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PROGRAM ENVIRONMENTAL IMPACT REPORT

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

STATE CLEARINGHOUSE NO. 2024020124

WESTLANDS WATER DISTRICT

JULY 2025

VOLUME II OF II
PEIR Appendices

APPENDIX A – PEIR SCOPING REPORT

July 2025

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

PEIR Scoping Report

SCH# 2024020124

Westlands Water District

July 2025

TABLE OF CONTENTS

VALLEY CLEAN INFRASTRUCTURE PLAN
PEIR SCOPING REPORT

1. Introduction 1

2. Project Summary 1
Energy Resource 2
Infrastructure Plan 2

3. Opportunities for Comment 2
Notification 2
Scoping Meetings 4

4. Summary of Scoping Comments 4
Comments Received at Scoping Meetings 4
Comments Received in Response to Notice of Preparation (NOP) 7
Organizations and Individuals Requesting Notifications on PEIR 11

Exhibits

A. Notice of Preparation (NOP)

B. NOP Mailing List

C. WWD Notification to District Landowners

D. Newspaper Notices

E. Scoping Meeting Agendas and Sign-in Sheets

F. Scoping Meeting Poster Boards

G. Scoping Meeting Presentation

H. Scoping Meeting Comment Cards

I. NOP Comment Letters

SCOPING REPORT

VALLEY CLEAN INFRASTRUCTURE PLAN – PEIR

1. Introduction

This report provides an overview and record of comments received by the Westlands Water District (District) during the scoping period for the Programmatic Environmental Impact Report (PEIR), which the District is preparing for the Valley Clean Infrastructure Plan (VCIP or Project). The 30-day review period began on February 2, 2024, with the issuance of the Notice of Preparation (NOP) for the PEIR. The NOP included notices of scoping meetings held on February 15 and February 28, 2024. Scoping comments were accepted through March 5, 2024 (The NOP for the VCIP PEIR is contained in **Exhibit A** of this document).

2. Project Summary

The Project is located in the Fresno County portion of the District's service area (Plan Area) on the westside of the San Joaquin Valley (Figure 1). The Valley Clean Infrastructure Plan (VCIP) provides a blueprint for the potential development of clean energy facilities and supporting infrastructure with an overall generating and delivery capacity of up to 21,000 MW on approximately 136,000 acres within the District.

The District's main objectives for VCIP are to repurpose drainage-impaired and other agricultural land for clean energy generation to promote agricultural productivity within the District by: 1) addressing the chronic shortage of surface water deliveries by facilitating redirection of scarce surface water allocations to other productive agricultural land; 2) facilitating SGMA implementation by contributing to the re-allocation of groundwater for irrigation on other productive agricultural land and mitigating risk of subsidence along the San Luis Canal/California Aqueduct; which in combination will result in increased reliability and resilience of agricultural water supply in the Westside Subbasin; and 3) providing for orderly development and decommissioning of clean energy facilities to promote preservation of agricultural production in the District.

The VCIP consists of an "Energy Resource Plan" and an "Infrastructure Plan" as described below.

Energy Resource Plan

The VCIP Energy Resource Plan is a master plan for clean energy development in the form of:
1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities, both of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners located within the Plan Area. It is anticipated that the DFAs would be built out over a 10-year period.

1. **Solar PV Generating Facilities.** Individual solar facilities would range in size from 100 to 1,150 MW, with a typical facility having a generating capacity of 250 MW on about 1,600 acres. Each solar facility would include an Operations and Maintenance (O&M) facility, and an onsite substation would convey the solar generation to a gen-tie line (described below). A typical solar facility would

include a battery energy storage component with a storage capacity equivalent to the generating capacity of the solar facility. Some solar facilities may be constructed without an integrated battery storage component.

2. **Energy Storage Facilities.** The VCIP also contemplates a series of stand-alone energy storage facilities which would operate independently of solar generation facilities. It is anticipated that the storage facilities would range in capacity from 100 MW to 1,150 MW, with a typical facility having a capacity of 250 MW. The main storage technology would likely consist of lithium-ion batteries, but other forms of storage could also be utilized. It is anticipated that the stand-alone storage facilities would be located near the VCIP collection substations (described below) to minimize gen-tie line length.

Infrastructure Plan

The VCIP Infrastructure Plan includes the following supporting elements for conveyance of solar generation to the state's load centers: 1) gen-tie lines, 2) collection substations, 3) connector transmission lines, and 4) delivery transmission lines, as follows:

1. **Gen-Tie Lines.** Each solar PV generating facility and stand-alone energy storage facility would be served by a 230-kV or 500-kV generation-interconnection tie-line (gen-tie line) which would convey the generated power to one of five 500/230-kV collection substations within VCIP.

2. **Collection Substations.** The Infrastructure Plan includes five collection substations which would be distributed from north to south along the VCIP connector transmission corridor (described below). These 500/230-kV substations would serve as collection points for power generated in the surrounding DFAs as received from the gen-tie network and would provide interconnection to the state's power grid.

3. **Connector Transmission Lines within VCIP.** The five collection substations within VCIP would be connected by a backbone 500-kV transmission corridor running through the eastern portion of the District in a generally north-south direction.

4. **Delivery Transmission Lines Outside VCIP.** New bulk delivery transmission lines would be needed to deliver VCIP renewable generation to load centers in northern and southern California. These 500-kV transmission lines would be subject to the state's transmission planning and approval processes and are anticipated to be constructed, owned, and operated by public utilities, government utilities, or merchant transmission owners.

3. Opportunities for Comment

Notification

On February 2, 2024, the District published and distributed a Notice of Preparation (NOP) to advise interested local, regional, state, and federal agencies, as well as the public, that a PEIR would be prepared for the Project. The NOP was sent to a mailing list that included Tribes; local, state, and federal agencies; other interested parties; and the Governor's Office of Planning and Research, State Clearinghouse. The NOP also was emailed to all parties on the distribution list for whom the District had an email address, and was posted with the Fresno County Clerk and the Kings County Clerk. Also, an electronic copy of the NOP was posted on the District's website at: https://wwd.ca.gov/news-and-reports/environmental-docs/. The NOP is provided as **Exhibit A**, *Notice of Preparation*, and the NOP

mailing list is provided as **Exhibit B**, *NOP Mailing List*. Additionally, the District provided notice to landowners within its service area of its intended preparation of the PEIR and of the availability of the NOP at the above web address. A copy of the landowner notice is provided as **Exhibit C**, *WWD Notice to District Landowners*. In addition, the District notified the public about the NOP and two planned scoping meetings through two newspaper legal advertisements published in the Fresno Bee and Hanford Sentinel on February 2, 2024. Copies of the legal notices are provided as **Exhibit D**, *Newspaper Notices*.

Scoping Meetings

The District conducted two scoping meetings, as described below.

First Scoping Meeting – District Headquarters – February 15, 2024

The District conducted the first scoping meeting on Thursday, February 15 from 6 p.m. to 7 p.m. at District Headquarters, 286 W. Cromwell Avenue, Fresno. Remote access to the scoping meeting was provided through Zoom. The sign-in sheets from the Scoping Meetings are provided in **Exhibit E**, *Scoping Meeting Sign-in Sheets*. Poster Boards displayed at the Scoping Meetings are provided in **Exhibit F**. The Power Point Presentation (**Exhibit G**) included an overview of the Project and the environmental review process. Meeting participants included: Jose Gutierrez and Russ Freeman of Westlands Water District; Bert Verrips of Verrips Consulting; and representatives from Golden State Clean Energy, LLC, including support staff. No members of the public attended the scoping meeting in person, and three members of the public attended remotely via Zoom. No in-person comments were received during the meeting, and comments were received orally from two remote participants on Zoom. The oral comments are summarized below.

Second Scoping Meeting – Cantua Creek Elementary School – February 28, 2024

The District conducted the second scoping meeting on Wednesday, February 28 from 6 p.m. to 7 p.m. at the Cantua Creek Elementary School, 29288 W. Clarkson Avenue, Cantua Creek. The meeting was in-person only, with no remote access via Zoom. Spanish language translators were engaged to provide simultaneous translation of the presentation to members of the public who were provided wireless headsets upon request. The Poster Boards (in English and Spanish) displayed at the Scoping Meeting are provided in **Exhibit F**. The Power Point Presentation (**Exhibit G**) included an overview of the project and the environmental review process. Meeting participants included: Jose Gutierrez of Westlands Water District; Bert Verrips of Verrips Consulting; and representatives from Golden State Clean Energy, LLC, including support staff. Nineteen members of the public attended the scoping meeting. Three oral comments and three written comments were received during the meeting. The comment cards received are provided in **Exhibit H**, *Scoping Meeting Comment Cards*. The comments received are summarized below.

4. Summary of Scoping Comments

A total of eight comments (oral and written) were received at the two scoping meetings, and nine comment letters were received in response to the NOP. Table 1 lists the names of the commenting parties at the two scoping meetings in the order the comments were received. The table is followed by summaries of the comments provided by each commenter. Table 2 then lists the names and organizations of commenters who submitted comment letters on the NOP. Table 2 is followed by summaries of each of the comment letters received. The full comment letters are included in **Exhibit I**.

Table 1
Parties Submitting Comments at the
Scoping Meetings on the VCIP PEIR

Name	Organization/Affiliation	Commenter ID	Oral/Written?
First Scoping Meeting	**– District Headquarters – Fresno**	**– February 15,**	**2024**
Yousef al-Ramsi (*sp*)	Individual	1	Oral via Zoom
Seth Walia (*sp*)	Individual	2	Oral via Zoom
Second Scoping Meeting	**– Cantua Creek School**	**– February 28,**	**2024**
Jamie Katz	Leadership Counsel for Justice and Accountability	3	Oral in person
David Rivas	Nor Cal Carpenters Union	4	Oral in person
Mariana Alvarenga	Leadership Council for Justice and Accountability	5	Oral in person
Maria Dolores Diaz	Cantua Creek Resident	6	Comment Card
Esther Ramirez	Cantua Creek Resident	7	Comment Card
Vicente Maria Zermento	Cantua Creek Resident	8	Comment Card

Comments Received at Scoping Meetings

1. Yousef al-Ramsi (*sp*)

Commenter asked if District already knows which communities surround the boundaries of the Plan Area and if there are any Reservations. [District staff responded that communities within and adjacent to the Plan Area include the cities of Huron and Mendota, and the communities of Cantua Creek, El Provenir (Three Rocks), Five Points, and Tranquillity. The Santa Rosa Rancheria of the Tachi Yokut Tribe is located outside the Plan Area near Lemoore.]

Commenter asked if the communities mentioned include sensitive receptors for noise assessments. [Environmental consultant responded that the PEIR will study noise impacts to sensitive receptors.]

Commenter asked why the PowerPoint Presentation highlighted the topics of agriculture, biology, and air quality. [Environmental Consultant responded that agriculture was an important subject because the Plan Area lies entirely within an agricultural district; and biology and air quality were highlighted because those would be the subject of detailed technical analysis by consultants specializing in those fields.]

Commenter asked that given the energy storage batteries would likely utilize lithium, and considering the potential for shortages of lithium, would the District study the possible emissions that are caused by mining lithium. [Environmental consultant responded that the CEQA does not require analysis of life-cycle impacts (i.e., "cradle to grave") and that it requires the analyses to be focused on the physical impacts of the project itself on its setting. As such, the mining impacts of lithium will not be addressed in the PEIR; however, the potential impacts from lithium battery systems within the solar and energy storage projects will be addressed.]

2. Seth Walia (*sp*)

Commenter asked about the visual impacts of the project, particularly the glare or reflectivity impacts from the solar panels since some of them will be next to I-5. He also wanted to know if other visual/aesthetic impacts of the project would be studied. [Environmental consultant responded that the PEIR will include a full evaluation of visual and aesthetic impacts, including light and glare/reflectivity.]

3. Jamie Katz, Leadership Council for Justice and Accountability

Commenter asked if the project would provide direct energy benefits to residents who live in proximity to the solar fields. For example, would they receive reductions in their energy bills or additional resilience against blackouts in the event of strain on the grid? [Environmental consultant responded that those matters would not be decided at this very preliminary stage in project planning, so those issues would not be addressed at in the PEIR.]

Commenter asked if the energy generated by the solar arrays would all be put on the grid, or is it also intended to be used for hydrogen production. [Environmental consultant responded that there is no plan or intention to include hydrogen production under the VCIP.]

4. David Rivas, Nor Cal Carpenters Union (NCCU)

The following is a nearly verbatim recitation of the statement by David Rivas, representative of NCCU. (The statement has been slightly edited for clarity.) The Nor Cal Carpenters Union represents about 36,000 members Northern California-wide, and 2,000 members in Fresno and Kings Counties. We support the broad vision and scope of the VCIP to transform the landscape of Fresno County by generation and storage of clean renewable energy throughout the region. As we examine the potential impacts of the project on the environment, we urge you to consider ways to reduce negative impacts on the environment to ensure that we serve the local community. We support that the project be built by contractors who participate in joint labor-management programs and that the contractors make commitments to hire local work forces. Community benefits such as local hiring can reduce the environmental impacts on the local communities. Local hiring programs require that certain percentages of the workers come from the surrounding counties of the project. This will in turn reduce greenhouse gas emissions and reduce commute times to and from the job and provide local economic benefits by allowing the people who live in the community to work in the community. As a plan of this magnitude warrants, we urge that you consider the broad and far-reaching impacts of the VCIP during the planning stages. We look forward to the opportunity that the VCIP can bring to our community and

urge Westlands, the developer, and the community to work together to ensure that the project is economically sound and economically equitable. [No response was provided to these general comments.]

5. <u>Mariana Alvarenga, Leadership Council for Justice and Accountability</u>

The following is a nearly verbatim recitation of the statement by Mariana Alvarenga, representative of the Leadership Council for Justice and Accountability. (The statement has been slightly edited for clarity.)

First, we see the map of VCIP, but are there any addresses in particular? If there is going to be any solar located around Cantua Creek, do you have any specific locations or addresses? [Environmental consultant responded that some of the landowners adjacent to Cantua Creek have indicated that they want to participate in the Plan. So there are lands that are close to Cantua Creek that might be developed under the VCIP. The PEIR will look at all of the impacts associated with those projects.]

Second, were the residents of nearby communities of Cantua Creek or Three Rocks or El Provenir contacted about this meeting? Did you send notices by mail or how did you outreach? [Environmental consultant responded that CEQA has very specific requirements about noticing, and that all of the affected agencies, persons, and organizations that were known to be interested in the Plan were notified. We know that almost 200 notices were sent to various interested parties and agencies. Newspaper notices were published in the Fresno Bee and Hanford Sentinel, and the NOP was filed with the State and with the Fresno and Kings County clerks.]

Third, there is an issue with water usage. There are communities nearby that will be dependent on groundwater, including the communities of Cantua Creek and El Provenir which currently receive surface water. In two or three years, the communities will be transitioning to groundwater. So we are concerned about the water impact and making sure that VCIP development will not be competing with residents, and that community access to water will be ensured. [Environmental consultant responded that water impacts will be addressed in the PEIR, and thanked the commenter for the information on the transition to groundwater.]

6. <u>Maria Dolores Diaz, Cantua Creek Resident</u>

Comment card submitted in Spanish. English translation follows:

"Will land be used that has been used for agriculture and what will happen with the workers?"
"What benefits are there for the residents?"
[No response was provided to these general comments and questions.]

7. <u>Esther Ramirez, Cantua Creek Resident</u>

Comment card stated: "I am interested to know how this will benefit/harm our community."
[No response was provided to this general comment.]

8. <u>Vicente Maria Zermento, Cantua Creek Resident</u>

Comment card submitted in Spanish. English translation follows:

"What benefits will it bring for the food and workers and will our electric bill go down?"
[No response was provided to these general comments and questions.]

Table 2
Parties Submitting Written Comments in Response to the NOP on the VCIP PEIR

Name	Organization/Affiliation	Comment ID	Date
Cameron Vela	Native American Heritage Commission	A	February 9, 2024
Kathy Norton	U.S. Army Corps of Engineers	B	February 12, 2024
Jane S. Abrams	Adams Broadwell Joseph & Cardozo	C	February 20, 2024
Monique Wilber	California Department of Conservation, Division of Land Resource Protection	D	February 28, 2024
David Cookey-Gam	California Department of Conservation, Geologic Energy Management Division	E	February 28, 2024
Sophia Markowska	Defenders of Wildlife	F	March 1, 2024
Julie Vance	California Department of Fish and Wildlife	G	March 5, 2024
Lisa Damrosch	Pacific Coast Federation of Fishermen's Associations	H	March 4, 2024
Howard Penn, et al.	Environmental Coalition	I	March 4, 2024
Nataly Escobodo Garcia *and* Nayamin Martinez	Leadership Counsel for Justice and Accountability *and* Central California Environmental Justice Network	J	March 4, 2024
Tom Jordan	San Joaquin Valley Air Pollution Control District	K	April 12, 2024
Andy Cosentino	Fresno County Fire Protection District	L	April 10, 2024
Ricardo Ortega	Grassland Water District	M	July 8, 2024

Copies of the comment letters are provided in **Exhibit I**, *NOP Comment Letters*.

Summary of Comments Received on NOP

A. Native American Heritage Commission (NAHC)

The NAHC comment letter provides an overview of CEQA requirements related to historical and tribal cultural resources. The letter also sets forth the detailed requirements for tribal consultation as stipulated under Assembly Bill 52 and Senate Bill 18. The NAHC recommends early consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project as early as possible to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. For the full text of NAHC's comments, please refer to Comment Letter A in **Exhibit I** of this document. [The NAHC comments will be addressed in the 'Cultural Resources' and 'Tribal Cultural Resources' sections of the PEIR.]

B. U.S. Army Corps of Engineers

The comment letter from the Corps of Engineers states that the Corps has jurisdiction within the study area for waters of the United States, including the riverine habitat comprising Panoche, Cantua, and Los Gatos Creeks. The applicant should prepare an aquatic resources delineation and obtain authorization from the Corps prior to starting work on projects that would potentially result in discharges of dredged or fill material into waters of the United States. Every effort should be made to avoid filling waters of the United States. If waters of the United States are to be impacted, evaluation of cultural resources within the defined federal permit area and compliance with the federal Endangered Species Act will be required. [Potential impacts to waters of the United States will be addressed in the "Biological Resources" section of the PEIR.]

C. <u>Adams Broadwell Joseph & Cardozo</u>

The Adams Broadwell letter requests, on behalf of the California Unions for Reliable Energy (CURE), that the District provide notice of the availability of any environmental review document as well as a copy of the environmental review document when available, and requests mailed notice of any and all hearings and/or actions related to the Project. [The District will provide the requested notices and documents when available.]

D. <u>California Department of Conservation, Division of Land Resource Protection</u>

The comment letter from CDOC's Division of Land Resource Protection notes that the Plan Area contains Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, and that portions of the Plan Area are subject to Williamson Act contracts. The comment letter provides detailed advice on addressing impacts and mitigation measures for agricultural land, and on addressing compatibility with the Williamson Act. For the full text of the CDOC's comments, please refer to Comment Letter C in **Exhibit I** of this document. [Agricultural impacts will be addressed in the "Agriculture and Forestry Resources' section of the PEIR.]

E. <u>California Department of Conservation, Geologic Energy Management Division (CalGEM)</u>

The comment letter from CalGEM indicates that the Plan Area is within the boundaries of several oil and gas fields, and includes 421 known oil or gas wells. CalGEM advises against building over, or in any way impeding access to, oil, gas, or geothermal wells. Maintaining sufficient access is considered the ability for a well servicing unit and associated necessary equipment to reach a well from a public street or access way. CalGEM advises that all wells identified on the Project site prior to, or during, development activities be tested for liquid and gas leakage. Additional detailed requirements and recommendations regarding wells located within planned development areas are included in the comment letter. For the full text of CalGEM's comments, please refer to Comment Letter D in **Exhibit I** of this document. [CalGEM's comments will be addressed in the 'Hazards and Hazardous Materials' section of the PEIR.]

F. <u>Defenders of Wildlife</u>

The Defenders' comment letter expresses general support for renewable energy development that considers and minimizes impacts to biological resources, and particularly supports renewable development on impaired agricultural lands. The comment letter identifies species of concern and recommends biological surveys, evaluation of impacts and mitigation measures, including impacts to-connectivity corridors, potential for lake effects, and cumulative impacts. The comment letter also suggests that the PEIR address VCIP's effects on water supplies for endangered fish and wildlife. For the

full text of Defenders' comments, please refer to Comment Letter E in **Exhibit I** of this document. [Defenders comments will be addressed in the 'Biological Resources' section of the PEIR. The issue of water supply will also be addressed in the following sections of the PEIR: 'Agriculture and Forestry Resources,' 'Hydrology and Water Quality,' and 'Public Services.']

G. California Department of Fish and Wildlife (CDFW)

The comment letter from CDFW states that special-status species be considered, including the Federally endangered and State threatened San Joaquin kit fox, the State threatened Swainson's hawk, and the State species of special concern burrowing owl. Each project applicant is responsible for ensuring that implementation of their project does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes sections. To evaluate future project-related impacts on nesting birds, CDFW recommends that a qualified biologist conduct an assessment of nesting habitat during biological surveys in support of each project's CEQA document, and then conduct pre-activity surveys for active nests prior to construction, with follow-up monitoring as needed. To address Plan-wide impacts, CDFW recommends that the PEIR include a cumulative impact analysis of all biological resources that may be subject to significant impacts. For the full text of CDFW's comments, please refer to Comment Letter F in **Exhibit I** of this document. [CDFW's comments will be addressed in the 'Biological Resources' section of the PEIR.]

H. Pacific Coast Federation of Fishermen's Associations (PCFFA)

The PCFFA commented that the proposed VCIP would "facilitate the generation and distribution of up to 20,000 MW converting roughly 130,000 acres of agricultural lands to municipal and industrial uses." This letter further commented: "The potential for conversion of agricultural land to municipal and industrial use could conflict with local land use planning objectives. A robust assessment of impacts and the implementation of mitigation measures are indispensable." The letter also included comments regarding water supply, whether implementation of the VCIP would divert surface water from the federal Central Valley Project (CVP) to non-agricultural uses within the District, and related legal issues. The comment letter also suggests that the PEIR consider impacts to biological resources, air quality, transportation networks, and other construction-related effects. For the full text of PCFFA's comments, please refer to Comment Letter G in **Exhibit I** of this document. [PCFFA's comments will be addressed in the following sections of the PEIR: 'Agriculture and Forestry Resources,' 'Hydrology and Water Quality,' 'Public Services,' 'Air Quality,' and other sections.]

I. Environmental Coalition

This comment letter is signed by a number of environmental, planning, and industry associations. It is the same letter that is attached to the comment letter from the Pacific Coast Federation of Fishermen's Associations (PCFFA), which is summarized in item G above. For the full text of Coalition's comments, please refer to Comment Letter H in **Exhibit I** of this document. [The Coalition's comments will be addressed in the following sections of the PEIR: 'Agriculture and Forestry Resources,' 'Hydrology and Water Quality,' 'Public Services,' 'Air Quality,' and other sections.]

J. Leadership Council for Justice & Accountability *and* Central California Environmental Justice Network (CCEJN)

This comment letter discusses a range of issues that should be addressed in the PEIR relative to residents' health, quality of life, and environment. The issues listed in the letter include air quality, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, geology and

soils, fire hazards, noise, energy, aesthetics, cultural resources, and transportation. Specific issues raised include: public health impacts; heat-related health impacts and heat island effect; groundwater and impacts to small water systems, community water system, and domestic wells, alternatives, and cumulative impacts. For the full text of Leadership Council's and CCEJN's comments, please refer to Comment Letter I in **Exhibit I** of this document. [These comments will be addressed in the appropriate sections of the PEIR.]

K. <u>San Joaquin Valley Air Pollution Control District (SJVAPCD)</u>

After the close of the NOP comment period on the VCIP PEIR, the District received a comment letter from SJVAPCD, which the District elected to consider. The comment letter from SJVAPCD recognizes that the VCIP is master plan of development and thus addresses its comments to future renewable development under VCIP. In particular, SJVAPCD's letter recommends that the PEIR stipulate that future development projects within VCIP identify and characterize project construction and operation air emissions. The letter then recommends comparison of those emissions to SJVAPCD's significance thresholds, with requirements for mitigation of air quality impacts to the extent feasible at the individual project-specific level. If the Project is expected to have a significant impact, SJVAPCD recommends the PEIR also include a discussion on the feasibility of implementing a Voluntary Emission Reduction Agreement (VERA) for the Project.

SJVAPCD's letter also recommends that Health Risk Assessments (HRA) be performed for future projects. The letter recommends that the Project utilize the cleanest available offroad construction equipment, including the latest tier equipment to reduce emissions. Project related impacts on air quality should be reduced to levels of significance through incorporation of design elements such as the use of cleaner Heavy Heavy-Duty (HHD) trucks and vehicles, measures that reduce Vehicle Miles Traveled (VMT), and measures that increase energy efficiency.

The comment letter also identifies SJVAPCD's rules and regulations applicable to the Project, including: District Rules 2010 and 2201 - Air Quality Permitting for Stationary Sources, District Rule 9510 - Indirect Source Review (ISR), District Rule 4002 (National Emissions Standards), District Rule 4102 (Nuisance), District Rule 4601 (Architectural Coatings), District Regulation VIII (Fugitive PM10 Prohibitions), and District Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). [SJVAPCD's comments will be addressed in the following sections of the PEIR: 'Air Quality'.]

<u>L. Fresno County Fire Protection District (FCFPD)</u>

After the close of the NOP comment period on the VCIP PEIR, the District received a comment letter from FCFPD, which the District elected to consider. The comments from FCFPD are contained in a letter that refers extensively to Resolution 2025-02 adopted by the FCFPD Board of Directors, which is attached to the comment letter. The comment letter states: "As set forth in Resolution 2025-02, the FCFPD has determined that that there is both a direct impact and cumulative impact on emergency response capabilities of the FCFPD to respond to fire, rescue, and medical services emergencies posed by the operation of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities ("PV projects"). The comment letter requests that the project proponent(s) be required to enter into a Fire Services Agreement with FCFPD consistent with Resolution 2025-02. According to FCFPD Resolution 2025-02, due to a state-mandated property tax exclusion for new solar facilities, the solar PV projects would not provide additional property tax revenues that would support FCFPD fire,

rescue and medical emergency services to the solar PV projects. According to FCFPD, this property tax exclusion for new solar facilities creates a need for fire services agreements between solar developers and FCFPD. [The FCFPD's comments will be addressed in the following sections of the PEIR: 'Hazards and Hazardous Materials,' and 'Public Services'.]

M. Grasslands Water District (GWD)

After the close of the NOP comment period on the VCIP PEIR, the District received a comment letter from GWD, which the District elected to consider. The letter contained comments on a Draft Supplemental EIR submitted by GWD on June 17, 2024, on another project outside the District – the Las Camas Solar Project located near the junction of Interstate 5 (I-5) and State Route (SR) SR-152 in Merced County. GWD submitted the comment letter to the District to convey its concerns regarding potential impacts of VCIP implementation on migrating birds, including the potential effects of nighttime lighting and potential "lake effect" of large solar facilities. [The GWD's comments will be addressed in the following sections of the PEIR: 'Biological Resources'.]

Organizations and Individuals Requesting Notifications on PEIR

The following representatives of organizations and individuals submitted letters or comment cards requesting to be included on a mailing/notification list for the VCIP PEIR:

Jane S. Abrams
Adams Broadwell Joseph & Cardozo

David Rivas
Nor Cal Carpenters Union

Jamie Katz
Leadership Counsel for Justice and Accountability

Mariana Alvarenga
Leadership Counsel for Justice and Accountability

Maria Dolores Diaz
Cantua Creek Resident

Esther Ramirez
Cantua Creek Resident

Vicente Maria Zermeno
Cantua Creek Resident

EXHIBIT A

Notice of Preparation (NOP)

E202410000032

Notice of Preparation

FILED
FEB 02 2024 TIME 11:21 am
FRESNO COUNTY CLERK
By _____ DEPUTY

Notice of Preparation

To: Responsible Agency

(Address)

From: Westlands Water District
P.O. Box 5199
Fresno, CA 93755
(Address)

Subject: Notice of Preparation of a Draft Environmental Impact Report

Westlands Water District will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (☐ is ☒ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Jose Gutierrez at the address shown above. We will need the name for a contact person in your agency.

Project Title: Valley Clean Infrastructure Plan (VCIP)

Project Applicant, if any: N/A

Date February 2, 2024

Signature _____

Title Assistant General Manager

Telephone (559) 224-1523

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

E202410000032

NOTICE OF PREPARATION

DATE: February 2, 2024

TO: State Clearinghouse; Responsible and Trustee Agencies; and Other Interested Parties

SUBJECT: Notice of Preparation of an Environmental Impact Report

PROJECT: Valley Clean Infrastructure Plan

LEAD AGENCY: Westlands Water District
286 W. Cromwell Avenue
Fresno, CA 93711

Westlands Water District (District) intends to prepare a Programmatic Environmental Impact Report (PEIR) for its proposed Valley Clean Infrastructure Plan (Project). The District is the Lead Agency under the California Environmental Quality Act (CEQA). The District invites written comments on the scope of the environmental analysis and identification of potential environmental issues to be included in the PEIR.

Notice of Preparation: This Notice of Preparation (NOP) has been sent to the Office of Planning and Research, responsible and trustee agencies, other public agencies, and interested members of the public to inform them that the District is preparing a PEIR and to solicit information that will be helpful in the environmental review process. This notice includes a description of the Project and information regarding how to provide comments to the District.

Comment Period: The District is requesting input from responsible and trustee agencies, other public agencies, and interested members of the public regarding the scope and content of the environmental information to be included in the PEIR. Agency responses should identify the issues to be considered in the PEIR, including significant environmental issues, and reasonable alternatives and mitigation measures, and other pertinent information consistent with CEQA Guidelines Section 15082(b).

State law mandates that responses must be sent at the earliest possible date, but postmarked within 30 days from this notice. The 30-day public review period for this NOP extends from **February 2, 2024** to **March 4, 2024**. Please provide any written comments (either by mail or electronically) no later than **5:00 pm on March 4, 2024.** Please direct all comments to the following address:

Westlands Water District
P.O. Box 5199
Fresno, CA 93755
vcip@wwd.ca.gov

Document Availability: This NOP is available for review on the District's website: https://wwd.ca.gov/news-and-reports/environmental-docs/.

E202410000032

Scoping Meetings: Two public meetings will be held during the 30-day review period to solicit comments on the scope and content of the PEIR. The **First Scoping Meeting** will be held from **6 p.m. to 8 p.m.** on **February 15, 2024** at the District's main office at **286 W. Cromwell Avenue, Fresno.**

Virtual access to the first public scoping meeting will be available via the Zoom web conference application. To join the meeting, please click the following link or join by phone:

Join on your computer or mobile app
https://wwd-ca-gov.zoom.us/j/85734077840?pwd=NXUxMWp5K3g5Nzk0ejRKYXFtT3JPUT09

Meeting ID: 857 3407 7840
Passcode: 3130

Or call in (audio only)

+1 669 444 9171 United States
Meeting ID: 857 3407 7840
Passcode: 3130

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The scoping meeting will include a brief presentation, providing an overview of the Project. After the presentation, comments will be accepted. Individuals wishing to provide comments during the meeting are encouraged to first register by emailing Russ Freeman at rfreeman@wwd.ca.gov (please include "**Valley Clean Infrastructure Plan PEIR Scoping Meeting Comment Registration**" in the subject line).

The **Second Scoping Meeting** will be held from **6 p.m. to 8 p.m.** on **February 28, 2024** at the **Cantua Creek Elementary School** located at **29288 W. Clarkson Avenue, Cantua Creek.** This meeting will be in-person only, with no remote access via Zoom or audio.

Project Location and Overview: The Project is located in the Fresno County portion of the District on the westside of the San Joaquin Valley (Figure 1). The Valley Clean Infrastructure Plan (VCIP) provides a blueprint for the development of clean energy facilities and supporting infrastructure with an overall generating and delivery capacity of up to 20,000 MW on approximately 130,000 acres of repurposed farmland.

The District's main objectives for VCIP are to repurpose drainage-impaired and other agricultural land for clean energy generation in order to promote enhanced agricultural productivity within the District by: 1) constructively addressing the chronic shortage of surface water deliveries by facilitating redirection of scarce surface water allocations to other productive agricultural land; 2) facilitating SGMA implementation by contributing to the re-allocation of groundwater for irrigation on other productive agricultural land and mitigating risk of subsidence along the San Luis Canal/California Aqueduct; which in combination will result in increased reliability and resilience of agricultural water supply in the Westside Subbasin; and 3) providing for orderly development and decommissioning of clean energy facilities to promote preservation of agricultural land within the District.

E202410000032

PROJECT SUMMARY

The VCIP consists of an "Energy Resource Plan" and an "Infrastructure Plan" as described below.

Energy Resource Plan

The VCIP Energy Resource Plan is a master plan for clean energy development in the form of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities, both of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners located within the Fresno County portion of the Westlands Water District service area. It is anticipated that the DFAs would be built out over a 10-year period.

1. **Solar PV Generating Facilities.** Individual solar facilities would range in size from 100 to 1,150 MW, with a typical facility having a generating capacity of 250 MW on about 1,600 acres. Each solar facility would include an Operations and Maintenance (O&M) facility, and an onsite substation which would convey the solar generation to a gen-tie line (described below). A typical solar facility would include a battery energy storage component with a storage capacity equivalent to the generating capacity of the solar facility. Some solar facilities may be constructed without an integrated battery storage component.

2. **Energy Storage Facilities.** The VCIP also contemplates a series of stand-alone energy storage facilities which would operate independently of solar generation facilities. It is anticipated that the storage facilities would range in capacity from 100 MW to 1,150 MW, with a typical facility having a capacity of 250 MW. The main storage technology would likely consist of lithium-ion batteries, but other forms of storage could also be utilized. It is anticipated that the stand-alone storage facilities would be located near the VCIP collection substations (described below) in order to minimize gen-tie line length.

Infrastructure Plan

The VCIP Infrastructure Plan includes the following supporting elements for conveyance of solar generation to the state's load centers: 1) gen-tie lines, 2) collection substations, 3) connector transmission lines, and 4) delivery transmission lines, as follows:

1. **Gen-Tie Lines.** Each solar PV generating facility and stand-alone energy storage facility would be served by a 230-kV or 500-kV generation-interconnection tie-line (gen-tie line) which would convey the generated power to one of five 500/230-kV collection substations within VCIP.

2. **Collection Substations.** The Infrastructure Plan includes five collection substations which would be distributed from north to south along the VCIP connector transmission corridor (described below). These 500/230-kV substations would serve as collection points for power generated in the surrounding DFAs as received from the gen-tie network and would provide interconnection to the state's power grid.

3. **Connector Transmission Lines within VCIP.** The five collection substations within VCIP would be connected by a backbone 500-kV transmission corridor running through the eastern portion of the District in a generally north-south direction.

4. **Delivery Transmission Lines Outside VCIP.** In order to deliver VCIP renewable generation to load centers in northern and southern California, new bulk delivery transmission lines would be needed. These 500-kV transmission lines would be subject to the state's transmission planning and approval processes and are anticipated to be constructed, owned, and operated by public utilities, government utilities, or merchant transmission owners.

DISCRETIONARY APPROVALS

In addition to certification of the Programmatic EIR and approval of the VCIP by the District, subsequent discretionary approvals would be required for individual projects proposed under the VCIP. The solar PV and energy storage projects and associated gen-tie lines would require approval of Conditional Use Permits (CUPs) by Fresno County. The collection substations and transmission lines would require approval by the California Public Utilities Commission (CPUC) or other public agencies with regulatory authority. It is anticipated that all of these subsequent project-specific approvals would require project-level environmental review under CEQA by the approving agencies.

POTENTIAL PROJECT IMPACTS

In accordance with Section 15126 of the CEQA Guidelines, the PEIR will assess the reasonably foreseeable physical changes to the environment that would likely result from implementation of the Project, including direct, indirect and cumulative impacts. The PEIR will identify mitigation measures if necessary and feasible to avoid or substantially reduce Project impacts. The PEIR also will consider alternatives to the Project, including the "No Project" alternative.

The scope of the PEIR for the Project will be based in part on comments received in response to this NOP and public input received during the public scoping meeting. At a minimum, the following environmental issues will be analyzed in the PEIR:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology/Soils and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Mineral Resources
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

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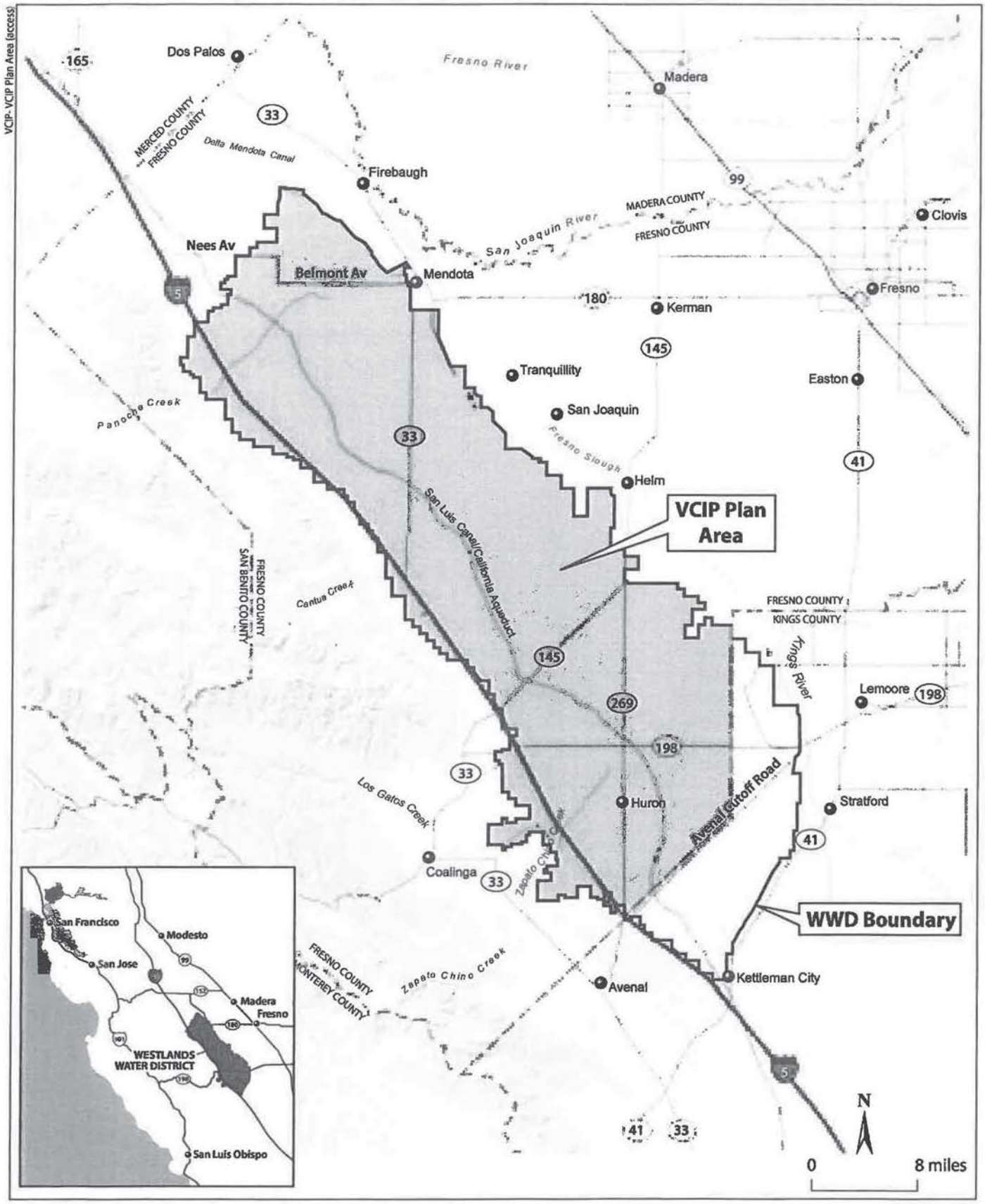

Source: Westlands Water District, 2022

Figure 1
Valley Clean Infrastructure Plan
Plan Area

RECORDING REQUESTED BY AND WHEN RECORDED RETURN TO: WESTLANDS WATER DISTRICT P. O.BOX 5199 FRESNO, CA 93755	RECEIVED FEB 02 2024 KINGS COUNTY CLERK

SPACE ABOVE THIS LINE IS FOR RECORDERS USE ONLY

Notice of Preparation

Valley Clean Infrastructure Plan (VCIP)

TITLE OF DOCUMENT

SEPARATE PAGE PURSUANT TO GOVERNMENT CODE 27361.6

ADDITIONAL FEES MAY BE REQUIRED

Notice of Preparation

To: Responsible Agency

(Address)

From: Westlands Water District
P.O. Box 5199
Fresno, CA 93755
(Address)

Subject: Notice of Preparation of a Draft Environmental Impact Report

Westlands Water District will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (_ is ☒ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Jose Gutierrez at the address shown above. We will need the name for a contact person in your agency.

