950s. There is a potential that agricultural related chemicals may have been used onsite.

7.4 Recommendations

Based on the information available at the time of this assessment, SEE's recommends the following:

- If redevelopment activities for residential use are planned, it should be determined whether sampling relating to the former agricultural use is required by the local planning department or other applicable oversight agency.

7.5 Deviations

This Phase I ESA substantially complies with the scope of services and ASTM 1527-21 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), as amended, except for exceptions and/or limiting conditions as discussed in Section 1.4.

8.0 REFERENCES

Reports, Plans, and Other Documents Reviewed:

American Society for Testing and Materials, *Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*, ASTM Designation: E2600

American Society for Testing and Materials, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation: E1527-13

American Society for Testing and Materials, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation: E1527-21

ERIS, Aerial Photograph Report, Subdivision West Kearney Blvd. Kerman, California, Job number 023050P

ERIS, Radius Database Report, Subdivision West Kearney Blvd. Kerman, California, Job number 023050P

State of California Department of Conservation Geologic Energy Management web page, https://maps.conservation.ca.gov/oilgas/

State of California Department of Water Resources Division of Planning and Local Assistance, Groundwater Level Data Retrieval Map Interface web page, http://well.water.ca.gov/map/map.html

United States Department of Agriculture, Soil Conservation Service Soil Survey Fresno County, California, 1986

US Environmental Protection Agency, Map of Radon Zones web page, http://www.epa.gov/iaq/radon/zonemap.html

US Environmental Protection Agency, Office of Water web page, http://www.epa.gov/ogwdw000/swp/ssa/ssahome.html

U.S. Geological Survey, Kerman, California Topographic Quadrangle, 1963, photorevised 1981

Agencies Contacted:

City of Kerman Building and Planning Department

City of Kerman Fire Department

Fresno County Assessor's Office

Fresno County Department of Environmental Health

9.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

We declare that, to the best of our professional knowledge and belief, we have met the definition of *Environmental professional* as defined in §312.10 of 40 CFR 312" and 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 the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Paul Humphrey, EP
Environmental Professional

David L. Shaw, P.E.
C88890

10.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

10.1 Definition of an Environmental Professional

An Environmental Professional means: (1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened re- leases (see § 312.l(c)) on, at, in, or to a property, sufficient to meet the objectives and performance factors in §§ 312.20(e) and (t). (2) Such a person must: (i) hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or (ii) be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in § 312.21 and have the equivalent of three (3) years of full-time relevant experience; or (iii) have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or (iv) have the equivalent of ten (10) years of full-time relevant experience. (3) An environmental professional should remain cur- rent in his or her field through participation in continuing education or other activities. (4) The definition of environmental professional pro- vided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional. Before commencing work, a person should determine the applicability of state professional licensing or registration Jaws to the activities to be undertaken as part of the inquiry identified in § 312.21(b). (5) A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

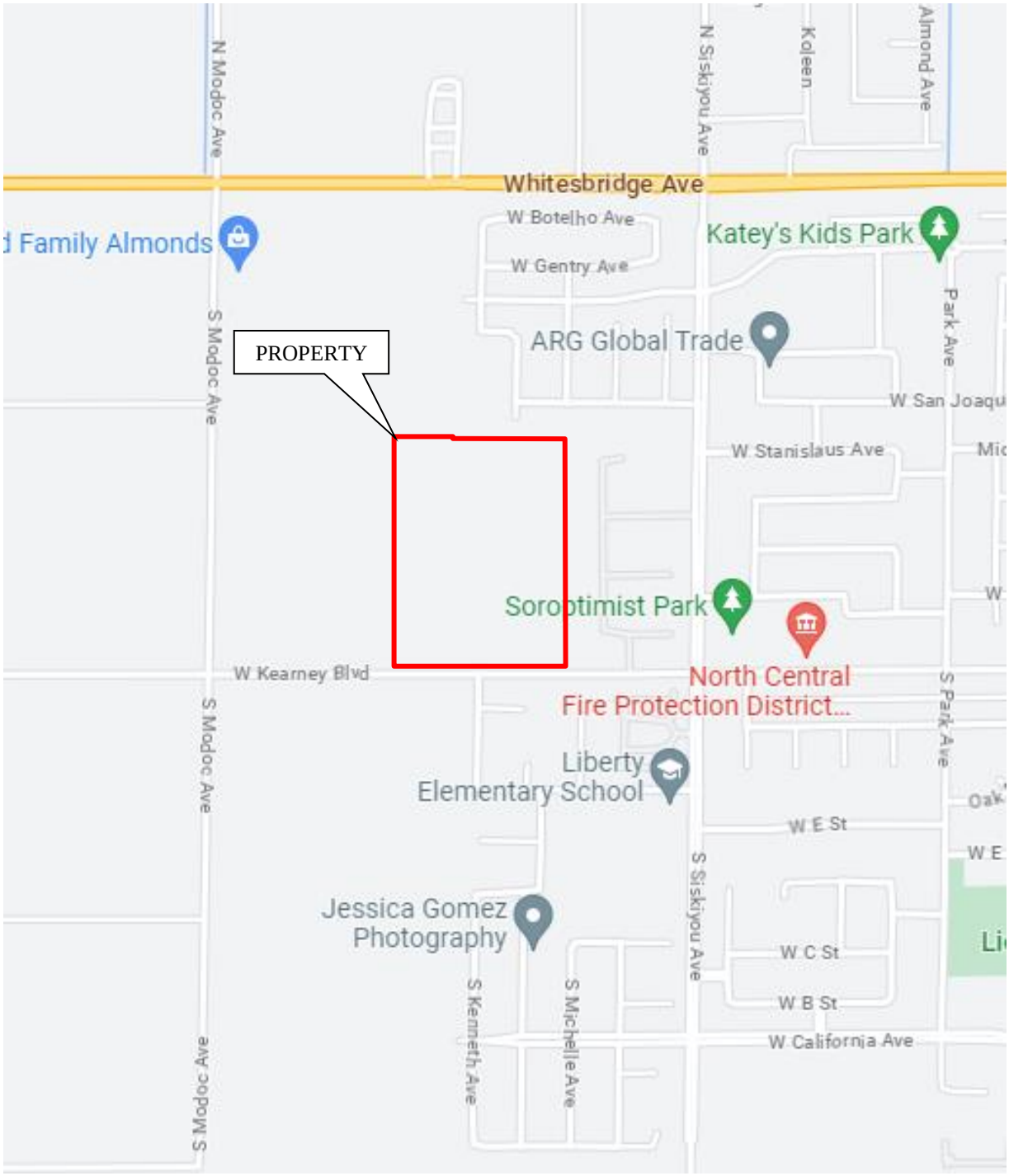
10.2 Relevant Experience

Relevant experience, as used in the definition of environmental professional in this section, means: participation in the performance of all appropriate inquiries investigations, environmental site assessments, or other site investigations that may include environmental analyses, investigations, and remediation which involve the understanding of surface and sub- surface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases (see § 312.l(c)) to the subject property.

Resumes for the Environmental Professionals involved in this project are included in Appendix G.

FIGURES

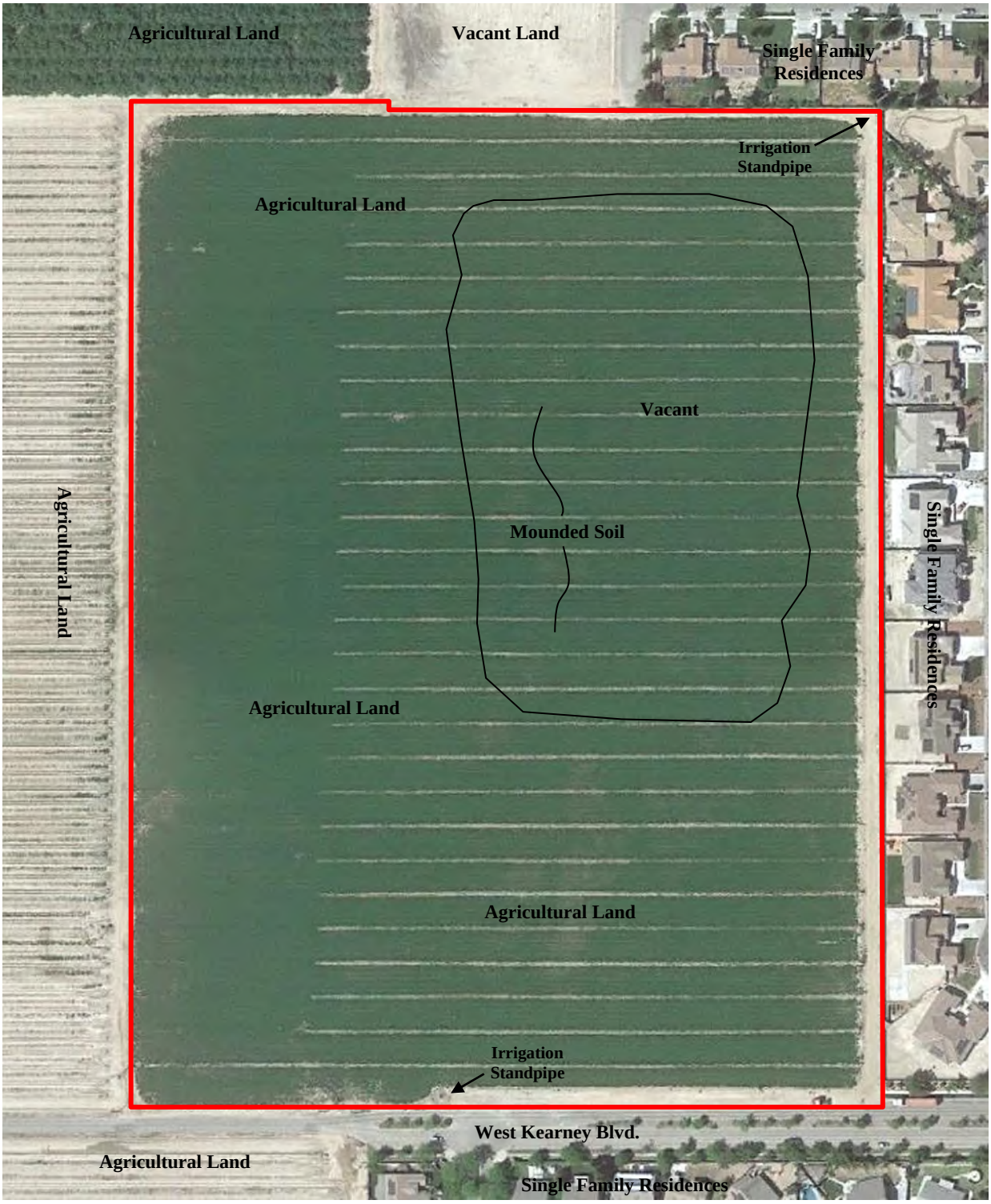
SITE LOCATION MAP
SITE PLAN
SITE TOPOGRAPHIC MAP



SITE VICINITY MAP

SEE'S CONSULTING & TESTING
4644 E. CARMEN AVENUE
FRESNO, CA 93703
(559) 452-0100

Site Name:	Proposed Subdivision
Site Address:	020-140-23s and 020-140-22s Kerman, California
Project Number:	023050P



SITE PLAN

Estimated Property Boundary

NORTH

Not to scale

SEE'S CONSULTING & TESTING
4644 E. CARMEN AVENUE
FRESNO, CA 93703
(559) 452-0100

Site Name:	Proposed Subdivision
Site Address:	020-140-23s and 020-140-22s Kearney, California
Project Number:	023050P

SEE'S CONSULTING & TESTING
4644 E. CARMEN AVENUE
FRESNO, CA 93703
(559) 452-0100

TOPOGRAPHIC MAP

Source: U.S.G.S. 7.5 Minute Topographic Map

Kerman, California, 1963, revised 1981

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APPENDIX A

SITE PHOTOGRAPHS

1. View of north portion of Subject Property from northwest corner of site

2. View of west portion of Subject Property from northwest corner of site

3. View of east portion of Subject Property from northeast corner of site

4. View of Subject Property from northeast corner with on-site vacant land and piled soil in background

5. View of south portion of Subject Property from southeast corner of site

6. View of east portion of Subject Property from southeast corner of site

7. Irrigation standpipe valve on central portion of Subject Property near the south boundary

8. View of south portion of Subject Property from southwest corner of site

9. North adjoining agricultural land and irrigation valve

10. North adjoining vacant land

11. Northeast adjoining residences

12. East adjoining residences

13. View across Kearny Boulevard of south adjoining residences

14. West adjoining property agricultural land

APPENDIX B

HISTORICAL RESEARCH DOCUMENTATION

EXHIBIT B-1

AERIAL PHOTOGRAPHS

HISTORICAL AERIALS

Project Property: Subdivision
West Kearney Blvd.
Kerman CA

Project No: 023050P

Requested By: Paul Humphrey, REPA

Order No: 23042500982

Date Completed: April 27,2023

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Date	Source	Scale	Comments
2022	MAXAR TECHNOLOGIES	1" = 500'	
2020	United States Department of Agriculture	1" = 500'	
2018	United States Department of Agriculture	1" = 500'	
2016	United States Department of Agriculture	1" = 500'	
2014	United States Department of Agriculture	1" = 500'	
2012	United States Department of Agriculture	1" = 500'	
2010	United States Department of Agriculture	1" = 500'	
2009	United States Department of Agriculture	1" = 500'	
2006	United States Department of Agriculture	1" = 500'	
2005	United States Department of Agriculture	1" = 500'	
2004	United States Department of Agriculture	1" = 500'	
1998	United States Geological Survey	1" = 500'	
1987	United States Geological Survey	1" = 500'	Best Copy Available
1981	United States Geological Survey	1" = 500'	
1971	National Aeronautics And Space Admin	1" = 500'	Best Copy Available
1962	United States Geological Survey	1" = 500'	
1957	Cartwright Aerial Surveys	1" = 500'	
1954	Army Mapping Service	1" = 500'	Best Copy Available
1946	United States Geological Survey	1" = 500'	