Project Title: Valley Clean Infrastructure Plan (VCIP)

Project Applicant, if any: N/A

Date February 2, 2024

Signature

Title Assistant General Manager

Telephone (559) 224-1523

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

NOTICE OF PREPARATION

DATE: February 2, 2024

TO: State Clearinghouse; Responsible and Trustee Agencies; and Other Interested Parties

SUBJECT: Notice of Preparation of an Environmental Impact Report

PROJECT: Valley Clean Infrastructure Plan

LEAD AGENCY: Westlands Water District
286 W. Cromwell Avenue
Fresno, CA 93711

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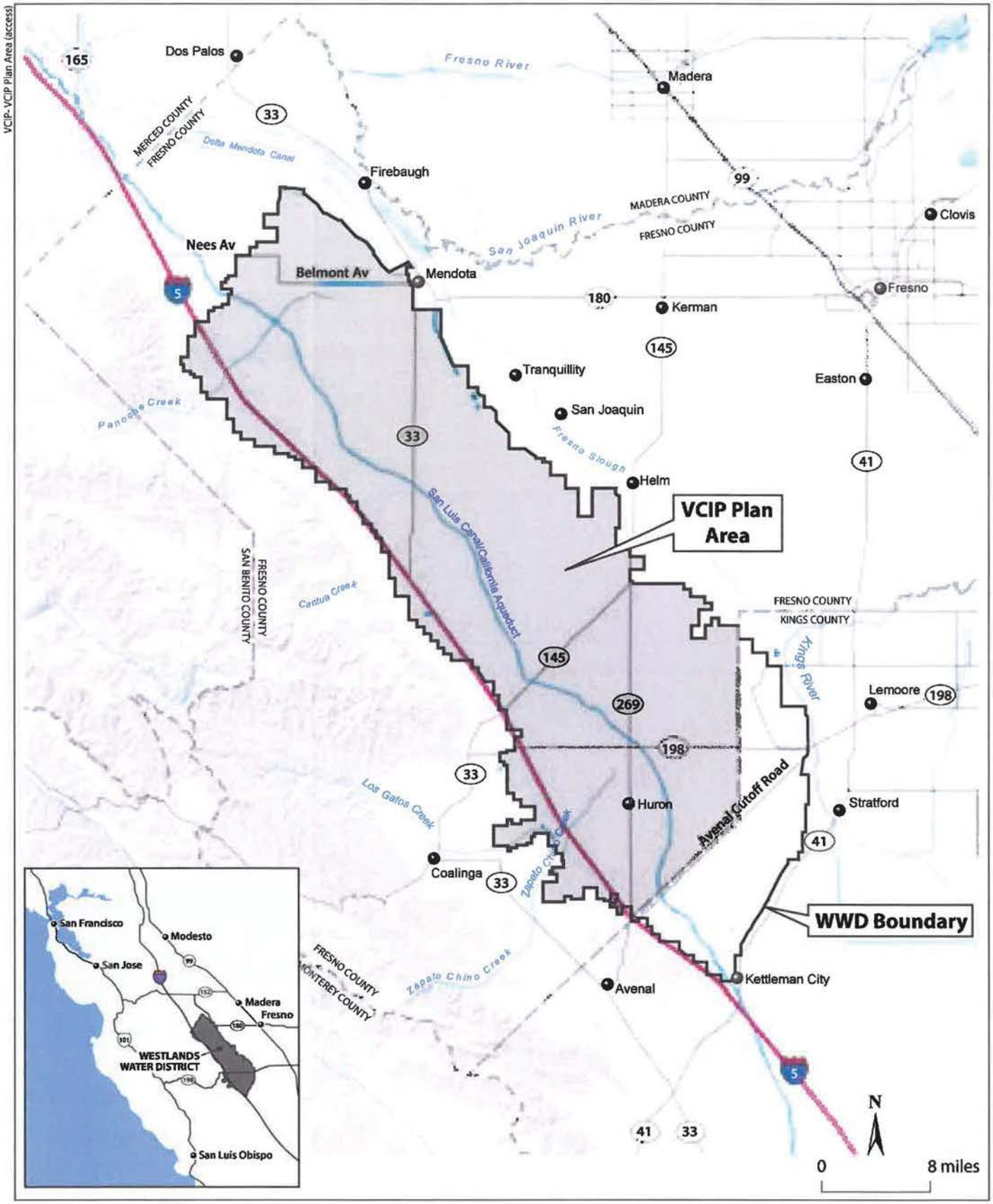
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire



Source: Westlands Water District, 2022

Figure 1
Valley Clean Infrastructure Plan
Plan Area

EXHIBIT B

NOP Mailing List

Agencies, Organizations, and Officials	
Federal Agencies	
U.S. Army Corps of Engineers (USACE)	Kathy Norton
U.S. Bureau of Reclamation (USBR)	Michael Jackson, Emerson Rain
U.S. Department of Agriculture (USDA), Natural Resources Conservation service (NRCS)	David Durnham
U.S. Environmental Protection Agency (US EPA), Region IX	Dawn Richmond
U.S. Fish and Wildlife Service (USFWS)	Patricia Cole
U.S. Navy, Naval Air Station Lemoore (NASL)	Cynthia Baruch, Gregory Woods, Steve Chung
Western Area Power Administration (WAPA) – Sierra Nevada Region	--
State Agencies	
California Department of Land Conservation, Division of Land Resource Protection	Dennis O'Bryant
California Department of Land Conservation, Geologic Energy Management Division	Chris Jones
California Department of Fish and Wildlife (CDFW)	Terry Palmisano, Steve Brueggema
California Department of Fish and Wildlife (CDFW), Region 4	Andy Gordus
California Department of Fish and Wildlife (CDFW), Region 8	Julie Vance
California Department of Food and Agriculture	--
California Department of Forestry and Fire Protection (CAL FIRE)– Fresno-Kings Unit	--
California Department of Toxic Substances Control (DTSC)	Dave Kereazis
California Department of Transportation (CalTrans), District 6	Dave Padilla, Randy Treece
California Department of Transportation (CalTrans), District 7	David Madden
California Energy Commission (CEC)	Terry O'Brian
California Environmental Protection Agency (Cal EPA)	--
California Highway Patrol – Fresno	Eric Walker
California Native American Heritage Commission (NAHC)	Katy Sanchez
California Public Utilities Commission (CPUC)	Mary Jo Borak
Governor's Office of Planning and Research (OPR), State Clearinghouse (SCH)	--
State Water Resources Control Board (SWRCB), Drinking Water Division	Jose Robledo
Regional Agencies	
California Regional Water Quality Control Board (RWQCB), Central Valley Region	Lewis Lumen
Central Valley Flood Protection Board	Leslie Gallagher
San Joaquin Valley Air Pollution Control District (SJVAPCD)	Arnaud Marjollet

NOP Mailing List – Cont'd

Counties	
Fresno County Agricultural Commissioner	--
Fresno County Division of Public Works and Planning	William Kettler
Fresno County Economic Development Corporation	Will Oliver
Fresno County Farm Bureau	--
Fresno County Fire Protection District	--
Fresno County Environmental Health Division	--
Fresno County Office of Emergency Services	--
Fresno County Sheriff's Office	--
Kern County Department of Planning and Natural Resources	Lorelei Oviatt
Kings County Community Development Agency	Chuck Kinney
Madera County – Water and Natural Resources	--
Cities (see also Elected and Appointed Officials on next page)	
City of Coalinga	Shannon Jensen
City of Firebaugh	Ben Gallegos
City of Fresno Department of Public Utilities	Patrick Wiemiller
City of Huron	Juanita M. Veliz
City of Mendota	Celeste Cabrera
City of San Joaquin	Lupe Estrada
City of Avenal	Angela Ortiz, Kao Nou Yang
City of Hanford	Natalie Corral
Hanford Chamber of Commerce	--
City of Lemoore	Mary J. Venegas
City of Madera	Alicia Gonzalez
City of Chowchilla	Joann McClendon
Utility Districts	
El Provenir – CSA 30 Community (Three Rocks)	--
Cantua Creek – CSA 32 Community	--
O'Neill Farms/Westside – CSA 49 Community	--
Tranquillity Public Utility District	--
School Districts	
Burrel Union Elementary School District	Elizabeth Runyon
Coalinga-Huron Unified School District	Johnny Garza
Firebaugh-Las Deltas Unified School District	Sarah Marshall
Golden Plains Unified School District	Anthony Hernandez
Mendota Unified School District	Paul Lopez
Riverdale Joint Unified School District	Jeff Percell
Westside Elementary School District	Baldomero Hernandez

NOP Mailing List – Cont'd

Water Districts, Authorities, and Associations	
Firebaugh Canal Water District	Jeff Bryant
James Irrigation District	Manny Amorelli
Panoche Water District	--
Pleasant Valley Water District	--
San Luis and Delta-Mendota Water Authority	--
San Luis Water District	--
Tranquillity Irrigation District	
Westlands Water District (WWD)	Jose Gutierrez, Katrina Campbell, Russ Freeman
Central Valley Project Water Association	--
Tribal Governments	
Dumna Wo Wah Tribal Government	Robert Ledger, Chairman
Santa Rosa Rancheria Tachi Yokut Tribe	Chairperson
Public Utilities and Balancing Authorities	
Pacific Gas & Electric (PG&E)	--
SoCalGas	James Chuang
Southern California Edison (SCE)	--
California Independent System Operator (CAISO)	--
Balancing Authority of Northern California (BANK)	Jim Shetler
Transmission Authority of Northern California (TANK)	--
Sacramento Municipal Utility District (SMUD)	--
Organizations	
Pacific Associates	Patricia Schifferle
Sierra Club, Tehipite Chapter	--
The Nature Conservancy	--
Law Firms	
Downey Brand LLP	Nicole Bigley
Lozeau Drury LLP	Richard Drury
Pioneer Law Group	Andrea Matarazzo
Elected and Appointed Officials	
U.S. Congress	
Senator Alex Padilla	Margaret Padilla
Senator Laphonza Butler	Shelly Abajian
Representative David Valadao	Andrew Renteria
Representative John Duarte	Sam Samra
Representative Jim Costa	Kathy Mahan
California Legislature	
State Senator Anna Caballero	Anna Velazquez
State Senator Melissa Hertado	Alicia Jacbo
Assembly Person Esmeralda Soria	Gilbert Felix
Assembly Person Devon Mathis	Matthew Tuttle

NOP Mailing List – Cont'd

Elected and Appointed Officials (Cont'd)		
Fresno County Board of Supervisors	**City of Mendota**	**Kings County Board of Supervisors**
Supervisor Brian Pacheco	Mayor Victor Martinez	Supervisor Richard Fagundes
Supervisor Steve Brandau	Mayor Pro Tem Liberty Lopez	Supervisor Joe Neves
Supervisor Sal Quintero	Council Member Jose Alonso	Supervisor Richard Valle
Supervisor Buddy Mendez	Council Member Joseph Riofrio	Supervisor Rusty Robinson
Supervisor Nathan Magsig	Council Member Oscar Rosales	Supervisor Doug Verboon
Clerk of the Board Bernice Seidel		Supervisor Richard Fagundes
		Clerk of the Board Catherine Venturella
City of Coalinga	**City of San Joaquin**	**City of Avenal**
Mayor James Horn	Mayor Julie Hernandez	Mayor Alvaro Preciado
Mayor Pro Tem Jose Manny Ramirez	Mayor Pro Tem Adam Flores	Mayor Pro Tem Alejandro Ramirez
Council Member Nathan Vosburg	Council Member Abel Lua	Council Member Lou Gravelle
Council Member Lonnie Hedgecock	Council Member Christina Covarrubia	Council Member Ricardo Verdugo
Council Member Adam Adkisson	Council Member Martha Dora	City Manager Anthony Lopez
City Manager Marissa Trejo	Elizabeth Ninez	City Clerk Maria Ortiz
City Clerk Shannon Jensen		
City of Firebaugh	**City of Chowchilla**	**City of Hanford**
Mayor Felipe Perez	Mayor Kelly Smith	Mayor Travis Paden
Mayor Pro Tem Elsa Lopez	Mayor Pro Tem Waseem Ahmed	Vice Mayor Mark Kairis
Council Member Freddy Valdez	Council Member Ray Barragan	Council Member Lou Martinez
Council Member Brady Jenkins	Council Member John Chevas	Council Member Diane Sharp
Council Member Silvia Renteria	Council Member Jeff Troost	Council Member Kalish Morrow
	City Administrator Rod Pruett	City Manager Mario Cifuentez
		City Clerk Natalie Corral
City of Huron	**City of Madera**	**City of Lemoore**
Mayor Rey Leon	Mayor Santos Garcia	Mayor Patricia Matthews
City Manager John Kunkel	Mayor Pro Tem Cece Gallegos	Mayor Pro Tem Frank Cornick
	Council Member Jose Rodriguez	Council Member David Orth
	Council Member Artemio Villegas	Council Member Stuart Lyons
	Council Member Elsa Mejia	City Clerk Mary J. Venegas
	Council Member Anita Evans	Jim Chaney
		City of Corcoran
		Vice Mayor Patricia Nolen
		Council Member Jerry Robertson
		City Manager Greg Gatzka

EXHIBIT C

WWD Notice to District Landowners

Westlands Water District

February 2, 2024

This notice contains important information about the following:

- **Notice of Preparation of a Programmatic Environmental Impact Report**

Notice of Preparation of a Programmatic Environmental Impact Report

Westlands Water District (District) intends to prepare a Programmatic Environmental Impact Report (PEIR) for its proposed Valley Clean Infrastructure Plan (Project). The District is the Lead Agency under the California Environmental Quality Act (CEQA).

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No. 731

EXHIBIT D

Newspaper Notices

McClatchy

The Beaufort Gazette
The Belleville News-Democrat
Bellingham Herald
Centre Daily Times
Sun Herald
Idaho Statesman
Bradenton Herald
The Charlotte Observer
The State
Ledger-Enquirer

Durham | The Herald-Sun
Fort Worth Star-Telegram
The Fresno Bee
The Island Packet
The Kansas City Star
Lexington Herald-Leader
The Telegraph - Macon
Merced Sun-Star
Miami Herald
El Nuevo Herald

The Modesto Bee
The Sun News - Myrtle Beach
Raleigh News & Observer
Rock Hill | The Herald
The Sacramento Bee
San Luis Obispo Tribune
Tacoma | The News Tribune
Tri-City Herald
The Wichita Eagle
The Olympian

AFFIDAVIT OF PUBLICATION

Account #	Order Number	Identification	Order PO	Amount	Cols	Depth
26270	516790	Print Legal Ad-IPL01581250 - IPL0158125		$4,907.68	6	98 L

Attention: Billing .

Westlands Water District

PO Box 5199
Fresno, California 93755
invoices@wwd.ca.gov

PUBLIC NOTICE

NOTICE OF PREPARATION

DATE: February 2, 2024
TO: State Clearinghouse; Responsible and Trustee Agencies; and Other Interested parties
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286 W. Cromwell Avenue
Fresno, CA 93711

Westlands Water District (District) intends to prepare a Programmatic Environmental Impact Report (PEIR) for its proposed Valley Clean Infrastructure Plan (Project). The District is the Lead Agency under the California Environmental Quality Act (CEQA). The District invites written comments on the scope of the environmental analysis and identification of potential environmental issues to be included in the PEIR.

Notice of Preparation: This Notice of Preparation (NOP) has been sent to the Office of Planning and Research, responsible and trustee agencies, other public agencies, and interested members of the public to inform them that the District is preparing a PEIR and to solicit information that will be helpful in the environmental review process. This notice includes a description of the Project and information regarding how to provide comments to the District.

Comment Period: The District is requesting input from responsible and trustee agencies, other public agencies, and interested members of the public regarding the scope and content of the environmental information to be included in the PEIR. Agency responses should identify the issues to be considered in the PEIR, including significant environmental issues, and reasonable alternatives and mitigation measures, and other pertinent information consistent with CEQA Guidelines Section 15082(b).

State law mandates that responses must be sent at the earliest possible date, but postmarked within 30 days from this notice. The 30-day public review period for this NOP extends from **February 2, 2024** to **March 4, 2024**. Please provide any written comments (either by mail or electronically) no later than **5:00 pm on March 4, 2024**. Please direct all comments to the following address: Westlands Water District, P.O. Box 5199, Fresno, CA 93755. **vcip@wwd.ca.gov**

Document Availability: This NOP is available for review on the District's website: **https://wwd.ca.gov/news-and-reports/environmental-docs/**.

Scoping Meetings: Two public meetings will be held during the 30-day review period to solicit comments on the scope and content of the PEIR. The **First Scoping Meeting** will be held from **6 p.m. to 8 p.m.** on **February 15, 2024** at the District's main office at **286 W. Cromwell Avenue, Fresno**.

Virtual access to the first public scoping meeting will be available via the Zoom web conference application. To join the meeting, please click the following link or join by phone:
Join on your computer or mobile app
https://wwd-ca-gov.zoom.us/j/85734077840?pwd=NXUxMWp5K3g5NzkOejRKYXFtT3JPUT09

Meeting ID: 857 3407 7840
Passcode: 3130

Or call in (audio only)
+1 669 444 9171 United States
Meeting ID: 857 3407 7840
Passcode: 3130

To ensure the best experience for attending this meeting virtually, please join via the Desktop or mobile Zoom application. The dial-in audio conferencing number should only be used if other options do not work or are not available.

The scoping meeting will include a brief presentation, providing an overview of the Project. After the presentation, comments will be accepted. Individuals wishing to provide comments during the meeting are encouraged to first register by emailing vcip@wwd.ca.gov (please include "Valley Clean Infrastructure Plan PEIR Scoping Meeting Comment Registration" in the subject line).

The **Second Scoping Meeting** will be held from **6 p.m. to 8 p.m.** on **February 28, 2024** at the Cantua Creek Elementary School located at **29288 W. Clarkson Avenue, Cantua Creek**. This meeting will be in-person only, with no remote access via Zoom or audio.

Project Location and Overview: The Project is located in the Fresno County portion of the District on the westside of the San Joaquin Valley (Figure 1). The Valley Clean Infrastructure Plan (VCIP) provides a blueprint for the development of clean energy facilities and supporting infrastructure with an overall generating and delivery capacity of up to 20,000 MW on approximately 130,000 acres of repurposed farmland.

The District's main objectives for VCIP are to repurpose drainage-impaired and other agricultural land for clean energy generation in order to promote enhanced agricultural productivity within the District by: 1) constructively addressing the chronic shortage of surface water deliveries by facilitating redirection of scarce surface water allocations to other productive agricultural land; 2) facilitating SGMA implementation by contributing to the re-allocation of groundwater for irrigation on other productive agricultural land and mitigating risk of subsidence along the San Luis Canal/California Aqueduct; which in combination will result in increased reliability and resilience of agricultural water supply in the Westside Subbasin; and 3) providing for orderly development and decommissioning of clean energy facilities to promote preservation of agricultural land within the District.

PROJECT SUMMARY

The VCIP consists of an "Energy Resource Plan" and an "Infrastructure Plan" as described below.

Energy Resource Plan
The VCIP Energy Resource Plan is a master plan for clean energy development in the form of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities, both of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners located within the Fresno County portion of the Westlands Water District service area. It is anticipated that the DFAs would be built out over a 10-year period.
1. Solar PV Generating Facilities. Individual solar facilities would range in size from 100 to 1,150 MW, with a typical facility having a generating capacity of 250 MW on about 1,600 acres. Each solar facility would include an Operations and Maintenance (O&M) facility, and an onsite substation which would convey the solar generation to a gen-tie line (described below). A typical solar facility would include a battery energy storage component with a storage capacity equivalent to the generating capacity of the solar facility. Some solar facilities may be constructed without an integrated battery storage component.
2. Energy Storage Facilities. The VCIP also contemplates a series of stand-alone energy storage facilities which would operate independently of solar generation facilities. It is anticipated that the storage facilities would range in capacity from 100 MW to 1,150 MW, with a typical facility having a capacity of 250 MW. The main storage technology would likely consist of lithium-ion batteries, but other forms of storage could also be utilized. It is anticipated that the stand-alone storage facilities would be located near the VCIP collection substations (described below) in order to minimize gen-tie line length.

Infrastructure Plan
The VCIP Infrastructure Plan includes the following supporting elements for conveyance of solar generation to the state's load centers: 1) gen-tie lines, 2) collection substations, 3) connector transmission lines, and 4) delivery transmission lines, as follows:
1. Gen-Tie Lines. Each solar PV generating facility and stand-alone energy storage facility would be served by a 230-kV or 500-kV generation-interconnection tie-line (gen-tie line) which would convey the generated power to one of five 500/230-kV collection substations within VCIP.
2. Collection Substations. The Infrastructure Plan includes five collection substations which would be distributed from north to south along the VCIP connector transmission corridor (described below). These 500/230-kV substations would serve as collection points for power generated in the surrounding DFAs as received from the gen-tie network and would provide interconnection to the state's power grid.
3. Connector Transmission Lines within VCIR The five collection substations within VCIP would be connected by a backbone 500-kV transmission corridor running through the eastern portion of the District in a generally north-south direction.
4. Delivery Transmission Lines Outside VCIR In order to deliver VCIP renewable generation to load centers in northern and southern California, new bulk delivery transmission lines would be needed. These 500-kV transmission lines would be subject to the state's transmission planning and approval processes and are anticipated to be constructed, owned, and operated by public utilities, government utilities, or merchant transmission owners.

DISCRETIONARY APPROVALS

In addition to certification of the Programmatic EIR and approval of the VCIP by the District, subsequent discretionary approvals would be required for individual projects proposed under the VCIP. The solar PV and energy storage projects and associated gen-tie lines would require approval of Conditional Use Permits (CUPs) by Fresno County. The collection substations and transmission lines would require approval by the California Public Utilities Commission (CPUC) or other public agencies with regulatory authority. It is anticipated that all of these subsequent project-specific approvals would require project-level environmental review under CEQA by the approving agencies.

POTENTIAL PROJECT IMPACTS

In accordance with Section 15126 of the CEQA Guidelines, the PEIR will assess the reasonably foreseeable physical changes to the environment that would likely result from implementation of the Project, including direct, indirect and cumulative impacts. The PEIR will identify mitigation measures if necessary and feasible to avoid or substantially reduce Project impacts. The PEIR also will consider alternatives to the Project, including the "No Project" alternative.

The scope of the PEIR for the Project will be based in part on comments received in response to this NOP and public input received during the public scoping meeting. At a minimum, the following environmental issues will be analyzed in the PEIR: Aesthetics, Agricultural Resources, Air Quality, Biological Resources, Cultural Resources, Energy, Geology/Soils and Paleontological Resources, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Mineral Resources, Noise, Public Services, Transportation, Tribal Cultural Resources, Utilities and Service Systems, Wildfire.
IPL0158125
Feb 2 2024

COUNTY OF DALLAS
STATE OF TEXAS

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.
The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 28, 1994, Action No. 520058-9.
The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

1 insertion(s) published on:

02/02/24

Isabel Capps

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated: 04/29/2024

Stephanie Hatcher

Notary Public in and for the state of Texas, residing in Dallas County

STEPHANIE HATCHER
My Notary ID # 133534406
Expires January 14, 2026

Extra charge for lost or duplicate affidavits.
Legal document please do not destroy!

*** Proof of Publication ***

The Sentinel
SM California News Media Inc.
P.O. Box 9
Hanford, CA 93232
Phone 559-582-0471 <+1-559-582-0471>
billing@hanfordsentinel.com

WESTLANDS WATER DISTRICT - LEGALS
PO BOX 6056
FRESNO CA 93703
USA

ORDER NUMBER 298236

Publication- The Hanford Sentinel

State of California

County of Kings

I am a citizen of the United States and a resident of the county foresaid; I am over the age of eighteen years, and not a part to or interested in the above entitled matter, I am the principal clerk of The Hanford Sentinel, a newspaper of general circulation, printed and published daily in the city of Hanford, County of Kings, and which newspaper has been adjudged a newspaper of general circulation by the superior court of the County of Kings, State of California, under the date of October 23, 1951, case number 11623.

That I know from my own personal knowledge the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspapers and not in any supplement thereof on the following dates, to wit:

Section: Legals
Category: 201 Public Notices
PUBLISHED ON: 02/02/2024

TOTAL AD COST:	867.03
FILED ON:	02/02/2024

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Kings County, California

This Day 2 of February, 2024

Signature RUTH SORIANO

Ad text : AD#298236

NOTICE OF PREPARATION

DATE: February 2, 2024

TO: State Clearinghouse; Responsible and Trustee Agencies; and Other Interested Parties

SUBJECT: Notice of Preparation of an Environmental Impact Report

PROJECT: Valley Clean Infrastructure Plan

LEAD AGENCY: Westlands Water District
286 W. Cromwell Avenue
Fresno, CA 93711

Westlands Water District (District) intends to prepare a Programmatic Environmental Impact Report (PEIR) for its proposed Valley Clean Infrastructure Plan (Project). The District is the Lead Agency under the California Environmental Quality Act (CEQA). The District invites written comments on the scope of the environmental analysis and identification of potential environmental issues to be included in the PEIR.

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Comment Period: The District is requesting input from responsible and trustee agencies, other public agencies, and interested members of the public regarding the scope and content of the environmental information to be included in the PEIR. Agency responses should identify the issues to be considered in the PEIR, including significant environmental issues, and reasonable alternatives and mitigation measures, and other pertinent information consistent with CEQA Guidelines Section 15082(b).

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Join on your computer or mobile app
https://wwd-ca-gov.zoom.us/j/85734077840?pwd=
NXUxMWp5K3g5Nzk0ejRKYXFtT3JPUT09

Meeting ID: 857 3407 7840
Passcode: 3130

Or call in (audio only)
+1 669 444 9171 United States
Meeting ID: 857 3407 7840
Passcode: 3130

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Aesthetics
Agricultural Resources
Air Quality
Biological Resources
Cultural Resources
Energy
Geology/Soils and Paleontological Resources
Greenhouse Gas Emissions
Hazards and Hazardous Materials
Hydrology and Water Quality
Land Use
Mineral Resources
Noise
Public Services
Transportation
Tribal Cultural Resources
Utilities and Service Systems
Wildfire

EXHIBIT E

Public Scoping Meeting Agendas and Sign-in Sheets

SCOPING MEETING

Thursday, February 15, 2024, 6:00 P.M.

Valley Clean Infrastructure Plan (VCIP)

ENVIRONMENTAL IMPACT REPORT

The purpose of this noticed public meeting is to obtain information and comments for preparation of a Draft Environmental Impact Report (EIR) for VCIP, to solicit input related to the project and its possible effects.

SCOPING MEETING AGENDA

1. **Introduction**
2. **Purpose of Scoping Meeting**
3. **Description of Plan Elements and Approvals**
4. **Overview of EIR Process**
    a. **Purposes of EIR**
    b. **Issues to be Covered in EIR**
    c. **EIR Process**
5. **Scoping Comments by Attendees**

The following sheet provides an opportunity for you to:

- provide your contact information;
- indicate your interest in receiving future notices relating to this EIR; and
- offer brief written comments.

If you have detailed comments to submit, staff recommends submitting them in writing. As set forth in the Notice of Preparation (NOP), written comments on the NOP must be received by 5:00 P.M. on Monday, March 4, 2024 by the Westlands Water District.

The full NOP is available at www.westlandswater.org [go to "Environmental Documents"].

Written comments on the NOP may be submitted using any of the following contact methods:

- Mail: Westlands Water District
  P.O. Box 5199
  Fresno, CA 93755
- Email: vcip@wwd.ca.gov

February 15, 2024 Scoping Meeting

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

ENVIRONMENTAL IMPACT REPORT

Comment and Request for Notification Sheet

PLEASE PRINT

Attendee Name: _____

Representing: _____
(Agency, Organization, Group)

Mailing Address: _____

_____

Telephone: ( ) _____ Fax: ( ) _____

Email: _____

☐ YES, please put me on a mailing/notification list for this EIR. [*check box*]

I have the following comments to submit at this time on the scope of the EIR:
[*Can continue your comments on back of sheet and/or attach additional sheets as needed*.]

_____

Scoping Meeting – Thursday, February 15, 2024
Valley Clean Infrastructure Plan (VCIP) – Environmental Impact Report

SIGN-IN SHEET				
First Name:	**Last Name:**	**Company/Organization:**	**Phone:**	**Email:**
Bert	Verrips	Environmental	714/838-0192	bverrips@aol.com
Danielle	Griffin	GSCE - Comms	559-967-3604	danielle@cohencommunications.com
Celeste	Zavala	GSCE- Comms	559-776-8911	celeste@cohencommunications.com
MATT	WEIR	GSCE - COMMS	831-524-1796	matt@cohencommunications.com
Jose	Gutierrez	WWD	559.241.6215	jgutierrez@wwd.ca.gov
ALEX	MARTINEZ	GSCE	559-301-2918	alex@goldenstatecleanenergy.com
Russ	Freeman	WWD	559 241 6241	rfreeman@wwd.ca.gov
Jon	REITER	McConnell Foran	559 301 3051	JON@CAVALKEI.COM
Danielle	Parren	Vista Consulting	559-360-9229	danielle@vistaconsultinginc.com
Debbie	Cohen	GSCE-Comms	559-222-1322	Debbie@CohenCommunications.com

SCOPING MEETING

Wednesday, February 28, 2024, 6:00 P.M.

Valley Clean Infrastructure Plan (VCIP)

ENVIRONMENTAL IMPACT REPORT

The purpose of this noticed public meeting is to obtain information and comments for preparation of a Draft Environmental Impact Report (EIR) for VCIP, to solicit input related to the project and its possible effects.

SCOPING MEETING AGENDA

1. **Introduction**
2. **Purpose of Scoping Meeting**
3. **Description of Plan Elements and Approvals**
4. **Overview of EIR Process**
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    b. **Issues to be Covered in EIR**
    c. **EIR Process**
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- indicate your interest in receiving future notices relating to this EIR; and
- offer brief written comments.

If you have detailed comments to submit, staff recommends submitting them in writing. As set forth in the Notice of Preparation (NOP), written comments on the NOP must be received by 5:00 P.M. on Monday, March 4, 2024 by the Westlands Water District.

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  P.O. Box 5199
  Fresno, CA 93755
- Email: vcip@wwd.ca.gov

February 28, 2024 Scoping Meeting

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

ENVIRONMENTAL IMPACT REPORT

Comment and Request for Notification Sheet

PLEASE PRINT

Attendee Name: _____

Representing: _____
(Agency, Organization, Group)

Mailing Address: _____

_____

Telephone: ( ) _____ Fax: ( ) _____

Email: _____

☐ YES, please put me on a mailing/notification list for this EIR. [*check box*]

I have the following comments to submit at this time on the scope of the EIR:
[*Can continue your comments on back of sheet and/or attach additional sheets as needed*.]

_____

REUNIÓN DE ALCANCE DEL PROYECTO

Valley Clean Infrastructure Plan (VCIP)

Miércoles, 28 de febrero de 2024, 6:00 p.m.

INFORME DE IMPACTO AMBIENTAL

El propósito de esta reunión pública notificada es obtener información y comentarios para la elaboración de un borrador del Informe de Impacto Ambiental (EIR, por sus siglas en inglés) del VCIP, y para solicitar comentarios relacionados con el proyecto y sus posibles efectos.

AGENDA DE LA REUNIÓN DE ALCANCE DEL PROYECTO

1. **Introducción**
2. **Propósito de la reunión de alcance del proyecto**
3. **Descripción de elementos del plan y autorizaciones**
4. **Descripción general del proceso del EIR**
    a. **Objetivos del EIR**
    b. **Temas a tratar en el EIR**
    c. **Proceso del EIR**
5. **Comentarios del alcance por parte de los asistentes**

La siguiente hoja le brinda la oportunidad de:

- proporcionar su información de contacto;
- indicar su interés en recibir avisos futuros relacionados con este EIR; y
- ofrecer breves comentarios escritos sobre el alcance adecuado del análisis ambiental.

Si tiene comentarios detallados que enviar, el personal recomienda enviarlos por escrito. Como se indica en el aviso de elaboración (NOP, por sus siglas en inglés), los comentarios escritos sobre el NOP serán recibidos hasta el lunes 4 de marzo de 2024 a las 5:00 p.m. por el Distrito de Westlands Water.

El NOP completo está disponible en wwd.ca.gov/news-and-reports/environmental-docs/

Se pueden enviar comentarios escritos sobre el NOP utilizando cualquier de los siguientes métodos de contacto:

- Correo: Distrito de Westlands Water
  P.O. Box 5199
  Fresno, CA 93755
- Correo electrónico: vcip@wwd.ca.gov

Scoping Meeting – Wednesday, February 28 2024
Valley Clean Infrastructure Plan (VCIP) – Environmental Impact Report

SIGN-IN SHEET				
First Name:	**Last Name:**	**Company/Organization:**	**Phone:**	**Email:**
Felipe	Perez	SEEN. TEAM	559-710-4832	fperez@seen.team
Keith Bergthold	Bergthold	RCI	559-250-1902	Keith@regencalca.org
Jose	Gutierrez	Westlands W.D.	559. 241. 6215	jgutierrez@wwd.ca.gov
Elizabeth	Jonasson	"		
DAVID	RIVAS	NCCV	510-457-8475	DRIVAS@NCCRC.ORG
Bert Verrips	Verrips	Consultant	714-838-0192	bverrips@aol.com
RAMON	AMARAL	NCCU	510 410 4953	ramaral@nccrc.org
Mariana	Alvarenga	LCJA	559-577-2920	malvarenga@leadershipcounsel.org
Jamie	Katz	LCJA	2602412[illegible]50	jbkatz@leadershipcounsel.org
Silvia	Garcia	NCCRC	(510) 406-0994	
Sergio	Jimenez	NCCRC	(559) 668-1112	Sjimenez@nccrc.org
JOE	MARASPINA	NCCRC	(510) 410-4907	JMARASPINA@NCCRC.ORG
Debbie	Cohen	Consultant GSCE	(559) 281-1312	debbie@cohencommunications.com
Matt	Weir	" "	(559) 222-1322	matt@cohencommunications.com
Danielle	Griffin	" "	"	danielle@cohencommunications.com

Scoping Meeting – Wednesday, February 28 2024
Valley Clean Infrastructure Plan (VCIP) – Environmental Impact Report

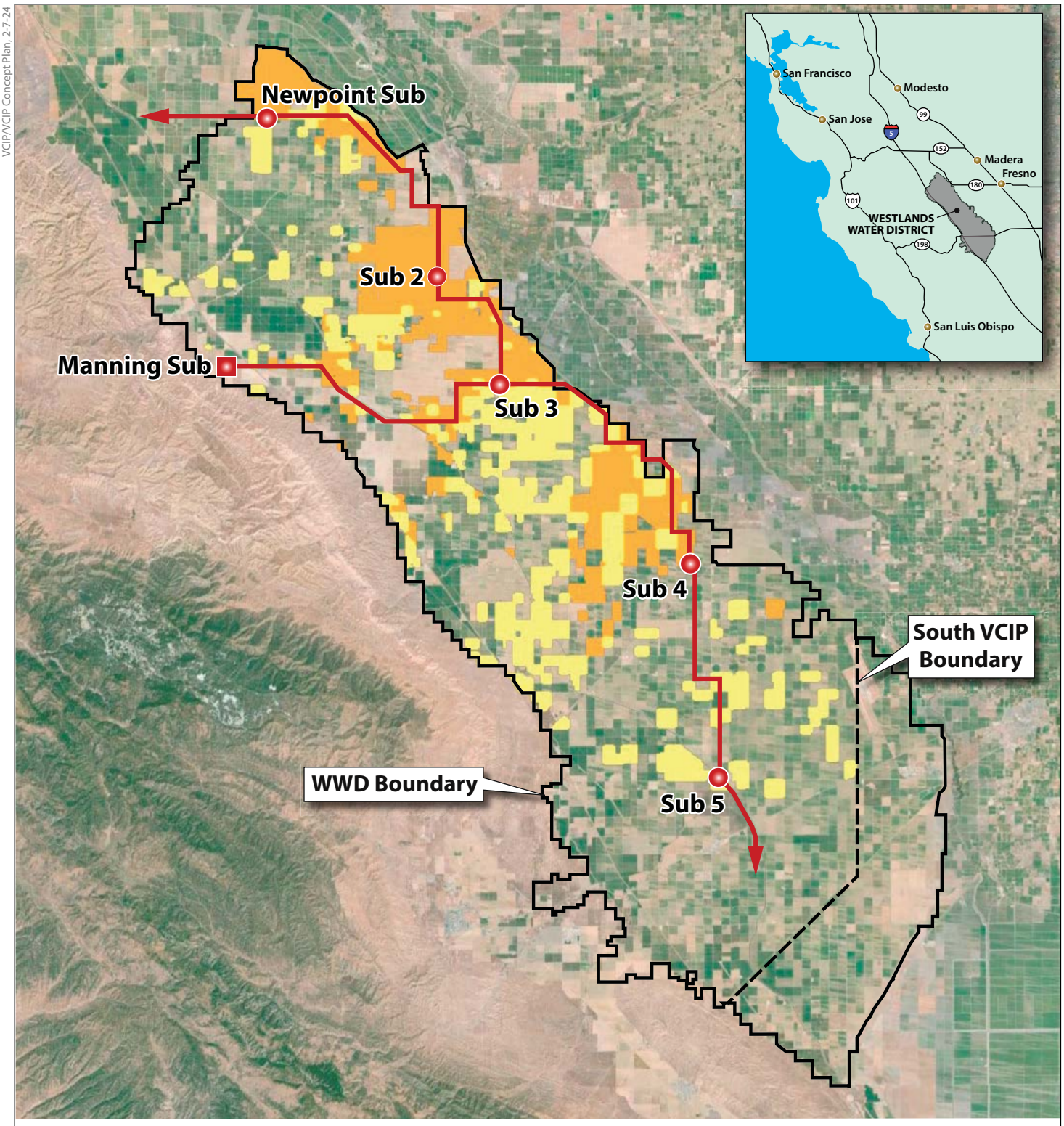
SIGN-IN SHEET				
First Name:	**Last Name:**	**Company/Organization:**	**Phone:**	**Email:**
Esther	Ramirez		978-4287	
Elizabeth	Arizabeth.		559 320 7129	
Mcourtney Perkins				

Scoping Meeting – Wednesday, February 28 2024
Valley Clean Infrastructure Plan (VCIP) – Environmental Impact Report

SIGN-IN SHEET				
First Name:	**Last Name:**	**Company/Organization:**	**Phone:**	**Email:**
David	Bolwin	Vista Consulting	559-907-0901	david@vistaconsultinginc.com
Maria Deloves Diaz			999-4418	
Angela Islas		CCEJN	559 319 1712	angela.islas@ccejn.org
Juan Franco				
Celia Franco			559-210-1904	
Maria Zermeño				
Vicente Zermeño			—	

EXHIBIT F

Public Scoping Meeting Poster Boards



LEGEND

Development Focus Areas

- WWD-Owned Land
- Private Land

Infrastructure

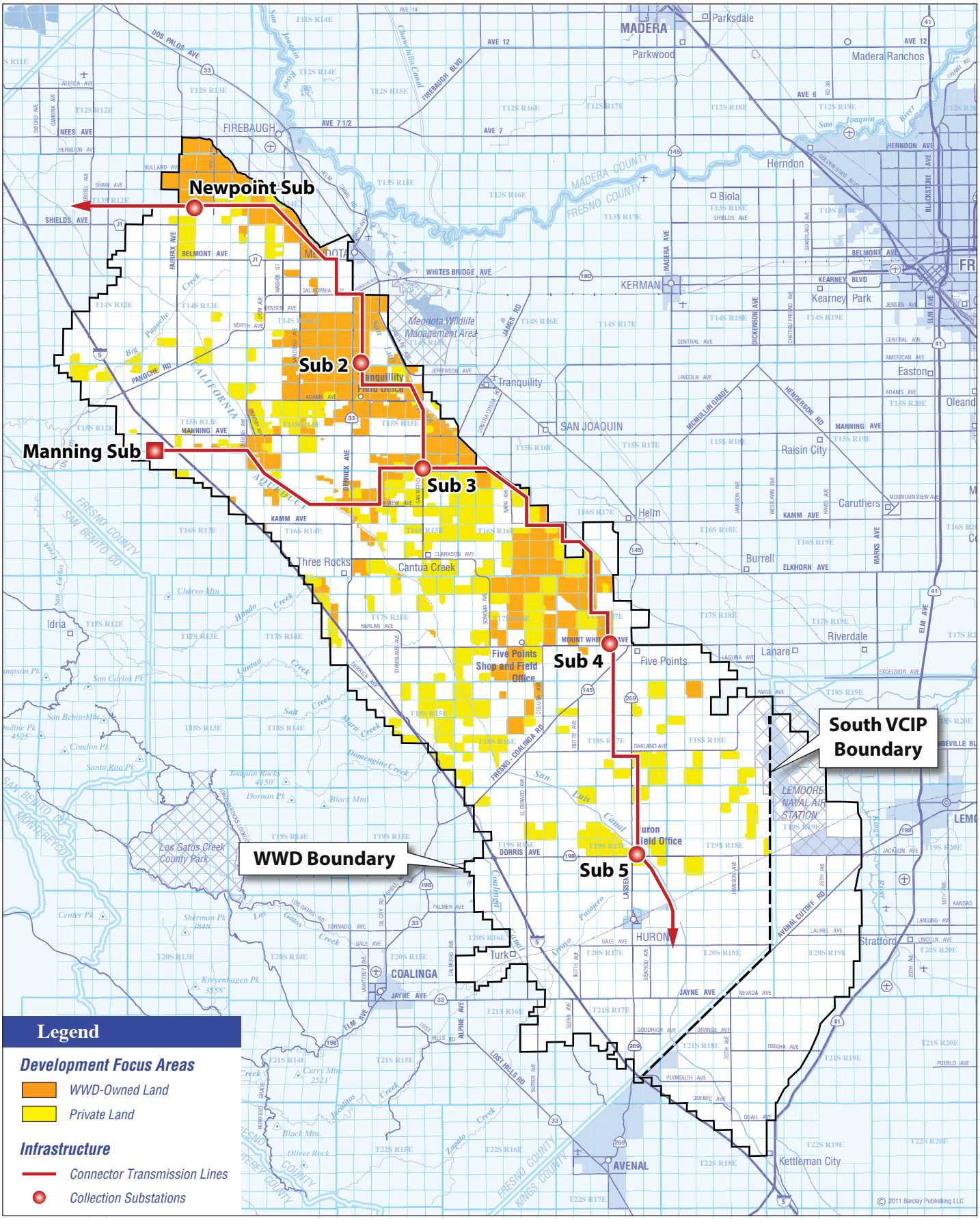
- Connector Transmission Lines
- Collection Substations

N

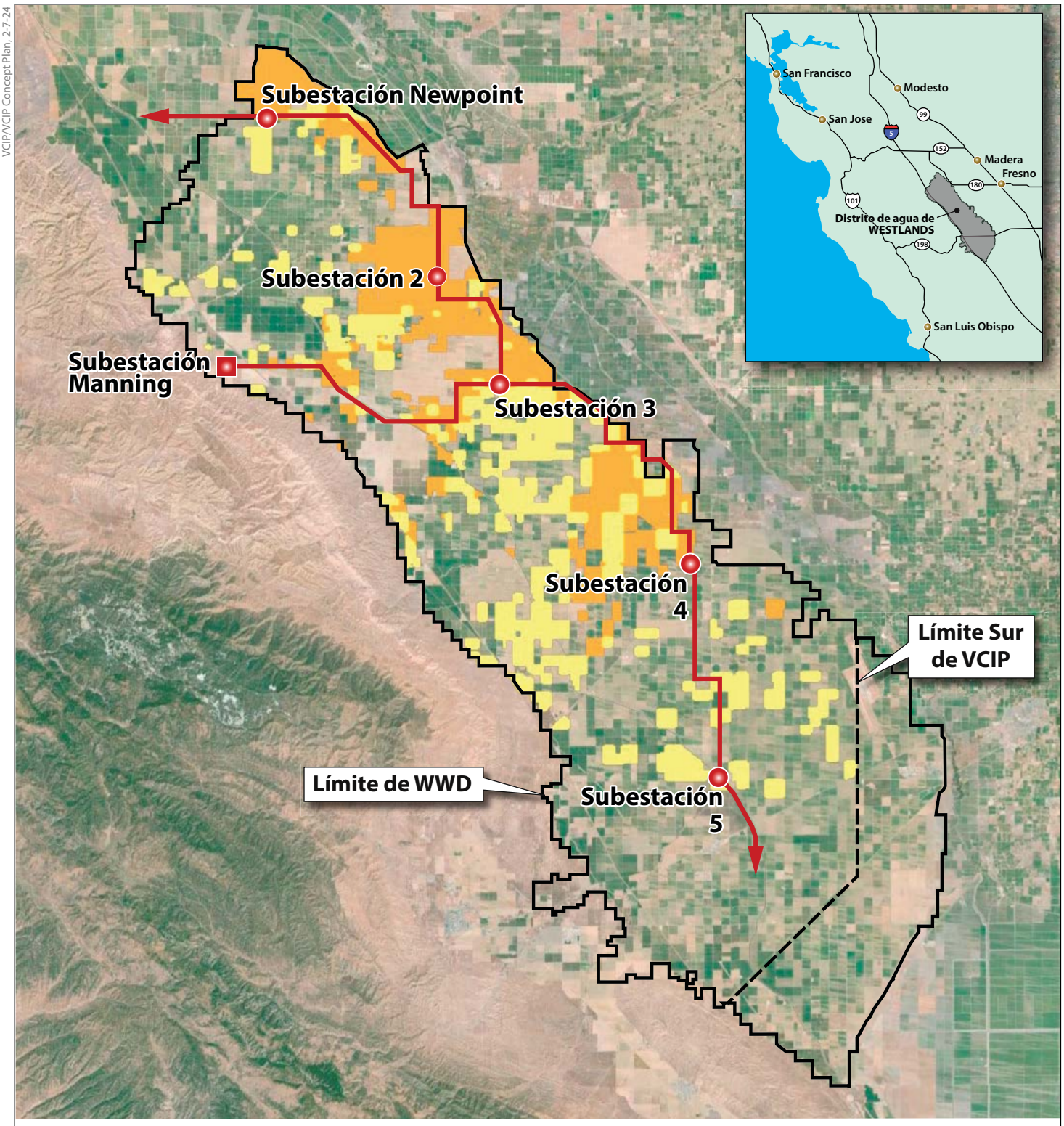
0 5 miles

Base map: Google Earth 2024

VCIP Concept Plan



VCIP Concept Plan



LEYENDA DEL MAPA

Áreas de enfoque de desarrollo

- Terrenos de propiedad del distrito de agua de Westlands
- Terreno Privado

Infraestructura

- Líneas de transmisión del conectores
- Subestaciones de recolección

N

0 5 millas

Mapa dase de Google Earth 2024

Plan Conceptual de VCIP

EXHIBIT G

Public Scoping Meeting Presentation

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

Environmental Impact Report (EIR)

Public Scoping Meeting
February 15, 2024

Westlands Water District

AGENDA

- **Introduction**
- **Purpose of Scoping Meeting**
- **Description of Plan Elements and Approvals**
- **Overview of EIR Process**
  - Purposes of EIR
  - Topics to be Covered in EIR
  - Environmental Review Process
- **Scoping Comments from Attendees**

PURPOSE OF SCOPING MEETING

- Meeting is held for projects of statewide, regional, or area-wide significance (in conjunction with Notice of Preparation (NOP) for EIR).
- To provide information to the public on the proposed action.
- To describe EIR preparation and review process.
- To provide an opportunity for public input on scope of EIR.