Year: 2022
Source: MAXAR
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 2020
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 2018
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

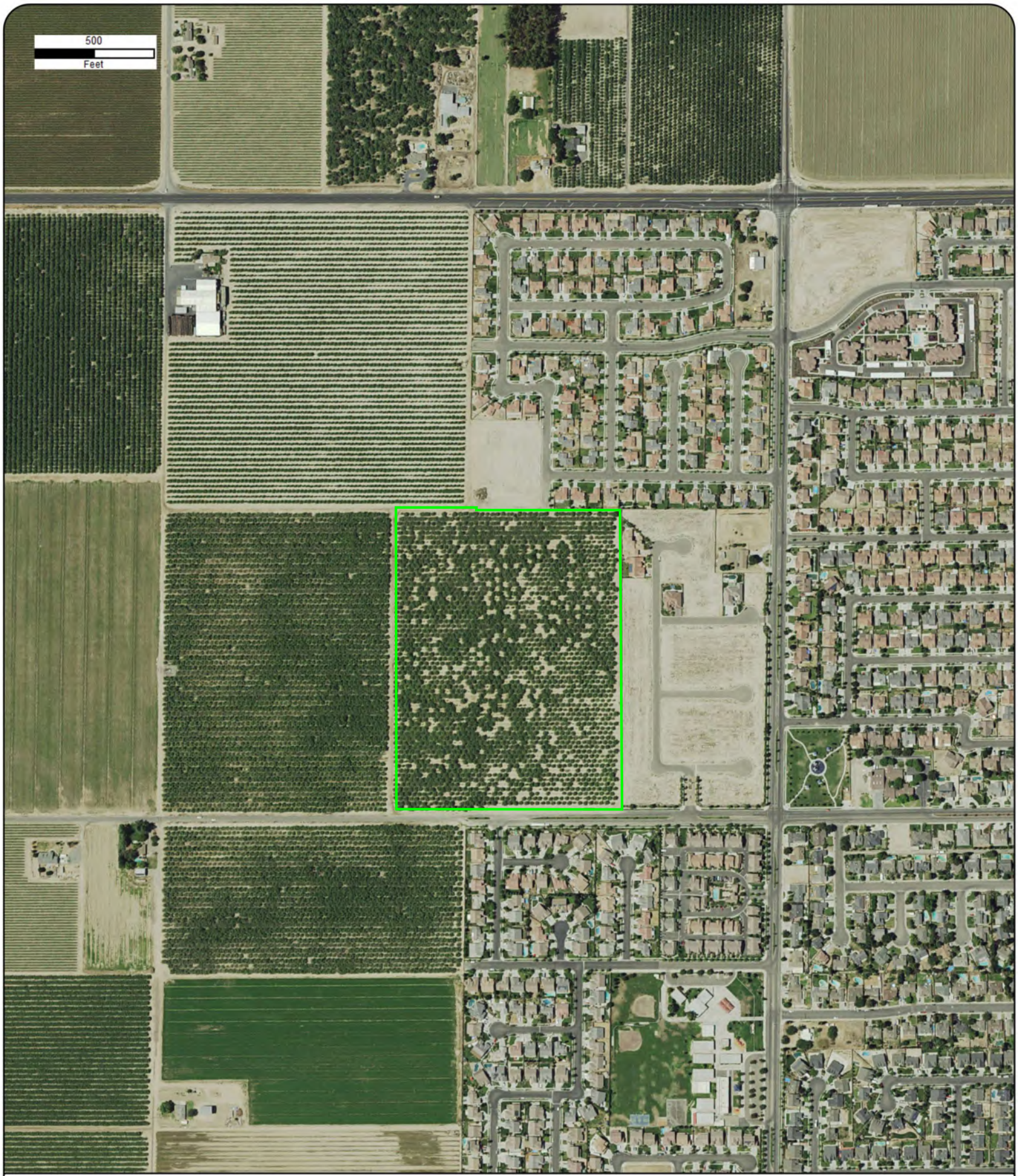
ERIS

Year: 2016
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS



Year: 2014
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 2012
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 2010
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 2009
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