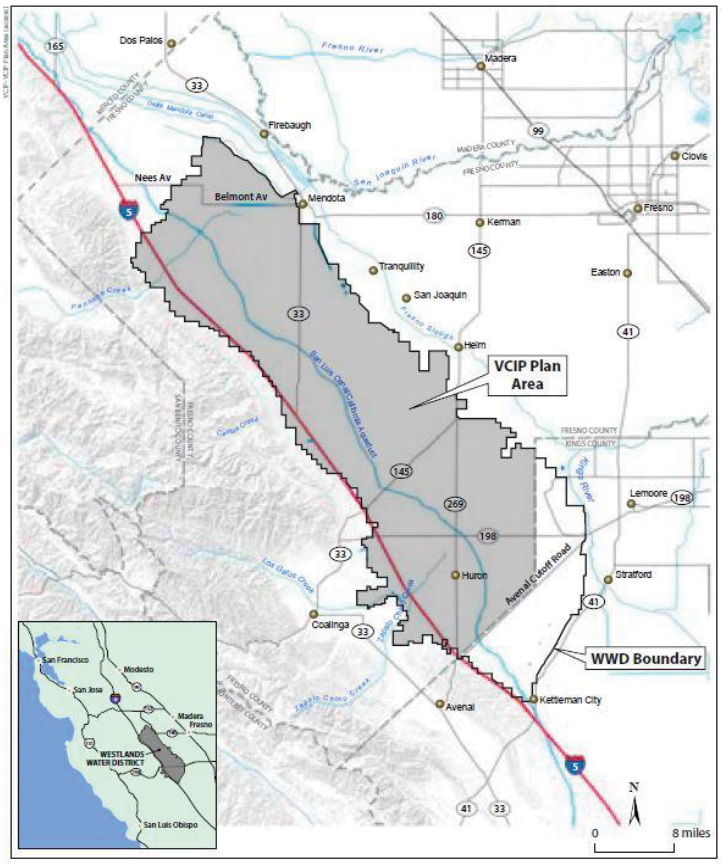
OVERVIEW OF VCIP

VCIP CONSISTS OF TWO MAIN COMPONENTS

1. **Energy Resource Plan**
   - Solar PV Generating Facilities
   - Energy Storage Facilities

2. **Infrastructure Plan**
   - Gen-Tie Lines
   - Collection Substations
   - Connector Transmission Lines Within VCIP
   - Delivery Transmission Lines Outside VCIP

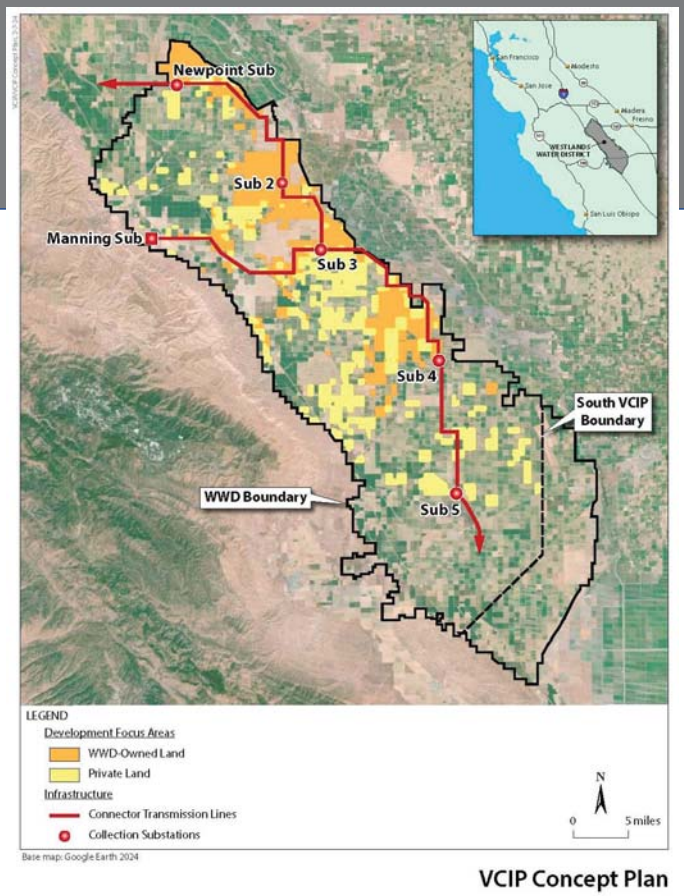
VCIP PLAN AREA



Plan Area includes Fresno County portion of District.

Kings County portion of District is covered by the Westlands Solar Park, approved by the WWD Board of Directors in 2018, and is now partially completed.

VCIP CONCEPT PLAN



VCIP Concept Plan

Orange areas represent lands owned by the District.

Yellow areas are private lands of participating landowners.

Together they form the Development Focus Areas (DFAs) where solar and energy storage projects are planned.

The red lines represent the transmission lines which will carry the solar energy to substations and onward for connection to the State power grid.

PLAN ELEMENTS - 1

ENERGY RESOURCE PLAN

- **Development Focus Areas (DFAs)** – 130,000 acres of repurposed farmland including WWD-owned land and private lands of participating landowners.
- **Solar Generating Capacity** – 20,000 MW at buildout.
- **Energy Storage Capacity**– 10,000 MW at buildout.

Main Plan Objectives

- To guide the beneficial repurposing of farmlands in the Plan Area through clean energy resource development.
- Help achieve the State's target of a zero-carbon electricity grid by 2045.

PLAN ELEMENTS – 1A

Typical Utility-Scale Solar

PLAN ELEMENTS – 1B

Typical Energy Storage Facility

PLAN ELEMENTS - 2

INFRASTRUCTURE PLAN

- **Gen-Tie Lines**
  - 200~ miles of new 230-kV gen-tie lines.
  - To connect solar generation and storage facilities to 5 new collection substations within VCIP.

- **Collection Substations**
  - 5 new 500/230-kV substations.
  - To collect solar generation and stored energy for interconnection and conveyance to the grid.

PLAN ELEMENTS – 2A

Typical Collection Substation

PLAN ELEMENTS - 3

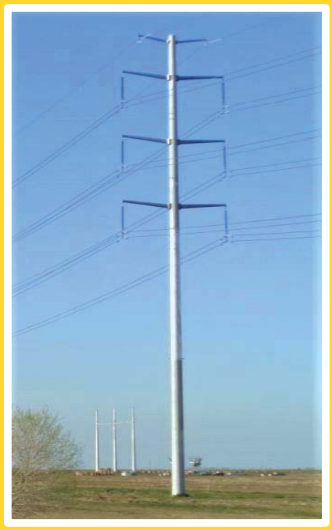
INFRASTRUCTURE PLAN

- **Connector Transmission Lines within VCIP**
  - 76~ miles of new 500-kV backbone transmission line located within the Plan Area.
  - To collect VCIP-generated power from the five VCIP connector substations for conveyance to the grid.

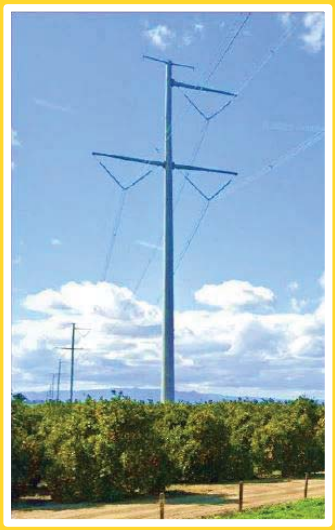
- **Delivery Transmission Lines Outside VCIP**
  - 350~ miles of new 500-kV transmission lines located outside the Plan Area.
  - To deliver VCIP-generated power to electricity markets (load centers) in the Bay Area and Southern California.

PLAN ELEMENTS – 3A

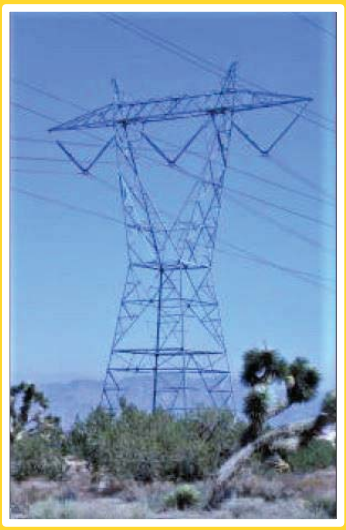
Typical Transmission Towers



230-kV Monopole



500-kV Monopole



500-kV Lattice

OVERVIEW OF EIR PROCESS

PURPOSE OF EIR

- Provides public with information and analysis on the **potential impacts** of VCIP implementation.
- Identifies **mitigation measures** to avoid or reduce potential impacts.
- Evaluates **alternatives** to the plan elements.
- Fosters interagency **coordination** and **public review**.

TOPICS TO BE COVERED IN EIR

- ✓ Aesthetics
- ✓ Agriculture and Forestry Resources
- ✓ Air Quality
- ✓ Biological Resources
- ✓ Cultural Resources
- ✓ Energy
- ✓ Geology, Soils & Paleontology
- ✓ Greenhouse Gas Emissions
- ✓ Hazards/Hazardous Materials
- ✓ Hydrology and Water Quality
- ✓ Land Use and Planning
- ✓ Mineral Resources
- ✓ Noise
- ✓ Public Services
- ✓ Transportation
- ✓ Tribal Cultural Resources
- ✓ Utilities and Service Systems
- ✓ Wildfire

EIR PROCESS - 1

- **Notice of Preparation (NOP) for EIR**
  - Released February 2 – Closing date March 4, 2024.
  - 30-day review period for comments on NOP.
  - Comments received at this Scoping Meeting become part of NOP comments.
- **Public Review Draft EIR (DEIR)**
  - Expected to be released in late 2024.
  - DEIR release starts 45-day public review period.
  - Written comments receive responses in Final EIR.

EIR PROCESS - 2

- **Final EIR**
  - Expected to be completed in early 2025.
  - FEIR includes:
    - Revisions to DEIR;
    - Written responses to comments on DEIR.
- **Public Hearing**
  - WWD Board of Directors – Action Items:
    - Certification of EIR;
    - Adoption of VCIP as development program.
  - Public invited to offer testimony on Action Items.

PROJECT APPROVALS - 1

APPROVALS ASSOCIATED WITH THIS EIR

- **Westlands Water District – Board of Directors**
  - Certification of Program EIR for adoption of VCIP by the Board.
  - Board adoption of VCIP as District policy and plan for land repurposing.

NOTES:

1) WWD action includes the adoption of the VCIP as development plan and policy, and does not include permitting for construction, as discussed with the next slide.
2) The CEQA document provides plan-level environmental review only. As a Program EIR, it is the first tier document which will be followed by subsequent CEQA documents at the project level which will provide more detailed analysis.

PROJECT APPROVALS - 2

SUBSEQUENT DISCRETIONARY ACTIONS – By Other Agencies

- **Fresno County**
  - Approval of Conditional Use Permits (CUPs) for construction of solar PV projects, energy storage facilities, gen-tie lines, and collection substations under VCIP.
  - Adoption of subsequent CEQA documents for project CUPs. [This Program EIR to be used in "Tiered" EIR process.]
- **California Public Utilities Commission (CPUC)**
  - Issuance of Permits to Construct (PTC) and/or Certificates of Public Convenience and Necessity (CPCN) for construction of transmission lines over 200-kV by public utilities.
  - Adoption of CEQA documents for transmission projects.

SCOPING COMMENTS BY ATTENDEES

- **Issues you would like to see addressed in EIR.**
- **Other comments / concerns.**
- **WWD Address and Email for VCIP Comments:**

  Westlands Water District
  P.O. Box 5199
  Fresno, CA 93755
  vcip@wwd.ca.gov

EXHIBIT H

Scoping Meeting Comment Cards

Reunión de Alcance del Proyecto

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

28 de febrero de 2024

INFORME DE IMPACTO AMBIENTAL

Hoja de comentarios y solicitud de notificación

LLENAR EN LETRA DE IMPRENTA

Nombre: María Dolores Díaz

Representando: _____
(Agencia, Organización, Grupo)

Dirección postal: P.O. Box 33

_____

Teléfono: (559) 999-4418 Fax: ( ) _____

Correo electrónico: _____

☒ SÍ, incluirme en la lista de correo/notificación de este EIR. [*marque la casilla*]

Tengo los siguientes comentarios sobre el alcance del EIR:
[*Puede utilizar el reverso de la hoja y/o adjuntar hojas adicionales en caso de ser necesario.*]

1.- Van a usar terrenos que se han usado para siembras y que va a pasar con los trabajadores?
2.- Que beneficio hay para los residentes?

English Translation:
1. Will land be used that has been used for agriculture and what will happen to the workers?
2. What benefits are there for the residents?

February 28, 2024 Scoping Meeting

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

ENVIRONMENTAL IMPACT REPORT

Comment and Request for Notification Sheet

PLEASE PRINT

Attendee Name: ESTHER RAMIREZ

Representing: _____
(Agency, Organization, Group)

Mailing Address: P O BOX 141
CANTUA CREEK CA 93608

Telephone: (559) 978-4281 Fax: ( ) _____

Email: ERAMI4287@GMAIL.COM

☒ YES, please put me on a mailing/notification list for this EIR. [*check box*]

I have the following comments to submit on the scope of the EIR:
[*Can continue your comments on back of sheet and/or attach additional sheets as needed.*]

I'm interested to know how this will benefit / harm our community

ER

Reunión de Alcance del Proyecto

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

28 de febrero de 2024

INFORME DE IMPACTO AMBIENTAL

Hoja de comentarios y solicitud de notificación

LLENAR EN LETRA DE IMPRENTA

Nombre: Vicente Mario Zermeño

Representando: _____
(Agencia, Organización, Grupo)

Dirección postal: 29534 Idalg Pio Bx 60
cantua Creek Cali

Teléfono: (559)-210-1904 Fax: ( ) _____

Correo electrónico: _____

☐ SÍ, incluirme en la lista de correo/notificación de este EIR. [*marque la casilla*]

Tengo los siguientes comentarios sobre el alcance del EIR:
[*Puede utilizar el reverso de la hoja y/o adjuntar hojas adicionales en caso de ser necesario.*]

Que Beneficios Trai Para la Comida y Trabajadores y Nos Dan a Baja el Pago de Luz

English Translation:
What benefits will it bring for the food and workers and will our electric bill go down?

EXHIBIT I

NOP Comment Letters

Comment Letter A

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

Governor's Office of Planning & Research

February 09 2024

STATE CLEARINGHOUSE

February 6, 2024

Jose Gutierrez
Westlands Water District
P.O. Box 5199
Fresno CA 93711

Re: 2024020124, Valley Clean Infrastructure Plan (VCIP) Project, Fresno County

Dear Mr. Gutierrez:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Vacant

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok, Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project**.**

b. Recommended mitigation measures**.**

c. Significant effects**.** (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. 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.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Cameron.Vela@NAHC.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

cc: State Clearinghouse

Comment Letter B

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

February 12, 2024

Regulatory Division (SPK-2024-00105)

Westlands Water District
P.O. Box 5199
Fresno, CA 93755-5199
vcip@wwd.ca.gov

Dear Sirs:

We are responding to your February 2, 2024, request for comments on the Valley Clean Infrastructure Plan project. The U.S. Army Corps of Engineers project identification number for this project is SPK-2024-00105. The project site is located in Fresno County, California with an approximated centroid near Latitude 36.448457°, Longitude -120.305385° (Enclosure 1; Figure 1).

The Corps of Engineers' jurisdiction within the study area is under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. Waters of the United States may include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows, some canals, and seeps. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of the Army authorization prior to starting work. From a brief, preliminary assessment, it appears that riverine habitat comprising Panoche, Cantua, and Los Gatos Creeks could be present along or within the project site.

To ascertain the extent of waters on the project site, the applicant should prepare an aquatic resources delineation, in accordance with the "Minimum Standards for Acceptance of Aquatic Resource Delineation Reports" and "Updated Map and Drawing Standards for the South Pacific Division Regulatory Program" under "Jurisdiction" on our website at the address below and submit it to this office for verification. A list of consultants that prepare aquatic resources delineations and permit application documents is also available on our website at the same location.

The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be

developed to compensate for the unavoidable losses resulting from project implementation.

If waters of the United States are going to be impacted, cultural resource sites within the defined federal permit area will need to be evaluated according to the standards of the National Environmental Policy Act. All eligible or potentially eligible cultural resource sites in the permit area will be subject to Section 106 of the National Historic Preservation Act, 1966, as amended. The Corps of Engineers must also comply with the terms and conditions of the Federal Endangered Species Act with regards to our permitting process. The applicant may be required to create surveys and reports to supplement these requirements.

Please refer to identification number SPK-2024-00105 in any correspondence concerning this project. If you have any questions, please contact Mr. Cody L. Barnes by email at cody.l.barnes@usace.army.mil, or telephone at (916) 557-7481. For more information regarding our program, please visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx. Thank you for your attention in this matter.

Sincerely,

For Kathy Norton
Sr. Project Manager
California South Section

Enclosure

Comment Letter C

ADAMS BROADWELL JOSEPH & CARDOZO
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
601 GATEWAY BOULEVARD, SUITE 1000
SOUTH SAN FRANCISCO, CA 94080-7037
TEL: (650) 589-1660
FAX: (650) 589-5062
jabrams@adamsbroadwell.com

SACRAMENTO OFFICE
520 CAPITOL MALL, SUITE 350
SACRAMENTO, CA 95814-4721
TEL: (916) 444-6201
FAX: (916) 444-6209

ARIANA ABEDIFARD
KEVIN T. CARMICHAEL
CHRISTINA M. CARO
THOMAS A. ENSLOW
KELILAH D. FEDERMAN
RICHARD M. FRANCO
ANDREW J. GRAF
TANYA A. GULESSERIAN
DARION N. JOHNSTON
RACHAEL E. KOSS
AIDAN P. MARSHALL
TARA C. RENGIFO

Of Counsel
MARC D. JOSEPH
DANIEL L. CARDOZO

February 20, 2024

VIA EMAIL AND U.S. MAIL
Allison Febbo, General Manager
Westlands Water District
P.O. Box 5199
Fresno, CA 93755
Email: afebbo@wwd.ca.gov;
vcip@wwd.ca.gov

Re: Request for Mailed Notice of Actions and Hearings – Valley Clean Infrastructure Plan

Dear Ms. Febbo:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to request mailed notice of the availability of any environmental review document, prepared pursuant to the California Environmental Quality Act, Public Resources Code § 21000 *et seq.*, related to the Valley Clean Infrastructure ("Project"), as well as a copy of the environmental review document when it is made available for public review.

The Valley Clean Infrastructure Plan (VCIP) consists of an "Energy Resource Plan" and an "Infrastructure Plan". The Project provides a blueprint for the development of clean energy facilities and supporting infrastructure with an overall generating and delivery capacity of up to 20,000 MW on approximately 130,000 acres of repurposed farmland.

The VCIP Energy Resource Plan is a master plan for clean energy development in the form of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities, both of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners located within the Fresno County portion of the Westlands Water District service area. It is anticipated that the DFAs would be built out over a 10-year period. The VCIP Infrastructure Plan includes the following supporting elements for conveyance of solar generation to the state's load

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centers: 1) gen-tie lines, 2) collection substations, 3) connector transmission lines, and 4) delivery transmission lines.

We request mailed notice of any and all hearings and/or actions related to the Project. These requests are made pursuant to Public Resources Code §§ 21092.2, 21080.4, 21083.9, 21092, 21108, 21152, and 21167(f). This request is also made pursuant to Government Code §65092, which require local agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

Please send the above requested items by email and U.S. Mail to our South San Francisco Office as follows:

U.S. Mail
Jane S. Abrams
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Email
jabrams@adamsbroadwell.com

Please call me at (650) 589-1660 if you have any questions. Thank you for your assistance with this matter.

Sincerely,

Jane S. Abrams
Legal Assistant

JSA:acp

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Comment Letter D

FEBRAURY 27, 2024

VIA EMAIL: JGUTIERREZ@WWD.CA.GOV; VCIP@WWD.CA.GOV
WESTLANDS WATER DISTRICT
JOSE GUTIERREZ
P.O. BOX 5199
FRESNO, CA 93755

Governor's Office of Planning & Research

Feb 28 2024

STATE CLEARINGHOUSE

Dear Mr. Gutierrez:

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE VALLEY CLEAN INFRASTRUCTURE PLAN PROJECT, SCH# 2024020124

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation of an Environmental Impact Report for the Clean Infrastructure Plan Project (Project).

The Division monitors and maps farmland conversion on a statewide basis, provides technical assistance regarding the Williamson Act, and administers various agricultural land conservation programs. Public Resources Code, section 614, subdivision (b) authorizes the Department to provide soil conservation advisory services to local governments, including review of CEQA documents.

Protection of the state's agricultural land resources is part of the Department's mission and central to many of its programs. The CEQA process gives the Department an opportunity to acknowledge the value of the resource, identify areas of Department interest, and offer information on how to assess potential impacts or mitigation opportunities.

The Department respects local decision-making by informing the CEQA process, and is not taking a position or providing legal or policy interpretation.

We offer the following comments for consideration with respect to the project's potential impacts on agricultural land and resources within the Department's purview.

PROJECT ATTRIBUTES

The Valley Clean Infrastructure Plan (VCIP) consists of a "Energy Resource Plan" as described in the following. The VCIP Energy Resource Plan is a master plan for clean energy development in the form of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities, both of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners located within the Fresno County portion of

the Westlands Water District service area. It is anticipated that the DFAs would be built out over a 10-year period.

The project site contains Prime Farmland, Farmland of Statewide Importance, and Unique Farmland as designated by DOC's Farmland Mapping and Monitoring Program. Portions of the project site are subject to Williamson Act contracts.

PROJECT CONSIDERATIONS

The conversion of agricultural land represents a permanent reduction and impact to California's agricultural land resources. The Department generally advises discussion of the following in any environmental review for the loss or conversion of agricultural land:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Proposed mitigation measures for impacted agricultural lands within the proposed project area.
- The project's compatibility with lands within an agricultural preserve and/or enrolled in a Williamson Act contract.

WILLIAMSON ACT

Where, as here, the project site is located on land subject to a Williamson Act contract, the Department advises that the environmental review discuss the compatibility of the project with the contract and local Williamson Act program requirements.

MITIGATING AGRICULTURAL LAND LOSS OR CONVERSION

Consistent with CEQA Guidelines, the Department advises that the environmental review address mitigation for the loss or conversion of agricultural land. An agricultural conservation easement is one potential method for mitigating loss or conversion of agricultural land. (*See* Cal. Code Regs., tit. 14, § 15370 [mitigation includes "compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements."]; *see also King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814.)

Mitigation through agricultural conservation easements can take at least two forms: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural easements. The conversion of agricultural land may be

viewed as an impact of at least regional significance. Hence, the search for replacement lands may not need to be limited strictly to lands within the project's surrounding area. A helpful source for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

California Council of Land Trusts

Of course, the use of conservation easements is only one form of mitigation, and the Department urges consideration of any other feasible measures necessary to mitigate project impacts.

Thank you for giving us the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the Clean Infrastructure Plan Project. Please provide the Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Monique Wilber

Conservation Program Support Supervisor

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California
Department of Conservation
Geologic Energy Management Division

Gavin Newsom, Governor
David Shabazian, Director
715 P Street, MS 1803
Sacramento, CA. 95814
T: (916) 445-5986

02/27/2024

Comment Letter E

Westlands Water District
286 W. Cromwell Avenue, Fresno, CA 93711, USA
vcip@wwd.ca.gov

Governor's Office of Planning & Research
Feb 28 2024
STATE CLEARINGHOUSE

Construction Site Well Review (CSWR) ID: 1012978

Assessor Parcel Number(s): Multiple

Property Owner(s): Westlands Water District

Project Location Address: The Project is located in the Fresno County portion of the District, California 93234

Project Title: Valley Clean Infrastructure Plan NOP; SCH# 2024020124

Public Resources Code (PRC) § 3208.1 establishes well reabandonment responsibility when a previously plugged and abandoned well will be impacted by planned property development or construction activities. Local permitting agencies, property owners, and/or developers should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil, gas, and geothermal wells.

The California Geologic Energy Management Division (CalGEM) has received and reviewed the above referenced project dated 2/26/2024. To assist local permitting agencies, property owners, and developers in making wise land use decisions regarding potential development near oil, gas, or geothermal wells, the Division provides the following well evaluation.

The project is located in Fresno County, within the boundaries of the following fields:

Westhaven (ABD); Guijarral Hills; Pleasant Valley; Coalinga, East, Extension; Turk Anticline (ABD); Cantua Creek (ABD); Cantua Nueva (ABD); Cheney Ranch Gas (ABD); Five Points (ABD); Kettleman North Dome; Helm.

Our records indicate there are 421 known oil or gas wells located within the project boundary. Due to the size and scope of this project, individual well reviews were not performed at this stage of the Construction Site Well Review.

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The Division recommends reevaluation of individual projects on a well Construction Site Well Review. The Division recommends reevaluation of individual projects on a well by well basis when specific site related work is to be performed in areas containing oil and gas wells. As site specific project documents are provided to the division, the wells in the project area will be reviewed and a specific Construction Site Well Review letters will be generated to indicate the well statuses and impacts to wells in the area.

Our records indicate there are 421 known oil or gas wells located within the project boundary as identified in the application.

- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0

- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 0

- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Projected to Be Built Over or Have Future Access Impeded by this project: 0

- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and Not Projected to Be Built Over or Have Future Access Impeded by this project: 0

The Division categorically advises against building over, or in any way impeding access to, oil, gas, or geothermal wells. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access including, but not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, roadways, and decking. Maintaining sufficient access is considered the ability for a well servicing unit and associated necessary equipment to reach a well from a public street or access way, solely over the parcel on which the well is located. A well servicing unit, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure.

There are no guarantees a well abandoned in compliance with current Division requirements as prescribed by law will not start leaking in the future. It always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. The Division acknowledges wells plugged and abandoned to the most current Division requirements as prescribed by law have a lower probability of leaking in the future, however there is no guarantees that such abandonments will not leak.

The Division advises that all wells identified on the development parcel prior to, or during, development activities be tested for liquid and gas leakage. Surveyed locations should be provided to the Division in Latitude and Longitude, NAD 83 decimal format. The Division expects any wells found leaking to be

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reported to it immediately.

Failure to plug and reabandon the well may result in enforcement action, including an order to perform reabandonment well work, pursuant to PRC § 3208.1, and 3224.

PRC § 3208.1 give the Division the authority to order or permit the re-abandonment of any well where it has reason to question the integrity of the previous abandonment, or if the well is not accessible or visible. Responsibility for re-abandonment costs may be affected by the choices made by the local permitting agency, property owner, and/or developer in considering the general advice set forth in this letter. The PRC continues to define the person or entity responsible for reabandonment as:

1. The property owner - If the well was plugged and abandoned in conformance with Division requirements at the time of abandonment, and in its current condition does not pose an immediate danger to life, health, and property, but requires additional work solely because the owner of the property on which the well is located proposes construction on the property that would prevent or impede access to the well for purposes of remedying a currently perceived future problem, then the owner of the property on which the well is located shall obtain all rights necessary to reabandon the well and be responsible for the reabandonment.

2. The person or entity causing construction over or near the well - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and the property owner, developer, or local agency permitting the construction failed either to obtain an opinion from the supervisor or district deputy as to whether the previously abandoned well is required to be reabandoned, or to follow the advice of the supervisor or district deputy not to undertake the construction, then the person or entity causing the construction over or near the well shall obtain all rights necessary to reabandon the well and be responsible for the reabandonment.

3. The party or parties responsible for disturbing the integrity of the abandonment - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and after that time someone other than the operator or an affiliate of the operator disturbed the integrity of the abandonment in the course of developing the property, then the party or parties responsible for disturbing the integrity of the abandonment shall be responsible for the reabandonment.

No well work may be performed on any oil, gas, or geothermal well without written approval from the Division. Well work requiring approval includes, but is not limited to, mitigating leaking gas or other fluids from abandoned wells, modifications to well casings, and/or any other re-abandonment work. The Division also regulates the top of a plugged and abandoned well's minimum and maximum depth below final grade. CCR §1723.5 states well casings shall be cut off at least 5 feet but no more than 10 feet

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below grade. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this regulation, a permit from the Division is required before work can start.

The Division makes the following additional recommendations to the local permitting agency, property owner, and developer:

1. To ensure that present and future property owners are aware of (a) the existence of all wells located on the property, and (b) potentially significant issues associated with any improvements near oil or gas wells, the Division recommends that information regarding the above identified well(s), and any other pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property.

2. The Division recommends that any soil containing hydrocarbons be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.

As indicated in PRC § 3106, the Division has statutory authority over the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to the Division's authority to order work on wells pursuant to PRC §§ 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC §§ 3236, 3236.5, and 3359 for violations within the Division's jurisdictional authority. The Division does not regulate grading, excavations, or other land use issues.

If during development activities, any wells are encountered that were not part of this review, the property owner is expected to immediately notify the Division's construction site well review engineer in the Inland district office, and file for Division review an amended site plan with well casing diagrams. The District office will send a follow-up well evaluation letter to the property owner and local permitting agency.

Should you have any questions, please contact me at (661) 201-8607 or via email at Victor.Medrano@conservation.ca.gov.

Sincerely David Cookey-Gam
David Cookey-Gam for
Chris Jones
District Deputy

DocuSign Envelope ID: 2E84BD75-E89C-4A24-9F48-B6D482860BAE

cc: Westlands Water District - Submitter

Comment Letter F

California Program Office
P.O. Box 401, Folsom, California 95763 | 916-313-5800
www.defenders.org

March 1, 2024

Jose Gutierrez, Assistant General Manager
Westlands Water District
P.O. Box 5199
Fresno, CA 93755
Delivered via email to: Vcip@wwd.ca.gov

RE: Notice of Preparation of a Draft Environmental Impact Report – Valley Clean Infrastructure Plan (SCH 2024020124)

Dear Mr. Gutierrez,

Thank you for the opportunity to provide comments in response to the Notice of Preparation (NOP) of a Draft Programmatic Environmental Impact Report (PEIR) for the proposed Valley Clean Infrastructure Plan (VCIP or Plan). Defenders of Wildlife (Defenders) is dedicated to protecting all wild animals and plants in their natural communities and has nearly 2.1 million members and supporters in the United States, with more than 316,000 residing in California. We strongly support renewable energy development that will help meet California's emission reduction goals and avoids destruction of important wildlife habitat and the loss of at-risk species. Achieving a low-carbon energy future is critical for protecting California's internationally treasured wildlife, landscapes and diverse habitats.

As we transition toward a clean energy future, it is imperative that we consider the near-term impact of solar development on our biodiversity, fish and wildlife habitat, and natural landscapes while addressing the long-term impacts of climate change. Therefore, renewable energy projects must be planned, sited, developed and operated to avoid, minimize and mitigate adverse impacts on wildlife and lands with known high-resource values.

Plan Description

The VCIP provides a programmatic blueprint for the development of clean energy projects within the Fresno County portion of the Westlands Water District. The Plan's main objective is to repurpose drainage-impaired and other agricultural lands for clean energy generation to

promote enhanced agricultural productivity. This repurposed land is comprised of approximately 130,000 acres of agricultural land that are planned for retirement in accordance with the Sustainable Groundwater Management Act (SGMA) or are regularly fallowed due to unreliable surface water. The Plan will provide an overall generating capacity of up to 20,000 MW of clean energy on repurposed farmland in the form of solar photovoltaic generating facilities and energy storage facilities. The facilities will be developed over a 10-year period within defined Development Focus Areas (DFAs) of district-owned and private lands. The typical solar facilities are estimated to generate 250 MW on about 1,6000 acres of land, and the typical storage capacity is estimated to be 250 MW.

Comments

1. **Renewable Energy Development on Impaired Lands**

   The Plan appears consistent with Smart from the Start siting criteria through being located on impaired agricultural lands identified for renewable development. Defenders has a long history of advocating for a "Smart from the Start" approach to the siting and development of renewable energy projects, which dictates that development should occur on impaired or degraded lands. A Defenders report directly identifies lands within the Westlands Water District as severely impaired and, therefore, suitable for renewable energy development.[1] Siting on impaired lands minimizes potential project-related impacts on special-status species and their habitat.

   Defenders supports the development and operation of renewable energy projects and associated infrastructure on sites identified for agricultural retirement or otherwise impaired land. We encourage a continued commitment to avoiding lands with high conservation value for the development of renewable energy projects.

2. **Protocol-Level Surveys**

   Although the proposed Plan encompasses an area identified as containing impaired lands that are suitable for renewable energy development, special-status species and habitats may still be impacted. A thoughtfully sited project does not absolve the responsibility of conducting adequate protocol-level surveys for sensitive biological resources.

[1] Defenders of Wildlife. *Smart From the Start: Responsible Renewable Energy Development in the Southern San Joaquin Valley*. 2012. Washington, D.C.

The area covered by the proposed Plan is home to special-status species and may provide essential habitat and connectivity for those species, including but not limited to the following:[2]

Common Name	Scientific Name	Status
Blunt-nosed leopard lizard (BNLL)	*Gambelia sila*	Federal and State Endangered
Burrowing owl (BUOW)	*Athene cunicularia*	State Species of Special Concern
Giant kangaroo rat	*Dipodomys ingens*	Federal and State Endangered
Nelson's antelope squirrel	*Ammospermophilus nelsoni*	State Threatened
San Joaquin kit fox (SJKF)	*Vulpes macrotis mutica*	Federal Endangered and State Threatened
Swainson's hawk (SWHA)	*Buteo swainsoni*	State Threatened
Tricolored blackbird	*Agelaius tricolor*	State Threatened
Western spadefoot toad	*Spea hammondii*	State Species of Special Concern

We recommend full consultation with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) for guidance on the appropriate level of surveys to be completed. Furthermore, if the surveys find special-status species occurring on or near the proposed DFAs, we recommend consultation with USFWS and CDFW for any impact avoidance, minimization and mitigation measures, and potential requirements for obtaining Incidental Take Permits. It is vital to ensure compliance with all California Endangered Species Act requirements and all fully protected species statutes, including SB 147.[3]

Conducting protocol-level surveys during the Plan development does not mean that surveys are not needed for the approval process at the individual project level. California Environmental Quality Act analysis for projects should not simply rely on survey results conducted for the approval of the Plan but instead require the performance of up-to-date protocol-level surveys.

[2] California Natural Diversity Database. Accessed 02/19/2024. https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data.
[3] See https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB147

3. **Compensatory Mitigation**

Compensatory mitigation is a vital tool for reducing project impacts on special-status species. The proposed Plan, including the transmission facilities, has the potential to significantly and permanently impact habitat for a number of species; therefore, the establishment of compensatory mitigation is warranted. The mitigation ratio would be determined through consultation with USFWS and CDFW.

The compensatory mitigation lands must contain suitable habitat for each individual species, including foraging habitat, and be managed in perpetuity by a qualified conservation organization, as defined by CA Civil Code Section 815.3. Alternatively, credits could be purchased in a CDFW-approved mitigation bank.

4. **Connectivity**

The Plan may impact connectivity corridors and could result in the creation of pinch points for sensitive species. The PEIR must analyze all connectivity and linkage impacts, and include appropriate avoidance, minimization and mitigation measures. Furthermore, we encourage any compensatory mitigation to prioritize any connectivity or linkages identified to ensure permanent protection.

5. **Migratory Birds**

The Plan area is located within the Pacific Flyway[4], and Defenders is concerned about the potential impact on protected avian species and what is left of their dwindling wetland habitat. Studies indicate various species of birds may be attracted to the vast arrays of PV solar panels due to the "lake effect" caused by reflected polarized light.[5] Given the Plan falls within a critical pathway, there is a possibility for migratory birds to be injured or killed due to collisions with Project facilities. Defenders recommends the PEIR include consideration of lake effect impacts to migratory birds. Furthermore, we recommend coordination with the CDFW and USFWS on Incidental Take Permit requirements for migratory birds.

[4] "The Pacific Americas Flyway, spanning from Alaska to the tip of South America, supports millions of migratory birds. Western Sandpiper, Pacific Loon, Pacific Brant, and hundreds of other species follow this general north-south route in spring and fall." *See* The Pacific Birds Habitat Joint Venture, https://pacificbirds.org/birds-migration/the-flyways/; *see also* Central Valley Joint Venture. 2020. Central Valley Joint Venture 2020 Implementation Plan. Sacramento, CA: U.S. Fish and Wildlife Service. Available from: www.centralvalleyjointventure.org.

[5] Upton, J. 2014. Solar farms threaten birds. Scientific American. https://www.scientificamerican.com/article/solar-farms-threaten-birds/#:~:text=It%20was%20one%20of%20233,fatally%20crippled%20by%20the%20facilities.

6. Cumulative impacts analysis

There is an increase in the development of solar energy projects within the San Joaquin Valley, causing a significant impact on biological resources within the region. Although we encourage the development of renewable energy projects on retired farmland in alignment with the proposed plan, there is still the opportunity for significant and unavoidable cumulative impacts.

Despite this ongoing renewable energy development, adequate cumulative impact analysis is consistently absent from EIRs for renewable energy development. Defenders requests the PEIR comprehensively analyze the direct and indirect cumulative impacts of past, present and reasonably foreseeable activities that will adversely impact biological resources within the region. These reasonably foreseeable development projects should not be limited to clean energy development exclusively but encompass all types of development. This analysis must include, but not be limited to, the cumulative impacts on special status species such as BNLL, BUOW, SJKF and SWHA. The analysis must also include the cumulative impacts to wildlife connectivity and provide mitigation measures. Furthermore, Defenders requests the analysis include a detailed map of existing and planned solar energy development within the remaining habitat for special-status species.

The analysis should also examine cumulative impacts due to the needed transmission lines that will be developed outside of the Plan area. During a scoping meeting for the plan on February 15, 2024, it was stated that about 350 miles of new transmission lines are expected to be developed to deliver renewable energy to the Bay Area and Southern California. We recognize the need and value of additional transmission and generation interconnect lines within the San Joaquin Valley, but we request an analysis is included as a portion of the cumulative impacts analysis.

Finally, the PEIR should also include cumulative impacts due to the change in water use. The Plan highlights that one of its main objectives is to convert federal irrigation supplies for farming to satisfy regional requirements under SGMA. Defenders recognizes the need to reduce overall water usage and replenish critically overdrafted groundwater resources. However, continued dependency on surface water supplies from the declining San Francisco Bay Delta Estuary to recharge groundwater supplies further exacerbates harms to imperiled aquatic species. The PEIR should delineate the specific water transfers and identify the location of the retired lands with associated water transfers, along with the comprehensive impacts of such changes on the biological resources in the region.

7. **Plan Alternatives**

   A reasonable range of proposed Plan alternatives is important for the public to ascertain all potential benefits and impacts of the proposed Plan. While Defenders recognizes the importance of repurposing land for development of solar energy, another important aspect of the Plan involves repurposing water supplies. We request that Plan alternatives in the PEIR address the need for this continued water supply to serve endangered fish and wildlife and how the Plan will help reduce exports from the San Francisco Bay Delta Estuary.

8. **Operation and Maintenance**

   The draft PEIR should include impacts on sensitive biological resources during the operation and maintenance for the lifetime of the renewable energy facilities and not simply focus on the construction period. Mitigation measures, including continued monitoring, should be established. The draft PEIR should also examine the retirement and decommissioning of these facilities.

Conclusion

Thank you once again for the opportunity to provide comments on the NOP for the Valley Clean Infrastructure Plan and for considering our comments. We look forward to reviewing the Draft PEIR and request to be notified when it is available. Please contact us with any questions.

Respectfully submitted,

Sophia Markowska
Senior California Representative
smarkowska@defenders.org

Ashley Overhouse
Water Policy Advisor
aoverhouse@defenders.org

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Comment Letter G

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
Mar 05 2024
STATE OF CALIFORNIA

March 04, 2024

Jose Gutierrez, Assistant General Manager
Westlands Water District
P.O. Box 5199
Fresno, California 93755
(559) 224-1523
VCIP@wwd.ca.gov

Subject: Valley Clean Infrastructure Plan (Plan)
Notice of Preparation
State Clearinghouse No. 2024020124

Dear Jose Gutierrez:

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) to prepare a Programmatic Environmental Impact Report (PEIR) from Westlands Water District (District) as Lead Agency, for the Valley Clean Infrastructure Plan (Plan) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, projects tiered from the Plan PEIR may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the project's tiered from the Plan PEIR may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

Nesting Birds: CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include, sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

As a responsible agency, CDFW is responsible for providing, as available, biological expertise during public agency environmental review efforts (e.g., CEQA), focusing specifically on project activities that have the potential to adversely affect fish and wildlife resources. CDFW provides recommendations to identify potential impacts and possible measures to avoid or reduce those impacts.

PROJECT DESCRIPTION SUMMARY

Proponent: Westlands Water District

Objective: The Plan would provide a blueprint for the development of clean energy facilities and supporting infrastructure with an overall generating and delivery capacity of up to 20,000 megawatts (MW) on approximately 130,000 acres of repurposed farmland. The District's main objectives for the Plan are to repurpose drainage-impaired and other agricultural land for clean energy generation in order to promote enhanced agricultural productivity within the District land by: 1) constructively addressing the chronic shortage of surface water deliveries by facilitating redirection of scarce surface water allocations to other productive agricultural land; 2) facilitating Sustainable Groundwater Management Act (SGMA) implementation by contributing to the re-allocation of groundwater for irrigation on other productive agricultural land and mitigating risk of subsidence along the San Luis Canal/California Aqueduct; which in combination will result in increased reliability and resilience of agricultural water supply in the Westside

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Subbasin; and 3) providing for orderly development and decommissioning of clean energy facilities to promote preservation of agricultural land within the District.

Location: The Plan would include District-owned lands and private lands from participating landowners along the westside of the San Joaquin Valley, in Fresno County (Plan Area).

Timeframe: Undetermined

COMMENTS AND RECOMMENDATIONS

District lands have commonly been proposed as a relatively low conflict area with respect to biological resources for utility-scale solar development. In 2013, The Nature Conservancy (TNC) published a document to serve as a "first filter" screening of locations within the San Joaquin Valley to assess the likelihood that those areas will present conservation conflicts (Butterfield et al., 2013). The TNC document is designed to help developers and other stakeholders apply the precautionary principle and proactively avoid areas likely to have a higher risk of conflicts. CDFW recommends the District consider the TNC document with respect to DFA siting within District lands and private lands; the TNC document identified 435,601 acres of Low Biodiversity Conservation Value / Salt-affected lands mapped within the study area, 97,578 acres of which is within District boundaries. Subsequent efforts built on the TNC assessment to further identify least conflict lands in the San Joaquin Valley, which would also likely help inform DFA siting (Pearce et al., 2016).

District Lands

Based on the information provided in the NOP, a portion of Plan Area is located within District lands. CDFW would like to note that a similar plan was prepared for the Westlands Solar Park Master Plan Area (Westlands Plan Area), a 2.7-gigawatt (GW) Solar Park located in Kings County, which was comprised of multiple individual solar projects (including this Project) encompassing approximately 21,000 acres. The Westlands Plan Area was analyzed within a Program Environmental Impact Report (PEIR), which was circulated and finalized in December 2017. During preparation of the PEIR, extensive coordination occurred with environmental protection groups and federal, State, and local agencies, including CDFW. This coordination led to the siting of the Westlands Plan Area within a least conflict area for fish and wildlife (biological) resources, significantly reducing the potential for individual project and cumulative impacts to special-status species. As such, CDFW strongly recommends that the District similarly coordinate with CDFW and other federal, State, and local agencies during preparation of the Plan PEIR.

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As the NOP provides limited information on siting and project description information for the project that will be tiered from the Plan, CDFW recommends the following species be considered within the Plan PEIR for Development Focus Areas (DFAs) within the heavily disturbed agricultural lands owned by the District: The State threatened and federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*); the State threatened Swainson's hawk (*Buteo swainsoni*); and the State species of special concern burrowing owl (*Athene cunicularia*).

Lands with Natural Habitat or Bordering Conserved Lands

It also appears based on the information provided in the NOP that certain DFAs may be located on lands that contain more natural habitats such as annual grassland. It also appears that there is the potential that DFAs could potentially be sited on lands bordering conserved natural lands such as CDFW's Mendota Wildlife Area. Depending on the siting of these DFAs, there may be an increased potential for biological resources to be present within a proposed project's footprint and for special-status species impacts. As such, CDFW reiterates the recommendation to coordinate with CDFW on the siting of DFAs, as well as for recommendations on additional species considerations within the Plan PEIR, particularly with respect to potential impacts directly to or adjacent to natural lands. Additionally, CDFW strongly recommends that any potential DFAs proposed directly adjacent to conserved lands such as but not limited to Mendota Wildlife Area, Alkali Sink Ecological Reserve, Kerman Ecological Reserve, or the Alkali Sink Mitigation Bank, fully consider the potential for direct and indirect special-status species impacts, and that early consultation with CDFW occur for any such DFAs prior to their finalization.

In some cases, conversion of agricultural lands to solar may be beneficial for wildlife, particularly when certain measures are included in solar project design like perimeter fences permeable to San Joaquin kit fox and other wildlife and maintaining low profile vegetative cover within the solar project boundaries. Lastly, ground water overdrafting is affecting wildlife habitat in some locations such as Mendota Wildlife Area; approximately 80% of Mendota Wildlife Area has experienced recent and substantial subsidence as a direct result of groundwater overdrafting to the south of the Wildlife Area, which significantly affects Wildlife Area operation and thus the amount and quality of available wetland habitat. If conversion of agricultural lands to solar uses occurs on lands to the south of Mendota Wildlife Area and this causes local groundwater pumping by Tranquility Irrigation District and other private wells to cease or be significantly reduced, there would be habitat benefits.

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California Endangered Species Act

Reasonably foreseeable future projects tiered from the Plan PEIR may be subject to CDFWs regulatory authority pursuant to CESA. In the event that species listed under CESA are detected during project specific surveys, consultation with CDFW is warranted to discuss how to implement the Project and avoid "take," or if avoidance is not feasible, to acquire a State Incidental Take Permit (ITP), pursuant to Fish and Game Code section 2081 subdivision (b), prior to any ground disturbing activities.

Nesting birds

CDFW recommends that all projects tiered from the Plan PEIR occur during the bird non-nesting season; however, if ground-disturbing or vegetation-disturbing activities must occur during the breeding season (February 15 through September 15), each future project applicant is responsible for ensuring that implementation of their project does not result in a violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above.

To evaluate future project-related impacts on nesting birds, CDFW recommends that a qualified biologist conduct an assessment of nesting habitat during biological surveys in support of each project's CEQA document, and then conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground or vegetation disturbance to maximize the probability that nests that could potentially be impacted are detected. CDFW also recommends that surveys cover a sufficient area around each future project site to identify nests and determine their status. A sufficient area means any area potentially affected by a project. In addition to direct impacts (i.e., nest destruction), noise, vibration, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, CDFW recommends that a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests. Once construction begins, CDFW recommends having a qualified biologist continuously monitor nests to detect behavioral changes resulting from each future project. If behavioral changes occur, CDFW recommends halting the work causing that change and consulting with CDFW for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified biologist is not feasible, CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around active nests of non-listed raptors. These buffers are advised to remain in place until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or on-site parental care for survival. Variance from these no-disturbance buffers is possible when there is compelling biological or ecological reason to do so, such as when the construction areas would be concealed from a nest site by topography. CDFW recommends that a qualified biologist advise on

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any variance from these buffers and notify CDFW in advance of implementing a variance.