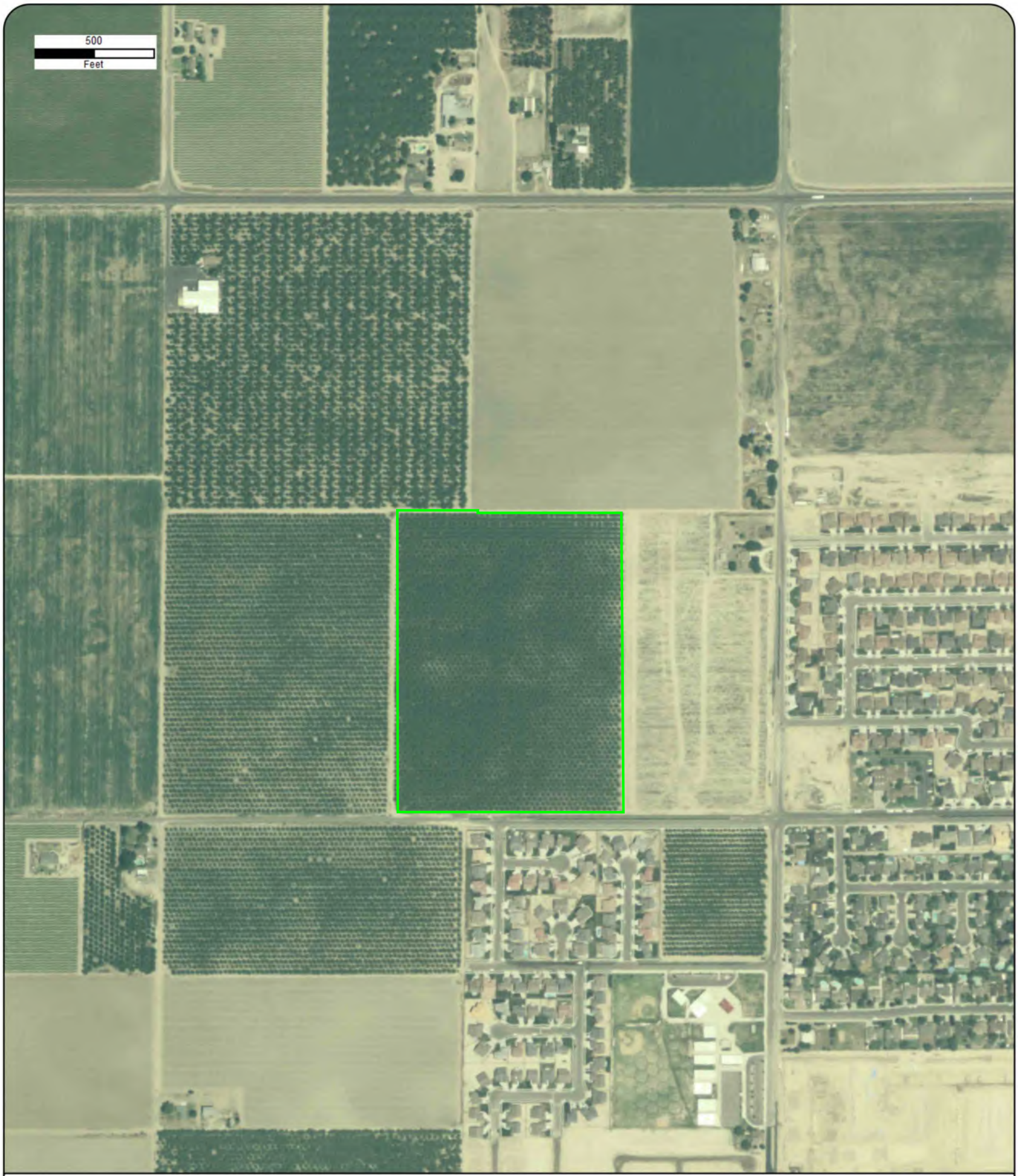
ERIS

Year: 2006
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS



Year: 2005
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

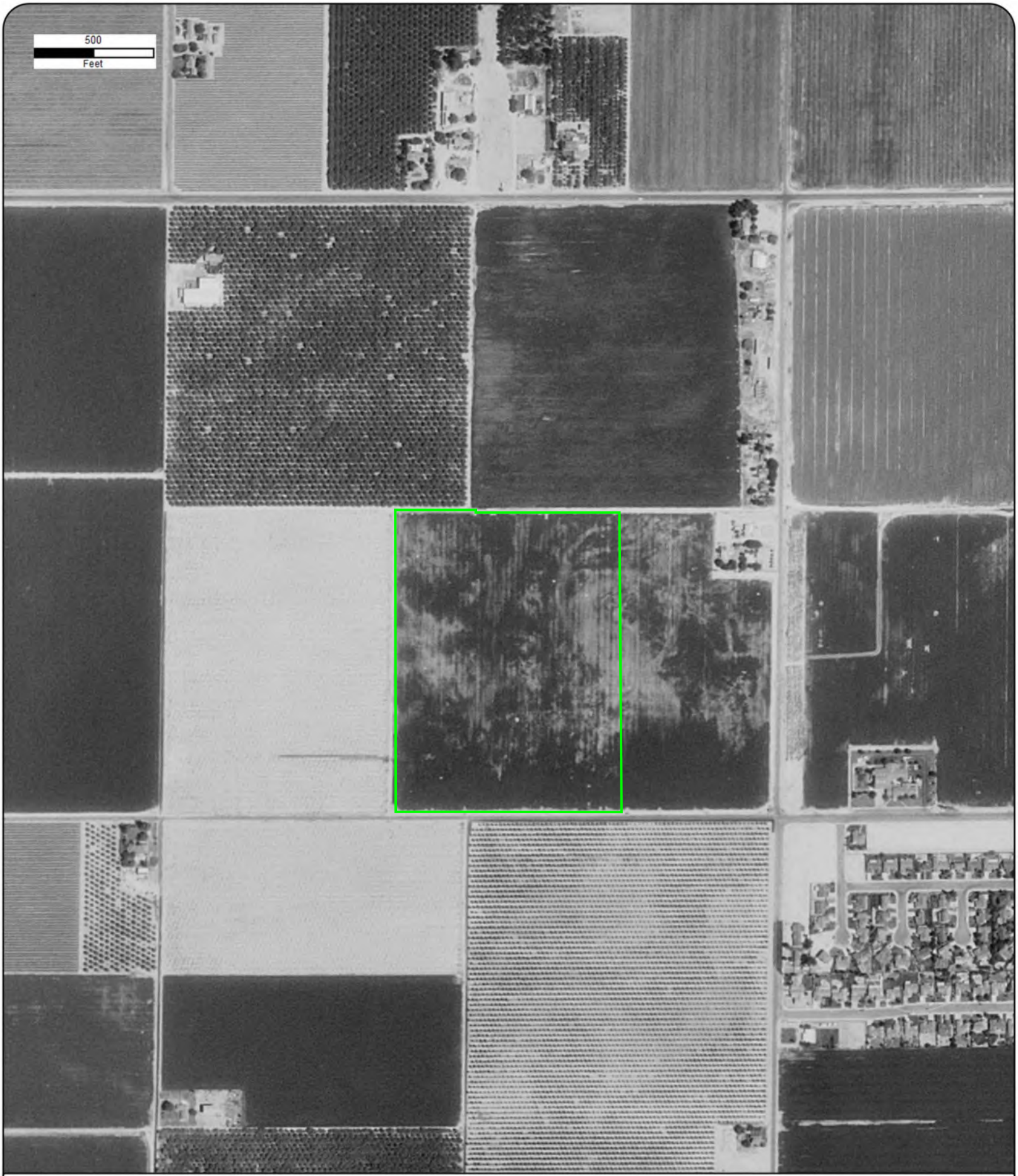
ERIS

Year: 2004
Source: USDA
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

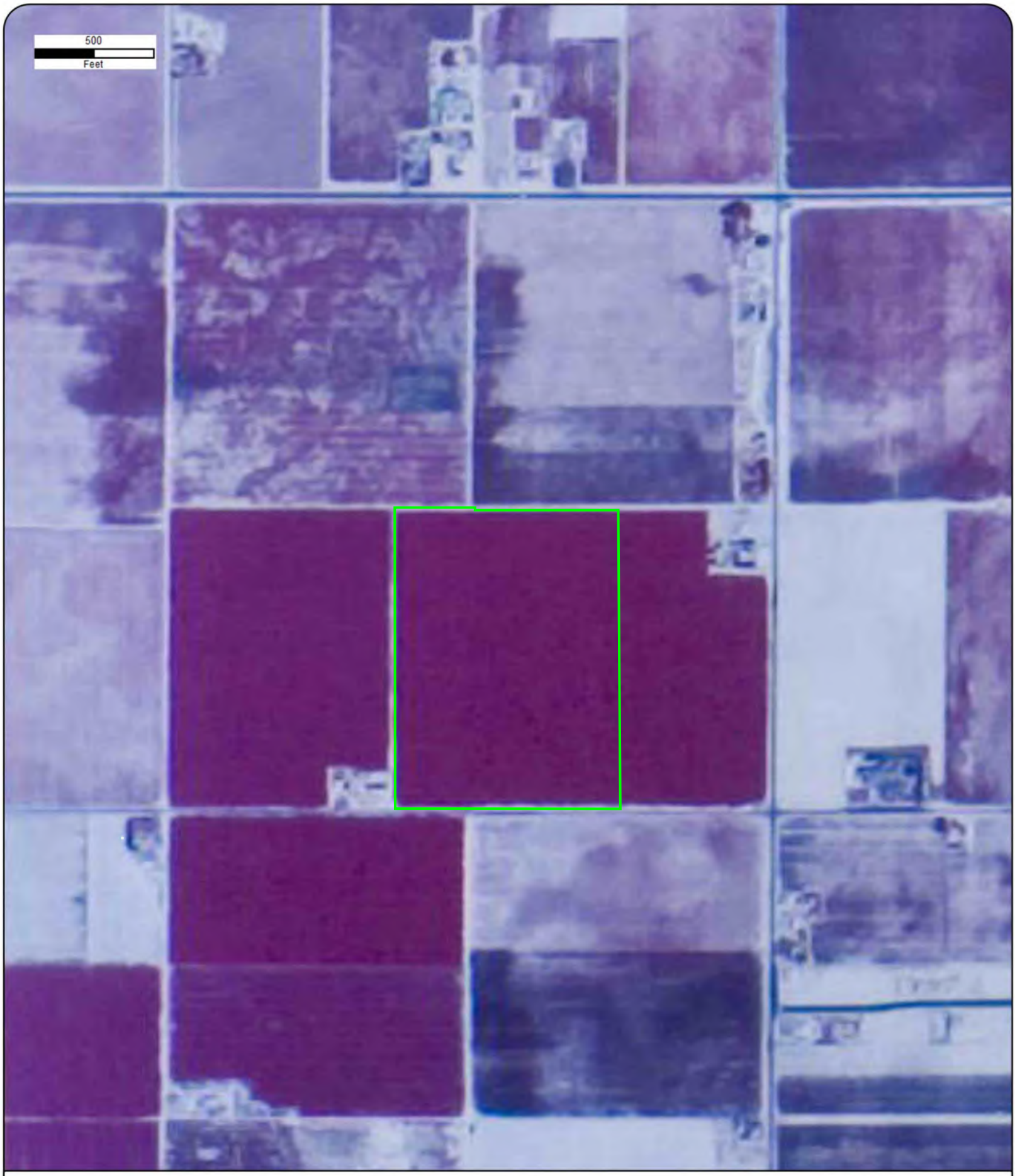


Year: 1998
Source: USGS
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS



Year: 1987
Source: USGS
Scale: 1" = 500'
Comment: Best Copy Available

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 1981
Source: USGS
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 1971
Source: NASA
Scale: 1" = 500'
Comment: Best Copy Available

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 1962
Source: USGS
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 1957
Source: CAS
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 1954
Source: AMS
Scale: 1" = 500'
Comment: Best Copy Available

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

Year: 1946
Source: USGS
Scale: 1" = 500'
Comment:

Address: West Kearney Blvd., Kerman, CA
Approx Center: -120.08230145,36.72934254

Order No: 23042500982

ERIS

APPENDIX C

REGULATORY RECORDS DOCUMENTATION

EXHIBIT C-1

MAPPED DATABASE REPORT

DATABASE REPORT

Project Property:	*Subdivision* *West Kearney Blvd.* *Kerman CA*
Project No:	*023050P*
Report Type:	*Database Report*
Order No:	*23042500982*
Requested by:	*Paul Humphrey, REPA*
Date Completed:	*April 27, 2023*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Table of Contents

Executive Summary

Property Information:

Project Property: *Subdivision*
West Kearney Blvd. Kerman CA

Project No: *023050P*

Coordinates:

Latitude:	*36.72934254*
Longitude:	*-120.08230145*
UTM Northing:	*4,068,817.60*
UTM Easting:	*760,554.93*
UTM Zone:	*10S*

Elevation: *214 FT*

Order Information:

Order No: *23042500982*
Date Requested: *April 25, 2023*
Requested by: *Paul Humphrey, REPA*
Report Type: *Database Report*

Historicals/Products:

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	0	0	-	-	0
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0
FRP	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
DOE FUSRAP	Y	1	0	0	0	0	0	0
State								
RESPONSE	Y	1	0	0	0	0	0	0
ENVIROSTOR	Y	1	0	0	0	0	**1**	**1**
DELISTED ENVS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	0	-	0
SWRCB SWF	Y	0.5	0	0	0	0	-	0
WMUD	Y	0.5	0	0	0	0	-	0
HWP	Y	1	0	0	0	0	0	0
SWAT	Y	0.5	0	0	0	0	-	0
C&D DEBRIS RECY	Y	0.5	0	0	0	0	-	0
RECYCLING	Y	0.5	0	0	0	0	-	0
PROCESSORS	Y	0.5	0	0	0	0	-	0
CONTAINER RECY	Y	0.5	0	0	0	0	-	0
LDS	Y	0.5	0	0	0	0	-	0
LUST	Y	0.5	0	0	**1**	0	-	**1**
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
UST CLOSURE	Y	0.5	0	0	0	0	-	0
HHSS	Y	0.25	0	0	**1**	-	-	**1**
UST SWEEPS	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
AST SWRCB	Y	0.25	0	0	0	-	-	0
TANK OIL GAS	Y	0.25	0	0	0	-	-	0
DELISTED TNK	Y	0.25	0	0	0	-	-	0
CERS TANK	Y	0.25	0	0	0	-	-	0
DELISTED CTNK	Y	0.25	0	0	0	-	-	0
HIST TANK	Y	0.25	0	0	**1**	-	-	**1**

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
LUR	Y	0.5	0	0	0	0	-	0
CALSITES	Y	0.5	0	0	0	0	-	0
HLUR	Y	0.5	0	0	0	0	-	0
DEED	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
CLEANUP SITES	Y	0.5	0	0	0	0	-	0
DELISTED CLEANUP	Y	0.5	0	0	0	0	-	0
DELISTED COUNTY	Y	0.25	0	0	0	-	-	0
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED INDIAN LST	Y	0.5	0	0	0	0	-	0
DELISTED INDIAN UST	Y	0.25	0	0	0	-	-	0
County								
CUPA FRESNO	Y	0.25	0	0	0	-	-	0
Additional Environmental Records								
Federal								
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS FED SITES	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
ERNS PFAS	Y	0.5	0	0	0	0	-	0
PFAS NPDES	Y	0.5	0	0	0	0	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS TSCA	Y	0.5	0	0	0	0	-	0
PFAS E-MANIFEST	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FUDS MRS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	0	0	0	0
LM SITES	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	0	0	-	-	0
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	-	-	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
State								
PFAS SAMPLING	Y	0.5	0	0	0	0	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DRYC GRANT	Y	0.25	0	0	0	-	-	0
PFAS	Y	0.5	0	0	0	0	-	0
PFAS GW	Y	0.5	0	0	0	0	-	0
HWSS CLEANUP	Y	0.5	0	0	0	0	-	0
TOXIC PITS	Y	1	0	0	0	0	0	0
DTSC HWF	Y	0.5	0	0	0	0	-	0
INSP COMP ENF	Y	1	0	0	0	0	0	0
SCH	Y	1	0	0	0	0	**1**	**1**
CHMIRS	Y	PO	0	-	-	-	-	0
HIST CHMIRS	Y	PO	0	-	-	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
HAZNET	Y	PO	0	-	-	-	-	0
HAZ GEN	Y	PO	0	-	-	-	-	0
HAZ TSD	Y	0.5	0	0	0	0	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HW TRANSPORT	Y	0.125	0	0	-	-	-	0
WASTE TIRE	Y	PO	0	-	-	-	-	0
MEDICAL WASTE	Y	0.25	0	0	0	-	-	0
HIST CORTESE	Y	0.5	0	0	0	0	-	0
CDO/CAO	Y	0.5	0	0	0	0	-	0
CERS HAZ	Y	0.125	0	0	-	-	-	0
DELISTED HAZ	Y	0.5	0	0	0	0	-	0
GEOTRACKER	Y	0.125	0	0	-	-	-	0
MINE	Y	1	0	0	0	0	0	0
LIEN	Y	PO	0	-	-	-	-	0
WASTE DISCHG	Y	0.25	0	0	0	-	-	0
EMISSIONS	Y	0.25	0	0	**1**	-	-	**1**
CDL	Y	0.125	0	0	-	-	-	0
Tribal	***No Tribal additional environmental record sources available for this State.***							
County								
Total:			*0*	*0*	***4***	*0*	***2***	***6***

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	EMISSIONS	NORTH CENTRAL FIRE DISTRICT	15850 W KEARNY BLVD KERMAN CA 93630	ESE	0.22 / 1,175.46	2	18
2	LUST	NORTH CENTRAL FIRE DIST	15850 KEARNEY W KERMAN CA 93630	ESE	0.25 / 1,312.73	2	18
			***Global ID	Status Date	Status:*** T0601900616	4/30/1997	COMPLETED - CASE CLOSED				
3	HHSS	CLEMENT APIARIES INC	16240 W. WHITEBRIDGE KERMAN CA 93630	N	0.25 / 1,314.56	1	21
3	HIST TANK	CLEMENT APIARIES, INC.	16240 W. WHITESBRIDGE KERMAN CA	N	0.25 / 1,314.56	1	21
4	ENVIROSTOR	KERMAN PROPOSED ELEMENTARY SCHOOL & HIGH SCHOOL ATHLETIC FACILITIES	NORTHWEST CORNER OF WHITESBRIDGE & MADERA AVENUES KERMAN CA 93630	ENE	0.95 / 5,017.32	8	21
			***Estor/EPA ID	Cleanup Status:*** 60002320	NO FURTHER ACTION AS OF 10/7/2016						
4	SCH	KERMAN PROPOSED ELEMENTARY SCHOOL & HIGH SCHOOL ATHLETIC FACILITIES	NORTHWEST CORNER OF WHITESBRIDGE & MADERA AVENUES KERMAN CA 93630	ENE	0.95 / 5,017.32	8	23
			***Estor/EPA ID	Cleanup Status:*** 60002320	NO FURTHER ACTION AS OF 10/7/2016						

Executive Summary: Summary by Data Source

Standard

State

ENVIROSTOR - EnviroStor Database

A search of the ENVIROSTOR database, dated Feb 6, 2023 has found that there are 1 ENVIROSTOR site(s) within approximately 1.00 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
KERMAN PROPOSED ELEMENTARY SCHOOL & HIGH SCHOOL ATHLETIC FACILITIES	NORTHWEST CORNER OF WHITESBRIDGE & MADERA AVENUES KERMAN CA 93630	ENE	0.95 / 5,017.32	4
	Estor/EPA ID* | *Cleanup Status: *60002320 | NO FURTHER ACTION AS OF 10/7/2016*			

LUST - Leaking Underground Fuel Tank Reports

A search of the LUST database, dated Feb 27, 2023 has found that there are 1 LUST site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
NORTH CENTRAL FIRE DIST	15850 KEARNEY W KERMAN CA 93630	ESE	0.25 / 1,312.73	2
	Global ID* | *Status Date* | *Status: *T0601900616 | 4/30/1997 | COMPLETED - CASE CLOSED*			

HHSS - Historical Hazardous Substance Storage Information Database

A search of the HHSS database, dated Aug 27, 2015 has found that there are 1 HHSS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
CLEMENT APIARIES INC	16240 W. WHITEBRIDGE KERMAN CA 93630	N	0.25 / 1,314.56	3

HIST TANK - Historical Hazardous Substance Storage Container Information - Facility Summary

A search of the HIST TANK database, dated May 27, 1988 has found that there are 1 HIST TANK site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
CLEMENT APIARIES, INC.	16240 W. WHITESBRIDGE KERMAN CA	N	0.25 / 1,314.56	3