Cumulative Impacts

Given that the Plan is serving primarily as a planning tool and that future project-level CEQA documents are expected to be tiered from the Plan PEIR, CDFW recommends that a cumulative impact analysis be conducted for all potential biological resources that will either be significantly or potentially significantly impacted by implementation of the Plan including those whose impacts are determined to be less than significant with mitigation incorporated or for those resources that are rare or in poor or declining health and will be impacted by the any future project, even if those impacts are expected to be relatively small (i.e. less than significant). CDFW recommends cumulative impacts be analyzed using an acceptable methodology to evaluate the impacts of past, present, and reasonably foreseeable future projects on resources and be focused specifically on the resource, not the project. An appropriate resource study area identified and utilized for this analysis is advised. CDFW staff is available for consultation in support of cumulative impacts analyses as a trustee and responsible agency under CEQA. As noted above, there are potential wildlife benefits of conversion of certain agricultural lands to solar uses, which would factor into any cumulative impacts analysis.

Lake and Streambed Alteration

Reasonably foreseeable future projects tiered from the Plan PEIR may be subject to CDFW's regulatory authority pursuant to Fish and Game Code section 1600 et seq. Fish and Game Code section 1602 requires project proponents to notify CDFW prior to commencing any activity that may (a) substantially divert or obstruct the natural flow of any river, stream, or lake; (b) substantially change or use any material from the bed, bank, or channel of any river, stream, or lake; or (c) deposit debris, waste or other materials that could pass into any river, stream, or lake. "Any river, stream, or lake" includes those that are ephemeral or intermittent as well as those that are perennial in nature. For additional information on notification requirements, please contact our staff in the LSA Program at (559) 243-4593, or RRR.R4@wildlife.ca.gov.

Federally Listed Species

CDFW recommends consulting with the USFWS on potential impacts to federally listed species. Take under the Federal Endangered Species Act (FESA) is more broadly defined than CESA; take under FESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS to comply with FESA is advised well in advance of any ground disturbing activities.

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ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. €). Accordingly, please report any special-status species and natural communities detected during Project surveys to the CNDDB. The CNDDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

The Plan, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

CDFW appreciates the opportunity to assist Westlands Water District in identifying and mitigating Project impacts on biological resources.

If you have any questions, please contact Jeremy Pohlman, Senior Environmental Scientist (Specialist), at the address provided on this letterhead, by telephone at (805) 503-2375 or by electronic mail at Jeremy.Pohlman@wildlife.ca.gov.

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Sincerely,

DocuSigned by:
Julie Vance
FA83F09FE08945A...

Julie A. Vance
Regional Manager

ec: State Clearinghouse
Governor's Office of Planning and Research
State.Clearinghouse@opr.ca.gov

United States Fish and Wildlife Service
Patricia Cole; patricia_cole@fws.gov

California Department of Fish and Wildlife
Steve Brueggeman; Steve.Brueggeman@wildlife.ca.gov

DocuSign Envelope ID: 89E37131-C990-4803-8815-C3F923CBD066

Literature Cited

Butterfield, H.S., D. Cameron, E. Brand, M. Webb, E. Forsburg, M. Kramer, E. O'Donoghue, and L. Crane. 2013. Western San Joaquin Valley least conflict solar assessment. Unpublished report. The Nature Conservancy, San Francisco, California. 27 pages.

Pearce, D., J. Strittholt, T. Watt, and E.N. Elkind. 2016. A path Forward; identifying least-conflict solar PV development in California's San Joaquin Valley. Berkeley Law Center for Law, Energy, and the Environment.

Comment Letter H

George Bradshaw
President
Larry Collins
Vice-President
Stephanie Mutz
Secretary
Chuck Cappotto
Treasurer

PACIFIC COAST FEDERATION of FISHERMEN'S ASSOCIATIONS

Lisa Damrosch
Executive Director
Glen Spain
Northwest Regional Director
Vivian Helliwell
Watershed Conservation Director
In Memoriam:
Nathaniel S. Bingham
Harold C. Christensen
W.F. "Zeke" Grader, Jr.

Please Respond to:
[X] California Office
P.O. Box 29370
San Francisco, CA 94129-0370
Tel: (650)209-0801

www.pcffa.org

Reply Email: fish1ifr@aol.com
& info@pcffa.org

☐ **Northwest Office**
P.O. Box 11170
Eugene, OR 97440-3370
Tel: (650)209-0801

4 March 2024

Russ Freeman
Deputy General Manager
Westlands Water District
P.O. Box 5199
Fresno, CA 93755

Via Email: vcip@wwd.ca.gov and rfreeman@wwd.ca.gov

Re: Comments on Notice of Preparation of a Draft Environmental Impact Report Valley Clean Infrastructure Plan (SCH# 2024020124) which includes Conversion of 130,000 Acres of Agricultural Lands in Western Fresno County.

Mr. Freeman:

Thank you for this opportunity to comment. These are the written comments for the record from both Pacific Coast Federation of Fishermen's Associations (PCFFA) and its sister organization, Institute for Fisheries Resources.

We restate and reiterate the written comments of the letter of this same date from the Planning and Conservation League (PCL), et al., which is attached to this letterhead. If there are any questions, please contact us.

Sincerely,
Lisa Damrosch
Lisa Damrosch
Executive Director

ATTACHMENT A

March 4, 2024

Russ Freeman
Deputy General Manager
Westlands Water District
P.O. Box 5199
Fresno, CA 93755
vcip@wwd.ca.gov

Via Email: vcip@wwd.ca.gov and rfreeman@wwd.ca.gov

Re: Comments on Notice of Preparation of a Draft Environmental Impact Report Valley Clean Infrastructure Plan (SCH# 2024020124) which includes Conversion of 130,000 Acres of Agricultural Lands in Western Fresno County.

Mr. Freeman,

Thank you for the opportunity to comment. Westlands Water District (Westlands) has assumed the lead role in the California Environmental Quality Act (CEQA) process for a monumental programmatic Environmental Impact Report (EIR) on the Valley Clean Infrastructure Plan (VCIP), aiming to facilitate the generation and distribution of up to 20,000 MW converting roughly 130,000 acres of agricultural lands to municipal and industrial uses. Under water contracts with the United States Westlands has sought up to 2.6 acre feet of water per acre which would equate to more than the estimated 260,000 acre feet of yield of the proposed Sites Reservoir, and thus clearly a major water allocation. Therefore, the amount of WWD federally contracted water for these lands needs to be clearly identified and alternatives

need to examine reducing the exported water to Westlands and benefits to leaving the water in the Trinity River and/or Delta Estuary for the benefit of fish and wildlife.

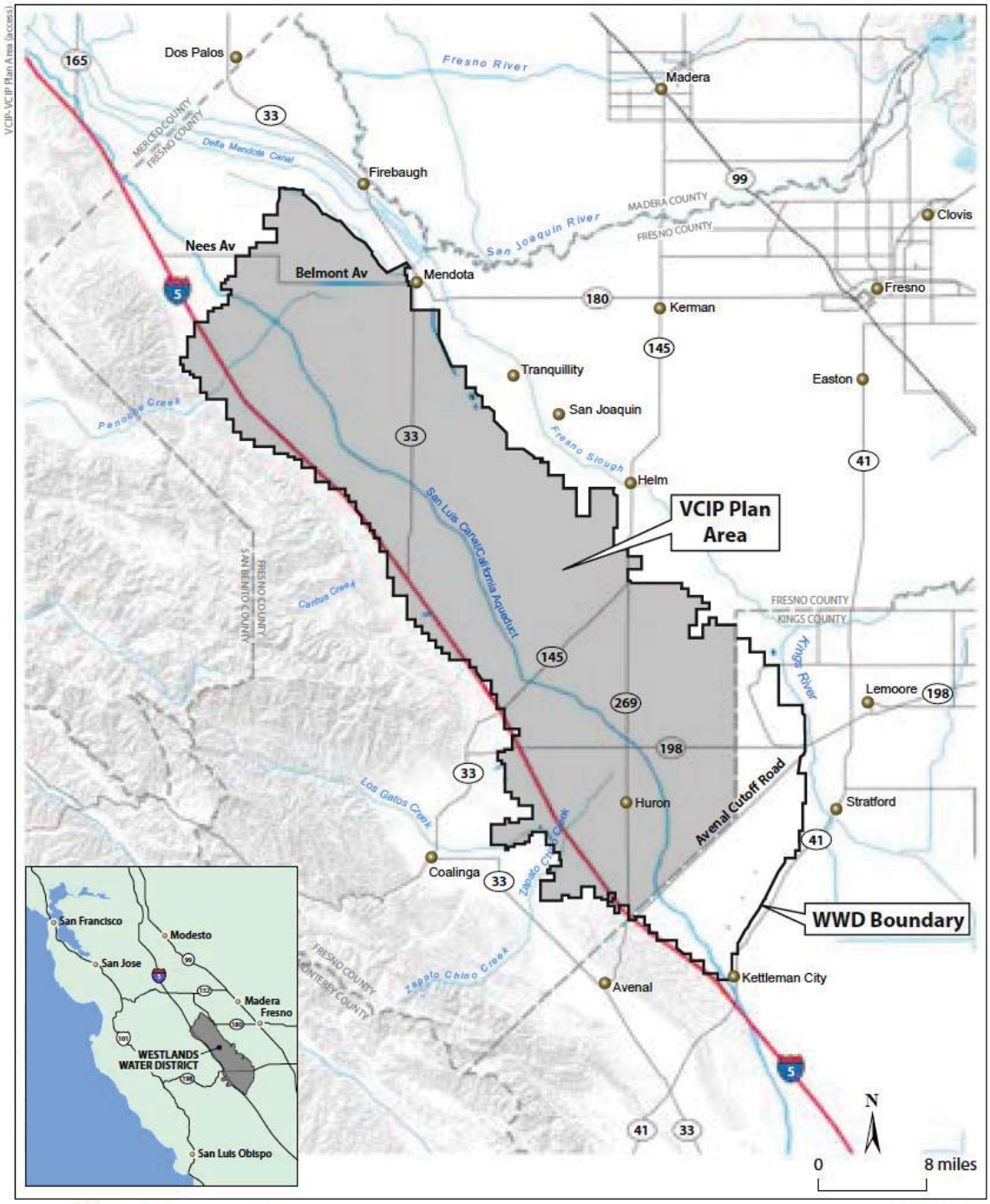
The entire service area of the water district in Fresno County, more than 500,000 acres (781+ square miles), is included in the NOP for the project. The VCIP is a master plan for clean energy development in the form of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities, both of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners located within the Fresno County portion of the Westlands service area. It is anticipated that the DFAs would be built out over a 10-year period. Westlands has made the Notice of Preparation (NOP) available for a 30-day public review period from February 2, 2024 to March 4, 2024. Comments (either by mail or electronically) are due no later than 5:00pm on March 4, 2024.[1]

Previously, in December 2017, Westlands completed an EIR for the Westlands Solar Park Master Plan (WSPMP) and WSP Gen-Tie Corridors Plan (SCH# 2013031043).[2] The WSPMP covered a 21,000-acre area in western and central Kings County within the Westlands service area to accommodate solar PV generating facilities with a total generating capacity of approximately 2,000 MW with construction to be phased over 12 years.

Compared to the WSPMP, Westlands current NOP for VCIP Plan Area would cover an area approximately 5 times larger (up to 130,000 acres of zoned agricultural lands) and produce 10 times more generating capacity (20,000 MW). The figure provided in the NOP includes all lands within the WWD service area in Fresno County encompassing more than 500,000 acres. A copy of that figure is provided below.

[1] See: https://wwd.ca.gov/wp-content/uploads/2024/02/VCIP-NOP.Complete-wFig1-2-2-24.pdf

[2] See: https://wwd.ca.gov/wp-content/uploads/2017/12/westlands-solar-park.pdf



Source: Westlands Water District, 2022

Figure 1
Valley Clean Infrastructure Plan
Plan Area

Below are some of our organizations concerns that should be addressed in the EIR for the VCIP:

1. First and foremost, the choice of Westlands as the lead agency raises questions, given their lack of authority over land use conversions from agricultural to municipal and industrial purposes. The ambiguity surrounding the spatial distribution of solar installations, encompassing the entire district service area within Fresno County, further complicates matters. This ambiguity is exacerbated by Westlands' recent claims, shifting substantial acreage from agricultural to municipal and industrial use, a stark departure from their previous irrigation-centric narrative. The United States Bureau of Reclamation (USBR) should be notified of this proposed change in land use, and trigger a new water needs assessment for the district's Central Valley Project (CVP) contract supply. A full Environmental Impact Report should be completed prior to commencing these land use changes.
2. The proposed conversion of 130,000 acres of agricultural lands to municipal and industrial development covered by the VCIP will reduce the water needs per acre and should reduce the federal water allocation associated with these lands, and cumulatively reduce full contract quantities delivered to Westlands. The contract quantity delivered to Westlands from these federal contracts should be revised to reflect a reduced need on these 130,000 acres of agricultural land that will be converted to municipal and industrial uses and any water delivered for these purposes should reflect the CVP municipal and industrial water rate rather than the agricultural rate.
3. The water delivered to Westlands from the CVP is contractually provided by a WIIN Act contract with the USBR. This contract has not been validated as required by the contract. In 2023, the State Appeals Court[3] (and later upheld by the State Supreme Court[4]) found contract deficiencies prevent validation that will need to be addressed before the contract can be validated in State Court as required by both federal law and the contract. Due to material deficiencies Westlands' permanent 9(d) contract validation was rejected by the court. The undersigned groups have commented that contrary to federal statute and the WIIN Act and CVPIA, the now non-validated contract in addition to the deficiencies found by the court, also has failed to pay all obligations owed. Under federal statute this water contract and its conditions are no longer binding. Thus, Westlands' failure to provide accurate up to date information regarding the amount of irrigable land within the district can be remedied as required by federal statute. For example, in contract negotiations with Interior, Westlands claimed irrigation water for more than 603,000 acres. Much of these acres are included in the NOP Map provided to the public for comment. And yet, Westlands failed to disclose it had entered into option agreements to convert lands to municipal and industrial uses.[5] The undersigned have previously objected to the execution of these 9 (d) contracts under the WIIN Act without CEQA, NEPA and ESA compliance.[6] Mapping and land

[3] See: https://mavensnotebook.com/2023/08/08/courthouse-news-california-appeals-court-rules-against-westlands-water-district-in-dispute-over-its-contract-with-feds/

[4] See: https://mavensnotebook.com/2023/12/01/hoopa-valley-tribe-california-supreme-court-denies-westlands-appeal/

[5] See Westlands' Board of Directors and Water Policy Committee meeting agendas for November 2020 and December 2020; October 2021, November 2021, and the Golden State Clean Energy Proposed Master Plan for Solar Development in Westlands Water District presentation September 21,2021. And Kings County Conditional Use Permit No. 19-02 (Westlands Solar- BLUE) July 2019. And see the Little Bear Solar Project August 2018.

[6]See: https://calsport.org/news/wp-content/uploads/8-20-20-cmt-ltr-Reclamation-more-Ks-final-for-pdf.pdf https://calsport.org/news/wp-content/uploads/1-7-20-O-cmts-Reclamation-Westlands-k.pdf

use analysis is a federal requirement under the biological opinions of the USFWS 2000 CVPIA Implementation Biological Opinion.[7] Accurate maps depicting up to date land use changes have not been provided in the water contract exhibits to the public or regulatory agencies as required under the water contract negotiations.

4. Alternatives in the VCIP EIR must prioritize the conservation of water for endangered species and ecosystems, curbing excessive Delta exports.
5. The area covered by the proposed VCIP is home to special-status species and migratory birds and may provide essential habitat and connectivity for those species. Consultation with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) should be completed to address impact avoidance, minimization and mitigation measures, and potential requirements for obtaining Incidental Take Permits.
6. Westlands' plans to transfer federal irrigation supplies to unspecified entities raise concerns about the ramifications and precise locations of these water transfers, necessitating comprehensive analysis. Further the impacts of these water transfers need to disclosed environmental impacts including impacts to geographical areas from where the water is taken and where it is ultimately transferred.
7. Westlands lacks the statutory mandate to operate as a utility district under state law. Any CEQA documentation must thoroughly examine the legal implications and associated impacts on neighboring areas.
8. The potential for conversion of agricultural land to municipal and industrial use could conflict with local land use planning objectives. A robust assessment of impacts and the implementation of effective mitigation measures are indispensable.
9. The VCIP EIR should consider impacts of the project to air quality, and toxic air contaminants. The VCIP should adopt a binding Emissions Reduction Agreement for the whole project. Consultation with the San Joaquin Valley Air Pollution Control District should be completed.
10. Finally, the infrastructure demands for accommodating over 20,000 MW, including transportation networks, transmission lines, and construction activities, must be thoroughly evaluated. Equally significant are the potential ecological repercussions on the Trinity and Sacramento River watersheds and Delta Estuary stemming from sustained excessive water exports authorized by the invalidated WIIN Act water contracts.

The forthcoming decisions surrounding this VCIP initiative hold profound implications for both the environment and the community at large. Tribal interests and their water supplies along with funding for mitigation are likely impacted and must be addressed. Therefore, it is imperative that the surrounding counties with land use decision-making and the federal and state government agencies engage rigorously in the comment process to ensure a holistic understanding of the project's impacts and the adoption of prudent mitigation strategies.

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https://calsport.org/news/wp-content/uploads/PCL_PCFFA-et-al_Comments-on-Final-Westlands-Permanent-Contract_4-27_-202....pdf

[7]See:https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/LAND/part2rebuttal/land_301.pdf

Thank you for the opportunity to comment on the VCIP NOP. Please notify the undersigned of any future actions associated with this project.

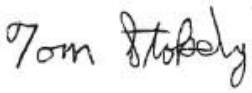
Howard Penn
Executive Director
Planning and Conservation League
howard@pcl.org

John Buse
Senior Counsel
Center for Biological Diversity
jbuse@biologicaldiversity.org

Frank Egger
President
North Coast River Alliance
fjegger@gmail.com

Barbara Vlamis,
Executive Director
AquAlliance
barbarav@aqualliance.net

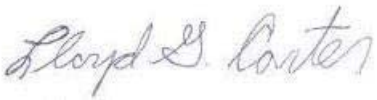
Erin Woolley
Senior Policy Strategist
Sierra Club California
brandon.dawson@sierraclub.org



Tom Stokely
Director
Save California Salmon
tgstoked@gmail.com

Jann Dorman
Executive Director
Friends of the River
janndorman@friendsoftheriver.org

Conner Everts
Executive Director
Southern California Watershed Alliance
Environmental Water Caucus
connere@gmail.com



Lloyd G. Carter
President, Board of Directors
California Save Our Streams Council
lgeorgecarter@gmail.com

Larry Collins
Senior Advocate
Crab Boat Owners Association
papaduck8@gmail.com

Dr. Mark Rockwell
VP Conservation
Northern California Council
Association Fly Fishers International
mrockwell1945@gmail.com

Stephen Green
President
Save the American River
gsg444@sbcglobal.net

Carolee Krieger
Executive Director
California Water Impact Network
caroleekrieger7@gmail.com

Chris Shutes
Executive Director
California Sportfishing Protection Alliance
blancapaloma@msn.com

CC:
Julie.Vance@wildlife.ca.gov" Julie.Vance@wildlife.ca.gov
"Linda.Connolly@wildlife.ca.gov" Linda.Connolly@wildlife.ca.gov
"Sean.Allen@wildlife.ca.gov" Sean.Allen@wildlife.ca.gov
"Bob.Stafford@wildlife.ca.gov" Bob.Stafford@wildlife.ca.gov
"Annette.Tenneboe@wildlife.ca.gov" Annette.Tenneboe@wildlife.ca.gov
Solicitor Robert Anderson robert.anderson@sol.doi.gov
"Caminiti, Mariagrazia" <Marigrace.Caminiti@sol.doi.gov>
Reclamation Commissioner Camille CalimlimTouton mtouton@usbr.gov
Principal Deputy Solicitor Ann Marie Bledsoe Downes ann.bledsoedownes@sol.doi.gov
Deputy Solicitor Fish & Wildlife and Parks Sarah Krakoff sarah.krakoff@sol.doi.gov

Comment Letter I

PLANNING AND CONSERVATION LEAGUE

AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATERS

CRAB BOAT OWNERS ASSOCIATION, Inc.
2907 Jones Street
San Francisco, California 94133-1115
415-885-1180

North Coast Rivers Alliance

SARA
SAVE THE AMERICAN
Save the American River Association

FLY FISHERS INTERNATIONAL
NORTHERN CALIFORNIA COUNCIL

SAVE CALIFORNIA SALMON

SIERRA CLUB CALIFORNIA

Environmental Water Caucus

CA Save Our Streams Council

california water impact network

CENTER for BIOLOGICAL DIVERSITY
Because life is good.

Friends of the River
Since 1973

SOUTHERN CALIFORNIA WATERSHED ALLIANCE

CSPA
CALIFORNIA SPORTFISHING PROTECTION ALLIANCE
Since 1983

March 4, 2024

Russ Freeman
Deputy General Manager
Westlands Water District
P.O. Box 5199
Fresno, CA 93755
vcip@wwd.ca.gov

Via Email: vcip@wwd.ca.gov and rfreeman@wwd.ca.gov

Re: Comments on Notice of Preparation of a Draft Environmental Impact Report Valley Clean Infrastructure Plan (SCH# 2024020124) which includes Conversion of 130,000 Acres of Agricultural Lands in Western Fresno County.

Mr. Freeman,

Thank you for the opportunity to comment. Westlands Water District (Westlands) has assumed the lead role in the California Environmental Quality Act (CEQA) process for a monumental programmatic Environmental Impact Report (EIR) on the Valley Clean Infrastructure Plan (VCIP), aiming to facilitate the generation and distribution of up to 20,000 MW converting roughly 130,000 acres of agricultural lands to municipal and industrial uses. Under water contracts with the United States Westlands has sought up to 2.6 acre feet of water per acre which would equate to more than the estimated 260,000 acre feet of yield of the proposed Sites Reservoir, and thus clearly a major water allocation. Therefore, the amount of WWD federally contracted water for these lands needs to be clearly identified and alternatives

need to examine reducing the exported water to Westlands and benefits to leaving the water in the Trinity River and/or Delta Estuary for the benefit of fish and wildlife.

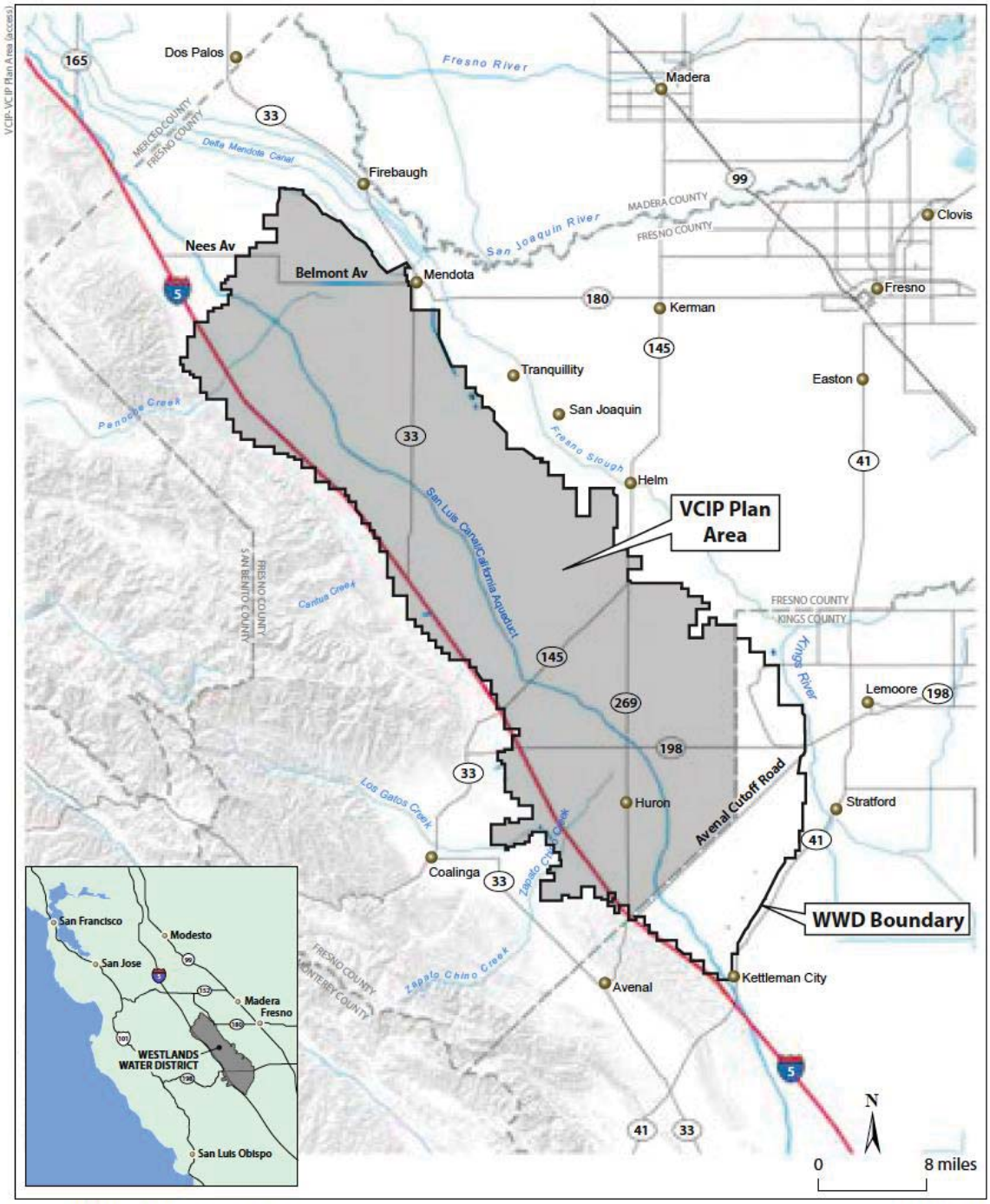
The entire service area of the water district in Fresno County, more than 500,000 acres (781+ square miles), is included in the NOP for the project. The VCIP is a master plan for clean energy development in the form of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities, both of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners located within the Fresno County portion of the Westlands service area. It is anticipated that the DFAs would be built out over a 10-year period. Westlands has made the Notice of Preparation (NOP) available for a 30-day public review period from February 2, 2024 to March 4, 2024. Comments (either by mail or electronically) are due no later than 5:00pm on March 4, 2024.[1]

Previously, in December 2017, Westlands completed an EIR for the Westlands Solar Park Master Plan (WSPMP) and WSP Gen-Tie Corridors Plan (SCH# 2013031043).[2] The WSPMP covered a 21,000-acre area in western and central Kings County within the Westlands service area to accommodate solar PV generating facilities with a total generating capacity of approximately 2,000 MW with construction to be phased over 12 years.

Compared to the WSPMP, Westlands current NOP for VCIP Plan Area would cover an area approximately 5 times larger (up to 130,000 acres of zoned agricultural lands) and produce 10 times more generating capacity (20,000 MW). The figure provided in the NOP includes all lands within the WWD service area in Fresno County encompassing more than 500,000 acres. A copy of that figure is provided below.

[1] See: https://wwd.ca.gov/wp-content/uploads/2024/02/VCIP-NOP.Complete-wFig1-2-2-24.pdf

[2] See: https://wwd.ca.gov/wp-content/uploads/2017/12/westlands-solar-park.pdf



Source: Westlands Water District, 2022

Figure 1
Valley Clean Infrastructure Plan
Plan Area

Below are some of our organizations concerns that should be addressed in the EIR for the VCIP:

1. First and foremost, the choice of Westlands as the lead agency raises questions, given their lack of authority over land use conversions from agricultural to municipal and industrial purposes. The ambiguity surrounding the spatial distribution of solar installations, encompassing the entire district service area within Fresno County, further complicates matters. This ambiguity is exacerbated by Westlands' recent claims, shifting substantial acreage from agricultural to municipal and industrial use, a stark departure from their previous irrigation-centric narrative. The United States Bureau of Reclamation (USBR) should be notified of this proposed change in land use, and trigger a new water needs assessment for the district's Central Valley Project (CVP) contract supply. A full Environmental Impact Report should be completed prior to commencing these land use changes.
2. The proposed conversion of 130,000 acres of agricultural lands to municipal and industrial development covered by the VCIP will reduce the water needs per acre and should reduce the federal water allocation associated with these lands, and cumulatively reduce full contract quantities delivered to Westlands. The contract quantity delivered to Westlands from these federal contracts should be revised to reflect a reduced need on these 130,000 acres of agricultural land that will be converted to municipal and industrial uses and any water delivered for these purposes should reflect the CVP municipal and industrial water rate rather than the agricultural rate.
3. The water delivered to Westlands from the CVP is contractually provided by a WIIN Act contract with the USBR. This contract has not been validated as required by the contract. In 2023, the State Appeals Court[3] (and later upheld by the State Supreme Court[4]) found contract deficiencies prevent validation that will need to be addressed before the contract can be validated in State Court as required by both federal law and the contract. Due to material deficiencies Westlands' permanent 9(d) contract validation was rejected by the court. The undersigned groups have commented that contrary to federal statute and the WIIN Act and CVPIA, the now non-validated contract in addition to the deficiencies found by the court, also has failed to pay all obligations owed. Under federal statute this water contract and its conditions are no longer binding. Thus, Westlands' failure to provide accurate up to date information regarding the amount of irrigable land within the district can be remedied as required by federal statute. For example, in contract negotiations with Interior, Westlands claimed irrigation water for more than 603,000 acres. Much of these acres are included in the NOP Map provided to the public for comment. And yet, Westlands failed to disclose it had entered into option agreements to convert lands to municipal and industrial uses.[5] The undersigned have previously objected to the execution of these 9 (d) contracts under the WIIN Act without CEQA, NEPA and ESA compliance.[6] Mapping and land

[3] See: https://mavensnotebook.com/2023/08/08/courthouse-news-california-appeals-court-rules-against-westlands-water-district-in-dispute-over-its-contract-with-feds/

[4] See: https://mavensnotebook.com/2023/12/01/hoopa-valley-tribe-california-supreme-court-denies-westlands-appeal/

[5] See Westlands' Board of Directors and Water Policy Committee meeting agendas for November 2020 and December 2020; October 2021, November 2021, and the Golden State Clean Energy Proposed Master Plan for Solar Development in Westlands Water District presentation September 21,2021. And Kings County Conditional Use Permit No. 19-02 (Westlands Solar- BLUE) July 2019. And see the Little Bear Solar Project August 2018.

[6]See: https://calsport.org/news/wp-content/uploads/8-20-20-cmt-ltr-Reclamation-more-Ks-final-for-pdf.pdf https://calsport.org/news/wp-content/uploads/1-7-20-O-cmts-Reclamation-Westlands-k.pdf

use analysis is a federal requirement under the biological opinions of the USFWS 2000 CVPIA Implementation Biological Opinion.[7] Accurate maps depicting up to date land use changes have not been provided in the water contract exhibits to the public or regulatory agencies as required under the water contract negotiations.

4. Alternatives in the VCIP EIR must prioritize the conservation of water for endangered species and ecosystems, curbing excessive Delta exports.
5. The area covered by the proposed VCIP is home to special-status species and migratory birds and may provide essential habitat and connectivity for those species. Consultation with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) should be completed to address impact avoidance, minimization and mitigation measures, and potential requirements for obtaining Incidental Take Permits.
6. Westlands' plans to transfer federal irrigation supplies to unspecified entities raise concerns about the ramifications and precise locations of these water transfers, necessitating comprehensive analysis. Further the impacts of these water transfers need to disclosed environmental impacts including impacts to geographical areas from where the water is taken and where it is ultimately transferred.
7. Westlands lacks the statutory mandate to operate as a utility district under state law. Any CEQA documentation must thoroughly examine the legal implications and associated impacts on neighboring areas.
8. The potential for conversion of agricultural land to municipal and industrial use could conflict with local land use planning objectives. A robust assessment of impacts and the implementation of effective mitigation measures are indispensable.
9. The VCIP EIR should consider impacts of the project to air quality, and toxic air contaminants. The VCIP should adopt a binding Emissions Reduction Agreement for the whole project. Consultation with the San Joaquin Valley Air Pollution Control District should be completed.
10. Finally, the infrastructure demands for accommodating over 20,000 MW, including transportation networks, transmission lines, and construction activities, must be thoroughly evaluated. Equally significant are the potential ecological repercussions on the Trinity and Sacramento River watersheds and Delta Estuary stemming from sustained excessive water exports authorized by the invalidated WIIN Act water contracts.

The forthcoming decisions surrounding this VCIP initiative hold profound implications for both the environment and the community at large. Tribal interests and their water supplies along with funding for mitigation are likely impacted and must be addressed. Therefore, it is imperative that the surrounding counties with land use decision-making and the federal and state government agencies engage rigorously in the comment process to ensure a holistic understanding of the project's impacts and the adoption of prudent mitigation strategies.

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https://calsport.org/news/wp-content/uploads/PCL_PCFFA-et-al_Comments-on-Final-Westlands-Permanent-Contract_4-27_-202....pdf

[7]See:https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/LAND/part2rebuttal/land_301.pdf

Thank you for the opportunity to comment on the VCIP NOP. Please notify the undersigned of any future actions associated with this project.

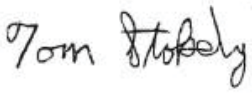
Howard Penn
Executive Director
Planning and Conservation League
howard@pcl.org

John Buse
Senior Counsel
Center for Biological Diversity
jbuse@biologicaldiversity.org

Frank Egger
President
North Coast River Alliance
fjegger@gmail.com

Barbara Vlamis,
Executive Director
AquAlliance
barbarav@aqualliance.net

Erin Woolley
Senior Policy Strategist
Sierra Club California
brandon.dawson@sierraclub.org



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Director
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tgstoked@gmail.com

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Executive Director
Friends of the River
janndorman@friendsoftheriver.org

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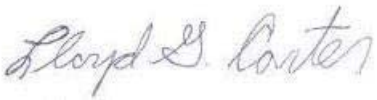
Executive Director
Southern California Watershed Alliance
Environmental Water Caucus
connere@gmail.com



Lloyd G. Carter
President, Board of Directors
California Save Our Streams Council
lgeorgecarter@gmail.com

Larry Collins
Senior Advocate
Crab Boat Owners Association
papaduck8@gmail.com

Dr. Mark Rockwell
VP Conservation
Northern California Council
Association Fly Fishers International
mrockwell1945@gmail.com

Stephen Green
President
Save the American River
gsg444@sbcglobal.net

Carolee Krieger
Executive Director
California Water Impact Network
caroleekrieger7@gmail.com

Chris Shutes
Executive Director
California Sportfishing Protection Alliance
blancapaloma@msn.com

CC:
Julie.Vance@wildlife.ca.gov" Julie.Vance@wildlife.ca.gov
"Linda.Connolly@wildlife.ca.gov" Linda.Connolly@wildlife.ca.gov
"Sean.Allen@wildlife.ca.gov" Sean.Allen@wildlife.ca.gov
"Bob.Stafford@wildlife.ca.gov" Bob.Stafford@wildlife.ca.gov
"Annette.Tenneboe@wildlife.ca.gov" Annette.Tenneboe@wildlife.ca.gov
Solicitor Robert Anderson robert.anderson@sol.doi.gov
"Caminiti, Mariagrazia" <Marigrace.Caminiti@sol.doi.gov>
Reclamation Commissioner Camille CalimlimTouton mtouton@usbr.gov
Principal Deputy Solicitor Ann Marie Bledsoe Downes ann.bledsoedownes@sol.doi.gov
Deputy Solicitor Fish & Wildlife and Parks Sarah Krakoff sarah.krakoff@sol.doi.gov

Comment Letter J

March 4, 2024

Jose Gutierrez
Assistant General Manager
Westlands Water District
P.O. Box 5199
Fresno, CA 93755

Submitted electronically via email to: *vcip@wwd.ca.gov*

Comments re: Notice of Preparation of a Draft Environmental Impact Report for the Valley Clean Infrastructure Plan (VCIP)

Dear Jose Gutierrez:

On behalf of Leadership Counsel for Justice and Accountability (LCJA) and the Central California Environmental Justice Network (CCEJN), we are writing to provide you with comments and recommendations in relation to the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the Valley Clean Infrastructure Plan (VCIP). Our organization works closely with residents of Cantua Creek and El Porvenir[1] who are within the VCIP implementation region. We want to ensure that all potential environmental impacts to these communities, along with reasonable alternatives and mitigation measures, are analyzed in the EIR. Below are recommendations to ensure the EIR accurately assesses the potential impacts that the VCIP would have on residents' health, quality of life, and environment, includes a robust analysis of direct, indirect and individual and cumulative impacts, as well as necessary mitigation measures to address any impacts.

I. The EIR Must Analyze the Cumulative Impacts of Repurposing 130,000 Acres of farmland

A. Air Quality

The EIR must include a robust analysis of air quality impacts from the construction and operation of the project, including an analysis of criteria pollutants and the potential for fires associated with energy storage and transmission. In particular, the VCIP must contribute to the

[1] Also known as Three Rocks

remediation of air quality issues in the West Fresno region. It is critical for the EIR to analyze air quality impacts given that this VCIP will be implemented in a region that is already out of compliance with federal air quality standards.

B. Greenhouse Gas Emissions

The EIR must include an analysis of any additional greenhouse gas emissions caused by the construction and operation of this and other existing and reasonably foreseeable projects.

C. Hazards and Hazardous Materials

The EIR must include an analysis of any hazardous materials and solid waste generated by the construction and operation of the project, including the movement and disposal of these materials both on and off-site and any threats to human health or the environment from these materials, and including the potential for fires associated with energy storage and transmission.

D. Hydrology and Water Quality

The EIR must consider impacts on groundwater levels, surface water supply, and groundwater quality, as well as be transparent regarding the amount of water that will be required for the solar expansion. The NOP states that the VCIP would facilitate SGMA implementation by contributing to the re-allocation of groundwater for irrigation on other productive agricultural land and mitigating risk of subsidence along the San Luis Canal/California Aqueduct; which in combination will result in increased reliability and resilience of agricultural water supply in the Westside Subbasin.

However, based on the information available, solar is being proposed on land that, in whole or in part, is already regularly fallowed and/or that is not suitable for farming. This will not contribute to groundwater remaining in the aquifer nor bolstering of the subbasin's water budget, but instead it may increase groundwater overdraft. Furthermore, if the intent is to mitigate subsidence along the San Luis Canal/California Aqueduct, then it would require land to be transitioned adjacent to and near San Luis Canal/California Aqueduct. Additionally, putting large scale solar farms near San Luis Canal/California Aqueduct may have other water-related impacts to account for, such as increased risk of adversely affecting water quality in the San Luis Canal/California Aqueduct as a result of improper stormwater runoff management and/or spills of chemicals at solar facilities (for example, dust suppressants, dielectric fluids, herbicides) could result in contamination of surface or groundwater. The EIR must consider the adverse impacts solar farms near the San Luis Canal/California Aqueduct will have on water quality.

The EIR must provide accurate information about the amount of water that will be used, where these resources will come from, and how much groundwater will remain in the aquifer as a result of actual transition of actively irrigated land to solar. The EIR must also include a holistic analysis of all water resources to be used for implementation of the VCIP, including but not limited to water used during construction, water needed for the projects, and water used for cooling of solar panels.

Last, given the critical overdraft in the VCIP region and that Cantua Creek and El Porvenir are in the process of transitioning to small groundwater-dependent community water system, Westlands

must ensure any groundwater that will be utilized for implementation of the projects in the VCIP, do not put the community water systems of Cantua Creek or El Porvernir at risk of being dewatered. Therefore, the EIR must include all groundwater pumping required for the implementation of projects in the VCIP, the location of the groundwater pumping, and assessment of any potential impacts to Cantua Creek and El Porvenir's community water systems, including both water supply and quality impacts.

E. Geology and Soils

The EIR must include an analysis of the impacts to the area's geology and soils. Installation and operation of large-scale solar power plants can lead to lead and cadmium spilled from solar farms accumulating in soil over time and pose potential health risks. Similarly other chemicals in the solar panels can leach into the ground if exposed to water. Additionally, the installation and operation of lithium ion energy storage facilities could be associated with impacts to soils. Last, we support the comments made by the California Department of Conservation's Geologic Energy Management Division in its February 27, 2024 letter.[2]

F. Fire Hazards

Installation of solar, energy transmission, and in particular energy storage facilities carry the risk of fire hazard. These impacts must be thoroughly studied and analyzed. To mitigate the impacts of fire hazards the EIR should include a discussion of how the implementation of the VCIP will comply with: the California Fire Code (24 C.C.R. § 9), the California Strategic Fire Plan, Sections 13000 et seq. of the California Health and Services Code, the Fresno County's General Plan, Fresno County's Emergency Operation Plans, and the Fresno County's Disaster Preparedness Plan, and other pertinent and applicable national, state, and local rules and guidelines. The VCIP should also include appropriate mitigation measures to reduce fire hazard risks. Such measures should include but are not limited to: an evacuation plan, emergency preparedness plan, emergency utility shut-offs, strategic buffer zones, fuel management, and educational information. The EIR must also evaluate to ensure local services such as fire, medical, and police are sufficiently available to serve the VCIP project sites, and at its proposed scale.

G. Noise

The EIR must evaluate the noise impacts of implementation of the VCIP will have on nearby residents and local wildlife species, considering the vicinity of the proposed area to neighboring communities. This analysis should encompass assessing existing ambient noise levels to establish a baseline for comparison with projected noise levels from the proposed developments. This should include the use of advanced noise propagation modeling techniques which allow for predicting how noise generated by construction and operational activities will propagate through the surrounding environment.

Furthermore, the analysis should consider cumulative noise impacts by examining the combined effects of noise from the proposed developments along with other existing and planned noise sources in the area, such as transportation infrastructure and industrial facilities. Additionally,

[2] https://ceqanet.opr.ca.gov/2024020124/Attachment/1dGJHZ

temporal noise patterns should be analyzed to understand variations in noise levels throughout the day, week, and year, which can significantly impact community health, sleep patterns, and overall quality of life. By conducting a thorough examination of noise impacts and proposing appropriate mitigation measures such as noise barriers, sound insulation, and operational controls, the EIR can provide valuable insights into safeguarding the well-being of both communities and wildlife in the VCIP region.

H. Energy

The EIR must evaluate the energy use for the construction and long-term operations and maintenance of projects in the VCIP. If analysis of the projects' energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR must include mitigation for that energy use.[3] This analysis must include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. Possible mitigation measures include energy bill discounts and community microgrids to protect residents from impact of additional load on the grid and ensuring residents who live near the projects receive some of the benefits.

I. Aesthetics

The EIR must evaluate any visual, aesthetic, light and glare impacts implementing the VCIP will have on communities near the VCIP projects.

J. Cultural Resources

Regarding cultural resources, we support the comments made by the Native American Heritage Commission in its February 9, 2024 letter.[4]

K. Transportation

This implementation of the VCIP will likely have significant and unavoidable traffic impacts due construction of large-scale solar farms. Therefore, the EIR must analyze and provide estimated vehicle miles traveled (VMT) generated by a project of this size and scale and include all feasible mitigation measures which reduce VMTs. Some of those mitigation measures must include, but not be limited to: public transportation stops at and near the VCIP projects, connective trails and bike lanes throughout the VCIP project, electric car and bike charging stations, local hiring provisions for the commercial development, a walk/ride to school program for the additional schools that will be added to the Project site, and a community rideshare program. The EIR should also include safety features for pedestrians and bicyclists. These measures would include, but not be limited to: HAWK Systems, adequate sidewalks, protected bike lanes, adequate pedestrian safety signage, and school crossing guards.

II. The Environmental Impact Report Must Adequately Analyze and Propose Adequate Mitigation Measures for Expected Impacts

[3] Cal. Code Regs. tit. 14 § 15126.2
[4] https://ceqanet.opr.ca.gov/2024020124/Attachment/lAMxnn

A. The EIR Must Analyze and Mitigate Public Health Impacts.

CEQA requires an EIR to include a sufficient discussion of the significant impacts of the Project, not merely a determination of whether an impact is significant. As such the EIR should analyze the human health impacts of air quality changes from the projects in the VCIP, traffic safety, extreme heat exposure, emergency service availability, and all other potential health impacts from this proposed land use. The EIR must also explain the nature and magnitude of the impact.[5] The EIR must not only analyze potential human health impacts for the project but also describe them to give the general public notice as to how their health might be affected. Courts have set aside EIRs which fail to properly describe health impacts. See, Bakersfield Citizens for Local Control v. City of Bakersfield, (2004) 124 Cal.App.4th 1184, at 1220, "[a]fter reading the EIR's, the public would have no idea of the health consequences that result when more pollutants are added to a nonattainment basin." As such the EIR must include human health studies to inform residents what the health impacts will be from the projects in the VCIP.

B. The EIR Must Analyze Heat-Related Health Impacts and Mitigate Heat Island Effect.

Heat-related illnesses and death are on the rise throughout the San Joaquin Valley, and will only continue to go up as temperatures increase due to climate change. Large-scale solar farms pose the risk of creating health island effects and increasing local temperatures. This poses a serious health threat to communities living in the VCIP implementation region. As such, EIR must analyze the risk of causing heat island effects and must incorporate mitigation measures to protect residents and the community at large from extreme heat. These measures should include, but not be limited to, a community resilience center, adequate air conditioning, evergreen native vegetation, reflective paints and ground cover to reduce the heat island effect, and adequate medical services.