Non Standard

State

SCH - School Property Evaluation Program Sites

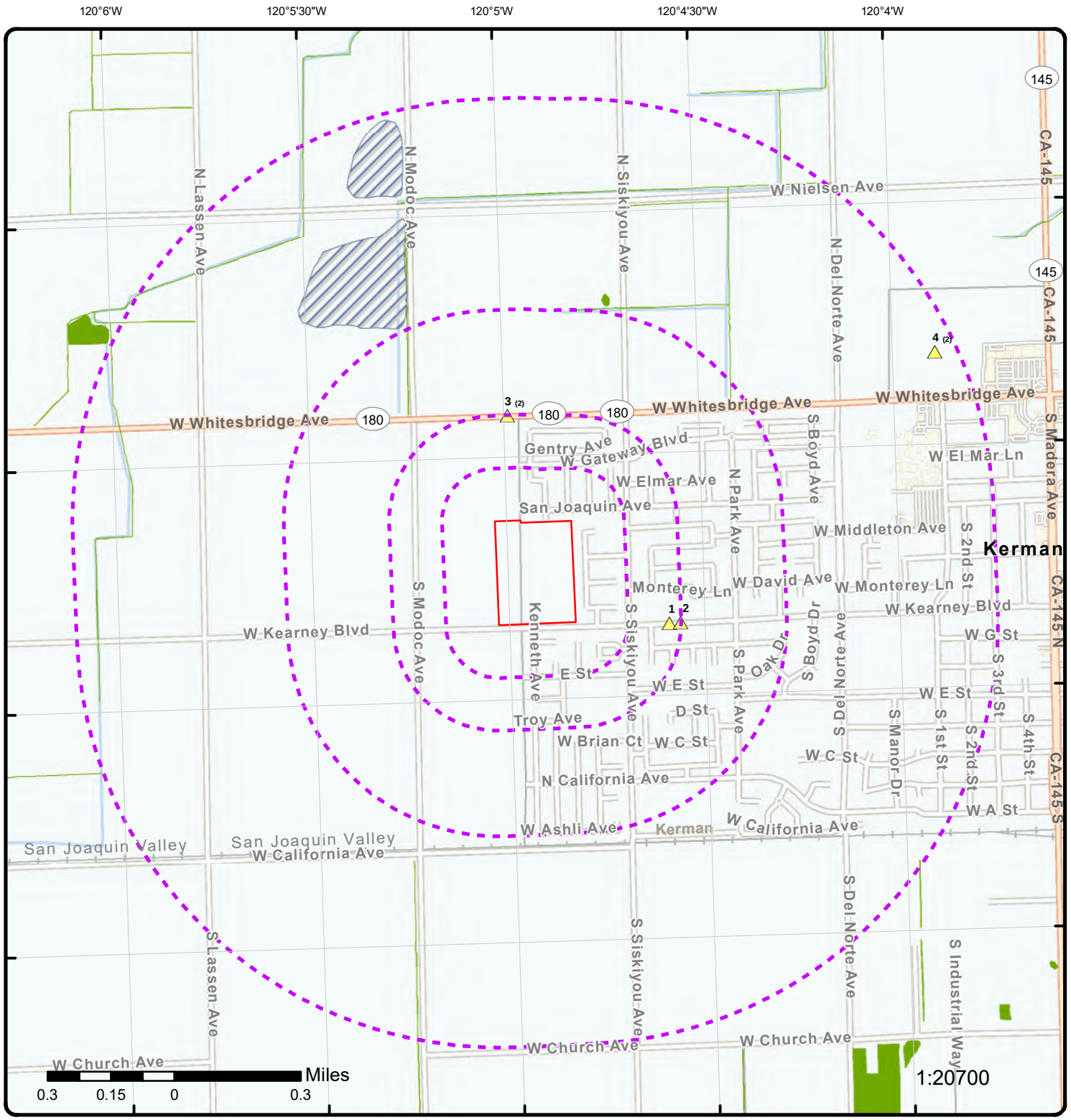
A search of the SCH database, dated Feb 6, 2023 has found that there are 1 SCH site(s) within approximately 1.00 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
KERMAN PROPOSED ELEMENTARY SCHOOL & HIGH SCHOOL ATHLETIC FACILITIES	NORTHWEST CORNER OF WHITESBRIDGE & MADERA AVENUES KERMAN CA 93630 ***Estor/EPA ID	Cleanup Status**: 60002320 | NO FURTHER ACTION AS OF 10/7/2016*	ENE	0.95 / 5,017.32	4

EMISSIONS - Toxic Pollutant Emissions Facilities

A search of the EMISSIONS database, dated Dec 31, 2020 has found that there are 1 EMISSIONS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
NORTH CENTRAL FIRE DISTRICT	15850 W KEARNY BLVD KERMAN CA 93630	ESE	0.22 / 1,175.46	1



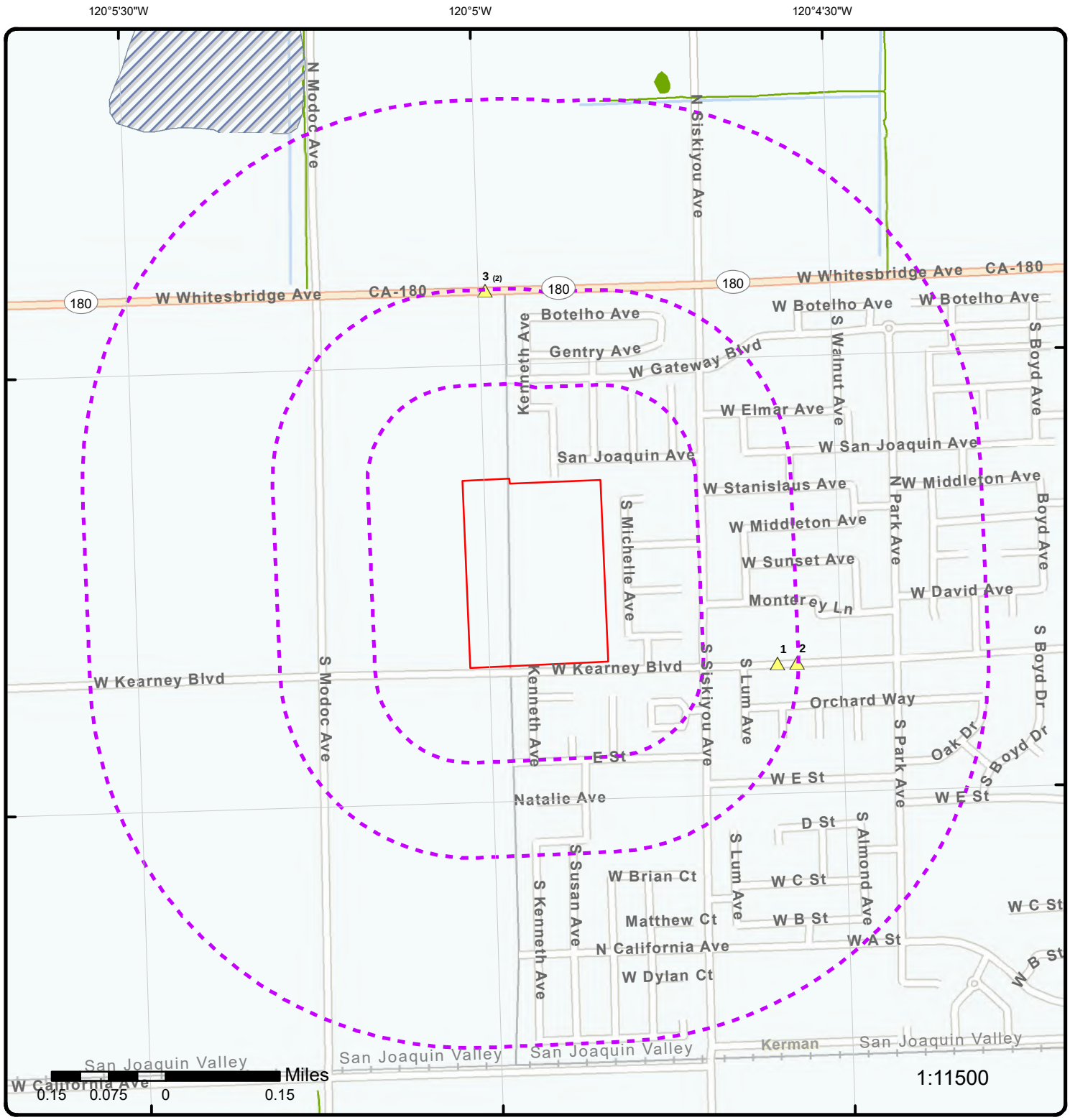
Map: 1.0 Mile Radius

Order Number: 23042500982

Address: West Kearney Blvd., Kerman, CA

ERIS

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)



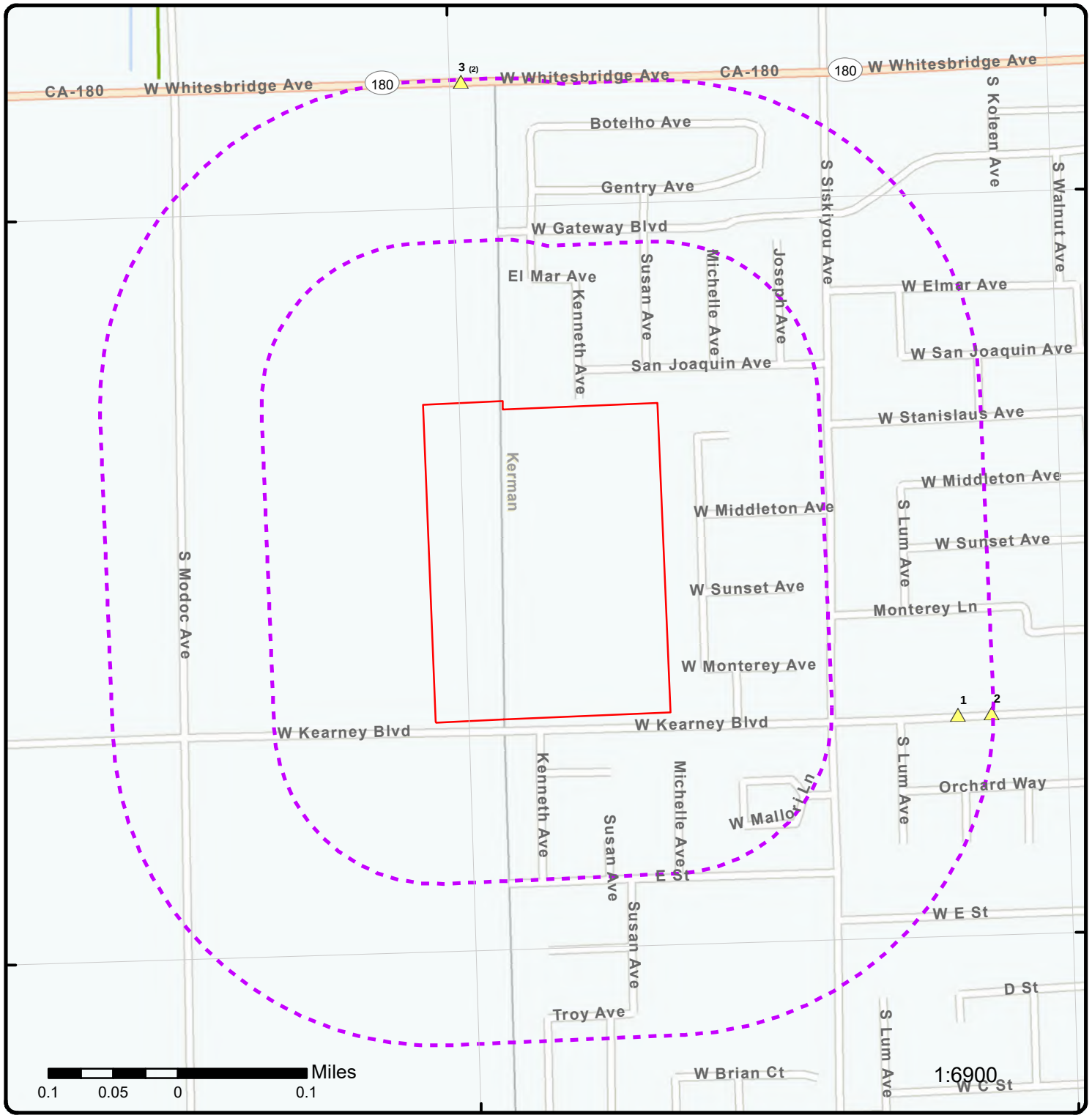
Map: 0.5 Mile Radius

Order Number: 23042500982

Address: West Kearney Blvd., Kerman, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium



Map: 0.25 Mile Radius

Order Number: 23042500982

Address: West Kearney Blvd., Kerman, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- Plume
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

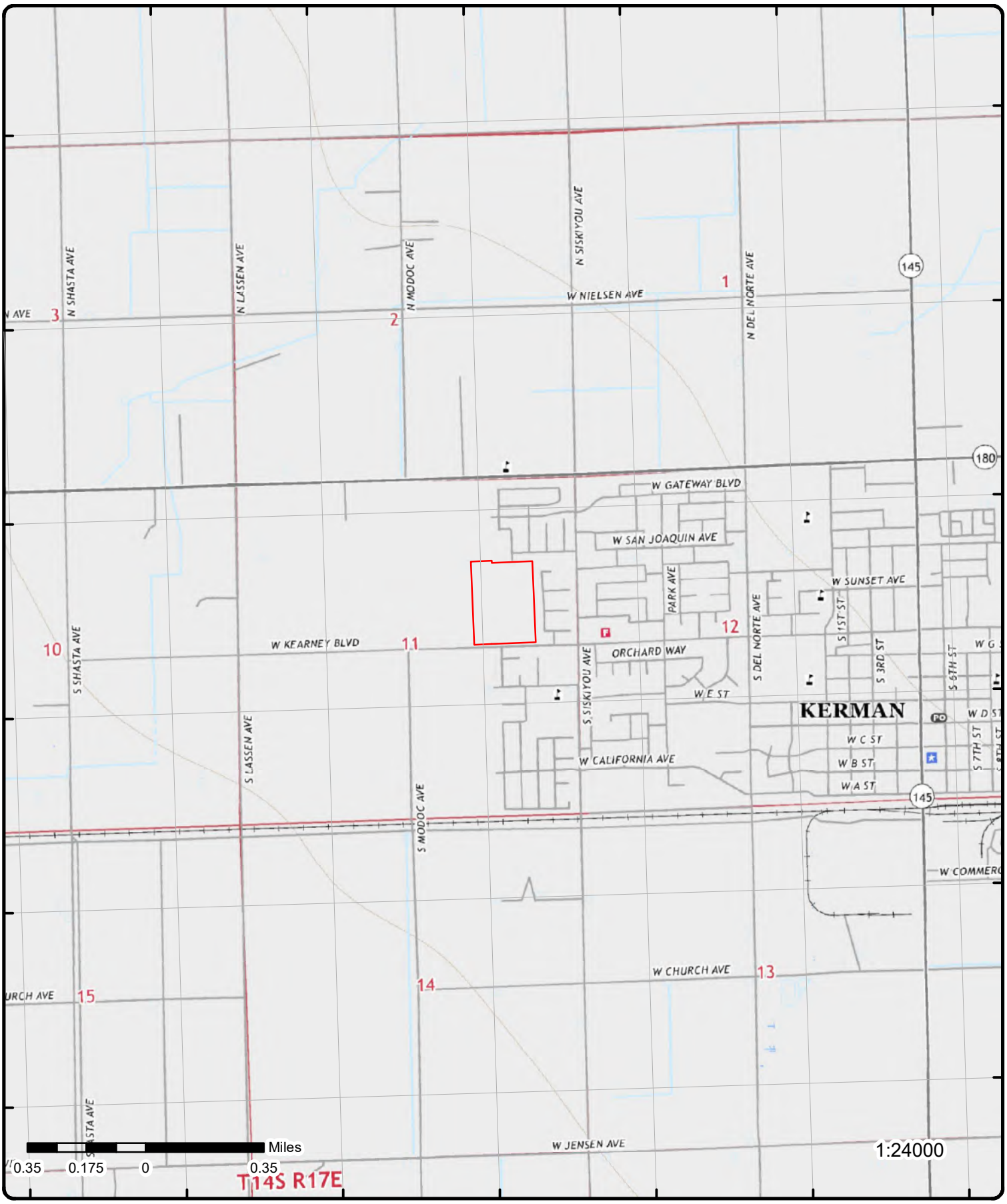
Aerial Year: 2022

Address: West Kearney Blvd., Kerman, CA

Source: ESRI World Imagery

Order Number: 23042500982

ERIS



Topographic Map

Year: 2018

Order Number: 23042500982

Address: West Kearney Blvd., CA

Quadrangle(s): Kerman, CA; Biola, CA

Source: USGS Topographic Map

Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 1	ESE	0.22 / 1,175.46	216.22 / 2	NORTH CENTRAL FIRE DISTRICT 15850 W KEARNY BLVD KERMAN CA 93630	EMISSIONS

2020 Criteria Data

CO:	10	***CHAPIS:***	
Air Basin:	SJV	***CERR Code:***	
Facility ID:	9633	***ROGT:***	.0011766
District:	SJU	***COT:***	
Facility SIC Code:	9999	***NOXT:***	
CO ID:	FRE	***SOXT:***	
DISN:	SAN JOAQUIN VALLEY APCD		
TOGT:	.0011766		
PMT:			
PM10T:			

2020 Toxic Data

CO:	10	***DISN:***	SAN JOAQUIN VALLEY APCD
Air Basin:	SJV	***CHAPIS:***	
Facility ID:	9633	***CHERR Code:***	
District:	SJU	***TS:***	
Facility SIC Code:	9999	***Health Risk Asmt:***	
COID:	FRE		
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
2	1 of 1	ESE	0.25 / 1,312.73	216.42 / 2	NORTH CENTRAL FIRE DIST 15850 KEARNEY W KERMAN CA 93630	LUST

Global ID:	T0601900616	***Census Tract:***	6019004001
Status Date:	4/30/1997	***Match Key:***	T0601900616
Case Type:	LUST CLEANUP SITE	***County:***	FRESNO
Oil Field:		***Latitude:***	36.7274838
Oil Field Operator:		***Longitude:***	-120.0761523
Status:	COMPLETED - CASE CLOSED	***RWQCB Region:***	

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

CUF Case:	NO
Lead Agency:	CENTRAL VALLEY RWQCB (REGION 5F)
Case Worker:	JWH
Local Agency:	FRESNO COUNTY
RB Case No:	5T10000636
Local Case No:	FA0169875
File Location:	
Potential COC:	Diesel
Potential Media of Concern:	Under Investigation
Begin Date:	2/28/1997
How Discovered:	Tank Closure
How Discovered Description:	
Stop Method:	

Stop Description:
Calwater Watershed Name: South Valley Floor - Fresno (551.30)
DWR GW Subbasin Name: San Joaquin Valley - Kings (5-022.08)
Disadvantaged Community:
CalEnvScreen Score:
Coordinate Source: Google Geocode
Discharge Cause: Unknown
Discharge Source: Other
EPA Region: 9
Leak Reported Dt: 1997-02-28 00:00:00
Military DoD Site: No
No Further Action Dt: 1997-04-30 00:00:00
Qty Rlsd Gallons:
Facility Project Sub Type:
Calenviroscreen 3 Score: 66-70%
Calenviroscreen 4 Score: 75-80%
Site History:

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Contacts

Contact Type: Local Agency Caseworker
Contact Name: FRESNO COUNTY DPH, ENVIRONMENTAL HEALTH DIV
Organization Name: FRESNO COUNTY
Address: 1221 Fulton Street
City: Fresno
Email: environmentalhealth@fresnocountyca.gov
Phone No:

Contact Type: Regional Board Caseworker - Primary Caseworker
Contact Name: JEFFREY HANNEL
Organization Name: CENTRAL VALLEY RWQCB (REGION 5F)
Address: 1685 E STREET
City: FRESNO
Email: jhannel@waterboards.ca.gov
Phone No:

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Status History

Status: Open - Site Assessment
Status Date: 2/28/1997

Status: Open - Case Begin Date
Status Date: 2/28/1997

Status: Completed - Case Closed
Status Date: 4/30/1997

LUST Sites from GeoTracker Search - Regulatory Profile

Site Facility Name: NORTH CENTRAL FIRE DIST
Site Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Address: 15850 KEARNEY W
City: KERMAN
Zip: 93630
County: FRESNO
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T0601900616
Cleanup Status Detail: COMPLETED - CASE CLOSED AS OF 4/30/1997
Project Status:
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0601900616&tabname=regulatoryhistory
Potential COC: DIESEL
Potential Media of Concern: UNDER INVESTIGATION
File Location:
User Defined Beneficial Use:
Designated Beneficial Use: MUN, AGR, IND, PROC, REC_1, REC_2

DWR GW Sub Basin: San Joaquin Valley - Kings (5-022.08)
Calwater Watershed Name: South Valley Floor - Fresno (551.30)
Post Closure Site Management:
Future Land Use:
Cleanup Oversight Agencies: CENTRAL VALLEY RWQCB (REGION 5F) (LEAD) - CASE #: 5T10000636
CASEWORKER: JEFFREY HANNEL
FRESNO COUNTY - CASE #: FA0169875
CASEWORKER: FRESNO COUNTY DPH, ENVIRONMENTAL HEALTH DIV
CUF Claim No:
CUF Priority Assig:
CUF Amount Paid:
WDR Place Type:
WDR File No:
WDR Order No:
Project Oversight Agencies:
Facility Type:
Composting Method:
Grndwtr Monitoring Frequency:
Designated Beneficial Use Desc: Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply, Industrial Process Supply, Water Contact Recreation, Non-Contact Water Recreation
Site History:

No site history available

LUST Sites from GeoTracker Search - Cleanup Status History

Status: Completed - Case Closed
Date : 4/30/1997

Status: Open - Site Assessment
Date : 2/28/1997

Status: Open - Case Begin Date
Date : 2/28/1997

Sites from GeoTracker Search - Regulatory Activities (as of Jan 25, 2023)

Action Type: Other Regulatory Actions
Action: Closure/No Further Action Letter
Action Date: 4/30/1997
Received Issue Date: 4/30/1997
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0601900616&enforcement_id=6055373&temptable=ENFORCEMENT
Title Description Comments:

Action Type: Leak Action
Action: Leak Discovery
Action Date: 2/28/1997
Received Issue Date:
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action: Leak Stopped
Action Date: 2/28/1997
Received Issue Date:
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action: Leak Reported
Action Date: 2/28/1997
Received Issue Date:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Doc Link:
Title Description Comments:

Sites from GeoTracker Search - Documents (as of Jan 25, 2023)

Document Type: Site Documents
Document Date: 4/30/1997
Type: CLOSURE/NO FURTHER ACTION LETTER
Submitted:
Submitted By: (REGULATOR)
Title: CLOSURE/NO FURTHER ACTION LETTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0601900616&enforcement_id=6055373

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	1 of 2	N	0.25 / 1,314.56	215.61 / 1	CLEMENT APIARIES INC 16240 W. WHITEBRIDGE KERMAN CA 93630	HHSS

County:
Tank Details Microfiche: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00023cc7.pdf

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Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	2 of 2	N	0.25 / 1,314.56	215.61 / 1	CLEMENT APIARIES, INC. 16240 W. WHITESBRIDGE KERMAN CA	HIST TANK

Owner Name: CLEMENT APIARIES, INC.
Owner Street: 16240 W. WHITESBRIDGE
Owner City: KERMAN
Owner State: CA
Owner Zip: 93630
No of Containers: 4
County: FRESNO
Facility State: CA
Facility Zip: 93630

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	1 of 2	ENE	0.95 / 5,017.32	222.22 / 8	KERMAN PROPOSED ELEMENTARY SCHOOL & HIGH SCHOOL ATHLETIC FACILITIES NORTHWEST CORNER OF WHITESBRIDGE & MADERA AVENUES KERMAN CA 93630	ENVIROSTOR

Estor/EPA ID: 60002320
Site Code: 104753
Nat Priority List: NO
APN: 020-120-26, 020-120-27, 020-120-32, 02012026S, 02012027S, 02012032S
Census Tract: 6019004001
Site Type: SCHOOL
Address Description: NORTHWEST CORNER OF WHITESBRIDGE & MADERA AVENUES
Office: NORTHERN CALIFORNIA SCHOOLS & SANTA SUSANA
Special Program:
Funding: SCHOOL DISTRICT
Assembly District: , 31
Senate District: , 12
Permit Renewal Lead:
Public Partici Spclst:
Project Manager: MELLAN SONGCO
County: FRESNO
Latitude: 36.736527
Longitude: -120.064962
Acres: 45 ACRES
Supervisor: JOSE SALCEDO
Cleanup Status: NO FURTHER ACTION AS OF 10/7/2016
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
School District: KERMAN UNIFIED SCHOOL DISTRICT
Past Use that Caused Contam: AGRICULTURAL - ROW CROPS
Potential Media Affected: NO MEDIA AFFECTED, SOIL
Potential Contamin of Concern:

ARSENIC
CHLORDANE
DDD
DDE
DDT

Site History:

District submitted an EOP application for DTSC's oversight of a PEA. The Site's proposed use is for an elementary school and high school athletic facilities. Currently, the Site is used as active or fallow cropland. The Site is bordered to the west, north, and east (across Madera Avenue) by cropland, and, to the south by a commercial shopping center and storm water ponding basin, along with vacant land and a school (across Whitesbridge Avenue). The Site is currently leased to a farmer who is reportedly growing certified-organic crops on the Site. Historical research indicates that the Site has been used as cropland for row/field crops from 1937 until the present. The Site is outside the 10-mile radius of ultramafic rock outcrops that may contain naturally occurring asbestos, thus sampling for naturally occurring asbestos is not required.

On May 16, 2016, DTSC received the draft PEA workplan for review and comment. The PEA Workplan includes activities to investigate the potential presence of the following: organochlorine pesticides (OCPs) and arsenicin soil in the agricultural use area and around the existing irrigation well; OCPs and metals along the earthen driveways; and, total petroleum hydrocarbons, benzene, naphthalene and benzo(a)pyrene in soil in the area of the irrigation well pump. On June 7, 2016, DTSC issued comments on the draft PEA Workplan. On June 27, 2016, DTSC approved the PEA workplan for implementation. DTSC was notified that field sampling will be on June 28-29, 2016.

On August 29, 2016, DTSC received the draft PEA Report for review and comment. The investigation results indicate that all metals concentrations, including arsenic, are within background levels. The OCPs, TPHs, benzene, naphthalene and benzo(a)pyrene concentrations were either not detected or were below the levels of concern. The result of the human health screening evaluation for the detected OCPs (4,4-DDE and 4,4-DDT) and TPH (diesel range) indicate a cumulative cancer risk of 7.9x10-8, which is below the DTSC's point of departure of one in one million (1x10-6). The total non-cancer hazard index was calculated as 0.077, which is below DTSC's point of departure (1.0). The PEA Report concludes and recommends that no further action is required for the Site.

The District notified DTSC on October 3, 2016 that it has complied with all public review and comment requirements for the PEA Report pursuant to Option A (Education Code section 17213.1, subdivision (a)(6)(A)). The District made the PEA Report available for public review and comment from September 1, 2016 through September 30, 2016 and a public hearing was held on September 15, 2016. No public comments were received regarding the PEA Report.

DTSC updated the Draft PEA Report dated August 29, 2016 with change pages received on October 3, 2016 via email. On October 7, 2016, DTSC approved the PEA Report with a no further action determination.