C. The EIR Must Analyze Groundwater Impacts and Mitigate for Small Water Systems, Community Water System, and Domestic Wells

There are small water systems, community water systems, and domestic wells across the VCIP region that are mostly if not full groundwater dependent. The EIR must analyze all potential impacts associated with implementation of the VCIP will have on small water systems, community water systems, and domestic wells, including but not limited to, obstructing access to groundwater, degrading groundwater quality as a result of groundwater depletion associated with VCIP implementation, and groundwater source pollution. Adequate mitigation measures must be included in the EIR and must not be delegated to other processes, including but not limited to local GSA mitigation programs, SAFER projects implementation, nutrient management plans, etc.

III. Alternatives

[5] (*See Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 17 Cal.App.5th 413, 4–515.)

Alternatives to the VCIP will be especially important to avoid and/or minimize impacts to sensitive biological resources, cultural resources, air and water quality and other affected resources. Adverse impacts to environmental resources and public health should be fully mitigated under CEQA and any corresponding environmental and public health protection statutes. Alternatives may require modification of the VCIP footprint.

IV. Westlands Must Adequately Engage the Public When Pursuing Subsequent Discretionary Approvals

In addition to certification of the Programmatic EIR and approval of the VCIP by the District, subsequent discretionary approvals will be required for individual projects proposed under the VCIP. As stated in the VCIP NOP the solar PV and energy storage projects and associated gen-tie lines will require approval of Conditional Use Permits by Fresno County and the collection substations and transmission lines will require approval by the California Public Utilities Commission or other public agencies with regulatory authority. Furthermore, it is anticipated that all of these subsequent project-specific approvals would require project level environmental review under CEQA by the approving agencies. We ask that the District adequately engages the public, especially unincorporated communities near the solar PV, energy storage projects, collection substations and transmission lines, by providing ample time for public comment, making all material available in language of preference, and providing both in person and zoom options for workshops. In addition to posting meeting information in newspapers, we ask that project information and meeting notices are also mailed to nearby communities especially when a meeting is taking place in a specific community.

* * * * *

Thank you for your attention to our comments. Please contact us if you would like to find a time to discuss them. Furthermore, please keep our organization on any lists for the distribution of additional information about the VCIP.

Sincerely,

Nataly Escobedo Garcia
Policy Coordinator
Leadership Counsel for Justice and Accountability

Nayamin Martinez
Executive Director
Central California Environmental Justice Network

Comment Letter K

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

April 12, 2024

Westlands Water District
286 W. Cromwell Ave
Fresno, CA 93711

Project: Notice of Preparation of an Environmental Impact Report, Valley Clean Infrastructure Plan

District CEQA Reference No: 20240156

Dear Westlands Water District,

The San Joaquin Valley Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) of a Programmatic Environmental Impact Report (PEIR) for the Valley Clean Infrastructure Plan (VCIP) from the Westlands Water District (WWD). Per the NOP, the project consists of the development of clean energy facilities and supporting infrastructure with an overall generating and delivery capacity of up to 20,000 MW on approximately 130,000 acres of repurposed farmland (Project). The Project is located in the Fresno County portion of the WWD on the west side of the San Joaquin Valley.

The District offers the following comments at this time regarding the Project:

1) Project Related Emissions

At the federal level under the National Ambient Air Quality Standards (NAAQS), the District is designated as extreme nonattainment for the 8-hour ozone standards and serious nonattainment for the particulate matter less than 2.5 microns in size (PM2.5) standards. At the state level under California Ambient Air Quality Standards (CAAQS), the District is designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 standards.

As such, the District recommends that the PEIR stipulate that future development projects within the VCIP identify and characterize project construction and operational air emissions. The District recommends the air emissions be compared to the District significance thresholds as identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts: https://ww2.valleyair.org/media/g4nl3p0g/gamaqi.pdf.

Samir Sheikh
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585

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The District recommends that future projects be mitigated to the extent feasible, and that future projects with air emissions above the aforementioned thresholds be mitigated to below these thresholds.

The District understands that the VCIP is a program-level project where future individual project-specific data may not be available at this time. As such, the PEIR should include a discussion of policies, which when implemented, will require assessment and characterization of project-level emissions, and subsequently require mitigation of air quality impacts to the extent feasible at the individual project-specific level. Environmental reviews of potential impacts on air quality should incorporate the following items:

1a) Construction Emissions

The District recommends, to reduce impacts from construction-related diesel exhaust emissions, from future individual projects, the City should utilize the cleanest available off-road construction equipment.

1b) Operational Emissions

Operational (ongoing) air emissions from mobile sources and stationary sources should be analyzed separately. For reference, the District's significance thresholds are identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts: https://ww2.valleyair.org/media/g4nl3p0g/gamaqi.pdf.

Recommended Mitigation Measure: At a minimum, project related impacts on air quality should be reduced to levels below the District's significance thresholds through incorporation of design elements such as the use of cleaner Heavy Heavy-Duty (HHD) trucks and vehicles, measures that reduce Vehicle Miles Traveled (VMTs), and measures that increase energy efficiency. More information on transportation mitigation measures can be found at: https://ww2.valleyair.org/media/ob0pweru/clean-air-measures.pdf

1c) Recommended Model for Quantifying Air Emissions

Project-related criteria pollutant emissions from construction and operational sources should be identified and quantified. Emissions analysis should be performed using the California Emission Estimator Model (CalEEMod), which uses the most recent CARB-approved version of relevant emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

2) Health Risk Screening/Assessment

To determine potential health impacts on surrounding receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) a Prioritization and/or a Health Risk Assessment (HRA) should be performed for future development projects that may be approved under implementation of the Project. These health risk determinations should quantify and characterize potential Toxic Air Contaminants (TACs) identified by the Office of Environmental Health Hazard Assessment/California Air Resources Board (OEHHA/CARB) that pose a present or potential hazard to human health.

Health risk analyses should include all potential air emissions from the project, which include emissions from construction of the project, including multi-year construction, as well as ongoing operational activities of the project. Note, two common sources of TACs can be attributed to diesel exhaust emitted from heavy-duty off-road earth moving equipment during construction, and from ongoing operation of heavy-duty on-road trucks.

Prioritization (Screening Health Risk Assessment):
A "Prioritization" is the recommended method for a conservative screening-level health risk assessment. The Prioritization should be performed using the California Air Pollution Control Officers Association's (CAPCOA) methodology. Please contact the District for assistance with performing a Prioritization analysis.

The District recommends that a more refined analysis, in the form of an HRA, be performed for any project resulting in a Prioritization score of 10 or greater. This is because the prioritization results are a conservative health risk representation, while the detailed HRA provides a more accurate health risk evaluation.

Health Risk Assessment:
Prior to performing an HRA, it is strongly recommended that land use agencies/ project proponents develop and submit for District review a health risk modeling protocol that outlines the sources and methodologies that will be used to perform the HRA.

A development project would be considered to have a potentially significant health risk if the HRA demonstrates that the health impacts would exceed the District's established risk thresholds, which can be found here: https://ww2.valleyair.org/permitting/ceqa/.

A project with a significant health risk would trigger all feasible mitigation measures. The District strongly recommends that development projects that result in a significant health risk not be approved by the land use agency.

The District is available to review HRA protocols and analyses. For HRA submittals please provide the following information electronically to the District for review:

- HRA (AERMOD) modeling files
- HARP2 files
- Summary of emissions source locations, emissions rates, and emission factor calculations and methodologies.

For assistance, please contact the District's Technical Services Department by:

- E-Mailing inquiries to: hramodeler@valleyair.org
- Calling (559) 230-5900

Recommended Measure: Development projects resulting in TAC emissions should be located an adequate distance from residential areas and other sensitive receptors to prevent the creation of a significant health risk in accordance to CARB's Air Quality and Land Use Handbook: A Community Health Perspective located at https://ww2.arb.ca.gov/our-work/programs/resource-center/strategy-development/land-use-resources.

3) Ambient Air Quality Analysis

An Ambient Air Quality Analysis (AAQA) uses air dispersion modeling to determine if emissions increases from a project will cause or contribute to a violation of State or National Ambient Air Quality Standards. The District recommends an AAQA be performed for any future development projects that may be approved under implementation of the Project with emissions that exceed 100 pounds per day of any pollutant.

An AAQA uses air dispersion modeling to determine if emission increase from a project will cause or contribute to a violation of State or National Ambien Air Quality Standards. An acceptable analysis would include emissions from both project-specific permitted and non-permitted equipment and activities. The District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis.

Specific information for assessing significance, including screening tools and modeling guidance, is available online at the District's website: https://ww2.valleyair.org/permitting/ceqa/.

4) Voluntary Emission Reduction Agreement

Future development projects from the Project could have a significant impact on air quality. The District recommends the PEIR include a feasibility discussion on implementing a Voluntary Emission Reduction Agreement (VERA) as a mitigation

measure for future development projects that may be approved under implementation of the Project that are determined to exceed the District's CEQA significance thresholds.

A VERA is a mitigation measure by which the project proponent provides pound-for-pound mitigation of emissions increases through a process that develops, funds, and implements emission reduction projects, with the District serving a role of administrator of the emissions reduction projects and verifier of the successful mitigation effort. To implement a VERA, the project proponent and the District enter into a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds for the District's incentives programs. The funds are disbursed by the District in the form of grants for projects that achieve emission reductions. Thus, project-related impacts on air quality can be mitigated. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of agricultural equipment with the latest generation technologies.

In implementing a VERA, the District verifies the actual emission reductions that have been achieved as a result of completed grant contracts, monitors the emission reduction projects, and ensures the enforceability of achieved reductions. After the project is mitigated, the District certifies to the Lead Agency that the mitigation is completed, providing the Lead Agency with an enforceable mitigation measure demonstrating that project-related emissions have been mitigated. To assist the Lead Agency and project proponent in ensuring that the environmental document is compliant with CEQA, the District recommends the environmental document includes an assessment of the feasibility of implementing a VERA.

5) District Rules and Regulations

The District issues permits for many types of air pollution sources, and regulates some activities that do not require permits. A project subject to District rules and regulations would reduce its impacts on air quality through compliance with the District's regulatory framework. In general, a regulation is a collection of individual rules, each of which deals with a specific topic. As an example, Regulation II (Permits) includes District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), and several other rules pertaining to District permitting requirements and processes.

The list of rules below is neither exhaustive nor exclusive. Current District rules can be found online at: https://ww2.valleyair.org/rules-and-planning/current-district-rules-and-regulations. To identify other District rules or regulations that apply to future projects, or to obtain information about District permit requirements, the project

proponents are strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (559) 230-5888.

5a) District Rules 2010 and 2201 - Air Quality Permitting for Stationary Sources

Stationary Source emissions include any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. District Rule 2010 (Permits Required) requires operators of emission sources to obtain an Authority to Construct (ATC) and Permit to Operate (PTO) from the District. District Rule 2201 (New and Modified Stationary Source Review) requires that new and modified stationary sources of emissions mitigate their emissions using Best Available Control Technology (BACT).

Future development projects may be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and may require District permits. Prior to construction, project proponents shall obtain an ATC permit from the District for equipment/activities subject to District permitting requirements.

Recommended Mitigation Measure: For projects subject to permitting by the San Joaquin Valley Air Pollution Control District, demonstration of compliance with District Rule 2201 (obtain ATC permit from the District) shall be provided to the <Agency Name> before issuance of the first building permit.

For further information or assistance, project proponents may contact the District's SBA Office at (559) 230-5888.

5b) District Rule 9510 - Indirect Source Review (ISR)

Accordingly, future development projects within the VCIP may be subject to District Rule 9510 if upon full buildout, the project would equal or exceed any of the following applicability thresholds, depending on the type of development and public agency approval mechanism:

Table 1: ISR Applicability Thresholds

Development Type	Discretionary Approval Threshold	Ministerial Approval / Allowed Use / By Right Thresholds
Residential	50 dwelling units	250 dwelling units
Commercial	2,000 square feet	10,000 square feet
Light Industrial	25,000 square feet	125,000 square feet
Heavy Industrial	100,000 square feet	500,000 square feet
Medical Office	20,000 square feet	100,000 square feet

General Office	39,000 square feet	195,000 square feet
Educational Office	9,000 square feet	45,000 square feet
Government	10,00 square feet	50,000 square feet
Recreational	20,000 square feet	100,000 square feet
Other	9,000 square feet	45,000 square feet

District Rule 9510 also applies to any transportation or transit development projects where construction exhaust emissions equal or exceed two tons of NOx or two tons of PM.

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM emissions associated with development and transportation projects from mobile and area sources; specifically, the emissions associated with the construction and subsequent operation of development projects. The Rule requires developers to mitigate their NOx and PM emissions by incorporating clean air design elements into their projects. Should the proposed development project clean air design elements be insufficient to meet the required emission reductions, developers must pay a fee that ultimately funds incentive projects to achieve off-site emissions reductions.

In the case the individual development project is subject to District Rule 9510, per Section 5.0 of the rule, an Air Impact Assessment (AIA) application is required to be submitted no later than applying for project-level approval from a public agency so that proper mitigation and clean air design under ISR can be incorporated into the public agency's analysis.

Information about how to comply with District Rule 9510 can be found online at: https://ww2.valleyair.org/permitting/indirect-source-review-rule-overview

The AIA application form can be found online at: https://ww2.valleyair.org/permitting/indirect-source-review-rule-overview/forms-and-applications/

District staff is available to provide assistance and can be reached by phone at (559) 230-5900 or by email at ISR@valleyair.org.

5c) District Rule 4002 (National Emissions Standards for Hazardous Air Pollutants)

In the event an existing building will be renovated, partially demolished or removed, future development projects may be subject to District Rule 4002. This rule requires a thorough inspection for asbestos to be conducted before any regulated facility is demolished or renovated. Information on how to comply with District Rule 4002 can be found online at: https://ww2.valleyair.org/compliance/demolition-renovation/

5d) District Rule 4601 (Architectural Coatings)

The Project may be subject to District Rule 4601 since it may utilize architectural coatings. Architectural coatings are paints, varnishes, sealers, or stains that are applied to structures, portable buildings, pavements or curbs. The purpose of this rule is to limit VOC emissions from architectural coatings. In addition, this rule specifies architectural coatings storage, cleanup and labeling requirements. Additional information on how to comply with District Rule 4601 requirements can be found online at: https://ww2.valleyair.org/media/tkgjeusd/rule-4601.pdf

5e) District Regulation VIII (Fugitive PM10 Prohibitions)

The project proponent may be required to submit a Construction Notification Form or submit and receive approval of a Dust Control Plan prior to commencing any earthmoving activities as described in Regulation VIII, specifically Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities.*

Should the project result in at least 1-acre in size, the project proponent shall provide written notification to the District at least 48 hours prior to the project proponents intent to commence any earthmoving activities pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). Also, should the project result in the disturbance of 5-acres or more, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials, the project proponent shall submit to the District a Dust Control Plan pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). For additional information regarding the written notification or Dust Control Plan requirements, please contact District Compliance staff at (559) 230-5950.

The application for both the Construction Notification and Dust Control Plan can be found online at: https://ww2.valleyair.org/media/fm3jrbsq/dcp-form.docx

Information about District Regulation VIII can be found online at: https://ww2.valleyair.org/dustcontrol

5f) Other District Rules and Regulations

Future development projects may also be subject to the following District rules: Rule 4102 (Nuisance) and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).

6) Future Projects / Land Use Agency Referral Documents

Future development projects may require an environmental review and air emissions mitigation. A project's referral documents and environmental review documents provided to the District for review should include a project summary, the land use designation, project size, air emissions quantifications and impacts, and proximity to sensitive receptors and existing emission sources, and air emissions mitigation measures. For reference and guidance, more information can be found in the District's Guidance for Assessing and Mitigating Air Quality Impacts at: https://ww2.valleyair.org/media/g4nl3p0g/gamaqi.pdf

7) District Comment Letter

The District recommends that a copy of the District's comments be provided to the Project proponent.

If you have any questions or require further information, please contact Ryan Grossman by e-mail at Ryan.Grossman@valleyair.org or by phone at (559) 230-6569.

Sincerely,

Tom Jordan
Director of Policy and Government Affairs

For: Mark Montelongo
Program Manager

Comment Letter L

FRESNO COUNTY FIRE

PROTECTION DISTRICT

210 South Academy Avenue
Sanger, California 93657
Telephone: (559) 493-4300
Fax: (559) 875-8473
www.fresnocountyfire.org

April 10, 2025

VIA E-EMAIL
jgutierrez@wwd.ca.gov

Jose Gutierrez, Assistant General Manager
Westlands Water District
P.O. Box 5199
Fresno, CA 93755

Re: Programmatic Environmental Impact Report for the Valley Clean Infrastructure Plan; Notice of Failure to Designate Responsible Agency; Request to Amend Project Description to Include Fire and Life Safety Services Agreement

Dear Mr. Gutierrez,

We are informed that the Westlands Water District ("Westlands") in its capacity as Lead Agency under the California Environmental Quality Act (Pub. Res. Code § 21000 *et seq*. ("CEQA"), has issued a Notice of Preparation of a Programmatic Environmental Impact Report ("PEIR") for its proposed Valley Clean Infrastructure Plan ("Project") on February 2, 2024. The Fresno County Fire Protection District ("FCFPD") is authorized by, among other things the Local Agency Formation Commission of Fresno County ("LAFCO") to be provider of fire prevention, investigation, search and rescue, and first responder services to the Project area located in Fresno County. (See, Attached FCFPD Map). As such the FCFPD is a Responsible Party under CEQA to the Project PEIR.

Unfortunately, FCPFD was not designated a Responsible Agency by Westlands, and was not given proper notice in time to comment on the PEIR. The FCPFD formally requests it be given notice of all further CEQA proceedings related to the Project.

The FCFPD also requests that Westlands, as Lead Agency, amend the draft Project Description to include an acknowledgement and intent to recognize and incorporate FCFPD Resolution 2025, entitled A Resolution Of The Board Of Directors Of The Fresno County Fire Protection District Ratifying And Confirming The Methodology For Ensuring The Maintenance Of Public Health And Safety In The Potential Event Of Fires Or Other Emergencies Associated With The Construction And Operation Of Solar Producing And Storage Facilities. (See, Attached Certified Copy of Resolution 2025-02, adopted April 2, 2025).

As set forth in Resolution 2025-02, the FCFPD has determined that there is both a direct impact and a cumulative impact on emergency response capabilities of the FCFPD to respond to fire, rescue, and medical services emergencies posed by the operation of: 1) solar photovoltaic (PV) generating facilities, and 2) stand-alone energy storage facilities ("PV projects").

The FCFPD has also determined it is necessary for solar PV projects to enter into an agreement with the FCFPD to provide a financial offset the direct and cumulative impact of solar PV projects on the FCFPD commencing with the date of site mobilization and continuing annually thereafter on the anniversary until the final date of project decommissioning.

Resolution 2025 sets forth a methodology consisting of formulas for PV project developers to ensure the funding of new Department facilities, apparatus and equipment; as well as an enhancement to existing facilities derived from a cost allocation to the specific PV project, including both a one- time initial payment and an adjustable annual payment, all based on several factors including project size, megawatts generated, additional energy projects built, and taking into account a consideration of response times and County General Plan recommendations, needed fire flow at such facilities, and special hazards that are specific to sites such as these.

Fresno County and the California Energy Commission ("CEC") Staff have thoroughly reviewed and approved this methodology with the FCFPD (Darden Clean Energy Project, CEC Docket No. 23-OPT-02) and finds it to be appropriate, useful, and based on sound principles.

Implementation of the adopted methodology would be accomplished through entering into an agreement with the FCFPD to provide payments to offset the direct and cumulative impact of the Project to ensure the maintenance of public health and safety in the potential event of fires or other emergencies associated with the construction and operation of the Project.

Accordingly, the FCFPD requests the Project PEIR be amended to include reference to the Project developer(s) to enter into an Fire Services Agreement with FCFPD consistent with Resolution 2025-02.

We look forward to working with Westlands to discuss this matter further.

Sincerely,

Andy Cosentino
FCFPD Division Chief

Cc: Dustin Hail, Chief
William D. Ross, District Counsel

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RESOLUTION NO. 2025-02

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE FRESNO COUNTY FIRE PROTECTION DISTRICT RATIFYING AND CONFIRMING THE METHODOLOGY FOR ENSURING THE MAINTENANCE OF PUBLIC HEALTH AND SAFETY IN THE POTENTIAL EVENT OF FIRES OR OTHER EMERGENCIES ASSOCIATED WITH THE CONSTRUCTION AND OPERATION OF SOLAR PRODUCING AND STORAGE FACILITIES

WHEREAS, the Fresno County Fire Protection District ("District") is a California Special District organized and existing under the Fire Protection District Act of 1987 (Health and Safety Code Section 13800 *et seq.*) providing fire prevention and suppression, emergency medical response, search and rescue and emergency dispatch services. The District also conducts building permit inspections, including conformity with provisions of the Uniform Building Code and the California Fire Code; and,

WHEREAS, the District service area encompasses approximately 2,547 square miles, extending from Kings and Tulare Counties on the South to Madera County on the North and from the coastal range on the West to the foothills of the Sierras on the East. District boundaries encompass unincorporated "islands" that are surrounded by the Cities of Clovis and Fresno. The Cities of Huron and San Joaquin are included within the District and the cities of Mendota and Parlier contract with the District for District services; and,

WHEREAS, during 2024, the District responded to over 13,812 calls for fire suppression, emergency medical services and hazardous materials response; and,

WHEREAS, the County General Plan contains Policies, among other things, to ensure the adequate provision of effective fire and emergency medical services to unincorporated areas within the County and require new development to develop or to pay its fair share of the costs to fund fire protection facilities that, at a minimum, maintain the service level standards set forth the General Plan (Fresno County General Plan Goal PF-H, and Policies PF-H.1, H.2, and H.9; and,

WHEREAS, the District has received notice of development applications for solar photovoltaic (PV) and battery energy storage systems (BESS) facilities (together, "PV Projects"), including the following applications that are pending approval or construction and other projects that may from time to time be submitted for approval (the "Permitted Properties"). Current examples include the following projects:

1. MidWay/Panoche Project.
2. Heartland Solar Project.
3. Little Bear Solar Project.
4. Sonrisa Project.
5. Scarlet Project.
6. Darden Clean Energy Project.
7. 5th Standard Project.
8. Key Energy Storage Project.

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9. Cornucopia Hybrid Project.

WHEREAS, the majority of the "Permitted Properties" are proximate to, or contain "Very High Fire Severity Zones" as designated on the March 10, 2025 CalFire Fire Maps, depicted in **Exhibit "A,** and incorporated by this reference; and,

WHEREAS, Revenue and Taxation Code Section 73 provides for a property tax new construction exclusion, by adding a qualifying solar energy system to a property does not increase its assessed value, thereby preventing a rise in property taxes that would support District fire, rescue, and medical services emergencies to the Permitted Properties; and,

WHEREAS, the entire west side of Fresno County lacks the resources to respond to fire, rescue, and medical services emergencies to the existing towns and energy facilities in an appropriate time. Lack of a central area station, crew, water tenders, and engines have been identified as needed by the District. The bulk of existing and proposed solar PV projects on the Permitted Properties exist in the western part of Fresno County; and,

WHEREAS, District stations on the western side of the County are presently understaffed and under-equipped to handle emergency responses to the growing population of towns on the west side of the County including Mendota, Tranquility, San Joaquin, Coalinga, and others with current resources even with automatic mutual aid thus making it even more difficult to provide for these populations if personnel and equipment are responding to incidents at PV project sites; and,

WHEREAS, several vegetation fires have occurred in the area of operation solar PV facilities in Fresno County are located, two in the past several months, that have required the response of the District; and,

WHEAREAS, the District has determined that there is both a direct impact and a cumulative impact on emergency response capabilities of the District to respond to fire, rescue, and medical services emergencies posed by the operation of the solar PV projects; and,

WHEAREAS, the District has determined it is necessary for solar PV projects to enter into an agreement with the District to provide payments to offset the direct and cumulative impact of solar PV projects on the District commencing with the date of site mobilization and continuing annually thereafter on the anniversary until the final date of project decommissioning; and,

WHEREAS, the District staff has derived a methodology consisting of formulas for PV project developer payments to ensure the funding of new facilities, apparatus and equipment; as well as an enhancement to existing facilities; and,

WHEREAS, the District methodology is derived from a cost allocation to the specific PV project, including both a one-time initial payment and an adjustable annual payment, all based on several factors including project size, megawatts generated, additional energy projects built, and taking into account a consideration of response times and County General Plan recommendations, needed fire flow at such facilities, and special hazards that are specific to sites such as these, and not to be considered for such facilities intended for private use to offset energy consumption

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onsite and/or less than 5MW of accumulated energy generation . The developed formulas are attached as **Exhibit "B"** and are incorporated by this reference; and,

WHEREAS, the California Energy Commission ("CEC") Staff has thoroughly reviewed and approved this methodology with the District (Darden Clean Energy Project, CEC Docket No. 23-OPT-02) and finds it to be appropriate, useful, and based on sound principles; and,

WHEREAS, the District wishes to ratify and adopt the formula methodology described in **Exhibit B** to be used in agreements with solar PV Projects and to take such further actions as are necessary to address fire and life safety impacts of the Projects.

NOW THEREFORE BE IT RESOLVED by the Board of Directors of the Fresno County Fire Protection District that the District hereby adopts the following:

1. Funding Methodology. The District hereby adopts the methodology presented by District Staff contained in **Exhibit B** for ensuring the maintenance of public health and safety in the potential event of fires or other emergencies associated with the construction and operation of solar producing and storage facilities. Staff is directed to take such further as necessary to confirm the methodology for addressing health and safety concerns for the construction and operation of PV Projects.

2. District Staff is directed to take such further actions to confirm District review and conditions of Solar and BESS Projects.

3. Appeal Procedures for Claimed Miscalculations or Misapplication of District Funding Mechanism.

    a. Appeals to District Board.

        i. An Appellant shall file a written Notice of Appeal to contest the applicability, rate, or other concern regarding a District action addressing fire or life safety concerns associated with a Solar of BESS Facility.

    b. Appeal Hearing by Board of Directors.

        i. Absent overriding considerations, the Appeal Hearing will be scheduled within 30 days of receipt at either a Regular or Special Meeting of the District Board and will be open to the public.

        ii. At the Appeal Hearing, the Appellant may provide written evidence and oral testimony to support the Appellant's position. The District Board is authorized to as questions or seek additional information from the Appellant.

        iii. An Appellant may request a continuance of the Appeal Hearing by

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giving prior notice to the District Board. Failure of an Appellant to attend an Appeal Hearing without prior notice may result in the dismissal of the Appeal.

iv. The District Board may make a determination at the time of the Appeal Hearing or may choose to continue the matter to a subsequent meeting for final conclusion or to accept additional evidence.

v. Actions by the Board may include approving the Appeal, denying the Appeal, partially granting/denying the Appeal, accepting partial payment in satisfaction of amounts owed, or such other actions as authorized by law and deemed appropriate by the Board.

4. CEQA Determination. The District establishing a formula in which PV Project developers/operators provide funding to ensure that adequate levels of capital facilities, equipment, vehicles, and staffing are available to provide fire and life safety response services is exempt under the California Environmental Quality Act ("CEQA," Public Resources Code Section 21000 *et seq.*) and the CEQA Guidelines (14 CCR 15000 *et seq.*), as the proposed funding mechanism for maintaining levels of emergency response services is not a "Project" as defined by CEQA section 15378 because the action does not have the potential for resulting in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. The proposed action is also exempt by CEQA Guidelines Section 15307 (Actions by Regulatory Agencies for the Protection of Natural Resources, CEQA Guidelines Section 15308 (Actions by Regulatory Agencies for the Protection of the Environment), CEQA Guidelines Section 15273 (Rates, Tolls, Fares, and Charges by Public Agencies for Operational Expenses), and CEQA Guidelines Section 15378(b)(4) (The Creation of Government Funding Mechanisms).

The foregoing Resolution was PASSED, APPROVED AND ADOPTED at a regular meeting of the Board of Directors of the Fresno County Fire Protection District, held on the ____ day of April, 2025 by the following vote:

AYES: John Arabian, Brad Richter, Darryl Mendes, Francisco Chavez, Stanley Bulla
NOES: None
ABSENT: Dan Mather
ABSTAIN: John Diener

Dated: April 2, 2025

John Arabian, Board President
Board of Directors

ATTEST:

Louisa Esparza-Alonzo, Clerk of the Board

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APPROVED AS TO CONTENT:

Dustin Hail, District Fire Chief

APPROVED AS TO FORM:

DocuSigned by:
William Ross
285D50133D93421...

William D. Ross, District Counsel

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EXHIBIT "A"

Docusign Envelope ID: 5B33D3CB-7020-49EE-8756-C6267DC6F6C9

FRESNO COUNTY – UNINCORPORATED LRA

Local Responsibility Area Fire Hazard Severity Zones

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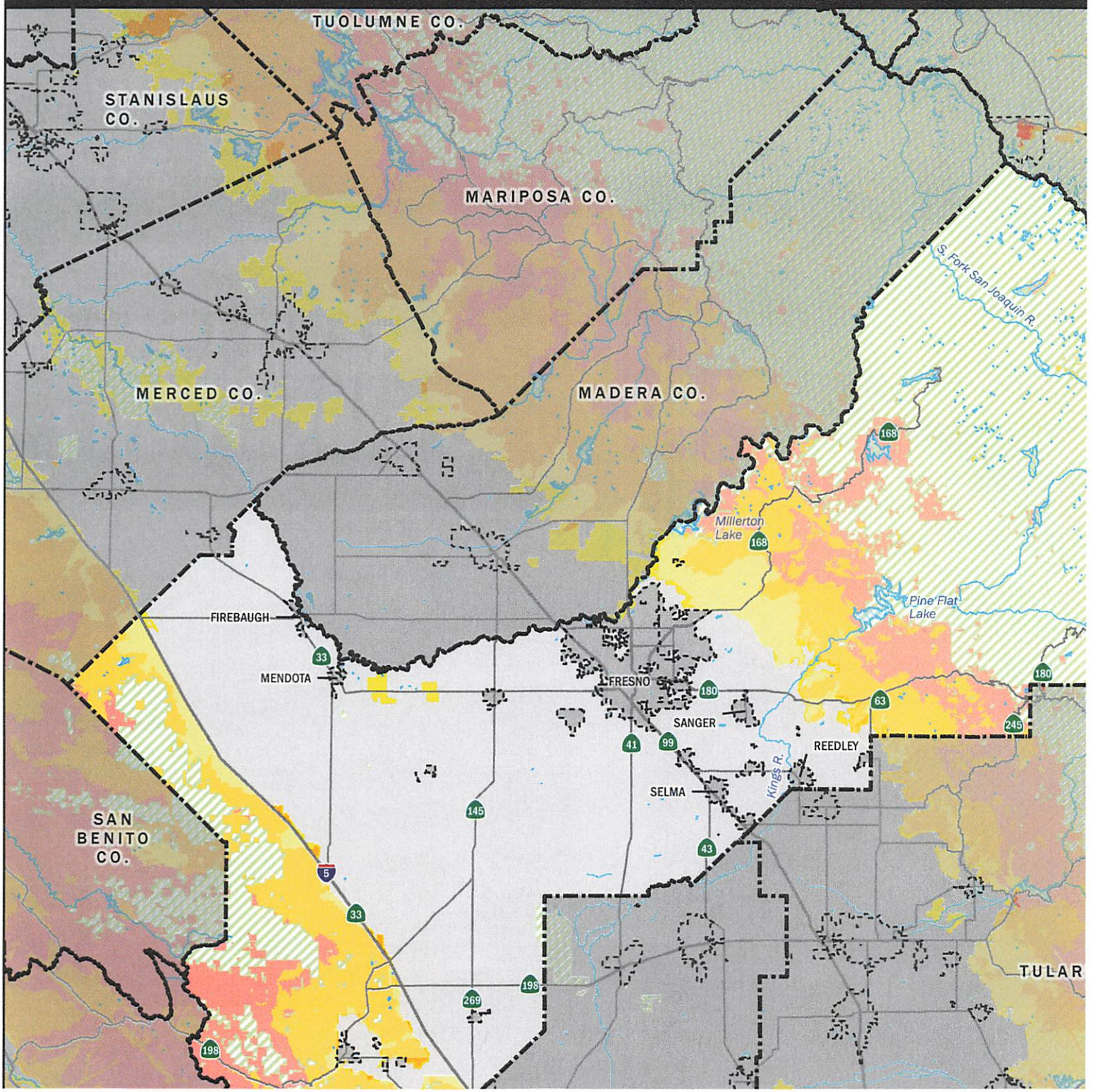

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EXHIBIT "B"

Docusign Envelope ID: 5B33D3CB-7020-49EE-8756-C6267DC6F6C9

EXHIBIT B

Funding Methodology

BESS MW Formula:
1 Time Upfront cost: $6,000/MW
Annual cost: $2000/MW (for life of project)

$120,000,000

$40,000,000

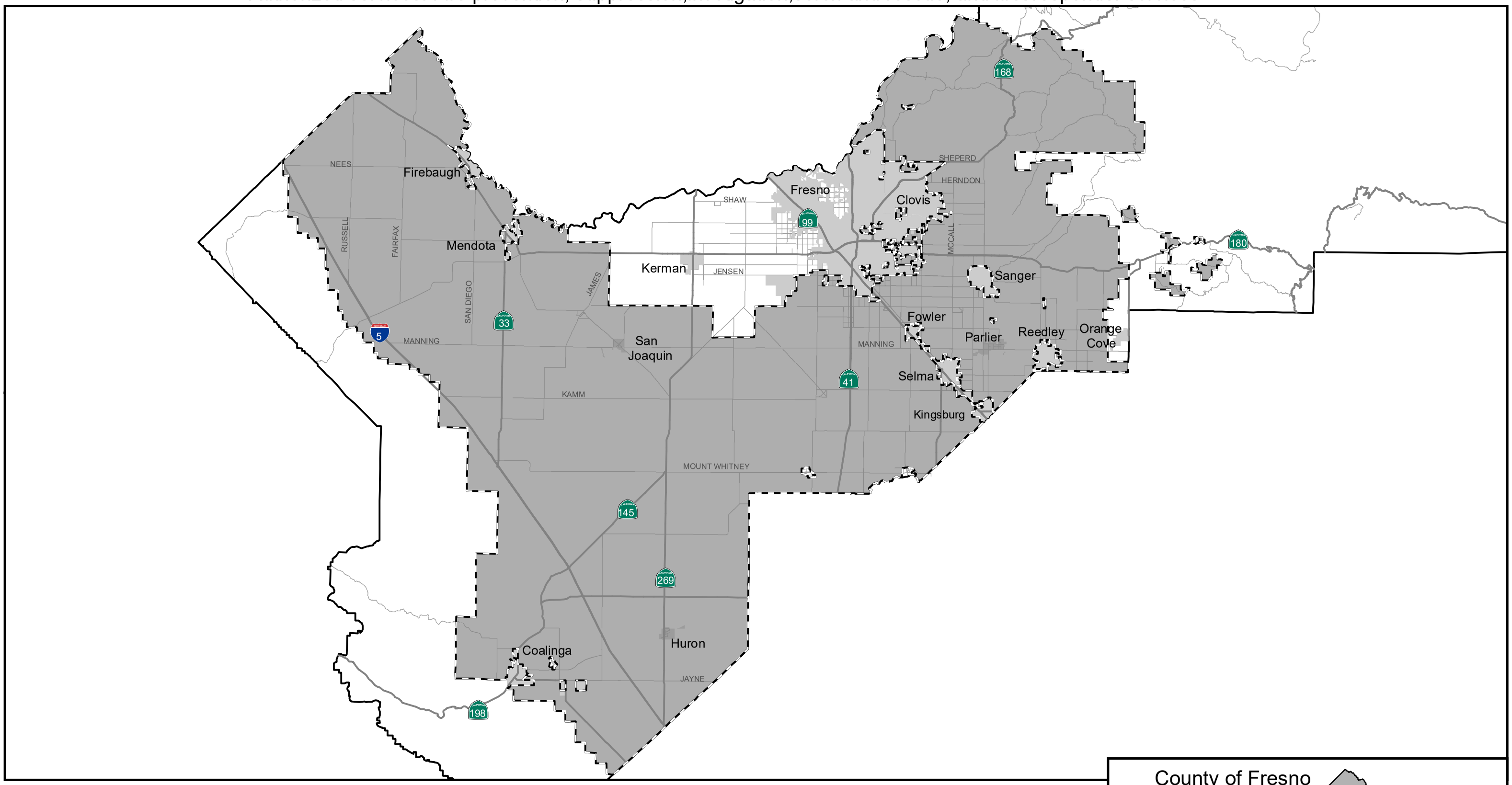
Solar MW Formula:
1 Time Upfront cost: $3,000/MW
Annual cost: $1,000/MW (for life of project)

$60,000,000

20,000,000

Fresno County Fire Protection District

Authorized services: Fire prevention, suppression,invetigation,serch and rescue, and first responder services



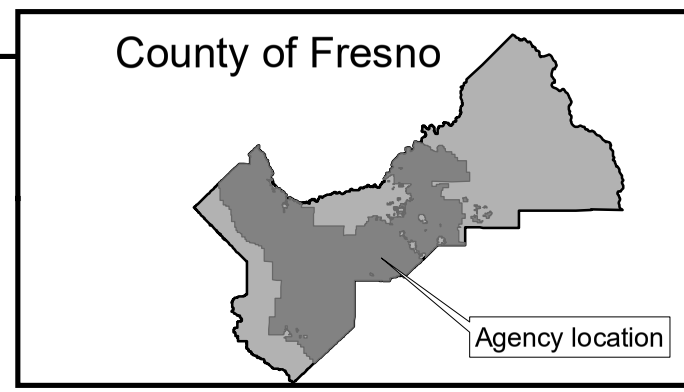
Fresno Local Agency Formation Commission

- District sphere of influence
- City Limits
- District service area

N
W E
S

Mid Valley Formation: 1949
Westside Formation:1936
Consolidated:1994

Sphere updated: 6/13/2007
District area: 1,621,505
Sphere area: 1,621,505
Map prepared: 02/10/2020



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Comment Letter M

200 W. Willmott Avenue
Los Banos, CA 93635

(209) 826-5188
Fax (209) 826-4984
Email: contact_us@gwdwater.org

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June 17, 2024

VIA E-MAIL

Lorri Hammer, Contract Planner
Community and Economic Development Department
2222 M Street, 2nd Floor
Merced, CA 95340
(209) 385-7654
E-mail: Planning@countyofmerced.com

Re: Draft Supplemental Environmental Impact Report for the Las Camas Solar Project (Conditional Use Permit No. CUP-20-011; General Plan Amendment No. 20-001; and Zone Change Amendment No. ZC 21-002)

Dear Ms. Hammer:

Grassland Water District ("GWD") submits the following comments on the Draft Supplemental Environmental Impact Report ("DSEIR") for the Las Camas Solar Project ("Project"). **Other large solar projects in the vicinity of the GEA, including the Wright Solar Project and the Vega Solar Project, both located near this Project, agreed to develop Avian Protection Plans and associated Nighttime Lighting Plans to avoid and reduce impacts on migratory birds and nearby wetland habitats. This is similar to smaller projects at tomato processing and dairy facilities in the County that are close to the GEA. The County should require no less for his large solar Project, including comprehensive monitoring and reporting of bird injuries and deaths at the Project site, with adaptive mitigation as necessary to address any significant or unforeseen avian impacts.**

GWD delivers water to state, federal, and private lands within the Grassland Ecological Area ("GEA") of Merced County, for the purpose of managing wildlife habitat. The GEA covers 230,000 acres and contains the largest remaining wetland complex west of the Rocky Mountains. **At its closest point, the proposed Project is only 1.6 miles from the GEA**. GWD is concerned about industrial-scale solar developments in such close proximity to the GEA, because the GEA is one of the County's significant natural resources, providing irreplaceable habitat benefits for birds and other wildlife. GWD urges the County to give careful consideration to new solar developments near the GEA, and to ensure that they are appropriately sited and designed to minimize impacts to birds.

The DSEIR should acknowledge the ecological significance of the GEA, acknowledge the potential for significant impacts to migrating birds, and adequately describe or mitigate for Project impacts, including but not limited to nighttime lighting impacts. Given the sensitivity and high concentrations of migratory birds in the Project vicinity, a robust Avian Protection Plan and Nighttime Lighting Plan should be developed and disclosed to the public in advance of Project approval. GWD is willing to work with the Project proponent to develop these protection plans.

1. The DSEIR Fails to Acknowledge the Ecological Significance of the GEA

The existing environmental setting is the starting point from which a CEQA lead agency must measure whether a proposed Project may cause a significant environmental impact.[1] CEQA defines the environmental setting as the physical environmental conditions in the vicinity of the project, from both a local and regional perspective.[2] Describing the environmental setting accurately and completely is critical to a meaningful evaluation of environmental impacts. "It is only against this baseline that any significant environmental effects can be determined."[3]

The DSEIR must describe the existing environmental setting in sufficient detail to enable a proper analysis of the Project's impacts.[4] CEQA's regulatory guidelines provide that "[k]nowledge of the regional setting is critical to the assessment of environmental impacts."[5] This level of detail is necessary to "permit the significant effects of the Project to be considered in the full environmental context."[6]

The DSEIR fails to accurately and adequately describe the environmental setting for migratory waterfowl and wildlife habitat areas and omits highly relevant information regarding biological resources. The DSEIR should address the location of the Project in relation to surrounding bird habitat areas and migratory bird corridors.

The GEA is an Audubon-designated Important Bird Area.[7] It is listed as a major shorebird site by the Western Hemisphere Shorebird Reserve Network.[8] The GEA is designated by the United States as a Wetland of International Importance under the International Ramsar Convention on Wetlands.[9] In addition to containing four state wildlife areas and three national wildlife refuges, the GEA contains large tracts of privately managed wetlands within the Grassland Resource Conservation District and the Grasslands Wildlife Management Area, which

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[1] *See, e.g., Communities for a Better Env't v. S. Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 316; *Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278 (citing Remy, et al., Guide to the Calif. Environmental Quality Act (1999) p. 165).
[2] CEQA Guidelines § 15125(a); *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453.
[3] *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.
[4] *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1121-22.
[5] CEQA Guidelines § 15125(d).
[6] *Id.*
[7] http://netapp.audubon.org/iba/Site/173
[8] http://www.whsrn.org/site-profile/grasslands
[9] http://www.ramsar.org/cda/en/ramsar-activities-wwds-two-new-us-ramsar-sites/main/ramsar/1-63-78%5E22428_4000_0__

was established by the U.S. Fish and Wildlife Service to "protect highly valuable and declining wetlands of California's San Joaquin Valley" and "assist in achieving goals for recovery of migratory waterfowl in North America's Pacific Flyway and federally listed threatened or endangered species."[10]

The GEA contains the majority of the wildlife refuge areas that are designated under federal law as "mitigation for fish and wildlife losses incurred as a result of construction, operation, or maintenance of the Central Valley Project."[11] The GEA and its ecological importance to the Pacific Flyway and to the Central Valley are also described and mapped in Merced County's General Plan.[12]

Without an accurate description of this environmental setting, the Project's potential impacts to biological resources are not fully disclosed. To comply with CEQA, the DSEIR must be revised to include a description of the GEA that accurately portrays its ecological significance. The DSEIR should also be revised to indicate that at its closest point, the Project site is only approximately 1.6 miles from the GEA boundaries.

2. The DSEIR Fails to Acknowledge the Potential for Significant Impacts to Migrating Birds

CEQA requires a DEIR to disclose all direct and indirect potentially significant environmental impacts of a project.[13] The discussion of impacts in a DEIR must be detailed, complete, and "reflect a good faith effort at full disclosure."[14] An adequate DEIR must contain facts and analysis, not just an agency's conclusions.[15]

There is growing concern about the "lake effect" that large solar projects have on migrating and water-associated birds. Early on, the U.S. Fish and Wildlife Service confirmed that the lake effect is a known and growing concern for all types of solar projects. It warned that the lake effect may be correlated with proximity to migratory stopover areas:

> Incidental fatalities are increasingly being documented and reported at a range of solar projects, including photovoltaic and parabolic trough technologies in Riverside and Imperial counties. What is commonly referred to as the "lake effect" or as "polarized light pollution" by Horvath et al. (2009), presents a hazard

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[10] http://zero.eng.ucmerced.edu/snow/Tom/Web/website_102610/www/files/pdfs/4.1.1_GrasslandsPassport_Public_Document_Version.pdf; http://www.fws.gov/cno/refuges/grasslands/3%20Grasslands%20Expansion%20Final%20EA.pdf (p. 5 of 53).

[11] Central Valley Project Improvement Act, Pub. Law 102-575, Title 34, §§ 3406(a), (d).

[12] Merced County General Plan Background Report (2013), revised pages 4-22 to 4-26: http://zero.eng.ucmerced.edu/snow/Tom/Web/website_102610/www/files/pdfs/4.1.1_GrasslandsPassport_Public_Document_Version.pdf (pp. 22-26 of 134).

[13] Pub. Resources Code § 21100(b)(1); CEQA Guidelines § 15126.2(a).

[14] CEQA Guidelines § 15151; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722.

[15] See *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 568.

particularly in the desert to water-associated birds, and other species seeking available resident, seasonal, and/or migratory stopover habitat typically found along rivers and lakeshores (Service 2014). All [solar] technology types appear to present a hazard to water-associated bird species from the lake effect, based on the species composition of avian mortalities documented at ISEGS, Genesis (solar trough), and Desert Sunlight (photovoltaic) projects. *The magnitude of this lake effect remains unclear, but may be location specific and may be correlated with migratory flyways or the availability of other habitat for migratory stopovers. Desert Sunlight and Genesis in the vicinity of the proposed project are among those reporting the most incidental observations of water-associated mortalities, likely related to the proximity of wintering grounds for large numbers of migratory birds* in the Lower Colorado River Valley and Salton Sea Basin.[16]

Since then, the USFWS and other organizations such as Renewable Energy Wildlife Institute (REWI) have developed studies, guidance, and resources for solar projects. **A list of some of these only resources is provided in the Attachment to these comments.**

It is acceptable for the DSEIR to acknowledge that there is uncertainty and risk regarding potential avian impacts, and that mitigation should be implemented to address this uncertainty. It is not acceptable for the DSEIR to conclude that impacts will likely be minimal. Correcting the DSEIR will provide the reader with a more accurate understanding of the potential risks and uncertainties involved with constructing a very large photovoltaic power plant in a migratory bird corridor and in proximity to important wildlife habitat areas.

3. Project Lighting Is Not Adequately Described; the County Should Require A Nighttime Lighting Plan That Includes Motion Detection Lights Instead of Fixed Nighttime Lighting

In several places the DSEIR states that nighttime lighting will be installed, including around the Project's fence line and at the new substation associated with the Project. The DSEIR provides no indication of how many lights would be installed, and gives no explanation for why they must remain illuminated throughout the night. The DSEIR's Project description and analysis of lighting is inadequate. The Project is located in an important migratory bird stopover area, and increased nighttime would have potentially significant adverse effects on birds. Bird disorientation from nighttime lighting is a well-known phenomenon:

- "Light fixation is a constant bird hazard .... Hundreds of terrestrial bird species fly and migrate under cover of night. While the mechanisms for birds' attraction to artificial night lighting are not well understood, its hazards to birds have been well documented."

[16] Letter from Kennon Corey, U.S. Fish and Wildlife Service, to Christine Stora, California Energy Commission dated August 7, 2014 (emphasis added).

- "Our data show that chronic low intensities of light at night can dramatically affect the reproductive system [of birds]. … [W]e call for collaboration between scientists and policy makers to limit the impact of light pollution on animals and ecosystems."

- "Researchers have used radar imagery to determine how birds respond to lit environments. The observations found that once they fly through a lit environment they'll return to that lit source and then hesitate to leave it."

- "Artificial night lighting affects the natural behavior of many animal species. It can disturb development, activity patterns, and hormone-regulated processes, such as the internal clock mechanism; see references in Rich and Longcore (2006). Probably the best-known effect, however, is that many species are attracted to, and disoriented by, sources of artificial light, a phenomenon called positive phototaxis. Apart from insects, birds that migrate during the night are especially affected (Verheijen 1958). This may cause direct mortality, or may have indirect negative effects through the depletion of their energy reserves. Reviewing the literature, Gauthreaux and Belser (2006) conclude that "all evidence indicates that the increasing use of artificial light at night is having an adverse effect on populations of birds, particularly those that typically migrate at night."

A list of scientific publications about light impacts on birds is provided in the Attachment. Light pollution is considered a serious threat to ecological communities because it has the potential to alter physiology, behavior, and population ecology of wildlife. The DSEIR lacks adequate information about the lighting that will be installed at the Project site, including the abundance of lights, the maximum luminous emittance (intensity) of bulbs, and the location of light fixtures. This information is essential to assessing the impacts of the Project's lighting on sensitive biological resources.

An Avian Protection Plan ("APP") with robust protections for avian injury, death, and impacts from Nighttime Lighting is required. The lighting measures in the APP need to be clear and detailed, to ensure that feasible measures to mitigate Project impacts will in fact be implemented. GWD has worked with the proponents of other projects, including the Wright Solar Project, Liberty Packing Plant Project, and the Vega Solar Project, to develop lighting plans that were adopted and approved by the County Board of Supervisors during Final EIR approvals. Protective measures included equipping Project lighting with motion detection technology that will only illuminate when movement is detected, light colors that are least attractive to birds, and specifications for downward-facing lights and shielding (no more than 45 degrees from the horizon). These measures also included construction lighting requirements.

In sum, the DSEIR should be revised to provide more information about the number and location of Project lights, the intensity of nighttime lighting at the substation and similar facilities, and the expected frequency of nighttime lighting, and nighttime occupancy by staff. Compliance with an APP should be required, and the lighting measures in the APP should be consistent with other lighting requirements for similar projects in the County, including motion

detection lights around the Project perimeter, and other measures to reduce the potential impacts of nighttime lighting.

4. Request for Avian Protection Plan Monitoring Components

The Project is one of the largest solar projects to be proposed in Merced County, and the largest development to take place this close to the GEA. Due to uncertainty and potential risks regarding how this large project will affect migrating and resident bird species, particularly due to the "lake effect" of large solar arrays, a robust monitoring and reporting program for avian injuries and deaths must be implemented.

The U.S. Fish and Wildlife Service ("USFWS") has issued its recommendations for "project-level monitoring objectives" on solar project sites. This is an evolving field, with recent contributions from REWI and other organizations (**see Attachment**). The USFWS convened a Solar Avian Mortality Monitoring Product Team to prepare solar monitoring guidelines to meet these objectives. The USFWS monitoring objectives indicate that monitoring "should be structured in order to provide information on seasonal differences in mortality rates and which species or taxonomic groups are most vulnerable," by implementing consistent monitoring throughout the annual cycle. The USFWS objectives also require "carcass persistence and searcher efficiency surveys" to determine if carcass search intervals should be adjusted. Finally, the USFWS objectives state that "systematic monitoring should be conducted for a minimum of 3 years unless information or adaptive management strategies warrant an alternative number of years of monitoring." Monitoring should also be used to evaluate the effectiveness of any adaptive management.

The DSEIR does not meet the USFWS monitoring objectives. Biological surveys should be undertaken throughout an annual cycle; carcass surveys should be designed to cover a large portion of the Project site and should include surveys "to estimate detection probabilities"; and the APP should require three years of monitoring. The DSEIR and APP for this Project should also reflect on data collected under the APP for the nearby Wright Solar Project, incorporate any monitoring lessons learned, and include adaptive measures needed to avoid avian entrapment, injury, and fatalities. The APP should acknowledge that monitoring protocols may need to be adjusted.

In addition to requiring conformity with relevant objectives, the APP should ensure that the Project's monitoring and reporting program is robust, transparent, and accurate: (1) The APP must ensure that staff are properly trained and required to report all bird observations on the Project site; (2) staff observations must be included in Avian Mortality Monitoring reports; (3) the APP should include an avian incident report form, which the developer will use to document and report avian injuries, mortality, and stranding; (4) biologist surveys must include a requirement to report any injured or stranded wildlife, not just mortalities; and (5) examples of adaptive management measures provided in the APP should include the possibility of modifications to monitoring protocols based on updated guidelines.

Thank you for your consideration of these comments. Should you have questions regarding these comments, please feel free to contact GWD.

Sincerely,

Ricardo Ortega
General Manager
Grassland Water District

ATTACHMENT

(Comments of Grassland Water District)

List of Literature on Wildlife Disturbance, Behavioral Effects, and Mitigation

Online Resources:

Summary of existing literature on solar/wildlife interactions: https://rewi.org/resources/solar-energy-interactions-with-wildlife-and-their-habitats/

Solar REWI research plan: https://rewi.org/resources/national-solar-wildlife-research-plan-2023-2025/

USFWS Resources: Energy Development | U.S. Fish & Wildlife Service (fws.gov) and

Incidental Take Beneficial Practices: Solar | U.S. Fish & Wildlife Service (fws.gov)

Fatal Light Awareness Program (FLAP), *FLAP Canada Website*: https://flap.org/

Scientific Literature

Beier, Paul, *Effects of Artificial Night Lighting on Terrestrial Mammals* (2005)

Blumstein, Daniel T., *Developing an Evolutionary Ecology of Fear: How Life History and Natural History Traits Affect Disturbance Tolerance in Birds* (2006)

Borgmann, Kathi L., *A Review of Human Disturbance Impacts on Waterbirds* (2010)

Bruderer, Bruno et al., *Behaviour of Migrating Birds Exposed to X-Band Radar and a Bright Light Beam* (1999)

Da Silva, Arnaud, *Light Pollution Alters the Phenology of Dawn and Dusk Singing in Common European Songbirds* (2015)

DeLong, Anita K., *Managing Visitor Use & Disturbance of Waterbirds – A Literature Review of Impacts and Mitigation Measures – Prepared for Stillwater National Wildlife Refuge* (2002)

Dominoni, Davide M., *The Effects of Light Pollution on Biological Rhythms of Birds: An Integrated, Mechanistic Perspective* (2015)

Fleskes, Joseph P., *Pintail North-South Flight Paths in the Grassland Ecological Area* (2002)

Hockin, D. et al., *Examination of the Effects of Disturbance on Birds with Reference to Its Importance in Ecological Assessments* (1992)

Jones, Jenny, Impact of Lighting on Bats (2000)

Longcore, Travis and Rich, Catherine, *Ecological Light Pollution* (2004)

Lustick, Sheldon, *The Effect of Intense Light on Bird Behaviour and Physiology* (1973)

Novak, Annie, *The 9/11 Tribute in Light Is Helping Us Learn About Bird Migration* (2018)

Perry, Gad et al., *Effects of Artificial Night Lighting on Amphibians and Reptiles in Urban Environments* (2008)

Poot, Hanneke et al., *Green Light for Nocturnally Migrating Birds* (2008)

Powell, Hugh, *The Sky Above: It's Not Just Air, It's Habitat* (2018)

Shuford, W. David et al., *Patterns of Distribution, Abundance, and Habitat Use of Breeding Black-necked Stilts and American Avocets in California's Central Valley in 2003* (2004)

Stone, Emma Louise et al., *Impacts of Artificial Lighting on Bats – A Review of Challenges and Solutions* (2015)

Van Doren, Benjamin M. et al., *High-Intensity Urban Light Installation Dramatically Alters Nocturnal Bird Migration* (2017)

Wise, Sharon, *Studying the Ecological Impacts of Light Pollution on Wildlife: Amphibians as Models* (2007)

APPENDIX B – AIR QUALITY ASSESSMENT

Prepared by

Illingworth & Rodkin, Inc.

July 2025

VALLEY CLEAN INFRASTRUCTURE PLAN (VCIP)

PROGRAM-LEVEL AIR QUALITY ASSESSMENT

Fresno County, California

July 7, 2025

Prepared for:
Westlands Water District
c/o Bert Verrips, AICP
Bert Verrips, AICP, Environmental Consulting
11942 Red Hill Avenue
Santa Ana, CA 92705

Prepared by:

James A. Reyff

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 E. Cotati Avenue
Cotati, CA 94931
(707) 794-0400

I&R Project: 24-070

INTRODUCTION

This report assesses the potential air quality impacts associated with projects constructed under the Valley Clean Infrastructure Plan (VCIP or Plan) proposed in Fresno County, California. The planning area is approximately 136,000 acres. Development projects of this type in the San Joaquin Valley are most likely to c generate emissions during construction, with minor emissions generated during operation from the few workers that visit the site intermittently for maintenance. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has published the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) that was used to conduct this air quality analysis (SJVAPCD 2015). Existing air quality conditions are described, potential construction period air quality impacts assessed, potential build-out operational air quality impacts (at both a local and regional scale) described, and mitigation measures necessary to reduce or eliminate air quality impacts identified as significant listed.

PROJECT DESCRIPTION

The proposed VCIP provides a blueprint for the development of clean energy facilities and supporting infrastructure with an overall generating and delivery capacity of up to 21,000 MW on approximately 136,000 acres of repurposed farmland within the Fresno County portion of Westlands Water District (District), as shown in Figure 1. The VCIP includes an "Energy Resource Plan" and an "Infrastructure Plan."

The VCIP Energy Resource Plan consists of clean energy development in the form of: 1) solar photovitalic (PV) generating facilities, and 2) stand-alone energy storage facilities, all of which would be developed within defined "Development Focus Areas" (DFAs) consisting of District-owned land and private lands of participating landowners.

The VCIP Infrastructure Plan includes the elements for conveyance of solar generation to the state's load centers: 1) gen-tie lines, 2) collection substations, and 3) connector transmission lines.

Each project that is part of the VCIP is likely to be constructed within a 12- month period beginning in 2029 and lasting through 2038. The first full year of facility operation is expected to be 2039.

In order to deliver VCIP renewable generation to load centers in northern and southern California, new bulk delivery transmission lines are needed. These 500-kV transmission lines would be subject to the state's transmission planning and approval processes and are anticipated to be constructed, owned, and operated by public utilities, government utilities, or merchant transmission owners. These bulk delivery transmission lines are not part of the VCIP.

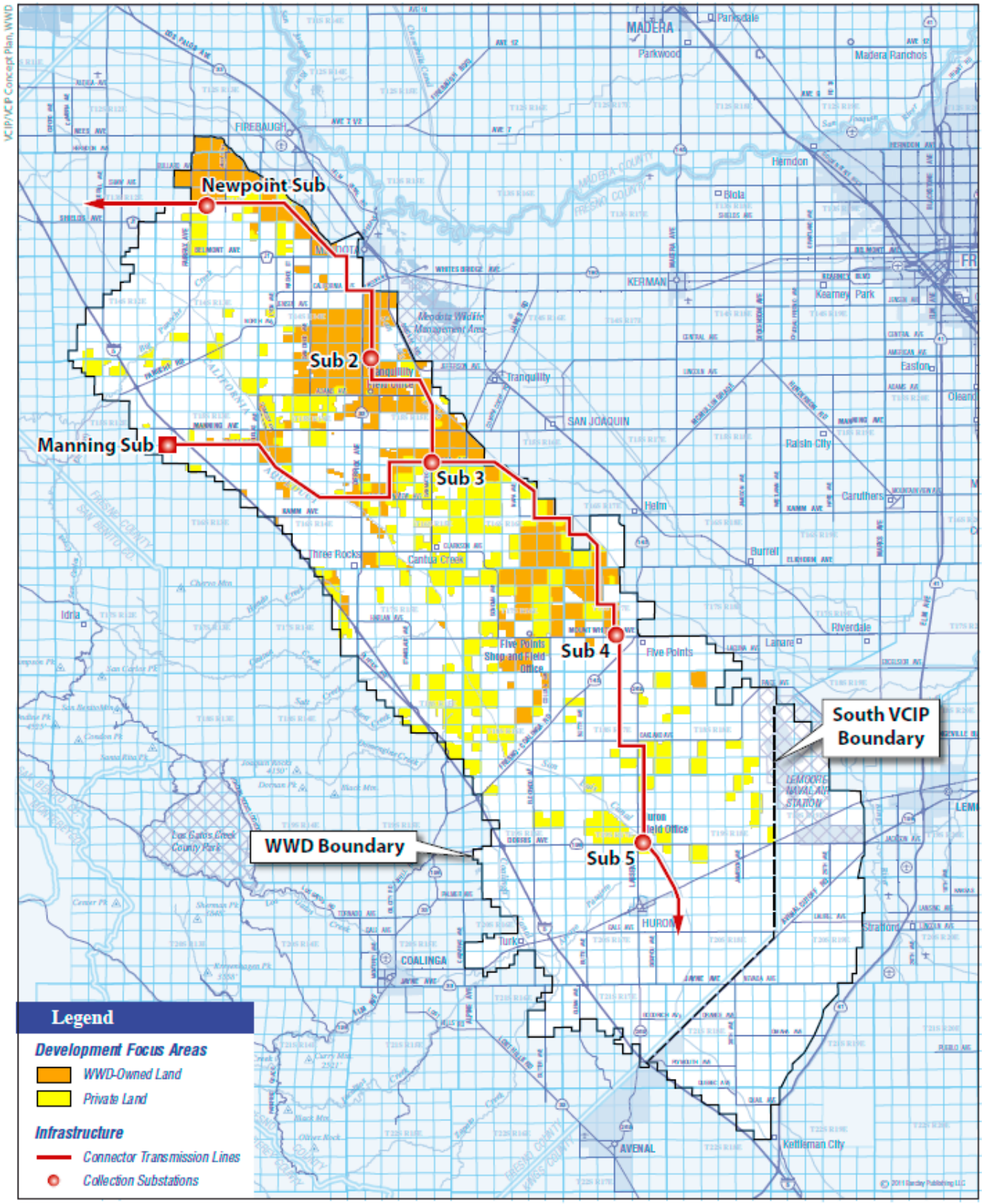

Figure 1. VICP Concept Plan

SETTING

Topographic Considerations

The plan area is located in the western portion of Fresno County, which lies in the southwestern portion of the San Joaquin Valley Air Basin. The California Air Resources Board (CARB) defines the boundaries of the basin by the San Joaquin Valley within the Sierra Nevada Mountains to the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the ocean at the Carquinez Strait where the San Joaquin-Sacramento Delta empties into San Francisco Bay. The San Joaquin Valley, thus, could be considered a "bowl" with the primary opening to the north. The surrounding topographic features restrict air movement through and out of the basin and, as a result, impede the dispersion of air pollutants from the basin. Wind flow is usually down the valley from the north, but the Tehachapi Mountains block or restrict the southward progression of airflow. The Sierra Nevada is a substantial barrier from the usual winds that have a general westerly flow. The topographical features result in weak airflow. The flow is further restricted vertically by inversion layers that are common in the San Joaquin Valley Air Basin throughout the year. An inversion layer is created when a mass of warm dry air sits over cooler air near the ground, preventing vertical dispersion of pollutants from the air mass below. During the summer, the San Joaquin Valley experiences daytime temperature inversions at elevations from 1,500 to 3,000 feet above the valley floor. Airflow is considerably restricted since mountain ranges surrounding the valley are generally above the inversion. These inversions lead to a buildup of ozone and ozone precursor pollutants (i.e., volatile organic compounds and oxides of nitrogen). During the fall and winter months, strong surface-based inversions occur from 500 to 1,000 feet above the valley floor (SJVAPCD 2015). Wintertime inversions trap very stable air near the surface and lead primarily to a buildup of particulate matter air pollutants. Very light winds are also characteristic of these wintertime surface-based inversions.

Air Basin Characteristics

The climate of the project area is characterized by hot dry summers and cool, mild winters. Clear days are common from spring through fall. Daytime temperatures in the summer often approach or exceed 100 degrees, with lows in the 60s. In the winter, daytime temperatures are usually in the 50s, with lows around 35 degrees. Radiation fog is common in the winter and may persist for days. Partly to mostly cloudy days are common in winter, as most precipitation received in the Valley falls from November through April.

Winds are predominantly up-valley (flowing from the north) in all seasons, but more so in the summer and spring months (SJVAPCD 2015). In this flow, winds are usually from the north end of the Valley and flow in a south-southeasterly direction, through Tehachapi Pass, into the Southeast Desert Air Basin. Annually, up-valley wind flow (i.e., northwest flow with marine air) is most common, occurring about 40 percent of the time. This type of flow is usually trapped below marine and subsidence inversions, restricting outflow through the Sierra Nevada and Tehachapi Mountains. The occurrence of this wind flow is almost 70 percent of the time in summer, but less than 20 percent of the time in winter. Winter and fall are characterized by mostly light and variable

wind flow. Pacific storm systems do bring southerly flows to the valley during late fall and winter. Light and variable winds, less than 10 miles per hour (mph), are common in the colder months.

Superimposed on this seasonal regime is the diurnal wind cycle. In the Valley, this cycle takes the form of a combination of a modified sea breeze-land breeze and mountain-valley regimes. The sea breeze-land breeze regime typically has a modified sea breeze flowing into the Valley from the north during the late day and evening and then a land breeze flowing out of the Valley late at night and early in the morning. The mountain-valley regime has an upslope (mountain) flow during the day and a down slope (valley) flow at night. These effects create a complexity of regional wind flow and pollutant transport within the Valley.

The pollution potential of the San Joaquin Valley is very high. The San Joaquin Valley has one of the most severe air pollution problems in the State. Surrounding elevated terrain in conjunction with temperature inversions frequently restrict lateral and vertical dilution of pollutants. Abundant sunshine and warm temperatures in late spring, summer, and early fall are ideal conditions for the formation of ozone, where the Valley frequently experiences unhealthy air pollution days. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high respirable particulate matter (PM_{10}) concentrations.

Regulatory Setting

The federal and California Clean Air Acts have established ambient air quality standards for different pollutants. National ambient air quality standards (NAAQS) were established by the Federal Clean Air Act of 1970 (amended in 1977 and 1990) for six "criteria" pollutants. These criteria pollutants now include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter with a diameter less than 10 microns (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). In 1997, The Environmental Protection Agency (EPA) added fine particulate matter ($PM_{2.5}$) as a criteria pollutant. The air pollutants for which standards have been established are considered the most prevalent air pollutants known to be hazardous to human health. California ambient air quality standards (CAAQS) include the NAAQS pollutants and also hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. These additional CAAQS pollutants tend to have unique sources and are not typically included in environmental air quality assessments. In addition, lead concentrations have decreased dramatically since it was removed from motor vehicle fuels.

Federal Regulations

At the federal level, the United States Environmental Protection Agency (US EPA) administers and enforces air quality regulations. Federal air quality regulations were developed from implementation of the Federal Clean Air Act. If an area does not meet NAAQS over a three-year period, EPA designates it as a "nonattainment" area for that particular pollutant. EPA requires states that have areas that do not comply with the NAAQS to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as

the State Implementation Plan (SIP)[1]. The SIP is a collection of regulations and documents used by the state and SJVAPCD to implement, maintain, and enforce the NAAQS, and to fulfill other requirements of the Clean Air Act.

EPA also has programs for identifying and regulating hazardous air pollutants. The Clean Air Act requires EPA to set standards for these pollutants and sharply reduce emissions. The US EPA also sets standards to control emissions of hazardous air pollutants through mobile source control programs. These include programs that reformulated gasoline, national low emissions vehicle standards, Tier 2 motor vehicle emission standards, gasoline sulfur control requirements, and heavy-duty engine standards.

The San Joaquin Valley Air Basin is subject to major air quality planning programs required by the federal Clean Air Act (CAA) (1977, last amended in 1990, 42 United States Code [USC] 7401 *et seq.*) to address ozone and particulate matter air pollution. The CAA requires that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards within the deadlines specified in the Clean Air Act. These plans are submitted to the State, which after approval, submits them to US EPA as the SIP.

State Regulations

The California Clean Air Act (CCAA) of 1988, amended in 1992, outlines a program for areas in the State to attain the CAAQS by the earliest practical date. CARB is the state air pollution control agency and is a part of the California EPA. The California Clean Air Act sets more stringent air quality standards for all of the pollutants covered under national standards, and additionally regulates levels of vinyl chloride, hydrogen sulfide, sulfates, and visibility-reducing particulates. If an area does not meet CAAQS, CARB designates the area as a nonattainment area. The San Joaquin Valley Air Basin does not meet the CAAQS for ozone, PM_{10}, and $PM_{2.5}$. CARB requires regions that do not meet CAAQS for ozone to submit clean air plans that describe efforts to attain the standard or show progress toward attainment.

In addition to the US EPA, CARB further regulates the amount of air pollutants that can be emitted by new motor vehicles sold in California. Motor vehicle emissions standards have always been more stringent than federal standards since they were first imposed in 1961. CARB has also developed Inspection and Maintenance (I/M) and "Smog Check" programs with the California Bureau of Automotive Repair. Inspection programs for trucks and buses have also been implemented. CARB also sets standards for motor vehicle fuels sold in California.

San Joaquin Valley

The San Joaquin Valley Air Pollution Control District (SJVAPCD or Air District) is made up of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings Tulare and the San Joaquin Valley portion of Kern. The primary role of the SJVAPCD is to

[1] U.S. EPA see https://www.epa.gov/air-quality-implementation-plans/sip-requirements-clean-air-act accessed March 31, 2025

develop plans and implement control measures in the San Joaquin Valley to control air pollution. Rules and regulations have been developed by SJVAPCD to control air pollution from a wide range of air pollution sources. In March 2007, an Indirect Source Review (ISR) rule (Rule 9510) was adopted that controls air pollution from new land developments. SJVAPCD also conducts public education and outreach efforts such as the Spare the Air, Wood Burning, and Smoking Vehicle voluntary programs.

Fresno County General Plan.

The Fresno County General Plan (2024) is a comprehensive, long-term framework for the protection of the county's agricultural, natural, and cultural resources and for development in the county. Applicable goals and policies presented in the General Plan are as follows:

Open Space and Conservation

GOAL OS-A To protect and enhance the water quality and quantity in Fresno County's streams, creeks, and groundwater basins.

Policy OS-A.21 **Best Management Practices.** The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff.

GOAL OS-G To improve air quality and minimize the adverse effects of air pollution in Fresno County.

Policy OS-G.2 **Air Quality Impact Assessment.** The County shall ensure that air quality impacts identified during the CEQA review process are fairly and consistently mitigated. The County shall require projects to comply with the County's adopted air quality impact assessment and mitigation procedures.

Policy OS-G.11 **Sensitive Receptors.** The County shall continue, through its land use planning processes, to avoid inappropriate location of residential uses and sensitive receptors in relation to uses that include, but are not limited to, industrial and manufacturing uses and any other uses which have the potential for creating a hazardous or nuisance effect.

Policy OS-G.14 **Fugitive Dust Control Measures.** The County shall include fugitive dust control measures as a requirement for subdivision maps, site plans, and grading permits. This will assist in implementing the SJVAPCD's particulate matter of less than ten (10) microns (PM_{10}) regulation (Regulation VIII). Enforcement actions can be coordinated with the Air District's Compliance Division.

Policy OS-G.15 **Access Road Standards.** The County shall require all access roads, driveways, and parking areas serving new commercial and industrial

development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

National and State Ambient Air Quality Standards

The CAA and CCAA promulgate, respectively, national and State ambient air quality standards. Air quality standards have been established by US EPA (i.e., NAAQS) and California (i.e., CAAQS) for specific air pollutants most pervasive in urban environments. The NAAQS and CAAQS are shown in Table 1. Ambient standards specify the concentration of pollutants to which the public may be exposed without adverse health effects. Individuals vary in their sensitivity to air pollutants, and standards are set to protect more pollution-sensitive populations (e.g., children and the elderly). National and State standards are reviewed and updated periodically based on new health studies. California standards tend to be more stringent than the national standards. For planning purposes, regions like the San Joaquin Valley Air Basin are given an air quality status designation by the federal and State regulatory agencies. Areas with monitored pollutant concentrations that are lower than ambient air quality standards are designated "attainment" on a pollutant-by-pollutant basis. When monitored concentrations exceed ambient standards within an air basin, it is designated "nonattainment" for that pollutant. US EPA designates areas as "unclassified" when insufficient data are available to determine the attainment status. These areas are typically considered to be in attainment of the standard.

Criteria Air Pollutants and their Health Effects

The primary criteria air pollutants that would be emitted by potential VICP projects include ozone (O_3) precursors (nitrogen oxides or NO_x and reactive organic compounds or ROG), carbon monoxide (CO), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Other criteria pollutants, such as lead (Pb) and sulfur dioxide (SO_2), would not be appreciably emitted by the projects identified in the proposed VCIP, and air quality standards for them are being met throughout the San Joaquin Valley Air Basin. A description of each pollutant is provided below, as described by SJVAPCD (2015) and the Bay Area Air Quality Management District (2022).

Ozone (O_3)

CARB describes the ozone and health impacts (CARB 2016a). While O_3 serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation potentially harmful to humans, when it reaches elevated concentrations in the lower atmosphere (troposphere) it can be harmful to the human respiratory system and to sensitive species of plants. Ozone concentrations build to peak levels during periods of light winds, bright sunshine, and high temperatures. Short-term O_3 exposure can reduce lung function in children, make persons susceptible to respiratory infection, and produce symptoms that cause people to seek medical treatment for respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. A healthy person exposed to high concentrations may become nauseated or dizzy, may develop headache or cough, or may experience a burning sensation in the chest.

Table 1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards Concentration	National Standards Concentration
Ozone	1-hour	0.09 ppm (180 µg/m^3)	—
	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3) (3-year average of annual 4th highest daily maxima)
Carbon Monoxide	8-hour	9.0 ppm (10,000 µg/m^3)	9 ppm (10,000 µg/m^3)
	1-hour	20 ppm (23,000 µg/m^3)	35 ppm (40,000 µg/m^3)
Nitrogen dioxide	Annual Average	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
	1-hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3) (3-year average of annual 98th percentile daily maxima)
Sulfur dioxide			
	24-hour	0.04 ppm (105 µg/m^3)	—
	3-hour	—	0.5 ppm (1,300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3) (3-year average of annual 99th percentile daily maxima)
Respirable particulate matter (10 micron)	24-hour	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	—
Fine particulate matter (2.5 micron)	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3 (3-year average)
	24-hour	—	35 µg/m^3 (3-year average of annual 98th percentile daily concentrations)
Sulfates	24-hour	25 µg/m^3	—
Lead	30-day	1.5 µg/m^3	—
	3 Month Rolling Average	—	0.15 µg/m^3

Source: California Air Resources Board (http://www.arb.ca.gov), accessed 11/07/2024
SO_2 Federal 24 hour and annual standards are not applicable in the SJVAPCD.
µg/m^3 = micrograms per cubic meter
ppm = parts per million

Ozone is formed in the atmosphere by a complex series of photochemical reactions that involve "ozone precursors" that consist of two families of pollutants: NO_x and ROG, which are emitted from a variety of stationary and mobile sources[2]. While NO_2, an oxide of nitrogen, is another criteria pollutant itself, ROGs are not in that category, but are included in this discussion as O_3

[2] Stationary air pollutant sources are those regulated by SVAPCD and mobile sources are those regulated by U.S. EPA and CARB that include cars, trucks, trains, aircraft, watercraft, construction equipment, lawn equipment, etc…

precursors. In 2007, CARB adopted an 8-hour health-based standard for O_3 of 0.070 parts per million (ppm)[3]. The U.S. EPA revised the 8-hour NAAQS for O_3 from 0.080 ppm in 2008 and reduced it again in 2015 to 0.070 ppm (US EPA 2015, 2023)[4].

Carbon Monoxide (CO)

CARB describes carbon monoxide and the health effects (CARB 2016b). Carbon monoxide or CO is a colorless, odorless, poisonous gas. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause dizziness and fatigue, and causes reduced lung capacity, impaired mental abilities and central nervous system function, and induces angina (chest pain caused by reduced blood flow to the heart) in persons with serious heart disease. Primary sources of CO in ambient air are exhaust emissions from on-road vehicles, such as passenger cars and light-duty trucks, and residential wood burning. The monitored CO levels in the Valley during the last 10 years have been well below ambient air quality standards.

Nitrogen Dioxide (NO_2)

As described by CARB (2016c), the major health effect from exposure to high levels of NO_2 is the risk of acute and chronic respiratory disease. Nitrogen dioxide is a combustion by-product, but it can also form in the atmosphere by chemical reaction. Nitrogen dioxide is a reddish-brown colored gas often observed during the same conditions that produce high levels of O_3 and can affect regional visibility. Nitrogen dioxide is one compound in a group of compounds consisting of oxides of nitrogen (NO_x). As described above, NO_x is an O_3 precursor compound. Monitored levels of NO_2 in the San Joaquin Valley are below ambient air quality standards.

Particulate Matter (PM)

CARB describes unhealthy particulate matter and the health effects (CARB 2016d). Respirable (inhalable) particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled and cause adverse health effects. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health because minute particles can penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Children are more susceptible to the health risks of $PM_{2.5}$ because their immune and respiratory systems are still developing. These fine particulates have been demonstrated to decrease lung function in children. Certain components of PM are linked to higher rates of lung

[3] This is the running average of 8 consecutive 1-hour average concentrations of the pollutant. The NAAQS and CAAQS are based on various averaging periods that depend on the air pollutant, which include 1-, 3-, 8-, and 24-hour averaging periods as well as 30-day, quarterly and annual averaging periods (see Table 1).

[4] NAAQS. *National Ambient Air Quality Standards for Ozone.* Available at: https://www.federalregister.gov/documents/2015/10/26/2015-26594/national-ambient-air-quality-standards-for-ozone Accessed on 07/25/2023.

cancer. Very small particles of certain substances (e.g., sulfates and nitrates) can also directly cause lung damage or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health.

Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as mining, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. In addition to health effects, particulates also can damage materials and reduce visibility. Dust comprised of large particles (diameter greater than 10 microns) settles out rapidly and is more easily filtered by human breathing passages. This type of dust is considered more of a soiling nuisance rather than a health hazard.

The current State PM_{10} standard, approved in 2002, is 20 micrograms per cubic meter ($\mu g/m^3$) for an annual average. The State 24-hour average standard is 50 $\mu g/m^3$. $PM_{2.5}$ standards were first promulgated by the U.S. EPA in 1997 and were revised in 2006 to lower the 24-hour $PM_{2.5}$ standard to 35 $\mu g/m^3$ for 24-hour exposures (Federal Register, Vol. 71, No. 10, January 17, 2006). That same action by U.S. EPA also revoked the annual PM_{10} standard due to lack of scientific evidence correlating long-term exposures of ambient PM_{10} with health effects. The CAAQS has only an annual average $PM_{2.5}$ standard, which is set at 12.0 $\mu g/m^3$, which is similar to the NAAQS (CARB 2016f).

In 2024, the U.S. EPA strengthened the annual $PM_{2.5}$ standard from 12.0 $\mu g/m^3$ to 9.0 $\mu g/m^3$, based on an integrated assessment of an extensive body of new scientific evidence, which improved the body of knowledge regarding $PM_{2.5}$-related health effects. CARB staff will be submitting nonattainment area designations for the new annual $PM_{2.5}$ standard to U.S. EPA by February 7, 2025.

Toxic Air Contaminants

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the CAA and Toxic Air Contaminants (TACs) under the CCAA. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state, and federal level.

HAPs are the air contaminants identified by US EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of these contaminants originate from human activities, such as fuel combustion and solvent use. Mobile source air toxics (MSATs) are a subset of the 188 HAPs[5]. EPA identified nine compounds with contributions from mobile sources that are among the cancer risk drivers or contributors and non-cancer hazard contributors, based on the 2011 National Air Toxics Assessment (NATA)[6]. The Federal Highway Administration (FHWA 2023) identifies these

[5] See U.S. EPA https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications accessed March 31, 2025

[6] See U.S. EPA https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results accessed on

as 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. FHWA considers these the priority mobile source air toxics,

California developed a program under the Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807, Tanner 1983), also known as the Tanner Toxics Act, to identify, characterize and control TACs. Subsequently, AB 2728 (Tanner, Chapter 1047 statutes of 1983, Health and Safety Code sections 39660, et seq.) incorporated all 188 HAPs into the AB 1807 process. TACs include all HAPs plus other containments identified by CARB. These are a broad class of compounds known to cause morbidity or mortality (cancer risk). TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter (DPM) near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986), which became law in 1986, is a voter initiative law that prohibits the exposure of individuals to chemicals known to cause cancer or reproductive toxicity without emitters first giving clear and reasonable warning and prohibits discharge of these chemicals into drinking water. This law requires that the Governor revise and republish at least once per year the list of chemicals known to the State to cause cancer or reproductive toxicity within the meaning of the Act (Health and Safety Code section 25249.8). The list is published in Title 27, California Code of Regulations, section 27001.

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), described by CARB (2016e), was enacted in 1987, and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

Particulate matter from diesel exhaust is the predominant TAC in urban air and is estimated to represent about 70 percent of the cancer risk from TACs, based on the statewide average reported by CARB (2012). According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB (2012) reports that air pollution studies have shown an association that diesel exhaust and other cancer-causing TACs emitted from vehicles are responsible for much of the overall cancer risk from TACs in California. Particulate matter emitted from diesel-fueled engines, diesel particulate matter (DPM), was found to comprise much of that risk. In 1998, CARB formally identified DPM as a TAC (CARB 2012). DPM is of particular concern since it can be distributed over large regions, thus leading to widespread public exposure. The particles emitted by diesel

March 31, 2025.

engines are coated with chemicals, many of which have been identified by U.S. EPA as HAPs, and by CARB as TACs. The vast majority of diesel exhaust particles (over 90 percent) consist of $PM_{2.5}$ (CARB 2012). Like other particles of this size, a portion will eventually become trapped within the lung possibly leading to adverse health effects. While the gaseous portion of diesel exhaust also contains TACs, CARB's 1998 action was specific to DPM, which accounts for much of the cancer-causing potential from diesel exhaust. California has adopted a comprehensive diesel risk reduction program to reduce DPM emissions (CARB 2000). The EPA and CARB adopted low sulfur diesel fuel standards in 2006 that reduce DPM substantially.

Smoke from residential wood combustion can be a source of TACs. Wood smoke is typically emitted during winter when dispersion conditions are poor. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground and, with no wind the pollution can persist for many hours, especially in sheltered valleys during winter. Wood smoke also contains a significant amount of PM_{10} and $PM_{2.5}$. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

Existing Air Quality

The San Joaquin Valley experiences poor air quality conditions, due primarily to elevated levels of ozone and particulate matter (SJVAPCD 2015). CARB, in cooperation with SJVAPCD, monitors air quality throughout the San Joaquin Valley Air Basin. Monitoring data presented in Table 2 was derived for each pollutant based upon the closest monitoring station to the project site.

Ozone

In California, ozone concentrations are generally lower near the coast regions than inland regions. The inland regions, such as the San Joaquin Valley, typically experience some of the higher ozone concentrations. This is because of the greater frequency of hot days (that is, higher temperatures) and stagnant air conditions (that is, very calm atmospheric conditions with very gentle winds) that are conducive to ozone formation. Many areas of the Valley lie downwind of urban areas that are sources of ozone precursor pollutants (2016a). While Fresno County is fairly rural, exceedances of the ozone standard occurred on 31 to 41 days per year, based on the last three years of available monitoring data (see Table 2).

Carbon Monoxide

State and federal standards for carbon monoxide are met throughout California as a result of cleaner vehicles and fuels that were reformulated in the 1990s. For CO, the 2012 monitored value of 2.2 ppm for an 8-hour average was used as the air basin maximum level (CARB 2016f). Because CO levels are so low in the air basin, monitoring was discontinued after 2012.

Table 2. Summary of Criteria Air Pollution Monitoring Data for Fresno County

Pollutant	Standard	Monitored Values[1] and Exceedance Days		
		2021	2022	2023
Ozone (ppm)	State 1-Hour	**0.125 / 12**	**0.112 / 4**	**0.117 / 4**
Ozone (ppm)	State 8-Hour	**0.100 / 41**	**0.089 / 31**	**0.088 / 35**
Ozone (ppm)	Federal 8-Hour	**0.100 / 39**	**0.089 / 30**	**0.088 / 30**
PM_{10} (ug/m^3)	State 24-Hour	**149.8 / 20**	**166.5 / 133**	**130.0 / 120**
PM_{10} (ug/m^3)	Federal 24-Hour	151.8 / 0	73.4 / 0	131.1 / 0
PM_{10} (ug/m^3)	State Annual	NR	NR	NR
$PM_{2.5}$ (ug/m^3)	Federal 24-Hour	**104.6 / 39.7[2]**	**55.8 / 21.5**	**51.3 / 11.0**
$PM_{2.5}$ (ug/m^3)	State Annual	**15.7**	14.8	12.6
$PM_{2.5}$ (ug/m^3)	Federal Annual	**17.2**	**14.8**	**12.6**
Carbon Monoxide (ppm)	State/Fed.8-Hour	NR / --[3]	NR / --[3]	NR / --[3]
Nitrogen Dioxide (ppm)	State 1-Hour	0.064 / 0	0.061 / 0	0.061 / 0
Nitrogen Dioxide (ppm)	Federal 1-Hour	0.065 / 0	0.062 / 0	0.062 / 0
Nitrogen Dioxide (ppm)	State Annual	0.018	0.019	0.010

Note: (1) Monitored values are the high values considering the form of the applicable standard,
(2) affected by wildfire smoke.
(3) NR = not reported in summaries, but last measured levels in 2012 were 2 ppm.
Source: CARB ADAM Data at http://www.arb.ca.gov/adam/index.html, Accessed 11/07/2024.

Particulate Matter ($PM_{2.5}$ and PM_{10})

Most areas of California have either 24-hour or annual PM_{10} concentrations that exceed the CAAQS. Most urban areas exceed the State annual standard and the 2006 24-hour federal standard. In the San Joaquin Valley, there is a strong seasonal variation in PM, with higher PM_{10} and $PM_{2.5}$ concentrations occurring in the fall and winter months. These higher concentrations are caused by increased activity for some emission sources and meteorological conditions that are conducive to the build-up of particulate matter. Industry and motor vehicles consistently emit particulate matter. Seasonal sources of particulate matter in San Joaquin Valley include wildfires, agricultural activities, windblown dust, and residential wood burning. In California, area sources, which primarily consist of fugitive dust, account for most directly emitted particulate matter. This includes dust from paved and unpaved roads. CARB estimates that 85 percent of directly emitted PM_{10} (and 66 percent of directly emitted $PM_{2.5}$) is from area sources (SJVAPCD 2016d). During the winter, the $PM_{2.5}$ size fraction makes up much of the total particulate matter concentrations. The major contributor to high levels of ambient $PM_{2.5}$ is the secondary formation of particulate matter caused by the reaction of NO_x and ammonium to form ammonium nitrate. CARB estimates that the secondary portion of $PM_{2.5}$ makes up about 50 percent of the annual concentrations in the Valley (SJVAPCD 2016b). A review of the San Joaquin Valley monitored data show the area records high PM_{10} and $PM_{2.5}$ levels during the fall. During this season, both the coarse fraction (from dust) and the $PM_{2.5}$ fraction result in elevated $PM_{2.5}$ and PM_{10} concentrations. Measured $PM_{2.5}$ levels exceeded the 2006 federal standards on an estimated 11 to 40 days per year. Measured

PM_{10} levels exceeded State standards on 20 to 133 days. Note wildfire smoke contributed to the highest measured levels and frequency that standards were exceeded.

Other Pollutants

Current and past air monitoring data indicate that the San Joaquin Valley meets ambient air quality standards for NO_2, SO_2, and lead. CARB does not routinely monitor lead, sulphates, hydrogen sulfide and vinyl chloride is not routinely conducted by CARB in the air basin (CARB 2018).

Air Quality Trends

Air quality in the San Joaquin Valley has improved significantly despite a natural low capacity for pollution, created by unique geography, topography, and meteorology. Emissions have been reduced at a rate similar or better than other areas in California. Since 1990, emissions of ozone precursors (i.e., NO_x and ROG) reduced by 80 percent (CARB 2016g), resulting in much fewer days where ozone standards have been exceeded. Direct emissions of PM_{10} and $PM_{2.5}$ have been reduced by 10 to 13 percent (CARB 2013). The San Joaquin Valley is the first Air Basin previously classified as "serious nonattainment" under the NAAQS to come into attainment of the PM_{10} standards.

Attainment Status

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. The San Joaquin Valley does not meet State or federal ambient air quality standards for ground level O_3 and $PM_{2.5}$ and State standards for PM_{10}. The attainment status for the Valley with respect to various pollutants of concern is described in Table 3.

Under the CAA, the US EPA has classified the region as *extreme nonattainment* for the 8-hour O_3 standard. The air basin has attained the NAAQS for PM_{10}. The air basin is designated *nonattainment* for the $PM_{2.5}$ standard. CARB anticipates the San Joaquin Valley will also be designated nonattainment for the new 2024 $PM_{2.5}$ annual standard. The US EPA classifies the region as *attainment* or *unclassified* for all other air pollutants, which include CO and NO_2.

At the state level, the Air Basin is considered *severe non-attainment* for ground level O_3 and *nonattainment* for PM_{10} and $PM_{2.5}$. In general, the CAAQS are more stringent than the NAAQS. The Air Basin is required to adopt plans on a triennial basis that show progress toward meeting the State O_3 standard. The Air Basin is considered *attainment* or *unclassified* for all other pollutants.

Table 3. Plan Area Attainment Status

Pollutant	Federal Status	State Status
Ozone (O_3) – 1-Hour Standard	No Designation	Severe Nonattainment
Ozone (O_3) – 8-Hour Standard	Extreme Nonattainment	Nonattainment
Respirable Particulate Matter (PM_{10})	Attainment	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Sulfates and Lead	No Designation	Attainment
Hydrogen Sulfide	No Designation	Unclassified
Visibility Reducing Particles	No Designation	Unclassified

Regional Air Quality Plans

In response to not meeting the NAAQS, the region is required to submit attainment plans to US EPA through the State, which are referred to as the SIP. These plans are provided on SJVAPCD's website at http://valleyair.org/Air_Quality_Plans/PM_Plans.htm. As noted previously, the SIP is a compilation of regulations and plans used to implement and maintain the NAAQS for each nonattainment pollutants.