Status: NO FURTHER ACTION
Program Type: SCHOOL EVALUATION
CalEnviroScreen Score: 75-80%
Summary Link: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60002320

Completed Activities

Title: PEA Field Sampling
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Fieldwork
Date Completed: 6/28/2016
Comments: On June 28, 2016, DTSC observed the implementation of the PEA Workplan.

Title: EOA
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&enforcement_id=60406924
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Environmental Oversight Agreement
Date Completed: 3/23/2016
Comments: Fully executed EOA sent to District.

Title: Preliminary Environmental Assessment Report
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&doc_id=60413395
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Preliminary Endangerment Assessment Report
Date Completed: 10/7/2016
Comments: On October 7, 2016, DTSC approved and issued a "No further action" determination on the PEA Report.

Title: EOA Application
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&doc_id=60406922

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Environmental Oversight Agreement Application
Date Completed: 3/10/2016
Comments: Consultant submitted EOP Application for Kerman USD, via email on 03/10/16.

Title: Site Inspection
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&enforcement_id=60409294
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Inspections/Visit (Non LUR)
Date Completed: 4/16/2016
Comments: On April 16, 2016, DTSC conducted a site visit and a scoping meeting with the District and their consultant.

Title: Preliminary Environmental Assessment Workplan
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&doc_id=60409295
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Preliminary Endangerment Assessment Workplan
Date Completed: 6/27/2016
Comments:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	2 of 2	ENE	0.95 / 5,017.32	222.22 / 8	KERMAN PROPOSED ELEMENTARY SCHOOL & HIGH SCHOOL ATHLETIC FACILITIES NORTHWEST CORNER OF WHITESBRIDGE & MADERA AVENUES KERMAN CA 93630	SCH

Estor/EPA ID: 60002320
Site Code: 104753
Nat Priority List: NO
Acres: 45 ACRES
Special Program:
Funding: SCHOOL DISTRICT
Assembly District: , 31
Senate District: , 12
Permit Renewal Lead:
Project Manager: MELLAN SONGCO
Supervisor: JOSE SALCEDO
Public Partici Spclst:
Census Tract: 6019004001
County: FRESNO
Latitude: 36.736527
Longitude: -120.064962
School District: KERMAN UNIFIED SCHOOL DISTRICT
APN: 020-120-26, 020-120-27, 020-120-32, 02012026S, 02012027S, 02012032S
Cleanup Status: NO FURTHER ACTION AS OF 10/7/2016
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
Site Type: SCHOOL
Office: NORTHERN CALIFORNIA SCHOOLS & SANTA SUSANA
Past Use that Caused Contam: AGRICULTURAL - ROW CROPS
Potential Media Affected: NO MEDIA AFFECTED, SOIL
Potential Contamin of Concern:

ARSENIC
CHLORDANE
DDD
DDE
DDT

SITE HISTORY:

District submitted an EOP application for DTSC's oversight of a PEA. The Site's proposed use is for an elementary school and high school athletic facilities. Currently, the Site is used as active or fallow cropland. The Site is bordered to the west, north, and east (across Madera Avenue) by cropland, and, to the south by a commercial shopping center and storm water ponding basin, along with vacant land and a school (across Whitesbridge Avenue). The Site is currently leased to a farmer who is reportedly growing certified-organic crops on the Site. Historical research indicates that the Site has been used as cropland for row/field crops from 1937 until the present. The Site is outside the 10-mile radius of ultramafic rock outcrops that may contain naturally occurring asbestos, thus sampling for naturally occurring asbestos is not required.

On May 16, 2016, DTSC received the draft PEA workplan for review and comment. The PEA Workplan includes activities to investigate the potential presence of the following: organochlorine pesticides (OCPs) and arsenicin soil in the agricultural use area and around the existing irrigation well; OCPs and metals along the earthen driveways; and, total petroleum hydrocarbons, benzene, naphthalene and benzo(a)pyrene in soil in the area of the irrigation well pump. On June 7, 2016, DTSC issued comments on the draft PEA Workplan. On June 27, 2016, DTSC approved the PEA workplan for implementation. DTSC was notified that field sampling will be on June 28-29, 2016.

On August 29, 2016, DTSC received the draft PEA Report for review and comment. The investigation results indicate that all metals concentrations, including arsenic, are within background levels. The OCPs, TPHs, benzene, naphthalene and benzo(a)pyrene concentrations were either not detected or were below the levels of concern. The result of the human health screening evaluation for the detected OCPs (4,4-DDE and 4,4-DDT) and TPH (diesel range) indicate a cumulative cancer risk of 7.9x10-8, which is below the DTSC's point of departure of one in one million (1x10-6). The total non-cancer hazard index was calculated as 0.077, which is below DTSC's point of departure (1.0). The PEA Report concludes and recommends that no further action is required for the Site.

The District notified DTSC on October 3, 2016 that it has complied with all public review and comment requirements for the PEA Report pursuant to Option A (Education Code section 17213.1, subdivision (a)(6)(A)). The District made the PEA Report available for public review and comment from September 1, 2016 through September 30, 2016 and a public hearing was held on September 15, 2016. No public comments were received regarding the PEA Report.

DTSC updated the Draft PEA Report dated August 29, 2016 with change pages received on October 3, 2016 via email. On October 7, 2016, DTSC approved the PEA Report with a no further action determination.

Status: NO FURTHER ACTION
Program Type: SCHOOL EVALUATION
CalEnviroScreen Score: 75-80%
Summary Link: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60002320

Completed Activities

Title: Preliminary Environmental Assessment Workplan
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&doc_id=60409295
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Preliminary Endangerment Assessment Workplan
Date Completed: 6/27/2016
Comments:

Title: PEA Field Sampling
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Fieldwork
Date Completed: 6/28/2016
Comments: On June 28, 2016, DTSC observed the implementation of the PEA Workplan.

Title: Site Inspection
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&enforcement_id=60409294
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Inspections/Visit (Non LUR)
Date Completed: 4/16/2016
Comments: On April 16, 2016, DTSC conducted a site visit and a scoping meeting with the District and their consultant.

Title: EOA
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&enforcement_id=60406924
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Environmental Oversight Agreement
Date Completed: 3/23/2016
Comments: Fully executed EOA sent to District.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Title:	Preliminary Environmental Assessment Report
Title Link:	https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&doc_id=60413395
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Preliminary Endangerment Assessment Report
Date Completed:	10/7/2016
Comments:	On October 7, 2016, DTSC approved and issued a "No further action" determination on the PEA Report.

Title:	EOA Application
Title Link:	https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60002320&doc_id=60406922
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Environmental Oversight Agreement Application
Date Completed:	3/10/2016
Comments:	Consultant submitted EOP Application for Kerman USD, via email on 03/10/16.

Unplottable Summary

Total: 0 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID

No unplottable records were found that may be relevant for the search criteria.

Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

Sites on the United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Jan 25, 2023

National Priority List - Proposed: PROPOSED NPL

Sites proposed by the United States Environmental Protection Agency (EPA), the state agency, or concerned citizens for addition to the National Priorities List (NPL) due to contamination by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Jan 25, 2023

Deleted NPL: DELETED NPL

Sites deleted from the United States Environmental Protection Agency (EPA)'s National Priorities List. 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. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Jan 25, 2023

SEMS List 8R Active Site Inventory: SEMS

The U.S. Environmental Protection Agency's (EPA) Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted. This data includes SEMS sites from the List 8R Active file as well as applicable sites from the SEMS GIS/REST file layer obtained from EPA's Facility Registry Service.

Government Publication Date: Jan 25, 2023

SEMS List 8R Archive Sites: SEMS ARCHIVE

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. This data includes sites from the List 8R Archived site file.

Government Publication Date: Jan 25, 2023

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means 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 this site on the National Priorities List (NPL). This 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 a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is the U.S. Environmental Protection Agency's (EPA) 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. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Jan 23, 2023

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is the U.S. Environmental Protection Agency's (EPA) 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. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by RCRA.

Government Publication Date: Jan 23, 2023

RCRA Generator List: RCRA LQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) 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. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Jan 23, 2023

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) 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. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Jan 23, 2023

RCRA Very Small Quantity Generators List: RCRA VSQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) 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. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Jan 23, 2023

RCRA Non-Generators: RCRA NON GEN

RCRA Info is the U.S. Environmental Protection Agency's (EPA) 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. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Jan 23, 2023

RCRA Sites with Controls: RCRA CONTROLS

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Jan 23, 2023

Federal Engineering Controls-ECs: FED ENG

This list of Engineering controls (ECs) is provided by the United States Environmental Protection Agency (EPA). ECs encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. The EC listing includes remedy component data from Superfund decision documents issued in fiscal years 1982-2020 for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Feb 23, 2023

Federal Institutional Controls- ICs: FED INST

This list of Institutional controls (ICs) is provided by the United States Environmental Protection Agency (EPA). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site. The IC listing includes remedy component data from Superfund decision documents issued in fiscal years 1982-2020 for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Feb 23, 2023

Land Use Control Information System: LUCIS

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

Government Publication Date: Sep 1, 2006

Institutional Control Boundaries at NPL sites: NPL IC

Boundaries of Institutional Control areas at sites on the United States Environmental Protection Agency (EPA)'s National Priorities List, or Proposed or Deleted, made available by the EPA's Shared Enterprise Geodata and Services (SEGS). United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

Government Publication Date: Jan 25, 2023

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Jan 16, 2023

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

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 protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This data is provided by the United States Environmental Protection Agency (EPA) and includes Brownfield sites from the Cleanups in My Community (CIMC) web application.

Government Publication Date: Sep 13, 2022

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan: FRP

List of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Dec 31, 2021

Delisted Facility Response Plans: DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Dec 31, 2021

Historical Gas Stations: HIST GAS STATIONS

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Aug 30, 2022

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

Government Publication Date: Jun 29, 2022

LIEN on Property: SEMS LIEN

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) provides Lien details on applicable properties, such as the Superfund lien on property activity, the lien property information, and the parties associated with the lien.

Government Publication Date: Jan 25, 2023

Superfund Decision Documents: SUPERFUND ROD

This database contains a list of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include completed Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD) for active and archived sites stored in the Superfund Enterprise Management System (SEMS), along with other associated memos and files. This information is maintained and made available by the U.S. Environmental Protection Agency.

Government Publication Date: Dec 22, 2022

Formerly Utilized Sites Remedial Action Program: DOE FUSRAP

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

Government Publication Date: Mar 4, 2017

State

State Response Sites: RESPONSE

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database is state equivalent NPL.

Government Publication Date: Feb 6, 2023

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database is state equivalent CERCLIS.

Government Publication Date: Feb 6, 2023

Delisted State Response Sites: DELISTED ENVS

Sites removed from the list of State Response Sites made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC).

Government Publication Date: Feb 6, 2023

Solid Waste Information System (SWIS): SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

Government Publication Date: Feb 9, 2023

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels: SWRCB SWF

This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.

Government Publication Date: Sep 20, 2006

Waste Management Unit Database: WMUD

The Waste Management Unit Database System tracks and inventories waste management units. CCR Title 27 contains criteria stating that Waste Management Units are classified according to their ability to contain wastes. Containment shall be determined by geology, hydrology, topography, climatology, and other factors relating to the ability of the Unit to protect water quality. Water Code Section 13273.1 requires that operators submit a water quality solid waste assessment test (SWAT) report to address leak status. The WMUDS was last updated by the State Water Resources control board in 2000.

Government Publication Date: Jan 1, 2000

EnviroStor Hazardous Waste Facilities: HWP

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.

Government Publication Date: Feb 6, 2023

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report: SWAT

In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.

Government Publication Date: Dec 31, 1995

Construction and Demolition Debris Recyclers: C&D DEBRIS RECY

This listing of Construction and Demolition Debris Recyclers is maintained by the California Intergrated Waste Management Board-common C&D materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste related to land development.

Government Publication Date: Jun 20, 2018

Recycling Centers: RECYCLING

This list of Certified Recycling Centers that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Apr 13, 2023

Listing of Certified Processors: PROCESSORS

This list of Certified Processors that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Apr 13, 2023

Listing of Certified Dropoff, Collection, and Community Service Programs: CONTAINER RECY

This list of Certified Dropoff, Collection, and Community Service Programs (non-buyback) operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jan 13, 2023

Land Disposal Sites: LDS

Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.

Government Publication Date: Feb 27, 2023

Leaking Underground Fuel Tank Reports: LUST

List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.

Government Publication Date: Feb 27, 2023

Delisted Leaking Storage Tanks: DELISTED LST

List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.

Government Publication Date: Mar 10, 2023

Permitted Underground Storage Tank (UST) in GeoTracker: UST

List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).

Government Publication Date: Jan 17, 2023

Proposed Closure of Underground Storage Tank Cases: UST CLOSURE

This listing includes Proposed Closure of Underground Storage Tank (UST) Cases which are being considered for closure by either the State Water Resources Control Board at a Future Board Meeting or the Executive Director that have been posted for a 60-day public comment period, and Closure of UST Cases with Closure Denials and Approved Orders. The lists are provided by the California Water Boards.

Government Publication Date: Mar 10, 2023

Historical Hazardous Substance Storage Information Database: HHSS

The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.

Government Publication Date: Aug 27, 2015

Statewide Environmental Evaluation and Planning System: UST SWEEPS

The Statewide Environmental Evaluation and Planning System (SWEEPS) is a historical listing of active and inactive underground storage tanks made available by the California State Water Resources Control Board (SWRCB).