CARB submitted the 2004 Extreme Ozone Attainment Demonstration Plan to EPA in 2004, which addressed the old 1-hour NAAQS. The region's 2007 Ozone Plan, addressing the 1997 8-hour ozone NAAQS, was submitted to US EPA and approved in March 2012. A wide variety of control measures are included in these plans, such as reducing or offsetting emissions from construction and traffic associated with land use developments. The 2016 Plan for the 2008 8-Hour Ozone Standard was adopted by SJVAPCD on June 16, 2016. Addressing the 2008 8-hour ozone standard poses a tremendous challenge for the Valley, as NOx emissions require a 60 percent reduction to bring the San Joaquin Valley into attainment of EPA's 2008 8-hour ozone standard. SJVAPCD's 2016 Ozone Plan received EPA's final approval or conditional approval of all portions of the plan in 2019. EPA found that sufficient quantified emissions reductions are identified in the plan without including unquantified emissions reductions such as those related to the "further study" of Rule 4694 that controls emissions from winery activities (fermentation and storage of wines). The District adopted the 2020 Reasonably Available Control Technology (RACT) Demonstration for the 2015 8-Hour Ozone Standard on June 18, 2020, as required to the federal Clean Air Act. RACT requirements apply to sources that are subject to U.S. EPA Control Techniques Guidelines (CTGs) and for "major sources" of VOCs and NOx (i.e., ozone precursors). These RACT requirements

ensure that significant sources of these emissions are controlled to a "reasonable" extent. The District adopted the 2022 Plan for the 2015 8-Hour Ozone Standard on December 15, 2022 (SJVAPCD 2022). This Plan satisfies requirements by the Clean Air Act in addition to ensuring expeditious attainment of the 0.70 ppm 8-hour ozone standard.

The SJVAPCD adopted the *2018 Plan for the 1997, 2006 and 2012 $PM_{2.5}$ Standards* on November 15, 2018. This plan was approved by CARB on January 24, 2019. This plan demonstrates attainment of the federal $PM_{2.5}$ standards as expeditiously as practicable. The plan uses control measures to reduce NO_x, which also leads to fine particulate formation in the atmosphere. The plan incorporates measures to reduce direct emissions of $PM_{2.5}$, including a strengthening of regulations for various industries and the general public through new rules and rule amendments. The plan increases controls on residential wood-burning activities.

The SJVAPCD adopted the *2024 Plan for the 2012 $PM_{2.5}$ Standards* on June 20, 2024. This plan was approved by CARB on July 25, 2024 and fulfills the remaining CAA requirements, including the final modeling analysis, attainment strategy and emission reduction commitments, reasonable further progress/quantitative milestones, and contingency measures. This Plan demonstrates expeditious attainment of the 2012 $PM_{2.5}$ standard by 2030.

Each of the ozone and $PM_{2.5}$ plans include measures (i.e., federal, state and local) that would be implemented through State and SJVAPCD or other regional rule making or program funding to reduce air pollutant emissions. Transportation Control Measures (TCMs) are part of the SIP. These are strategies that reduce transportation-related air pollution, GHG emissions, and fuel use by reducing vehicle miles traveled and improving roadway operations. The plans described above that address ozone NAAQS also meet the state planning requirements.

SJVAPCD Rules and Regulations

The SJVAPCD has adopted rules and regulations that apply to land use projects, such as the proposed project. These are described below.

SJVAPCD Indirect Source Review Rule

In 2005, the SJVAPCD adopted Rule 9510 Indirect Source Review (ISR or SJVAPCD Rule 9510) to reduce NO_x and PM_{10} emissions from new land use development projects. The rule resulted from adoption of SJVAPCD commitments contained in the 2004 Extreme Ozone Attainment Demonstration Plan and the 2006 PM_{10} Plan. These plans identified the need to reduce PM_{10} and NO_x substantially to attain and maintain the NAAQS on schedule.

New discretionary development projects that would generate substantial air pollutant emissions are subject to this rule. The rule requires projects to mitigate both construction and operational period emissions by applying the SJVAPCD-approved mitigation measures and paying fees to support programs that reduce emissions. The rule requires mitigated exhaust emissions during construction based on the following levels:

- 20 percent reduction from unmitigated baseline in total NO_x exhaust emissions
- 45 percent reduction from unmitigated baseline in total PM_{10} exhaust emissions

For operational emissions, Rule 9510 requires the following reductions:

- 33.3 percent of the total operational NO_x emissions from unmitigated baseline
- 50 percent of the total operational PM_{10} exhaust emissions from unmitigated baseline

Fees apply to the unmitigated portion of the emissions and are based on estimated costs to reduce the emissions from other sources plus estimated costs to cover administration of the program. It is expected that in accordance with the ISR, the project applicant will submit an application for approval of an Air Impact Assessment (AIA) to the SJVAPCD. The AIA would provide the calculation of project emissions to determine the amount of fees payable for unmitigated emissions.

Regulation VIII – Fugitive PM_{10}

SJVAPCD controls fugitive PM_{10} through Regulation VIII (Fugitive PM_{10} Prohibitions). The purpose of this regulation is to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce or mitigate anthropogenic (human caused) fugitive dust emissions. This applies to activities such as construction, bulk materials, open areas, paved and unpaved roads, material transport, and agricultural areas. Sources regulated are required to provide dust control plans that meet the regulation requirements. Fees are collected by SJVAPCD to cover costs for reviewing plans and conducting field inspections.

Other SJVAPCD Rules

Other SJVAPCD Rules and Regulations[7] that may be applicable to the project include, but are not limited to:

- Rule 4101 (Visible Emissions): The purpose of this rule is to prohibit the emissions of visible air contaminants to the atmosphere. The provisions of this rule apply to any operation that emits or may emit air contaminants.
- Rule 4102 (Nuisance): The purpose of this rule is to protect the health and safety of the public, and applies to any operation that emits or may emit air contaminants or other materials.
- Rule 4601 (Architectural Coatings): The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.
- Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations): The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. Paving operations will be subject to Rule 4641.

The Air District is anticipated to provide a determination of applicable rules/regulations to the project when specific building, grading, etc. plans are provided to the Air District prior to initiation of construction- and operation-related activities that fall within the purview of the Air District's regulatory authority.

[7] See current SJVAPCD Rules and Regulations at https://ww2.valleyair.org/rules-and-planning/current-district-rules-and-regulations/ accessed March 31, 2025.

Sensitive Receptors

"Sensitive receptors" are defined as facilities where sensitive population groups, such as children, the elderly, the acutely ill, and the chronically ill, are likely to be located. Land uses that include sensitive receptors are residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. There are numerous rural dwellings and two elementary schools within the VCIP Plan Area. The community of Cantua Creek, near the center of the Plan Area, includes approximately 100 residences and the Cantua Elementary School, and represents the greatest concentration of sensitive receptors within the Plan Area.

IMPACT ANALYSIS

Standards of Significance

Appendix G, of the California Environmental Quality Act (CEQA) Guidelines (Environmental Checklist) contains a list of project effects that may be considered significant. The project would result in a significant impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) affecting a substantial number of people;
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The SJVAPCD has developed the Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), also known as the GAMAQI. The following thresholds of significance, obtained from the SJVAPCD's GAMAQI, are used to determine whether a proposed project would result in a significant air quality impact under CEQA:

1) Construction Emissions of PM. Construction projects are required to comply with Regulation VIII as listed in the SJVAPCD. However, the size of the project and the proximity to sensitive receptors may warrant additional measures, such as additional watering, wind fences, reduced equipment usage, etc...

2) Criteria Air Pollutant Emissions. SJVAPCD's adopted CEQA thresholds of significance for criteria pollutant emissions and their application is presented in Table 4[8]. These

[8] SJVAPCD significance thresholds for criteria air pollutant emissions are published on their website at https://ww2.valleyair.org/media/m2ecyxiw/1-cms-format-ceqa-air-quality-thresholds-of-significance-criteria-pollutants.pdf, accessed March 31, 2025. These are equivalent to those published in the GAMAQI (SJVAPCD

thresholds address both construction and operational emissions. Note that the District treats permitted equipment and activities separately. The projects to be developed under the VCIP are not considered a source of SO_X emissions and would have relatively low CO emissions.

3) Ambient Air Quality. Emissions that are predicted to cause or contribute to a violation of an ambient air quality would be considered a significant impact. SJVAPCD recommends that dispersion modeling be conducted for construction or operation of projects when on-site emissions exceed 100 pounds per day after implementation of all mitigation measures.

4) Local CO Concentrations. CO is considered a localized air pollutant caused by large emissions in a localized area, such as busy roadway intersections. Construction equipment is not considered a substantial source of CO emissions; however, construction-related traffic would be considered a source of CO. Traffic emissions associated with the VCIP projects would be considered significant if the project contributes to CO concentrations at receptor locations in excess of an ambient air quality standard.

5) Toxic Air Contaminants or Hazardous Air Pollutants. Exposure to HAPs or TACs would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (MEI) would exceed 20 in 1 million or would result in a Hazard Index (HI) greater than 1 for non-cancer health effects[9]. The HI represents the ratio of the predicted exposure to a recommended exposure limit, where an HI of greater than 1.0 indicates an unhealthy exposure.

6) Odors. Odor impacts associated with the potential VICP projects would be considered significant if they have the potential to frequently expose members of the public to objectionable odors through development of a new odor source or placement of receptors near an existing odor source.

7) Greenhouse Gases (GHGs). In SJVAPCD's *Guidance for Valley Land-Use Agencies in Addressing GHG Emissions Impacts for New Projects Under CEQA*, the District establishes a requirement that land use development projects demonstrate a 29 percent reduction in GHG emissions from Business-As-Usual (BAU).

8) With respect to cumulative air quality impacts, the GAMAQI provides that any single project that would individually have a significant air quality impact (i.e., exceed significance thresholds for criteria pollutants ROG, NOx, or PM_{10}) would also be considered to have a significant cumulative impact. In cases where project emissions are all below the applicable significance thresholds, a project may still contribute to a significant cumulative impact if there are other projects nearby whose emissions would

2015c).

[9] / SJVAPCD significance thresholds for toxic air contaminants are published on their website at https://ww2.valleyair.org/media/2lpbkso0/2-cms-format-air-quality-thresholds-of-significance-toxic-air-contaminants.pdf, accessed on March 31, 2025. Note that these have been updated since the last version of the GAMAQI was published in 2015.

combine with a given project's emissions to result in an exceedance of one or more significance thresholds for criteria pollutants.

Table 4. SJVAPCD CEQA Thresholds of Significance for Projects – Criteria Pollutant Emission Levels in Tons Per Year

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
Carbon Monoxide (CO)	100	100	100
Nitrogen Oxides (NOx)	10	10	10
ROG	10	10	10
Sulfur Dioxide (SOx)	27	27	27
Particulate Matter – PM_{10}	15	15	15
Particulate Matter – $PM_{2.5}$	15	15	15
Source: San Joaquin Valley Air Pollution Control District, GAMAQI, Page 80, Table 2 or website at http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf.			

Air Quality Impacts

The VCIP is a comprehensive master plan of development for solar PV generation projects and battery storage facilities, along with their supporting infrastructure of gen-tie lines, collection substations, and connecting transmission lines. The VCIP provides a plan for overall development at a programmatic land use scale but does not identify individual projects or provide project-level details of development. SJVAPCD significance thresholds as identified in the GAMAQI would apply to each individual project constructed under the VCIP, and are not intended to be applied at the Plan-wide level. However, to determine the overall emissions from construction and operations resulting from the buildout of the VCIP, estimates of overall emissions were computed. The analysis also included a health risk assessment for VCIP development for the area with the highest concentration of sensitive receptors, which is the Cantua Creek community.

Air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to facilities operation. During construction, local particulate matter concentrations would increase primarily due to fugitive dust sources and would contribute to regional ozone and PM_{10}/$PM_{2.5}$ concentrations due to exhaust emissions. During operation, the solar and energy storage facilities would result in an increase in emissions of ozone precursors such as ROG and NO_x, primarily due to increased motor vehicle trips (employee trips, site deliveries, and onsite maintenance activities).

CalEEMod Construction Modeling

SJVAPCD requires criteria pollutant emissions from construction and operational sources be identified and quantified using the latest version of the California Emissions Estimator Model (CalEEMod). CalEEMod Version 2022.1.1.28 is the most recent version with relevant emission factors.

There are four different types of projects that would be constructed under VCIP, which include:

1. Solar photo voltaic panels plus battery energy storage system (PV+BESS) facilities. These are the solar arrays and battery storage facilities that are constructed at each site.

2. Solar generation tie-lines (Gen Tie). The gen-tie lines internally connect the PV+BESS sites to the nearest VCIP substation.

3. 230/500/ kV Utility Switchyard (Substations). The five VCIP substations collect the power transmitted by gen-tie lines from the PV+BESS.

4. VCIP Transmission lines (T-Lines 500-kV). The T-lines collect power from the VCIP substations for conveyance to the state power grid..

VCIP would consist of the types of projects, described above, constructed as discrete projects in various sizes. A CalEEMod model was developed to represent emissions from the VCIP projects planned to be developed in each year of VCIP buildout. Table 5 describes the VCIP projects that are planned to be constructed in each of the first four years of VCIP buildout, which represent the maximum development planned for any year. The annual development planned for subsequent years would be smaller in overall scale than the maximum development described in Table 5. It is important to note that while maximum annual PV+BESS development planned for VCIP is 2,300 MW, the typical PV+BESS project would likely be 250 MW, although projects could range from 100 MW to 1,150 MW. Thus, in any given year, there could be 9 or more separate solar projects under construction by different developers, each of which would be required to conduct their own project-level air quality assessments as part of their project-level approval and environmental review process. Inputs to the CalEEMod model runs are provided in Attachment 1 to this report.

Table 5. CalEEMod Unit-Sized Projects

VICP Project	Phases	Duration	Size Modeled
Solar + BESS	Site Preparation Construction of Solar Arrays Inverters, Transformers, Switching BESS	200 days	2,300MW 15,000 acres
Gen Ties	Gen-Tie Line construction (poles, lines)	100 days	20 miles
Substations	Site Preparation Construction	200 days	60 acres
T-Lines	T-Line construction (poles, lines)	200 days	30 miles

The inputs for the construction build-out scenarios, described in Table 5, were developed based on experience from other built solar projects. The emissions computed using CalEEMod for this assessment address use of construction equipment, worker vehicle travel, on-site vehicle and truck use, and off-site truck travel by vendors or equipment/material deliveries.

The types, quantity and duration of construction equipment anticipated for construction were based on projections used for similar projects with solar PV and BESS along with Gen-Tie, T-line, and substation construction. The total hours each piece of equipment would operate was divided by the number of workdays in the phase to compute the hours per day that were entered into CalEEMod along with the quantity of equipment. Default horsepower and load factors assigned by CalEEMod for each type of equipment were used.

For construction vehicle trips, the number of trips and average trip distance were provided for the various types of trips: workers, freight, gravel import, concrete, and water trucks. Some of the freight trips would originate outside of the air basin. When not traveling on site, trips were assumed to be made mostly on freeways or large arterial roadways (e.g., highways). It is noted that all commuting workers were assumed to be driving solo, whereas substantial reductions in commute traffic would occur due to traffic mitigations such as the fleet of shuttle buses which would be required to avoid congestion on area roadways. Construction emission computations do not take carpooling into account, which is typical for these types of projects in rural environments; on past solar projects, a carpooling rate of 25-30 percent was found to be typical.

A small fraction (i.e., one quarter mile) of each trip would occur where roads are not paved. On site travel routes would be gravel covered and dust would be controlled through frequent watering and/or use of dust suppressants. Water trucks and other on-site construction trucks were assumed to travel mostly on-site on unpaved roadways (i.e., 90 percent of the travel length on unpaved roadways). Water trucks and other vehicles operating on the site were assumed to be moving 50 percent of the construction day.

Annual construction emissions from buildout of the VCIP were based on the planned construction schedule. Construction is planned to begin in 2028/2029 and continue through 2038. The amount of construction assumed each year is shown in Table 6.

Helicopter Construction Emissions

Light helicopter operations are necessary during construction of the Gen Ties and T-lines to lift line leads over monopoles. For this assessment, a single engine Hughes MD500E was assumed. These emissions were computed separately from CalEEMod based on published emission factors for various helicopter models (Swiss Federation 2015). The emissions account for five landing take-off (LTO) cycles per day in addition to hourly flight emissions..

Table 6. Hypothetical Annual Construction Phasing Plan

Construction Year	Size in MW, acres, or miles			
	Solar + BESS	Gen Ties	Utility Substations	Internal T-Lines
2029	2,300 MW	26 miles	60 acres	30 miles
2030	2,300 MW	26 miles	60 acres	30 miles
2031	2,300 MW	26 miles	60 acres	30 miles
2032	2,300 MW	26 miles	60 acres	30 miles
2033	2,300 MW	26 miles	60 acres	20 miles
2034	2,100 MW	26 miles	--	--
2035	2,100 MW	26 miles	--	--
2036	2,100 MW	26 miles	--	--
2037	2,100 MW	26 miles	--	--
2038	1,100 MW	26 miles	--	--
Total	21,000 MW	260 miles	--	140 miles

CalEEMod Operational Modeling

As projects under VCIP are completed, operational emissions increase. There would be activity associated with maintaining each completed project. Activity would include some on-site equipment and vehicle usage, along with worker and small truck trips traveling off site. CalEEMod inputs for the operation of completed VCIP facilities were developed for each year.

Modeling Results

Annual emissions are reported in Table 7 based on the conceptual phasing plan . These emissions are from onsite construction activity, on- and off-site vehicle travel (i.e., workers and trucks), construction of Gen-Ties, construction of substations and construction of connecting transmission lines. The construction of Gen-Ties and transmission lines includes helicopter activity. The emissions of PM_{10} and $PM_{2.5}$ reported in Table 7 reflect the application of dust control measures that would be required by regulation. However, any additional application of required emissions controls would provide substantial reductions in emissions from on-site fugitive dust generation. Operational emissions are reported in Table 8, which include onsite maintenance activity and both on- and off-site worker and truck travel.

Attachment 1 includes the construction assumptions that were used to model emissions. The CalEEMod modeling outputs for construction and operational emissions are quite voluminous and available upon request. Attachment 1 includes summaries of the model results.

Table 7. Annual VCIP Construction Criteria Air Pollutant Emissions in Tons per Year

Construction Year	ROG	NO_x*	CO	Total PM_{10}*,**	Total $PM_{2.5}$**
2029	27.44	200.33	387.61	138.60	19.30
2030	24.39	193.71	374.71	137.93	18.60
2031	23.50	189.21	363.89	137.90	18.57
2032	22.55	181.98	353.09	137.89	18.32
2033	21.42	175.67	337.19	134.61	17.84
2034	18.47	153.72	296.53	117.13	15.66
2035	17.92	148.45	289.64	117.12	15.65
2036	17.54	145.11	283.13	116.90	15.65
2037	15.59	142.95	279.14	116.89	15.65
2038	8.24	75.73	147.48	62.46	8.33
Individual Project-Level Significance thresholds	**10**	**10**	**100**	**15**	**15**

* ISR requires reductions for NOx and PM_{10} that are not reflected in this assessment.

** Values reported for "PM_{10} and $PM_{2.5}$ include a combination of exhaust and fugitive dust, and reflect the effect of dust control measures implemented under Regulation VIII, but not reductions in exhaust emissions required under ISR..

Table 8. Annual VCIP Operational Emissions in Tons Per Year (Unmitigated)

Operation Year	ROG	NO_x	CO	PM_{10}*	$PM_{2.5}$*
2030	0.30	2.32	3.95	12.95	1.40
2031	0.59	4.56	7.79	25.90	2.80
2032	0.86	6.75	11.56	38.84	4.20
2033	1.14	8.88	15.27	51.77	5.59
2034	1.40	10.98	18.92	64.71	6.98
2035	1.64	12.87	22.21	76.51	8.24
2036	1.87	14.71	25.47	88.31	9.50
2037	2.10	16.54	28.71	100.10	10.76
2038	2.33	18.34	31.94	111.90	12.02
2039	2.43	19.21	33.56	118.08	12.68
Individual Project Significance Thresholds	***10***	***10***	***100***[2]	***15***	***15***

*Includes both exhaust and fugitive dust emissions.

Emissions from Existing Agricultural Activities

The VCIP would essentially utilize land that is currently active for agricultural purposes. Farming operations generate existing emissions of dust and air pollutants. Dust emissions are generated primarily by ground disturbances from tilling, harvesting, and vehicle travel over unpaved surfaces. ROG emissions are primarily from the application of fertilizers and pesticides. NOx emissions are primarily from the operation of farm equipment that include tractors and harvesters. There are emissions from truck traffic used to export farm products and service the farmlands, as well as the workforce traffic.

VCIP implementation would develop PV projects and infrastructure over about 136,000 acres in Fresno County. In 2024 approximately 53,044 acres of this total were actively farmed for row and field crops, tree crops, and vines, and approximately 81,357 acres were fallowed (the remaining 1,599 acres are mapped as natural or developed/roads). Agricultural activities such as discing and weed control occur on fallowed lands. Thus, there are agriculture-related emissions associated with both actively farmed and fallowed lands, although a wider range of activities that result in emissions occurs on actively farmed lands (e.g., harvesting, irrigation, pest control). Altogether, these agriculturally related activities result in emissions of particulate matter (PM10 and PM 2.5) from tilling, discing, and other soil preparation; pruning; harvesting; vehicle travel on unpaved farm roads; and wind erosion. They also result in NO_x and VOC emissions associated with the use of diesel fuel in tractors, sprayers, and irrigation pumps, as well as the use of pesticides and herbicides. Approximate agricultural emissions associated with these existing uses were calculated for informational purposes.

CARB Inventory Estimates

CARB reports annual emissions for Fresno County. The California Emissions Inventory Data Analysis and Reporting System (CEIDARS) is a database management system developed to track statewide criteria pollutant emissions[10]. The database is divided into reporting years and stores discrete information for stationary, areawide, mobile, and natural sources. Emissions can be reported by county for different years from 2017 to 2050, with 2017 being the base year. This inventory for Fresno County was used to compute emissions per acre per year and apply these rates to VCIP (see Table 9). The following emissions calculations used the 2025 emissions year.

Emissions were based on dust generation, fertilizer and pesticide applications, and farm equipment use. There would be on-road traffic associated with farming operations but these are reported for all of the county traffic and agricultural traffic cannot be separated. Therefore, these emissions do not include farming on-road traffic sources (i.e., truck and worker traffic).

Table 9. CARB Inventory of Fresno County Emissions

Source (CARB classification)	ROG	CO	NOx	PM10	PM2.5
	Daily	Emissions	in tons	per day	
614-TILLING DUST				6.25	0.94
615-HARVEST OPERATIONS - DUST				7.88	1.18
530-PESTICIDES/FERTILIZERS	4.08				
645-UNPAVED TRAFFIC AREA - AGRICULTURE				1.92	0.11
646-UNPAVED ROAD TRAVEL DUST- FARM ROADS					
870-FARM EQUIPMENT	1.14	10.89	5.51	0.33	0.3
Total Daily (tpd)	5.22	10.89	5.51	18.73	2.76
	Annual	Emissions	in tons	per year	
Total Annually (tpy)	1905.3	3974.85	2011.15	6836.45	1007.4
Ag Emission in tons/acre/year	**0.0018**	**0.0037**	**0.0019**	**0.0064**	**0.0009**

Note: Based on 1,073,350 farmed acres in Fresno County used by CARB[11]. Although this acreage figure is from 2012, it is within 5% of the California Department of Conservation acreage for cultivated lands in Fresno County for 2022 and is therefore suitable for this informational analysis.
Source: CARB's CEPAM2019v1.04 Emission Projection Data

Farming dust generating emissions (i.e., PM_{10} and $PM_{2.5}$) are uncontrolled and come from a variety of activities:

- Tilling dust includes mechanical operations used to prepare the soil, such as discing, shaping, chiseling, and leveling. Emissions vary seasonally and regionally according to

[10] CARB California Emissions Inventory Data Analysis and Reporting System. See https://ww2.arb.ca.gov/ceidars accessed June 13,2025.

[11] CARB's Miscellaneous Process Methodology Section (7.4 - Agricultural Land Preparation Operations, Revised and updated, most recent version is April 2016), provides 2012 harvested acreage from the U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS), compiled from County Agricultural Commissioner reports. Acreage not subject to land preparation operations was excluded (pasture lands, mushrooms, greenhouse, nursery and flower crops, forest firewood), as well as acreage aggregated statewide as "Sum of Others."

the crop mix and the associated land preparation activities. Since fallow lands are disked twice per year, emissions from this activity were computed for those lands in addition to farmed lands.

- Harvest operations include crop harvesting and the first post-harvest processing stage (packing houses, nut hullers and processors, cotton gins, dehydrators, feed and grain mills). Emissions vary seasonally and regionally according to the crop mix and the intensity of harvest activities taking place, with the highest emissions occurring during the peak harvest months of summer and fall.
- Traffic on unpaved roadway generates fugitive dust based on vehicle miles travelled estimates.
- Vehicle travel over other unpaved surfaces generates emissions that are computed based on vehicles miles travelled per acre per year and per crop.

The operation of farming equipment that combusts fuel, mainly diesel, generates emissions. CARB computed these emissions for Fresno County based on their OFFROAD2021 model.

The application of fertilizers and pesticides during farming operations primarily emit ROG.

On-road traffic associated with farming cannot be segregated from the overall county emissions since traffic emissions are based on vehicle registration data and cannot be tied to any type of individual activity. Therefore, traffic emissions associated with agriculture are not included.

VICP Area Farming Emissions

The CARB inventory was based on an estimate of 1,073,350 acres of farmland in Fresno County. Total emissions were divided by this acreage to generate a per acre per year emission rate that could be applied to VCIP. The total farming acreage without VCIP was estimated at 53,044 acres in any given year, assuming that 81,357 acres are left fallow. Build-out acreage of VCIP projects at the rate shown in Table 6 and based on 15,000 acres per 2,300 MW of PV power (see Table 5) were used to compute the annual farming emissions that would be eliminated. These are shown in Table 10.

As VCIP projects are constructed and brought online, farming-related emissions would decrease. The combination of modeled construction plus operational emissions associated with VCIP (shown in Tables 7 and 8) were combined with the removed estimates of farming emissions (see Table 10) to estimate the net change in emissions that are shown below in Table 11.

While farming operations may be less frequent and intensive as construction, they are not controlled, and therefore, have higher emissions rates than VCIP construction or operation. VCIP does not have any substantial sources of ROG, therefore, emissions would be lower than farming ROG emissions that come from application of fertilizers and pesticides. Construction emissions of NOx would generally be greater than farming operations, but VCIP operational activities would be less.

Table 10. Farming Emissions Displaced in Tons Per Year (Uncontrolled)

Operation Year	ROG	NO_x	CO	PM_{10}*	$PM_{2.5}$*
2029	10.99	11.60	22.93	59.62	8.85
2030	21.98	23.20	45.86	119.24	17.69
2031	32.97	34.80	68.79	178.86	26.54
2032	43.96	46.41	91.72	238.48	35.39
2033	54.95	58.01	114.65	298.10	44.23
2034	64.99	68.60	135.58	352.54	52.31
2035	74.15	78.27	154.70	402.24	59.69
2036	82.52	87.10	172.15	447.63	66.42
2037	90.16	95.17	188.09	489.06	72.57
2038	94.16	99.39	196.43	510.76	75.79
2039	94.16	99.39	196.43	510.76	75.79

*Includes both exhaust and fugitive dust emissions. Note that fugitive dust emissions are uncontrolled.

Table 11. Change in Annual Emissions with VCIP Implementation in Tons Per Year

Operation Year	ROG	NO_x	CO	PM_{10}*	$PM_{2.5}$*
2029	16.4	188.7	364.7	79.0	10.5
2030	2.7	172.8	332.8	31.6	2.3
2031	-8.9	159.0	302.9	-15.1	-5.2
2032	-20.6	142.3	272.9	-61.8	-12.9
2033	-32.4	126.5	237.8	-111.7	-20.8
2034	-45.1	96.1	179.9	-170.7	-29.7
2035	-54.6	83.0	157.2	-208.6	-35.8
2036	-63.1	72.7	136.4	-242.4	-41.3
2037	-72.5	64.3	119.8	-272.1	-46.2
2038	-83.6	-5.3	-17.0	-336.4	-55.4
2039	-91.7	-80.2	-162.9	-392.7	-63.1

*Includes both exhaust and fugitive dust emissions. Note that fugitive dust emissions from agricultural activities are uncontrolled, while VCIP emissions are controlled.

Attachment 2 includes the calculations of agricultural emissions in Fresno County and those displaced by the VCIP.

Impact 1: Construction Dust. Construction activity involves a high potential for the emission of fugitive particulate matter emissions that would affect local air quality.

PM_{10} and $PM_{2.5}$ emissions reported in Table 7 are associated with construction ground disturbance, windblown dust from disturbed areas, vehicle travel on unpaved and paved roadways, and additional dust generated on roadways from vehicle tracking material on to roadways. A small fraction is from equipment and vehicle exhaust. Most of these emissions are generated by vehicle travel, especially workers, trucks and equipment traveling on unpaved roadways. When considering yearly emissions from all VCIP construction of multiple projects in a given year, fugitive dust emissions, without dust controls, would appear to exceed the CEQA significance thresholds contained in the GAMAQI. However, the Air District's thresholds apply only to annual emissions from individual projects, not all VCIP projects planned for a given year. Past experience has shown that solar +BESS projects of up to 300 MW that are constructed in one year result in emissions that are below thresholds for all criteria pollutants with the implementation of dust controls required under Regulation VIII.

Site preparation and disturbance (e.g., vehicle travel on exposed areas) would likely result in the greatest emissions of dust that includes PM_{10}/$PM_{2.5}$. Windy conditions during construction could cause substantial emissions of PM_{10}/$PM_{2.5}$. The SJVAPCD's GAMAQI emphasizes implementation of effective and comprehensive control measures. SJVAPCD adopted a set of PM_{10} fugitive dust rules collectively called Regulation VIII. This regulation essentially prohibits the emissions of visible dust (limited to 20-percent opacity) and requires that disturbed areas or soils be stabilized. Prior to construction of each project phase, the applicant would be required to submit a dust control plan that meets the regulation requirements. These plans are reviewed by SJVAPCD and construction cannot begin until District approval of the dust control plan is obtained. The rules pertaining to construction activities generally require:

- Effective dust suppression (e.g., watering) for land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill and demolition activities.
- Effective stabilization of all disturbed areas of a construction site, including storage piles, not used for seven or more days.
- Control of fugitive dust from on-site unpaved roads and off-site unpaved access roads.
- Removal of accumulations of mud or dirt at the end of the workday or once every 24 hours from public paved roads, shoulders and access ways adjacent to the site.
- Cease outdoor construction activities that disturb soils during periods with high winds.
- Record keeping for each day dust control measures are implemented.
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Landscape or replant vegetation in disturbed areas as quickly as possible.
- Prevent the tracking of dirt on public roadways. Limit access to the construction sites, so tracking of mud or dirt on public roadways can be prevented. If necessary, use wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.

- Suspend grading activity when winds (instantaneous gusts) exceed 25 mph or dust clouds cannot be prevented from extending beyond the site.

Implementation of an approved dust control plan would reduce emissions by at least 80 percent with aggressive measures[12].

Impact 2: Construction Emissions. Equipment and vehicle trips associated with construction would emit ozone precursor and particulate matter air pollutants on a temporary basis. Construction emissions for individual VCIP projects could exceed the GAMAQI CEQA significance thresholds.

Construction equipment and traffic exhaust affects air quality both locally and regionally. Emissions of Diesel Particulate Matter (DPM), a Toxic Air Contaminant (TAC), can affect local air quality. The impact from local TAC emissions is addressed under *Impact 5*. Emissions of air pollutants that could affect regional air quality were estimated and included in Table 7. As shown, unmitigated construction emissions would exceed the applicable SJVAPCD CEQA thresholds, including PM_{10} (exhaust plus fugitive dust) for overall VCIP development in a given year, and could exceed the thresholds at the larger individual VCIP projects (e.g., solar PV + BESS projects over 300 MW constructed in one year).

The SJVAPCD Indirect Source Review Rule (Rule 9510) applies to construction of projects with mitigated emissions above 2.0 tons per year (tpy) of NOx or 2.0 tpy of PM_{10}. Regardless of whether a project's construction emissions of regional pollutants would exceed the Air District's CEQA significance thresholds for each pollutant, the project is still required to comply with Rule 9510 to ensure that the project contributes its fair share of emissions reductions in order to achieve the basin-wide reduction targets established in the Air District's Ozone and PM attainment plans. Rule 9510 requires that the project reduce uncontrolled construction exhaust emissions by 20 percent for NO_x and 45 percent for PM_{10} from calculated unmitigated levels. The basis for the reductions is an analysis using CalEEMod model. SJVAPCD encourages reductions through on-site mitigation measures. (Note: The use of the term "mitigation" under Rule 9510 does not refer to mitigation of impacts under CEQA; i.e., the ISR emission reduction percentages are required without regard to whether the CEQA emissions thresholds are exceeded or not.) Fees to purchase or sponsor off-site reductions through SJVAPCD apply when on-site mitigation measures do not achieve the required percentage of emissions reduction. Using less-polluting construction equipment, such as newer equipment or retrofitting older equipment reduces construction emissions on-site. A combination of on-site and off-site measures can be implemented to meet the overall emission reduction requirements. The uncontrolled emissions reported in Table 7 do not include the reductions required by Rule 9510.

Note that meeting the requirements of Rule 9510 does not necessarily mean that emissions will be reduced below the project significance thresholds. In such cases, the project proponent and SJVAPCD would enter into a contractual agreement (i.e., Voluntary Emissions Reduction Agreement - VERA), under which the project proponent agrees to mitigate project-specific

[12] Based on modeling of dust control measures using CalEEMod for a combination of control measures that include aggressive site watering, reduced vehicle speed, and use of dust palliatives.

emissions (to below the Air District's thresholds) by providing funds to the SJVAPCD. The District's role is to administer the implementation of the VERA consisting of identifying emissions reductions projects, funding those projects and verifying that emissions reductions have been successfully achieved. Thus, project-related impacts on air quality can and would be mitigated to less-than-significant levels under CEQA. Although VERAs are nominally voluntary, in practice they must be executed and implemented in order to meet the CEQA requirement that impacts be mitigated to the extent feasible (CEQA Guidelines Section 15126.4(a)). Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of agricultural equipment with the latest generation technologies.

Emissions reported in Table 7 reflect those associated with build-out of the entire VCIP, which would involve numerous construction projects over a period of 10 years. Thus, it would not be appropriate to apply the air district's project-level CEQA thresholds to the annual unmitigated emissions provided in Table 7. SJVAPCD thresholds apply to both particulate matter exhaust and fugitive dust. The application of dust emission controls, as required by SJVAPCD, would be expected to reduce fugitive PM_{10} emissions below the significance thresholds for all VCIP projects. Thus, while the residual construction-related exhaust emissions of ozone precursors and particulates (i.e., emissions from individual projects would be below the CEQA thresholds) and may result in a small decrease in overall air quality, and may therefore, have a small adverse health affect (as described earlier in this report under "Criteria Air Pollutants and Their Health Effects"), the overall impacts would not cause the health-based NAAQS or CAAQS to be violated.

The VCIP solar and BESS projects would be decommissioned at the end of their productive lives. The activities associated with deconstruction would be comparable to construction, but emissions are expected to be substantially lower given anticipated reductions in vehicle and equipment emissions to be phased-in per State and federal regulations, and also because of the generally lower intensity of equipment use associated with decommissioning. With the application of air district's dust control requirements, fugitive PM_{10} emissions are likewise expected to be below the CEQA significance thresholds during decommissioning of VCIP projects.

Mitigation Measure for Impact 2: Apply construction period emissions controls through on- and off-site reduction measures as required by the SJVAPCD for each individual VCIP project.

Individual projects are subject to ISR which requires reductions in emissions of NOx and PM10 for all projects regardless of whether a project results in an air quality impact. Note that reductions in PM10 would also reduce PM2.5 emissions. Measures to reduce on-site emissions may include the use of Tier 4 construction equipment that would reduce the on-site project emissions of NOx by 32 percent during the early VCIP construction years and by 26 percent in later years when NOx emissions are lower due to emission control improvements in the construction vehicle fleet which are mandated to be phased-in over time. Off-site vehicle travel also contributes to NOx and particulate matter emissions during construction. Approximately 25 percent of commuting construction workers are expected to carpool based on experience at previous solar projects. Also, VCIP implementation will require substantial traffic mitigation during construction, primarily in the form a fleet of shuttle buses which would substantially reduce emissions from worker travel.

The emission computations shown in Table 7 do not reflect the anticipated reductions in worker traffic.

For projects where it is not feasible to fully meet the required level of mitigation for project emissions through on-site measures developed under ISR (i.e., where ISR reductions would not reduce emissions to below Air District's thresholds), the project proponent and SJVAPCD would enter into a contractual agreement (i.e., Voluntary Emissions Reduction Agreement - VERA), under which the project proponent agrees to mitigate project-specific emissions by providing funds to the SJVAPCD. As mentioned above, the execution and implementation of VERAs can and would mitigate project-specific air quality impacts to less-than-significant levels under CEQA. Although VERAs are nominally voluntary, in practice they must be executed and implemented in order to meet the CEQA requirement that impacts be mitigated to the extent feasible (CEQA Guidelines Section 15126.4(a)).

Impact 3: Operational Emissions. Proposed Project operational emissions, generated primarily by traffic and maintenance equipment, would increase emissions of criteria air pollutants.

Table 8 provides annual emissions estimates from operation of from the incremental development of VCIP projects as they come online during the 10-year build-out period. The first full year that a VCIP project would become partially operational is 2030. As projects are constructed through 2038, overall VCIP operational emissions would increase. Operational emissions would consist of emissions from maintenance vehicles, off-road equipment usage, and worker and vendor vehicles.

All of the planned VCIP solar and battery storage facilities are scheduled to become fully operational in 2039. As shown in Table 8, the Air District's thresholds for NOx and PM10 would be exceeded if the entire VCIP were a single project. However, to determine the significance of air quality impacts, the Air District would not consider the emissions from the entire development planned under VCIP but would apply the thresholds to the emissions of individual projects on an annual basis. The largest potential solar project within VCIP would be quite small compared to the total VCIP, i.e., less than 5 percent of the total VCIP generation capacity, and would emit a proportional amount of criteria pollutants. Therefore, the annual operational emissions from an individual solar project in 2039 would be below the operational thresholds for each pollutant. Criteria pollutant emissions from individual VCIP projects would be below their applicable thresholds.

Note that on-site travel and activity were assumed to occur on unpaved roadways. It is important for solar projects to minimize generation of dust that could settle on PV equipment and adversely affect the overall performance of solar modules. The solar and energy storage projects would have internal gravel roadways and compacted earth roadways that would be compacted to 95 percent compaction and treated with dust palliatives to minimize dust generation. Reduced traffic speeds would further reduce dust emissions.

Stationary combustion equipment, like standby generators, that could emit air pollution during facility operation are not anticipated to be utilized for VCIP projects. Photovoltaic energy projects

do not usually include these sources. If stationary sources are to be employed, they may require permits from SJVAPCD. Such sources could include combustion emissions from standby emergency generators (rated 50 horsepower or greater). These sources would normally result in minor emissions, compared to those from traffic generation and off-road maintenance equipment reported above. Sources of stationary air pollutant emissions that comply with all applicable SJVAPCD regulations generally are not considered to have a significant air quality impact for CEQA purposes.

As previously mentioned, all VCIP projects would be subject to SJVAPCD's ISR Rule 9510 to reduce NO_x and PM_{10} emissions. The emissions in Table 7 and 8 do not reflect any reductions that would be required under ISR. If operational emissions are below the Partial Exemption limits of ISR, the requirements of ISR to further reduce NOx emissions may not apply. In order to determine if the project would qualify for an exemption, the project proponent would be required to submit an AIA application to the SJVAPCD staff, who would determine if the exemption applies.

Mitigation Measure for Impact 3: None Required.

Impact 4: Carbon monoxide concentrations. Mobile emissions generated by VCIP project traffic would increase carbon monoxide concentrations at intersections in the project vicinity. However, resulting concentrations would be below ambient air quality standards and below CEQA thresholds.

Much of the emissions from construction and operation of VCIP projects would be generated off site by traffic traveling to or from the project sites. Construction would result in temporary traffic emissions at any one location. As shown in Table 8, the CO levels from overall VCIP operation would be well below the air district's threshold upon full operation of VCIP facilities. Thus, traffic from VCIP projects would have a negligible effect on concentrations of CO along roadways providing access to the projects. Carbon monoxide is a localized air pollutant, where highest concentrations are found very near sources. The major source of CO is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volume and congestion. During operation, the typical 250-MW VCIP solar + BESS project would increase traffic by approximately 20 vehicle trips per day, on average.

Emissions and ambient concentrations of CO have decreased greatly over the past 30 years. These improvements are due largely to the introduction of cleaner burning motor vehicles and reformulated motor vehicle fuels. No exceedances of the State or federal CO standards have been recorded at any of San Joaquin Valley's monitoring stations in the past 20 years. The San Joaquin Valley Air Basin has attained the State and National CO standards. This is demonstrated by monitoring data that includes monitoring stations in heavily urbanized areas with large traffic volumes.

Despite this progress, localized CO concentrations are addressed through SJVAPCD-recommended screening method that can be used to determine that the effect a project has on any given intersection would not cause a potential CO hotspot. A project can be said to have no potential to create a CO violation or create a localized hotspot if either of the following conditions

are not met: level of service (LOS) on one or more streets or intersections would be reduced to LOS E or F; or the project would substantially worsen an already LOS F street or intersection within the project vicinity. The traffic study for the VCIP PEIR indicates that all intersections affected by VCIP traffic would operate at LOS C or better, and all affected roadways would operate at LOS D or better, during the construction period with the implementation of recommended traffic mitigations. The traffic study also indicates that LOS at intersections and roadways will not change from baseline conditions during full operation of VCIP facilities. Note that VCIP projects would be located in rural areas that do not have large volumes of traffic capable of causing violations of ambient air quality standards for CO. Therefore, the implementation of VCIP would not potentially result in a CO violation or create a localized CO hotspot.

Mitigation Measure for Impact 4: None Required.

Impact 5: Exposure of Sensitive Receptors to Toxic Air Contaminants. Construction activity, delivery trucks, employee traffic and emissions from onsite vehicles used in maintenance activities would expose nearby receptors to toxic air contaminants. Based on the proximity of sensitive receptors to the location of the highest predicted TAC emissions, a health risk assessment to assess the potential cancer risk was performed and the risks were below SJVAPCD CEQA thresholds.

The TAC of concern is DPM emitted from diesel-fueled vehicles and equipment during construction of VCIP solar and BESS projects. Operation of the projects would generate some traffic and on-site maintenance activity. Construction activities would be intensive for individual projects, resulting in much of the health risk impacts.

Projects within the VCIP would be built out over a large geographic area during a period of 10 years or longer. The plan area is sparsely populated. The Cantua Creek community includes the greatest concentration of sensitive receptors in the Plan Area with residences and a school. . A health risk assessment was conducted that predicted increased cancer risk and non-cancer health hazards associated with construction activity within approximately one mile of the community. The health risk assessment was based on emissions from nearby construction equipment and traffic. The construction areas and roadway segments modeled are shown in Figure 2.

The highest daily levels of DPM would be emitted during construction activities from use of heavy-duty diesel equipment such as loaders, graders and diesel-fueled haul trucks. However, these emissions would be intermittent, vary throughout the area, and be of a temporary duration (approximately 12 months of total construction activity in the vicinity). During project operations, low-level DPM emissions would result from infrequent worker vehicles and maintenance activities, but they would be constant over the lifetime of the project. Operational DPM emissions would mainly result from the use of pickup trucks with a portable water trailer (and pump), which would be used for panel cleaning.

Construction Emissions

Construction period air pollutant emissions were modeled using CalEEMod Version 2022.1.1.28, with project construction information (see Impact 2) and the CT-EMFAC2021 model. CalEEMod

was used to develop emissions of DPM for offroad construction equipment while CT-EMFAC2021 was used to develop off-site emissions for construction traffic. Inputs to CalEEMod for offroad equipment are described for Impact 2.

A construction scenario developed for construction of solar arrays and BESS within approximately 3 to 4 miles from the center of Cantua Creek was modeled using CalEEMod. The area subject to VCIP development within this area was estimated to be approximately 1,700 acres. A gram per second per square meter emissions rate was estimated from the annual emissions reported by CalEEMod. The same type of modeling technique was used to estimate emission for the 2.7-mile gen-tie line that would be constructed in the area. There are no VCIP collection substations planned in the area.

Figure 2. Cantua Creek Community, Construction Areas Modeled and Sensitive Receptor Locations

Construction Traffic

On-site construction traffic emissions were accounted for in CalEEMod by assuming the worker, vendor, hauling, and on-site vehicle activity described under Impact 2. Since this assessment only uses CalEEMod emissions on-site, a trip length of one mile was used as input to the model to

account for travel and idling. Construction traffic emissions for vehicles traveling to and from the construction sites on public roadways were modeled separately using CT-EMFAC2021.

Roadway traffic inputs to CT-EMFAC2021 include the county (Fresno), anticipated year of construction (2031), and fleet mix (i.e., percent trucks). Emissions factors from CT-EMAFC2021 were then applied to the average daily traffic volume for workers and haul trucks accessing the site. This includes 1,800 worker trips and 88 truck trips on S. San Mateo Ave., 800 daily worker trips on W. Clarkson Ave. to the west, and 1,000 worker and 88 trucks on the same roadway to the east. Emissions from each source category are reported in Table 9.