Government Publication Date: Oct 1, 1994

Aboveground Storage Tanks: AST

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.

Government Publication Date: Aug 31, 2009

SWRCB Historical Aboveground Storage Tanks: AST SWRCB

A list of aboveground storage tanks made available by the California State Water Resources Control Board (SWRCB). Effective January 1, 2008, the Certified Unified Program Agencies (CUPAs) are vested with the responsibility and authority to implement the Aboveground Petroleum Storage Act (APSA).

Government Publication Date: Dec 1, 2007

Oil and Gas Facility Tanks: TANK OIL GAS

Locations of oil and gas tanks that fall under the jurisdiction of the Geologic Energy Management Division of the California Department of Conservation (CalGEM) (CCR 1760). CalGEM was formerly the Division of Oil, Gas, and Geothermal Resources (DOGGR).

Government Publication Date: Apr 12, 2023

Delisted Storage Tanks: DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).

Government Publication Date: Apr 24, 2023

California Environmental Reporting System (CERS) Tanks: CERS TANK

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. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Jan 10, 2023

Delisted California Environmental Reporting System (CERS) Tanks: DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: Jan 10, 2023

Historical Hazardous Substance Storage Container Information - Facility Summary: HIST TANK

The State Water Resources Control Board maintained the Hazardous Substance Storage Containers listing and inventory in th 1980s. This facility summary lists historic tank sites where the following container types were present: farm motor vehicle fuel tanks; waste tanks; sumps; pits, ponds, lagoons, and others; and all other product tanks. This set, published in May 1988, lists facility and owner information, as well as the number of containers. This data is historic and will not be updated.

Government Publication Date: May 27, 1988

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions: LUR

The Department of Toxic Substances Control (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 land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: Feb 6, 2023

CALSITES Database: CALSITES

This historical database was maintained by the Department of Toxic Substance Control (DTSC) for more than a decade. CALSITES contains information on Brownfield properties with confirmed or potential hazardous contamination. In 2006, DTSC introduced EnviroStor as the latest Brownfields site database.

Government Publication Date: May 1, 2004

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions: HLUR

The Department of Toxic Substances Control (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.

Government Publication Date: Feb 18, 2021

Deed Restrictions and Land Use Restrictions: DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Feb 27, 2023

Voluntary Cleanup Program: VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: Feb 6, 2023

GeoTracker Cleanup Program Sites: CLEANUP SITES

A list of Cleanup Program sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Feb 27, 2023

Delisted Cleanup Program Sites: DELISTED CLEANUP

A list of Cleanup Program sites which were once included - and have since been removed from - the list of Cleanup Program Sites in GeoTracker. GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.
Government Publication Date: Feb 27, 2023

Delisted County Records: DELISTED COUNTY
Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.
Government Publication Date: Apr 4, 2023

Tribal

Leaking Underground Storage Tanks on Tribal/Indian Lands: INDIAN LUST
This list of leaking underground storage tanks (LUSTs) on Tribal/Indian Lands in Region 9, which includes California, is made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: Nov 23, 2022

Underground Storage Tanks on Tribal/Indian Lands: INDIAN UST
This list of underground storage tanks (USTs) on Tribal/Indian Lands in Region 9, which includes California, is made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: Nov 23, 2022

Delisted Tribal Leaking Storage Tanks: DELISTED INDIAN LST
Leaking Underground Storage Tank (LUST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian LUST lists made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: Nov 23, 2022

Delisted Tribal Underground Storage Tanks: DELISTED INDIAN UST
Underground Storage Tank (UST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian UST lists made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: Nov 23, 2022

County

Fresno County - CUPA/Solid Waste Programs Resource List: CUPA FRESNO
A list of facilities associated with various Certified Unified Program Agency (CUPA) programs in Fresno County. This list is made available by Fresno County Department of Environmental Health Division which is approved by Cal-EPA as CUPA for the County.
Government Publication Date: Jun 28, 2021

Additional Environmental Record Sources

Federal

Facility Registry Service/Facility Index: FINDS/FRS
The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the Environmental Protection Agency (US EPA).
Government Publication Date: Aug 18, 2022

Toxics Release Inventory (TRI) Program: TRIS

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U. S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Aug 24, 2021

PFOA/PFOS Contaminated Sites: PFAS NPL

List of National Priorities List (NPL) and related Superfund Alternative Agreement (SAA) sites where PFOA or PFOS contaminants have been found in water and/or soil. The site listing is provided by the Federal Environmental Protection Agency (EPA).

Government Publication Date: Dec 28, 2022

Federal Agency Locations with Known or Suspected PFAS Detections: PFAS FED SITES

List of Federal agency locations with known or suspected detections of Per- and Polyfluoroalkyl Substances (PFAS), made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data. EPA outlines that these data are gathered from several federal entities, such as the Federal Superfund program, Department of Defense (DOD), National Aeronautics and Space Administration, Department of Transportation, and Department of Energy. Sites on this list do not necessarily reflect the source/s of contamination and detections do not indicate level of risk or human exposure at the site. Agricultural notifications in this data are limited to DOD sites only. At this time, the EPA is aware that this list is not comprehensive of all Federal agencies.

Government Publication Date: Jun 30, 2022

SSEHRI PFAS Contamination Sites: PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents, and this is cited in the tracker. Disclaimer: The source conveys this database undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Limited location details are available with this data. Access the following for the most current informations https://pfasproject.com/pfas-contamination-site-tr acker/

Government Publication Date: Dec 12, 2019

National Response Center PFAS Spills: ERNS PFAS

National Response Center (NRC) calls from 1990 to the most recent complete calendar year where there is indication of Aqueous Film Forming Foam (AFFF) usage. NRC calls may reference AFFF usage in the "Material Involved" or "Incident Description" fields. Data made available by the US Environmental Protection Agency (EPA). Disclaimer: dataset may include initial or misidentified incident data not yet validated or investigated by a federal/state response agency.

Government Publication Date: Feb 23, 2022

PFAS NPDES Discharge Monitoring: PFAS NPDES

This list of National Pollutant Discharge Elimination System (NPDES) permitted facilities with required monitoring for Per- and Polyfluoroalkyl (PFAS) Substances is made available via the U.S. Environmental Protection Agency (EPA)'s PFAS Analytic Tools. Any point-source wastewater discharger to waters of the United States must have a NPDES permit, which defines a set of parameters for pollutants and monitoring to ensure that the discharge does not degrade water quality or impair human health. This list includes NPDES permitted facilities associated with permits that monitor for Per- and Polyfluoroalkyl Substances (PFAS), limited to the years 2007 - present. EPA further advises the following regarding these data: currently, fewer than half of states have required PFAS monitoring for at least one of their permittees, and fewer states have established PFAS effluent limits for permittees. For states that may have required monitoring, some reporting and data transfer issues may exist on a state-by-state basis.

Government Publication Date: Feb 19, 2023

Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Aug 24, 2021

Perfluorinated Alkyl Substances (PFAS) Water Quality: PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated Master List of PFAS Substances.

Government Publication Date: Jul 20, 2020

PFAS TSCA Manufacture and Import Facilities: PFAS TSCA

The US Environmental Protection Agency (EPA) issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) requiring facilities that manufacture or import chemical substances to report to EPA. This list is specific to TSCA Manufacture and Import Facilities with reported per- and poly-fluoroalkyl substances (PFAS). Data file made available by the EPA and includes CDR/Inventory Update Reporting data from 1998 up to 2020. EPA makes notes the following about these data: this data file includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

Government Publication Date: Jun 20, 2022

PFAS Waste Transfers from RCRA e-Manifest : PFAS E-MANIFEST

This Per- and Poly-Fluoroalkyl Substances (PFAS) Waste Transfers dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. Every shipment of hazardous waste in the U.S. must be accompanied by a shipment manifest, which is a critical component of the cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA). According to the EPA, currently no Federal Waste Code exists for any PFAS compounds. 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 Vermont state-specific waste codes). Limitations: Amount or concentration of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Government Publication Date: Apr 9, 2023

Hazardous Materials Information Reporting System: HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Sep 1, 2020

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department"), Drug Enforcement Administration (DEA), provides this data 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.

Government Publication Date: Aug 30, 2022

Toxic Substances Control Act: TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

Government Publication Date: Apr 11, 2019

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the site cleanup process, the U.S. Environmental Protection Agency (EPA) conducts a search to find the Potentially Responsible Parties (PRPs). The EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site. This listing contains PRPs, Noticed Parties, at sites in the EPA's Superfund Enterprise Management System (SEMS).

Government Publication Date: Jan 25, 2023

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The U.S. Environmental Protection Agency's Enforcement and Compliance History Online system incorporates data from the Integrated Compliance Information System - National Pollutant Discharge Elimination System (ICIS-NPDES). ICIS-NPDES is an information management system maintained by the Office of Compliance to track permit compliance and enforcement status of facilities regulated by the NPDES under the Clean Water Act. This data includes permit, inspection, violation and enforcement action information for applicable ICIS records.

Government Publication Date: Oct 15, 2022

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) data as made available by the U.S. Environmental Protection Agency (EPA), sourced from the ECHO Exporter file. The EPA tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: Dec 11, 2022

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: Dec 11, 2022

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DOD) is responsible for an environmental restoration. The FUDS Annual Report to Congress (ARC) is published by the U.S. Army Corps of Engineers (USACE). This data is compiled from the USACE's Geospatial FUDS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) FUDS dataset.

Government Publication Date: Jul 12, 2022

FUDS Munitions Response Sites: FUDS MRS

Boundaries of Munitions Response Sites (MRS), published with the Formerly Used Defense Sites (FUDS) Annual Report to Congress (ARC) by the U.S. Army Corps of Engineers (USACE). An MRS is a discrete location within a Munitions response area (MRA) that is known to require a munitions response. An MRA means any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). This data is compiled from the USACE's Geospatial MRS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) MRS dataset.

Government Publication Date: Jul 12, 2022

Former Military Nike Missile Sites: FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT

A list of flagged pipeline incidents made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types.

Government Publication Date: Mar 31, 2021

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) is provided by the United State Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.

Government Publication Date: Nov 7, 2022

Surface Mining Control and Reclamation Act Sites: SMCRA

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (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 Abandoned Mine Land (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.

Government Publication Date: Aug 18, 2022

Mineral Resource Data System: MRDS

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

Government Publication Date: Mar 15, 2016

DOE Legacy Management Sites: LM SITES

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) currently manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The LM manages sites with diverse regulatory drivers (statutes or programs that direct cleanup and management requirements at DOE sites) or as part of internal DOE or congressionally-recognized programs, such as but not limited to: Formerly Utilized Sites Remedial Action Program (FUSRAP), Uranium Mill Tailings Radiation Control Act (UMTRCA Title I, Tile II), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Decontamination and Decommissioning (D&D), Nuclear Waste Policy Act (NWPA). This site listing includes data exported from the DOE Office of LM's Geospatial Environmental Mapping System (GEMS). GEMS Data disclaimer: The DOE Office of LM makes no representation or warranty, expressed or implied, regarding the use, accuracy, availability, or completeness of the data presented herein.

Government Publication Date: Dec 1, 2022

Alternative Fueling Stations: ALT FUELS

This list of alternative fueling stations is sourced from the Alternative Fuels Data Center (AFDC). The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy launched the AFDC in 1991 as a repository for alternative fuel vehicle performance data, which provides a wealth of information and data on alternative and renewable fuels, advanced vehicles, fuel-saving strategies, and emerging transportation technologies. The data includes Biodiesel (B20 and above), Compressed Natural Gas (CNG), Electric, Ethanol (E85), Hydrogen, Liquefied Natural Gas (LNG), Propane (LPG) fuel type locations.

Government Publication Date: Jan 3, 2023

Superfunds Consent Decrees: CONSENT DECREES

This list of Superfund consent decrees is provided by the Department of Justice, Environment & Natural Resources Division (ENRD) through a Freedom of Information Act (FOIA) applicable file. This listing includes Consent Decrees for CERCLA or Superfund Sites filed and/or as proposed within the ENRD's Case Management System (CMS) since 2010. CMS may not reflect the latest developments in a case nor can the agency guarantee the accuracy of the data. ENRD Disclaimer: Congress excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA; response is limited to those records that are subject to the requirements of the FOIA; however, this should not be taken as an indication that excluded records do, or do not, exist.

Government Publication Date: Jan 11, 2023

Air Facility System: AFS

This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.

Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments: SSTS

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

Government Publication Date: Mar 30, 2022

Polychlorinated Biphenyl (PCB) Transformers: PCBT

Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.

Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Nov 3, 2022

State

PFAS Sampling Locations: PFAS SAMPLING

This data is sourced from the State Water Board's GeoTracker Per- and Polyfluoroalkyl Substances (PFAS) Map tool which contains individual sampling points (i.e., soil boring, groundwater monitoring well, drinking water well for municipal drinking water systems, etc.) or a site location with PFAS analytical data. Includes analytical results that are finalized and submitted electronically by the Responsible Parties via GeoTracker's Electronic Submittal of Information Portal, and after it's accepted by a Regional Water Quality Control Board.

Government Publication Date: Mar 14, 2023

Dry Cleaning Facilities: DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Dec 20, 2021

Delisted Drycleaners: DELISTED DRYCLEANERS

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Jan 31, 2022

Non-Toxic Dry Cleaning Incentive Program: DRYC GRANT

A list of grant recipients of the Non-Toxic Dry Cleaning Incentive Program made available by the California Air Resources Board (CARB). The program provides grants to eligible dry cleaning businesses to assist them in transitioning away from PERC machines to alternative non-toxic and non-smog forming technologies.

Government Publication Date: Jan 31, 2022

Per- and Polyfluoroalkyl Substances (PFAS): PFAS

List of FAA Part 139 Airports, Selected Landfills, and Chrome Plating Facilities from California Water Boards PFAS Investigations, as well as sites from the State Water Resources Control Board (SWRCB)'s GeoTracker at which one or more of the potential contaminants of concern are in the PFAS Master List of PFAS Substances made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Feb 15, 2022

PFOA/PFOS Groundwater: PFAS GW

A list of water wells from the Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System with the groundwater chemical perfluorooctanoic acid (PFOA) (NL = 0.014 UG/L) or perfluorooctanoic sulfonate (PFOS) (NL = 0.013 UG/L). The GAMA Groundwater Information System search is made available by California Water Boards.

Government Publication Date: Feb 4, 2023

Hazardous Waste and Substances Site List - Site Cleanup: HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: Nov 2, 2022

Toxic Pit Cleanup Act Sites: TOXIC PITS

The Toxic Pits Cleanup Act (TPCA) list identifies sites suspected of containing hazardous substances where cleanup has not yet been completed. This list was maintained by the State Water Resources Control Board (SWRCB), is not longer maintained, and updates are not planned.

Government Publication Date: Jul 1, 1995

List of Hazardous Waste Facilities Subject to Corrective Action: DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

EnviroStor Inspection, Compliance, and Enforcement: INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked by the California Department of Toxic Substance Control's (DTSC) EnviroStor data management system.

Government Publication Date: Oct 24, 2022

School Property Evaluation Program Sites: SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school.

Government Publication Date: Feb 6, 2023

California Hazardous Material Incident Report System (CHMIRS): CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Nov 18, 2022

Historical California Hazardous Material Incident Report System (CHMIRS): HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

Handlers from Hazardous Waste Manifest Data: HAZNET

A list of handlers not otherwise classified as Treatment, Storage, Disposal facilities (TSDF) or generators from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Oct 24, 2016

Generators from Hazardous Waste Manifest Data: HAZ GEN

List of handlers listed as having generated waste from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Dec 31, 2017

TSDF from Hazardous Waste Manifest Data: HAZ TSD

List of Treatment, Storage, and Disposal Facilities (TSDFs) from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Dec 31, 2017

Historical Hazardous Waste Manifest Data: HIST MANIFEST

A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Dec 31, 1992

DTSC Registered Hazardous Waste Transporters: HW TRANSPORT

The California Department of Toxic Substances Control (DTSC) maintains this list of Registered Hazardous Waste Transporters.

Government Publication Date: Mar 23, 2023

Registered Waste Tire Haulers: WASTE TIRE

This list of registered waste tire haulers is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Oct 11, 2022

California Medical Waste Management Program Facility List: MEDICAL WASTE

This list of Medical Waste Management Program Facilities is maintained by the California Department of Public Health. The Medical Waste Management Program (MWMP) regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the Medical Waste Management Act (MWMA). The MWMP permits and inspects all medical waste off-site treatment facilities, medical waste transporters, and medical waste transfer stations. This list contains transporters, treatment, and transfer facilities.

Government Publication Date: Jan 9, 2023

Historical Cortese List: HIST CORTESE

List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.

Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders: CDO/CAO

The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.

Government Publication Date: Dec 6, 2021

California Environmental Reporting System (CERS) Hazardous Waste Sites: CERS HAZ

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Feb 8, 2023

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites: DELISTED HAZ

This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.

Government Publication Date: Nov 29, 2018

Sites in GeoTracker: GEOTRACKER

GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. This is a list of sites in GeoTracker that aren't otherwise categorized as LUST, Land Disposal Sites (LDS), Cleanup Sites, or sites having Waste Discharge Requirements (WDR). This listing includes program types such as Underground Injection Control (UIC), Confined Animal Facilities (CAF), Irrigated Lands Regulatory Program, plans, and non-case information.

Government Publication Date: Feb 27, 2023

Mines Listing: MINE

This list includes mine site locations extracted from the Mines Online database, maintained by the California Department of Conservation. Mines Online (MOL) is an interactive web map designed with GIS features that provide information such as the mine name, mine status, commodity sold, location, and other mine specific data. Please note: Mine location information is provided to assist experts in determining the location of mine operators in accordance with California Civil Code section 1103.4 and reflects information reported by mine operators in annual reports provided under Public Resources Code section 2207. While the Division of Mine Reclamation (DMR) attempts to populate MOL with accurate location information, the DMR cannot guarantee the accuracy of operator reported location information.

Government Publication Date: Dec 19, 2022

Recorded Environmental Cleanup Liens: LIEN

The California Department of Toxic Substance Control (DTSC) maintains this list of liens placed upon real properties. A lien is utilized by the DTSC to obtain reimbursement from responsible parties for costs associated with the remediation of contaminated properties.

Government Publication Date: Aug 3, 2022

Waste Discharge Requirements: WASTE DISCHG

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Government Publication Date: Feb 27, 2023

Toxic Pollutant Emissions Facilities: EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program. This program requires emission inventory updates every four years.

Government Publication Date: Dec 31, 2020

Clandestine Drug Lab Sites: CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.

Government Publication Date: Jan 19, 2021

Tribal

No Tribal additional environmental record sources available for this State.

County

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

EXHIBIT C-2

GENERAL PUBLIC RECORDS

NOT APPLICABLE FOR THIS REPORT

APPENDIX D

INTERVIEW RECORDS

RECORD OF COMMUNICATION						
Project Name: Proposed Development			Location (city): Kerman, California			
Communication with: Joseph Crown						
Of: Joseph Crown Construction and Development						
Location: Fresno, CA			Phone: 559 840-7971			
Communication via	**X**	Telephone		Letter		In Person
Recorded By: Paul Humphrey			Of: SEE's			
At: (time): 1230			On (date): May 12, 2023			
Re: Property Use						
Summary of Communication: Mr. Crown indicated he was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Subject Property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Subject Property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products. According to Mr. Crown, the on-site mounded soil originated from the vacant land area of the site during pre-grading activities conducted in late April 2023. He also indicated the mounded soil is to be utilized as fill soil for an off-site residential development.						
Conclusions/Required Action/Follow-up: None						

RECORD OF COMMUNICATION						
Project Name: Proposed Development			Location (city): Kerman, California			
Communication with: Clerk						
Of: Kerman Planning and Development Department						
Location: Kerman, Ca			Phone: 559			
Communication via		Telephone		Letter	**X**	In Person
Recorded By: Paul Humphrey			Of: SEE's			
At: (time): 1300			On (date): May 8, 2023			
Re: Records						
Summary of Communication: No records of land use limitations associated with the Subject Property.						
Conclusions/Required Action/Follow-up: None						

RECORD OF COMMUNICATION						
Project Name: Proposed Development				Location (city): Kerman, California		
Communication with: Steve Schaad						
Of: Former Owner of Subject Property						
Location: Kerman, Ca				Phone: 559 351-5835		
Communication via	**X**	Telephone		Letter		In Person
Recorded By: Paul Humphrey				Of: SEE's		
At: (time): 1245				On (date): May 12, 2023		
Re: Records						
Summary of Communication: Mr. Schaad indicated he was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Subject Property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Subject Property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products. According to Mr. Schaad, the Subject Property was in agricultural use prior to his purchase in the early 2000s. Mr. Schaad indicated there are no wells or septic systems on the Subject Property and the only on-site improvements are two standpipes with valves for irrigation district water.						
Conclusions/Required Action/Follow-up: None						

RECORD OF COMMUNICATION						
Project Name: Proposed Development				Location (city): Kerman, California		
Communication with: Clerk						
Of: Fresno County Department of Environmental Health						
Location: Fresno, Ca				Phone: 559 562-7111		
Communication via	**X**	Website		Letter		In Person
Recorded By: Paul Humphrey				Of: SEE's		
At: (time): 1330				On (date): May 28, 2023		
Re: Records						
Summary of Communication: No records of the Subject Property.						
Conclusions/Required Action/Follow-up: None						

RECORD OF COMMUNICATION						
Project Name: Proposed Development			Location (city): Kerman, California			
Communication with: Receptionist						
Of: City of Kerman Fire						
Location: Kerman, Ca			Phone: 599			
Communication via		Telephone		Letter	**X**	In Person
Recorded By: Paul Humphrey			Of: SEE's			
At: (time): 1345			On (date): May 8, 2023			
Re: Records						
Summary of Communication: According to the clerk, no record was identified for the Subject Property and the area is under the jurisdiction of the Fresno County Department of Environmental Health.						
Conclusions/Required Action/Follow-up: None						

APPENDIX E

CLIENT PROVIDED DOCUMENTATION

NOT APPLICABLE FOR THIS REPORT

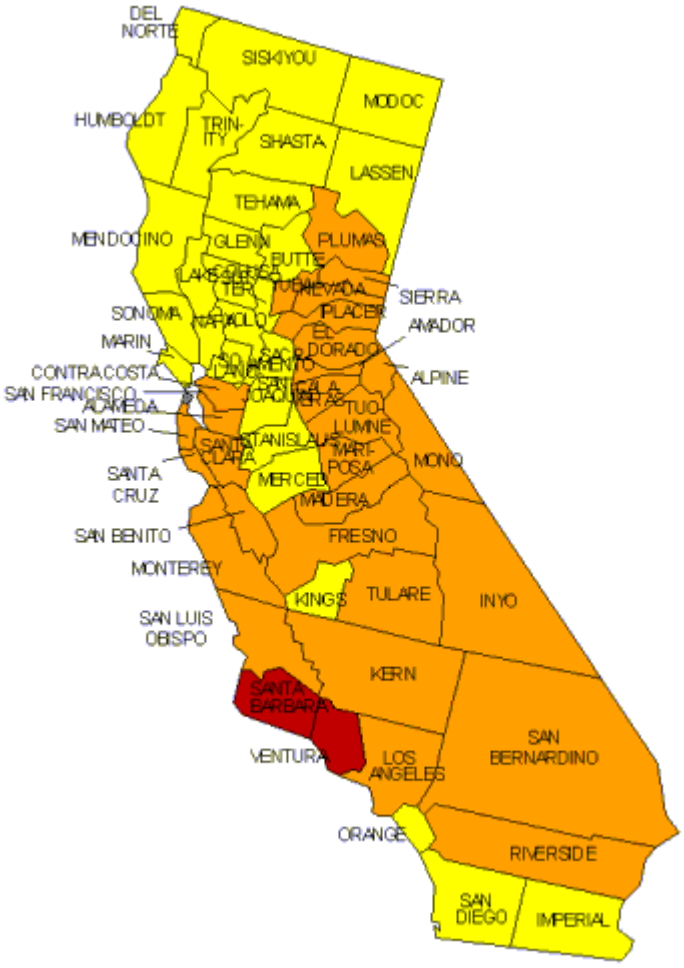
APPENDIX F

OTHER SUPPORTING DOCUMENTATION

Zone 1 Highest Potential (greater than 4 pCi/L)

Zone 2 Moderate Potential (from 2 to 4 pCi/L)

Zone 3 Low Potential (less than 2 pCi/L)



SEE'S CONSULTING & TESTING, INC. **P.O. BOX 28246** **FRESNO, CA 93729** **(559) 452-0100**	**RADON MAP**	N↑
PROJECT NO. 023050P	**SITE: APNS 020-140-23S AND 020-140-22S KERMAN, CA**	

APPENDIX G

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Paul J. Humphrey, REPA, CAC

Education:	College of the Sequoias, Visalia, California
	Associate of Science in Biology, 1994
Licenses/Registrations:	Registered Environmental Property Assessor #827718
	Certified Asbestos Consultant, #03-3495
Years of Experience:	Twenty Four

Summary of Professional Experience

Mr. Humphrey has more than twenty years experience in the environmental field including asbestos surveys, asbestos abatement monitoring and project design, environmental site assessment, soil and groundwater assessment and is an Environmental Professional as defined by the Environmental Protection Agency. Mr. Humphrey has conducted more than 2,000 Phase I Environmental Site Assessments of commercial, industrial, agricultural and multi-family residential properties in California, Nevada, Arizona, and Washington. Mr. Humphrey has more than two years experience in the ground-up development and management of a Hazardous Building Materials Department for a local environmental and engineering firm. Mr. Humphrey has also provided regulatory guidance, assessments, and asbestos surveys and monitoring to utility companies, flood control districts, public works departments, and branches of the military as part of facility expansion projects as well as new site development.

Mr. Humphrey's experience has included preliminary environmental assessments and various soil and groundwater investigations for highway expansion for the State of California Department of Transportation. Projects for the State of California highway expansion also included asbestos surveys of bridges and overpasses.

For a national environmental consulting firm, Mr. Humphrey served as Project Coordinator, where he performed and managed asbestos abatement oversight projects for national clients. Mr. Humphrey has also conducted environmental site assessments on multi-site industrial and commercial properties for various national financial institutions, developers, and property management companies. Assessments included limited and comprehensive surveys for asbestos, lead-based paint, lead-in-drinking-water and radon gas emissions.