Operational Traffic

Operational emissions were modeled in CalEEMod, similar to the method described under Impact 2. It was assumed that 18 trips would occur daily during operation of the affected surrounding projects with 10 of those trips from light duty vehicles and 8 trips from light-heavy-duty vehicles.

Decommissioning

After a 35-year operational period, this analysis assumed the project could end its useful operational period and be decommissioned. This would involve deconstruction activities that are assumed to be equivalent to the construction activities.

Table 12. Construction and Operational Period Emissions

Year	CalEEMod On-Site Emissions	CT-EMFAC2021 Off-Site Emissions	Total Emissions
2031 Construction DPM Emissions	0.503 tons	0.001 tons	0.504 tons
2031 Construction Non-diesel TOG Emissions	NA	0.200 tons	0.200 tons
Annual Operational DPM Emissions	0.007 tons	0.0001 tons	0.007 tons
Annual Operational Non-diesel TOG Emissions	NA	0.005 tons	0.005 tons

NA = not applicable, TOG = total organic gases, both exhaust and evaporative.

The emissions rates developed for the project were used in dispersion modeling to estimate TAC concentrations and health risks associated with construction of the VCIP projects in this area

Dispersion Modeling

The US EPA AERMOD dispersion model was used to calculate DPM and other TAC concentrations at existing sensitive receptors (residences) in the vicinity of the project site. The AERMOD dispersion model is a SJVAPCD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.

For modeling construction impacts the AERMOD modeling utilized an area source to represent the location of on-site construction activities and on-site traffic. Emissions were distributed evenly across the area source. To represent the construction equipment exhaust emissions, an emission

release height of 6 meters (20 feet) was used for construction equipment and trucks. The elevated source height reflects the height of the vehicle's exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. Emissions from on-road truck travel at and near the project site were included in the area source. Emissions from truck travel were modeled as occurring daily between 7 am - 7 pm, when the majority of construction activity would occur.

Vehicle emissions on S. San Mateo and W. Clarkson Avenues were modeled as line-area source (a series of area sources along a line) representing off-site haul traffic near sensitive receptor locations shown in Figure 2. Source modeling parameters were based on EPA (US EPA 2021) and SJVAPCD (SJVAPCD 2022) guidance. DPM and TOG from vehicle exhaust were modeled using a release height of 3.4 m (11 feet). The elevated source height reflects the height of the vehicle's exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. Evaporative TOG was modeled with a source height of 1.3 m (4.3 feet) representing the height of the engine and fuel system components where evaporative TOG emissions occur.

The model used a 5-year data set (2018-2022) of hourly meteorological data from the Lemoore Naval Air Station prepared for use with the AERMOD model by the SJVAPCD. DPM concentrations were calculated at nearby sensitive receptors using a receptor height of 0 meters. Flat terrain was used for the modeling since there is negligible elevation difference between the source and receptors and the receptors with the highest modeled concentrations are close to the affected project sites. Rural dispersion conditions were used in the modeling given the area surrounding the project site is predominantly rural.

Details on the emission calculations and dispersion modeling information for the construction sources are provided in *Attachment 3*.

Cancer Risk and Hazards

Based on the over 100 receptors modeled, the maximum-modeled unmitigated (uncontrolled) annual DPM concentration at a residential receptor was used to describe health risk impacts. The location, referred to as the maximally exposed individual or MEI, is where health risk impacts were highest (see MEI identified in Figure 2). Increased cancer risks were calculated using the modeled annual concentrations and SJVAPCD recommended risk assessment methods for infant, child, and adult exposures for residential receptors. Results of this assessment with uncontrolled project construction emissions are shown in Table 10.

The maximum cancer risk and non-cancer hazard index (or HI) were computed using the maximum modeled TAC concentrations and the calculation methods recommended by SJVAPCD and OEHHA that include nearly continuous exposures with adjustments for infants and children. Based on modeled TAC concentrations, construction and operational cancer risks were calculated for a 70-year residential exposure as 2.26 in one million[13]. This is below the SJVAPCD's CEQA

[13] Note that solar and BESS projects are anticipated to operate for less than 70 years, so the cancer risk predictions are slightly overestimated.

significance threshold of 20 in one million. The chronic HI from DPM would be less than 0.1 at all receptor locations, below the CEQA significance threshold of 1.0. Both construction and operational health risks are shown in Table 10. Details on the health risk calculations sources are provided in *Attachment 3*. Since predicted health risk impacts from the built out VCIP are estimated to be below the SJVAPCD's CEQA significance thresholds, the health risks from individual projects would also be below the CEQA significance thresholds. Since the Cantua Creek area has the highest concentration of population in proximity to planned energy and infrastructure projects in the VCIP Plan Area, the results of this health risk assessment represent the worst-case scenario for VCIP development. As such, it is concluded that the health risk associated with VCIP development overall, and the health risk associated with individual projects under VCIP, would represent a less-than-significant impact.

Table 13. Construction and Operational Period Health Risk Impacts (Uncontrolled)

Activity	Maximum (assuming residential exposure)	
	Cancer Risk (per million)	Non-Cancer Hazard Index
Construction (1 year)	2.03 (infant)	<0.1
Operation (35 years)	0.20 (infant/child/adult)	0.0
Decommission (1 year)	2.03 (infant) or 0.03 (adult)	<0.1
Lifetime = Construction (1 year) & Operation (35 years) & Decommission (1 year)	2.26 (infant/child/adult)*	<0.1
SJVAPCD CEQA Significance Threshold	20.0	1.0
Above Threshold?	No	No

*Lifetime cancer risk is based on infant exposure to all construction, infant/child/adult to operation and adult exposure to decommissioning.

Mitigation Measure for Impact 5: None required.

Impact 6: Odors. The project would result in temporary odors during construction.

During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and not likely to be noticeable for extended periods of time much beyond the project's site boundaries.

During project operations, the project is not expected to generate any objectionable odors.

Mitigation Measure for Impact 6: None proposed.

Impact 7: Consistency with Clean Air Planning Efforts. The project would not conflict with the current clean air plan or obstruct its implementation.

The GAMAQI does not include methodologies for assessing the effect of a project on consistency with clean air plans developed by the SJVAPCD. Regional clean air plans developed by SJVAPCD

rely on local land use designations to develop population and travel projections that are the basis of future emissions inventories. Air pollution control plans are aimed at reducing these projected future emissions. The VCIP proposes land uses that would not alter population and vehicle related emissions projections contained in regional clean air planning efforts in any measurable way, and would not conflict with achievement of the control plans aimed at reducing these projected emissions. Therefore, the VCIP projects would not conflict with or obstruct implementation of efforts outlined in the region's air pollution control plans to attain or maintain ambient air quality standards.

Also, as discussed above, in 2005 the SJVAPCD adopted the ISR Rule in order to fulfill the SJVAPCD's emission reduction commitments in its PM_{10} and ozone attainment plans. The District has determined that implementation and compliance with the ISR would reduce the cumulative PM_{10} and NO_X impacts of growth anticipated in the air quality plans. Since the VCIP projects would be required to comply with emissions reductions under ISR, they would fulfill their share of achieving the SJVAPCD's emission reduction commitments in the PM_{10} and ozone attainment plans.

Mitigation Measure for Impact 7: None required.

Cumulative Air Quality Impacts

The SJVAPCD has developed criteria to determine if a development project could result in potentially significant regional emissions. According to the GAMAQI, any proposed project that would individually have a significant air quality impact (i.e., exceed significance thresholds for ROG or NO_x) would also be considered to have a significant cumulative air quality impact. Impacts of local pollutants (CO and TACs) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects will exceed CEQA significance thresholds. The GAMAQI further states that "a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located" (SJVAPCD 2015, p. 66). For local impacts of PM_{10} from unrelated construction projects, the GAMAQI recommends a qualitative approach where construction activities from unrelated projects in the area should be examined to determine if enhanced dust suppression measures are necessary.

Regional Air Pollutants

As discussed under 'Significance Criteria" above, cumulative ozone impacts would be considered significant - if project-specific emissions exceed the SJVAPCD CEQA significance thresholds for ozone precursors ROG or NO_x, or the project is not consistent with the regional clean air plan. As discussed in Impacts 1, 2, and 3 above, project-specific construction emissions of ozone precursor pollutants (ROG and NO_x) and PM from dust were found to exceed the CEQA significance thresholds for annual VCIP development, and would also likely do so for individual projects. However, control measures to reduce emissions from individual projects would reduce these

impacts to less-than-significant levels. As discussed under Impact 7, the project would be consistent with clean air planning efforts and would not conflict with or obstruct their implementation.

Local Air Pollutant Emissions

Construction period PM_{10} emissions would be localized. With implementation of dust control plan required by the SJVAPCD, and if necessary, additional emission reduction achieved through the District's ISR Rule 9510, and potentially through VERAs, construction period impacts would be below CEQA significance thresholds. Additional construction that may occur in the area concurrently with the project would be subject to SJVAPCD Regulation VIII, as well as the District's ISR Rule 9510, and potentially also VERAs, which would reduce cumulative construction emissions. Operational emissions would also be below CEQA significance thresholds in compliance with local requirements to control fugitive dust emissions.

Cumulative Toxic Air Pollutant Impacts

The overall implementation of the VCIP, and individual projects developed under VCIP, would not have a significant impact related to community health risk from project construction or operation and, therefore, would also not contribute to a cumulatively considerable community risk impact in the Plan Area and vicinity.

Summary of Cumulative Contribution to Air Quality Impacts

The implementation of the VCIP Energy Resource and Infrastructure Plans would not contribute to local cumulative air quality impacts with respect to any standard or significance criteria. In addition, the contribution of VCIP projects to cumulative regional air quality impacts would not be considerable. In conclusion, VCIP implementation would not have a cumulatively significant impact on air quality.

Greenhouse Gas Emissions

GHG emissions in terms of CO_2e are low for both the construction and operational phases of individual VCIP projects. A photovoltaic power production facility inherently represents "best performance standards" as compared to other typical forms of electrical power production, i.e., such as fossil-fueled power plants. The operation of the project would provide electric power with negligible GHG emissions over the life of the project compared with traditional fossil-fueled power plants. Therefore, the project is consistent with state GHG policy to encourage solar power development as a means to reduce fossil fuels and GHG emissions and improve air quality. GHG Emissions are reported in Table 11 for both construction and operation of the project.

Note that operational emissions in Table 11 do not include emissions associated with sulfur hexafluoride (SF6), a commonly used insulator in electricity transmission and distribution equipment. SF6 is approximately 23,900 times as potent as carbon dioxide in trapping heat in the atmosphere. Minor emissions of this potent GHG are emitted from insulating switches for high-voltage current applications, typically found in the transmission grids of electrical utilities. These

emissions are expected to be minor as newer technologies come on line during construction and equipment with SF6 will be phased out by 2028 for up to 230-kV switchgear or gas-insulated equipment (GIE), and for all GIE by 2033. This type of equipment is included in substations and transmissions line components of VCIP. Plans for transmission lines and substations that would are not developed with enough detail to provide any meaningful emission calculations. However, any emissions of SF6 are anticipated to be minor due to the phase out of SF6 as an insulating gas.

Table 14. Total VCIP Annual GHG Emissions

Year	Megawatts Generated	Annual GHG Emissions in Metric Tons per Year			
		Construction	Operation	VCIP Total	Solar Emission Offset[1]
2029		114,009		114,009	-
2030	2,300	112,240	445	112,686	1,473,870
2031	4,600	110,030	886	110,916	2,947,740
2032	6,900	108,386	1,323	109,709	4,421,609
2033	9,200	105,221	1,755	106,975	5,895,479
2034	11,500	93,120	2,183	95,302	7,369,349
2035	13,600	92,073	2,607	94,679	8,715,056
2036	15,700	91,193	3,027	94,219	10,060,764
2037	17,800	90,431	3,444	93,875	11,406,471
2038	19,900	47,726	3,858	51,583	12,752,178
2039	21,000		4,269	4,269	13,457,072

[1]Based on a CO2 Intensity rate of 886 lbs. per MWh contained in the PG&E Corporate Sustainability Report 2022. See https://sustainabilityreports.com/reports/pg-e-corp-2022-corporate-sustainability-report-pdf/ page 88, accessed Dec. 19, 2024.

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Attachment 1: Activity Assumptions used for CalEEMod Modeling

Note there are numerous CalEEMod modeling output files that can be provided to lead agency separately upon request.

Helicopter Emissions

Helicopter type: **Hughes MD500E**

Emissions Source: **Guidance on the Determination of Helicopter Emissions**

Swiss Federation, Volume 2, December 2015

	Quantity	Units	Fuel (kg)	NOx (g)	HC (g)	CO (g)	PM (g)	CO2
LTO Emissions	5	LTO per day	16.40	59.50	438.20	571.20	2.30	
Hourly	4	hrs/day	98.80	480.00	960.00	1200.00	16.00	
	Daily	kg or g/day	477.20	2217.50	6031.00	7656.00	75.50	
			Daily Emissions					
		gallons or lbs/day	149.50	4.88	13.28	16.86	0.17	3154
Aviation Fuel:	6.8	lbs/gallon						
	0.0038	m**3/gallon						
	840	kg/m**3						
	21.1	lbsCO2/gallon		lbs. per period				
	100	days		488.44	1328.41	1686.34	16.63	315442
		Total		**tons and metric tons CO2**				

	ROG	**NOx**	**CO**	PM10	PM2.5	PM10	PM2.5	**GHG**
	0.66	**0.24**	**0.84**	**0.01**	0.01	0	0	**143.10**

https://www.eia.gov/environment/emissions/co2_vol_mass.php

						LTO Emissions						One hour emissions					
Code	Aircraft_ICAO	Aircraft_Name	Engine_Name	Max SHP per engine	Number_of_Engines	LTO fuel (kg)	LTO NOx (g)	LTO HC (g)	LTO CO (g)	LTO PM non volatile (g)	LTO PM number	One hour fuel (kg)	One hour NOx (kg)	One hour HC (kg)	One hour CO (kg)	One hour PM non vol. (g)	One hour PM number
H124	A109	AGUSTA A109 Power	ARRIUS 2K	670	2	42.4	220.7	741.8	961.1	7.3	3.1181E+16	240.7	1.61	1.3	1.61	48	1.58E+18
H131	AL02	ALOUETTE II	ARTOUSTE IIC5	402	1	18.1	75.4	378	489.2	2.7	2.718E+16	109.7	0.61	0.82	1.02	19.4	6.39E+17
H131	AL02	ALOUETTE II	ARTOUSTE IIC6	402	1	18.1	75.4	378	489.2	2.7	2.718E+16	109.7	0.61	0.82	1.02	19.4	6.39E+17
H132	EC20	EC-120 COLIBRI	ARTOUSTE III B	563	1	21.4	108.9	308.9	395.9	3.6	2.9258E+16	134.9	0.92	0.7	0.86	27	8.04E+17
H132	LAMA	SA315B LAMA	ARTOUSTE IIIB	563	1	21.4	108.9	308.9	395.9	3.6	2.9258E+16	159.2	1.08	0.83	1.02	32.2	5.89E+17
H132	AL03	SA316B ALOUETTE III	ARTOUSTE IIIB	563	1	21.4	108.9	308.9	395.9	3.6	2.9258E+16	134.9	0.92	0.7	0.86	27.2	8.96E+17
H133	AS55	AS 355 ECUREUIL 21	ARTOUSTE III B	563	2	37.6	175.8	802.1	1046.7	6.1	2.9876E+16	235.7	1.41	1.53	1.91	44	1.29E+18
H141	GAZL	SA341 GAZELLE	ASTAZOU IIIA	644	1	23.5	128.9	288.6	367.6	4.2	3.0155E+16	148.5	1.08	0.67	0.82	32	5.83E+17
H141	GAZL	SA341 GAZELLE	ASTAZOU IIIN2	644	1	23.5	128.9	288.6	367.6	4.2	3.0155E+16	148.5	1.08	0.67	0.82	32	5.83E+17
H142	AL03	SA316B ALOUETTE III	ASTAZOU XIVB	590	1	21.9	114.5	299.8	384.7	3.8	2.9446E+16	139.4	0.98	0.69	0.85	29	9.52E+17
H142	GAZL	SA342 GAZELLE	ASTAZOU XIVG	590	1	21.9	114.5	299.8	384.7	3.8	2.9446E+16	139.4	0.98	0.69	0.85	28.9	5.28E+17
H142	GAZL	SA342 GAZELLE	ASTAZOU XIVH	590	1	21.9	114.5	299.8	384.7	3.8	2.9446E+16	139.4	0.98	0.69	0.85	28.9	5.28E+17
H151	TIGR	EUROCOPTER 665 TIGER	MTR 390	1450	2	69	507.6	613.6	781	15.2	4.3258E+16	478	4.76	1.17	1.43	133	1.95E+18
H161	2HAC	HAL DHRUV MK II	TM333-2B2	1219	2	63.4	421.3	688.7	881.4	12.9	4.0814E+16	434.1	3.95	1.29	1.56	112	3.68E+18
H201	H500	HUGHES 500	DDA250-C18	317	1	16.4	59.5	438.2	571.2	2.3	2.5999E+16	98.8	0.48	0.96	1.2	16	2.94E+17
		AGUSTA	DDA250-														

VCIP - Construction Equipment and Vehicle Use

CalEEMod Runs

Model Solar PV & BESS Built Per 1,150 mW Size

Phase Work Days	Equipment	Qty	Avg Hrs/day	Mobile Class	Trips/day	Miles/trip
	7500 acres					
	Stage 1 – Site Preparation					
90	Water Trucks (5,000 gal)			LDA/LDT	520.00	47.50
	Graders	22	9	MHDT	6.13	34.06
	Skid Loaders	41	9	HHDT	63.56	32.52
	Roller/Compactors	122	9			
	Fork Lifts	11	8			
	Pickup Trucks	20	9	LHDT1 at 15mph at 50%		135 mi/day
	ATVs	20	9	LDA at 15mph at 50%		135 mi/day
200	**Stage 2 – Installation of Solar Arrays**					
	Water Trucks (5,000 gal)	56	25	LDA/LDT	7040.00	47.50
	Roller compactors	4	9	MHDT	0.00	0.00
	Skid Loaders (skip loaders	27	9	HHDT	406.67	111.58
	Dozer	12	9			
	Loaders	38	9.9			
	Welders	12	9.9			
	Trenchers	4	8.1			
	Forklifts	68	9.9			
	Bore/Drill Rig	8	3.6			
	Grader	19	8.1			
	Backhoe/mini Excavators	27	9.9			
	Pile Drivers	136	9.9	MHDT at 15 mph at 50%		375mi/day
	Pickup Trucks	80	9.9	LHDT1 at 15mph at 50%		149 mi/day
	ATVs	160	9.9			
200	**Stage 3 – Installation of Inverters, Transformers, Substation**					
	Water Trucks (5,000 gal)			LDA/LDT	340.00	47.50
	Skid steers	16	5.4	MHDT	4.00	30.00
	Pile Drivers	16	7.2	HHDT	64.00	63.75
	Trenchers	4	5.4			
	Backhoes	8	9			
	Aerial Lifts	24	6.75			
	Cranes	12	4.5			
	Forklifts	27	9			
	Welders	20	9			
	Pickup Trucks	100	9	LHDT1 at 15mph at 50%		135 mi/day
	ATVs	120	9			
	Helicopter	2	1			
200	**Stage 4 – Installation of Battery Energy Storage Systems (BESS)**					
	Water Trucks (5,000 gal)			LDA/LDT	340.00	47.50
	Skip loaders/skid steers	20	3.6	MHDT	4.00	30.00
	Forklifts	16	2	HHDT	64.00	63.75
	Roller/Compactors	4	2			
	Pile Drivers	16	1.25			
	Trenchers	4	2			
	Backhoes/ mini excavators	16	1.25			
	Aerial Lifts	12	1.2			
	Cranes	10	1.25			
	Pickup Trucks	20	2.5	LHDT1 at 15mph at 50%		38 mi/day
	ATVs	20	4.5			

Model Gen Ties

Phase Work Days	Equipment	Qty	Avg Hrs/day	Mobile Class	Trips/day	
	116 acres					
100 working	Gen-Tie Line - Construction - Off-Site Vehicle Use			LDA/LDT	54.40	
	Water Truck	4	8	MHDT	4.40	
	Graders	1	4	HHDT	6.48	
	Skip Loaders	5	8			
	Aerial Lifts	20	8			
	Cranes	6	8			
	Pullers	4	4			
	Tensioners	4	4	MHDT at 15 mph at 50%		120mi/day
	Pickup/Utilit	40	8	LHDT1 at 15mph at 50%		120mi/day
	Helicopter	1	4			

VCIP - Construction Equipment and Vehicle Use

CalEEMod Runs

Model 500/230 KV Utility Switchyard

Phase Work Days	Equipment	Qty	Avg Hrs/day	Mobile Class	Trips/day	Miles/trip
200	40 acres					
	Phase 1 – Site Preparation					
	Water Trucks (5,000 gal)	2	8	LDA/LDT	400.00	47.50
	Graders	3	0.8	MHDT	6.02	10.13
	Skip Loaders	15	2	HHDT	11.83	38.88
	Backhoes	6	2			
	Dozer	6	1			
	Loaders	6	2			
	Roller/Compactors	3	0.8			
	Trenchers	3	2			
	Welders	10	2			
	Drill Truck/Rig	2	2			
	Cranes	10	0.8			
	Aerial Lifts	20	1.6	MHDT at 15 mph at 50%		120mi/day
	Pickup Trucks	20	8	LHDT1 at 15mph at 50%		120mi/day

Model Connector 500 kV-T Lines

Phase Work Days	Equipment	Qty	Avg Hrs/day	Mobile Class	Trips/day	Miles/trip
	1,076 acres					
200	Water Trucks (5,000 gal)	4	10	LDA/LDT	125.00	47.50
	Graders	1	2	MHDT	25.00	30.00
	Skip Loaders	5	8	HHDT	12.44	116.72
	Aerial Lifts	20	8			
	Cranes	6	8			
	Pullers	4	4			
	Tensioners	4	4	MHDT at 15 mph at 50%		150mi/day
	Pickup/Utility Trucks	40	10	LHDT1 at 15mph at 50%		150mi/day
	Helicopter	1	4			

VCIP - Construction Annual Emissions from Equipment and Vehicle Use

Based on annual size

			Uncontrolled				Controlled	Uncontrolled	Uncontrolled							Controlled											
			Off site travel						Emissions per Year (tons)						On-site travel	Off site travel						On-site travel					
Construction Year	**Size**	**Units**	**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**	**GHG**	ROG	NOx	CO	PM10	PM2.5	GHG	ROG	NOx	ROG	NOx	CO	PM10	PM2.5	GHG	ROG	NOx	CO	PM10	PM2.5	GHG
2029 Total			**27.44**	**200.33**	**387.61**	**138.60**	**19.30**	**114,009**	26.2	197.8	382.3	35.5	12.8	110,890	1.2	2.5	12.8	130.4	393.6	29.8	8.4	110,890	1.2	2.5	5.3	108.8	10.9	3,119
Solar PV + BESS	2300	mW	24.39	189.70	370.49	125.50	17.15	109,143	23.2	187.4	365.4	33.2	11.5	106,376	1.2	2.3	10.3	123.7	373.6	28.1	7.4	106,376	1.2	2.3	5.1	97.4	9.8	2,767
Gen Ties	26	miles	0.87	2.94	3.54	3.25	0.94	800	0.9	2.9	3.5	0.8	0.7	725	0.0	0.1	0.7	2.0	4.4	0.7	0.7	725	0.0	0.1	0.0	2.5	0.3	76
Utility Substation	1	stations	0.41	2.74	7.13	3.28	0.48	1,869	0.4	2.7	7.0	1.3	0.4	1785	0.0	0.1	0.2	1.7	7.4	0.0	0.2	1,785	0.0	0.1	0.1	2.5	0.3	84
Internal T-Lines	30	miles	1.77	4.94	6.45	6.58	0.73	2,196	1.8	4.8	6.4	0.4	0.2	2004	0.0	0.1	1.5	3.1	8.2	0.3	0.1	2,004	0.0	0.1	0.1	6.3	0.6	192
2030 Total			**24.39**	**193.71**	**374.71**	**137.93**	**18.60**	**112,240**	23.3	191.3	369.7	34.5	11.8	109,222	1.1	2.4	10.6	126.9	381.5	29.2	7.7	109,222	1.1	2.4	5.0	108.8	10.9	3,018
Solar PV + BESS	2300	mW	23.37	184.03	358.65	125.49	17.12	107,439	22.3	181.9	353.9	32.9	11.1	104,760	1.1	2.1	10.1	120.9	362.9	28.1	7.4	104,760	1.1	2.1	4.8	97.4	9.3	2,679
Gen Ties	26	miles	0.20	2.23	2.85	2.58	0.28	793	0.2	2.2	2.8	0.1	0.1	720	0.0	0.0	0.1	1.3	3.7	0.1	0.0	720	0.0	0.0	0.0	2.5	0.3	73
Utility Substation	1	stations	0.39	2.64	6.85	3.28	0.48	1,843	0.4	2.6	6.7	1.1	0.4	1761	0.0	0.1	0.2	1.7	7.1	0.0	0.2	1,761	0.0	0.1	0.1	2.5	0.3	81
Internal T-Lines	30	miles	0.43	4.81	6.35	6.58	0.72	2,166	0.4	4.7	6.3	0.4	0.2	1981	0.0	0.1	0.2	3.0	8.1	0.3	0.1	1,981	0.0	0.1	0.1	6.3	0.6	185
2031 Total			**23.50**	**189.21**	**363.89**	**137.90**	**18.57**	**110,030**	22.4	187.0	359.2	34.2	11.6	107,114	1.1	2.2	10.3	125.8	372.0	29.2	7.7	107,114	1.1	2.2	4.7	108.7	10.9	2,916
Solar PV + BESS	2300	mW	22.51	179.86	348.21	125.46	17.10	105,307	21.5	177.8	343.7	32.6	10.9	102,718	1.0	2.0	9.8	119.9	353.4	28.1	7.4	102,718	1.0	2.0	4.5	97.4	9.3	2,589
Gen Ties	26	miles	0.19	2.14	2.83	2.58	0.28	785	0.2	2.1	2.8	0.1	0.1	714	0.0	0.0	0.1	1.3	3.7	0.1	0.0	714	0.0	0.0	0.0	2.5	0.3	70
Utility Substation	1	stations	0.38	2.58	6.60	3.28	0.48	1,806	0.4	2.5	6.5	1.1	0.4	1739	0.0	0.1	0.2	1.7	6.9	0.0	0.2	1,726	0.0	0.1	0.1	2.5	0.3	78
Internal T-Lines	30	miles	0.42	4.63	6.25	6.58	0.72	2,132	0.4	4.5	6.2	0.4	0.2	1954	0.0	0.1	0.2	3.0	8.0	0.3	0.1	1,954	0.0	0.1	0.1	6.3	0.6	178
2032 Total			**22.55**	**181.98**	**353.09**	**137.89**	**18.32**	**108,386**	21.5	179.9	348.7	33.8	11.0	105,575	1.0	2.1	10.1	122.9	364.2	29.2	7.5	105,575	1.0	2.1	4.4	108.7	10.9	2,811
Solar PV + BESS	2300	mW	21.59	173.02	337.82	125.46	16.85	103,725	20.6	171.1	333.6	32.2	10.3	101,227	1.0	1.9	9.6	117.0	345.8	28.0	7.1	101,227	1.0	1.9	4.2	97.4	9.3	2,498
Gen Ties	26	miles	0.19	2.07	2.79	2.58	0.28	777	0.2	2.0	2.8	0.1	0.1	710	0.0	0.0	0.1	1.3	3.7	0.1	0.0	710	0.0	0.0	0.0	2.5	0.3	67
Utility Substation	1	stations	0.37	2.44	6.34	3.28	0.48	1,782	0.3	2.4	6.4	1.1	0.4	1707	0.0	0.0	0.2	1.6	6.7	0.0	0.2	1,707	0.0	0.0	0.1	2.5	0.3	75
Internal T-Lines	30	miles	0.40	4.46	6.14	6.58	0.72	2,102	0.4	4.4	6.1	0.4	0.2	1931	0.0	0.1	0.2	3.0	8.0	0.3	0.1	1,931	0.0	0.1	0.1	6.3	0.6	171
2033 Total			**21.42**	**175.67**	**337.19**	**134.61**	**17.84**	**105,221**	20.5	173.7	333.1	32.3	10.2	102,579	0.9	1.9	9.7	120.5	349.9	28.4	7.2	102,575	0.9	1.9	4.1	106.2	10.6	2,642
Solar PV + BESS	2300	mW	20.85	169.35	328.34	125.46	16.85	102,374	19.9	167.6	324.3	31.9	10.0	99,961	0.9	1.8	9.4	116.7	338.3	28.0	7.1	99,961	0.9	1.8	4.0	97.4	9.3	2,413
Gen Ties	26	miles	0.18	2.00	2.77	2.58	0.28	771	0.2	2.0	2.8	0.1	0.1	706	0.0	0.0	0.1	1.3	3.7	0.1	0.0	706	0.0	0.0	0.0	2.5	0.3	65
Internal T-Lines	1	stations	0.39	4.32	6.07	6.58	0.72	2,075	0.4	4.2	6.0	0.4	0.2	1912	0.0	0.1	0.2	3.0	7.9	0.3	0.1	1,912	0.0	0.1	0.0	6.3	0.6	164
									-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2034 Total			**18.47**	**153.72**	**296.53**	**117.13**	**15.66**	**93,120**	17.7	152.1	293.0	28.9	9.0	90,935	0.8	1.6	8.5	106.9	307.4	25.7	6.5	90,935	0.8	1.6	3.5	91.5	9.1	2,184
Solar PV + BESS	2100	mW	18.29	151.76	293.77	114.54	15.38	92,355	17.5	150.2	290.3	28.8	8.8	90,232	0.8	1.5	8.4	105.4	303.7	25.6	6.5	90,232	0.8	1.5	3.4	88.6	8.4	2,123
Gen Ties	26	miles	0.18	1.96	2.76	2.58	0.28	765	0.2	1.9	2.7	0.1	0.1	703	0.0	0.0	0.1	1.3	3.7	0.1	0.0	703	0.0	0.0	0.0	2.5	0.3	62
2035 Total			**17.92**	**148.45**	**289.64**	**117.12**	**15.65**	**92,073**	17.1	146.9	286.3	28.6	8.7	89,965	0.8	1.5	8.4	104.7	302.2	25.7	6.5	89,965	0.8	1.5	3.3	91.5	9.1	2,108
Solar PV + BESS	2100	mW	17.75	146.55	286.91	114.54	15.38	91,314	17.0	145.1	283.6	28.5	8.6	89,265	0.8	1.5	8.3	103.4	298.5	25.6	6.5	89,265	0.8	1.5	3.3	88.9	8.5	2,049
Gen Ties	26	miles	0.17	1.90	2.72	2.58	0.28	759	0.2	1.9	2.7	0.1	0.1	700	0.0	0.0	0.1	1.3	3.7	0.1	0.0	700	0.0	0.0	0.0	2.5	0.3	59
2036 Total			**17.54**	**145.11**	**283.13**	**116.90**	**15.65**	**91,193**	16.8	143.7	280.0	28.2	8.5	89,159	0.8	1.4	8.4	104.2	297.2	25.6	6.5	89,159	0.8	1.4	3.2	91.5	9.1	2,033
Solar PV + BESS	2100	mW	17.38	143.28	280.45	114.32	15.37	90,439	16.6	141.9	277.3	28.1	8.4	88,462	0.8	1.4	8.3	102.9	293.9	25.6	6.5	88,462	0.8	1.4	3.2	88.9	8.5	1,977
Gen Ties	26	miles	0.17	1.82	2.68	2.58	0.28	754	0.2	1.8	2.7	0.1	0.0	697	0.0	0.0	0.1	1.3	3.7	0.1	0.0	697	0.0	0.0	0.0	2.5	0.3	56
2037 Total			**15.59**	**142.95**	**279.14**	**116.89**	**15.65**	**90,431**	14.9	141.6	276.1	28.0	8.3	88,461	0.7	1.4	6.7	103.7	293.6	25.4	6.5	88,461	0.7	1.4	3.1	91.5	9.1	1,970
Solar PV + BESS	2100	mW	15.43	141.18	276.50	114.31	15.37	89,682	14.7	139.8	273.4	27.9	8.2	87,766	0.7	1.3	6.6	102.4	289.9	25.4	6.5	87,766	0.7	1.3	3.1	88.9	8.5	1,916
Gen Ties	26	miles	0.16	1.78	2.64	2.58	0.28	749	0.2	1.8	2.6	0.1	0.0	695	0.0	0.0	0.1	1.3	3.7	0.1	0.0	695	0.0	0.0	0.0	2.5	0.3	54
2038 Total			**8.24**	**75.73**	**147.48**	**62.46**	**8.33**	**47,726**	7.9	75.0	145.9	14.7	4.4	46,668	0.4	0.7	3.5	54.9	155.5	13.4	3.4	46,668	0.4	0.7	1.6	49.1	4.9	1,058
Solar PV + BESS	1100	mW	8.08	73.95	144.83	59.88	8.05	46,976	7.7	73.2	143.2	14.6	4.3	45,973	0.4	0.7	3.5	53.6	151.9	13.3	3.4	45,973	0.4	0.7	1.6	46.6	4.7	1,004
Gen Ties	26	miles	0.16	1.78	2.64	2.58	0.28	749	0.2	1.8	2.6	0.1	0.0	695	0.0	0.0	0.1	1.3	3.7	0.1	0.0	695	0.0	0.0	0.0	2.5	0.3	54

VCIP - Construction Emissions from Equipment and Vehicle Use

HRA Inputs				***Emissions in tons***							
				Includes 1mi trips (worker, vendor, hauling)							
	Modeled			**Unmitigated**				**Mitigated**			
Construction Year	**mW**	**Acres**	**Miles**	**PM10ex**	**PM2.5ex**	**PM10dust**	**PM2.5dust**	**PM10ex**	**PM2.5ex**	**PM10dust**	**PM2.5dust**
2031 Total											
Solar PV + BESS	**1150**	7500		2.22	2.04	1207.42	120.49	0.31	0.31	1191.06	118.86
Gen Ties		0	**20**	0.06	0.05	7.50	0.75	0.01	0.01	6.17	0.62
Utility Substation		**40**		0.06	0.05	60.88	6.28	0.01	0.01	59.24	5.99
Internal T-Lines		0	**30**	0.11	0.10	28.33	2.83	0.02	0.02	25.68	2.56

2031 Per acre/mi emissions					
Solar PV + BESS	0.0002963	per acre		0.503	1697.54
Internal T-Lines	0.003645	per mile		0.0098	

VCIP Phase 1a - Operational Equipment and Vehicle Use - Sheet 2 of 5

VCIP Phase 1a - 1,150 MW - Operations (~7,500 acres)

[Double these numbers for 2300 MW of PV + BESS.]

Operations - On-Site Vehicle and Equipment Usage

	Estimated Usage (Annual)						
Equipment	**Units**	**Hours/Day/Unit**	**Total Days/Unit/Year**	**Qty**	**Hrs/day**		
All-Terrain Vehicle (ATV)	4	5	220	4	3.0		
Tractor	4	10	220	4	6.0		
Portable Generator	4	10	60	4	1.6		
Portable Water Trailer w/Pump	10	10	120	10	3.3		
Vehicles	**Units**	**Daily Miles/ Unit**	**Total Days/ Unit/Year**	**Trips/day**	**Mi/trip**	**Type**	**% Paved**
Pickup Truck (Routine O&M)	8	20	340	7.45	20	LHDT1	10%
Pickup Truck (Panel Washing)	10	40	120	3.29	40	LHDT2	10%
					280.5479452		

Operations - Off-Site Vehicle Usage

	Estimated Annual			Miles/Round Trip					
Personnel	**Workers**	**Days**	**Round Trips**		**Trips/day**	**Mi/trip**	**Type**	**% Paved**	
Operations - PV	4	365	1,460	95	8	47.5	LDA,LDT,MDV,LHDT1	98%	
Maintenance/Repair	4	180	1,000	95	5	47.5	LHDT1, LHDT2,MHDT	98%	
Veg Management	12	252	3,024	95	17	47.5	LHDT1, LHDT2	98%	
Panel Washing Crew	30	40	800	95	4	47.5	LHDT1, LHDT2	98%	
Operations - BESS	4	365	1,460	95	8	47.5	LHDT1, LHDT2	98%	
Total Annual Round Trips			**7,744**		**42**	**47.5**	**worker**	98%	2,015.56
					34	**47.5**	**vendor (LHDT2)**	98%	1,635.56
					10.74	**26.1**	**onsite vendor (LHDT2)**	10%	280.55

HRA segme	9.62	worker
	7.80	vendor (LHDT2)

VCIP - Operational Emissions from Equipment and Vehicle Use

			Model Results								Cumulative Operation						
Construction Year	Modeled **mW**	**Acres**	**ROG**	**NOx**	**CO**	PM10	PM2.5	GHG		Built **mW**	Cumulative **mW**	**ROG**	**NOx**	**CO**	PM10	PM2.5	**GHG**
2030 Solar + BESS	**1150**	7500	0.15	1.16	1.98	6.48	0.70	445.37		2300	2300	0.30	2.32	3.95	12.95	1.40	890.74
2031 Solar + BESS	**1150**		0.15	1.14	1.95	6.47	0.70	440.81		2300	4600	0.59	4.56	7.79	25.90	2.80	1,763.23
2032 Solar + BESS	**1150**		0.14	1.12	1.93	6.47	0.70	436.35		2300	6900	0.86	6.75	11.56	38.84	4.20	2,618.11
2033 Solar + BESS	**1150**		0.14	1.11	1.91	6.47	0.70	432.10		2300	9200	1.14	8.88	15.27	51.77	5.59	3,456.81
2034 Solar + BESS	**1150**		0.14	1.10	1.89	6.47	0.70	427.98		2300	11500	1.40	10.98	18.92	64.71	6.98	4,279.83
2035 Solar + BESS	**1150**		0.14	1.09	1.88	6.47	0.70	423.98		2100	13600	1.64	12.87	22.21	76.51	8.24	5,014.06
2036 Solar + BESS	**1150**		0.14	1.08	1.87	6.47	0.70	420.29		2100	15700	1.87	14.71	25.47	88.31	9.50	5,737.90
2037 Solar + BESS	**1150**		0.14	1.07	1.86	6.47	0.70	416.95		2100	17800	2.10	16.54	28.71	100.10	10.76	6,453.64
2038 Solar + BESS	**1150**		0.13	1.06	1.85	6.47	0.69	413.83		2100	19900	2.33	18.34	31.94	111.90	12.02	7,161.11
2039 Solar + BESS	**1150**		0.13	1.05	1.84	6.47	0.69	411.09		1100	21000	2.43	19.21	33.56	118.08	12.68	7,506.79
										21000							
2032 HRA (1-mi trips)			0.12	1.06	1.47	**0.03**	0.03								0.0000043		

Ratioed out % paved. 15 mph vehicle speed. 8% material moisture content to simulate dust suppressants.

Year	Megawatts Generated	Annual GHG Emissions in Metric Tons per Year				
		Construction	Operation	VCIP Total	Solar Offset[1]	Emission Offset
2029		**114,009**		114,009	-	
2030	2,300	112,240	445	112,686	1,473,870	1,361,184
2031	4,600	110,030	886	110,916	2,947,740	2,836,824
2032	6,900	108,386	1,323	109,709	4,421,609	4,311,901
2033	9,200	105,221	1,755	106,975	5,895,479	5,788,504
2034	11,500	93,120	2,183	95,302	7,369,349	7,274,047
2035	13,600	92,073	2,607	94,679	8,715,056	8,620,377
2036	15,700	91,193	3,027	94,219	10,060,764	9,966,544
2037	17,800	90,431	3,444	93,875	11,406,471	11,312,596
2038	19,900	47,726	3,858	51,583	12,752,178	12,700,595
2039	21,000		4,269	4,269	13,457,072	13,452,804

Attachment 2: Agricultural Emissions Calculations

FRESNO COUNTY AGRICULTURAL EMISSIONS							
Development of per acre emission factors							
	2025 Annual Average Emissions (Tons/Day)						
Source (CARB classification)	**TOG**	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**Description**
614-TILLING DUST					6.25	0.94	Tilling includes mechanical operations used to prepare the soil, such as discing, shaping, chiseling, and leveling. Emissions vary seasonally and regionally according to the crop mix and the associated land preparation activities
615-HARVEST OPERATIONS - DUST					7.88	1.18	Harvesting operations include crop harvesting and the first post-harvest processing stage (packing houses, nut hullers and processors, cotton gins, dehydrators, feed and grain mills). Emissions vary seasonally and regionally according to the crop mix and the intensity of harvest activities taking place, with the highest emissions occurring during the peak harvest months of summer and fall.
530-PESTICIDES/FERTILIZERS	4.08	4.08					CA DPR database
645-UNPAVED TRAFFIC AREA - AGRICULTURE					1.92	0.11	PM10 emissions from unpaved traffic areas, excluding roads are 2.27 lb PM10/VMT.
646-UNPAVED ROAD TRAVEL DUST- FARM ROADS					2.35	0.23	Vehicular travel over unpaved roads on agricultural lands causing mechanical disturbance of the roadway and vehicle generated air turbulence effects. Emissions based on VMT/acre/year by crop. Fresno Cty = 900,335 mi PM10=
870-FARM EQUIPMENT	1.33	1.14	10.89	5.51	0.33	0.3	OFFROAD2021 Database
Fresno County Havested Acres =	1,073,350	acres					
Total (tpd)	5.41	5.22	10.89	5.51	18.73	2.76	
Annually (tpy)	1974.65	1905.3	3974.85	2011.15	6836.45	1007.4	
Ag Emission in tons per Acre	**0.0018**	**0.0018**	**0.0037**	**0.0019**	**0.0064**	**0.0009**	
VCIP Estimate (54,400 acres) - tpy	100.08	96.57	201.46	101.93	346.49	51.06	
Source: CARB's CEPAM2019v1.04 Emission Projection Data							
	2025 Annual Average Emissions (Tons/Day)						
Source (CARB classification)	**TOG**	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	
614-TILLING DUST					6.25	0.94	
Fresno County Havested Acres =	1,073,350	acres			2281.25		
Rate (tpy/acre)					**0.0021**	**0.0003**	
Fresno County acreage (1,073,350 acres) does not include pasture lands, mushrooms, greenhouse, nursery and flower crops, forest firewood, as well as acreage aggregated statewide as “Sum of Others”.							

VCIP	Tons/year				
Construction	ROG	NOx*	CO	Total PM10	Total PM2.5**
Year					
2029	27.44	200.33	387.61	138.60	19.30
2030	24.39	193.71	374.71	137.93	18.60
2031	23.50	189.21	363.89	137.90	18.57
2032	22.55	181.98	353.09	137.89	18.32
2033	21.42	175.67	337.19	134.61	17.84
2034	18.47	153.72	296.53	117.13	15.66
2035	17.92	148.45	289.64	117.12	15.65
2036	17.54	145.11	283.13	116.90	15.65
2037	15.59	142.95	279.14	116.89	15.65
2038	8.24	75.73	147.48	62.46	8.33
2039					

VCIP	Tons/year				
Operation	ROG	NOx	CO	PM10*	PM2.5*
Year					
2030	0.30	2.32	3.95	12.95	1.40
2031	0.59	4.56	7.79	25.90	2.80
2032	0.86	6.75	11.56	38.84	4.20
2033	1.14	8.88	15.27	51.77	5.59
2034	1.40	10.98	18.92	64.71	6.98
2035	1.64	12.87	22.21	76.51	8.24
2036	1.87	14.71	25.47	88.31	9.50
2037	2.10	16.54	28.71	100.10	10.76
2038	2.33	18.34	31.94	111.90	12.02
2039	2.43	19.21	33.56	118.08	12.68

% built out	Acres	Farmed	Disked
0	15000	6192	9497
12%	15000	12384	18993
23%	15000	18575	28490
35%	15000	24767	37987
47%	15000	30959	47484
58%	13696	36612	56155
69%	12505	41774	64071
79%	11417	46487	71300
88%	10425	50790	77900
96%	5460	53044	81357
100%		53,044	81,357
	128,503		

Displaced Agricultural Activities

2029	10.99	11.60	22.93	59.62	8.85
2030	21.98	23.20	45.86	119.24	17.69
2031	32.97	34.80	68.79	178.86	26.54
2032	43.96	46.41	91.72	238.48	35.39
2033	54.95	58.01	114.65	298.10	44.23
2034	64.99	68.60	135.58	352.54	52.31
2035	74.15	78.27	154.70	402.24	59.69
2036	82.52	87.10	172.15	447.63	66.42
2037	90.16	95.17	188.09	489.06	72.57
2038	94.16	99.39	196.43	510.76	75.79
2039	94.16	99.39	196.43	510.76	75.79

Project - Agricultural, Emissions in Tons/year

Year	ROG	NOx*	CO	Total PM10*,**	Total PM2.5**
2029	16.4	188.7	364.7	79.0	10.5
2030	2.7	172.8	332.8	31.6	2.3
2031	-8.9	159.0	302.9	-15.1	-5.2
2032	-20.6	142.3	272.9	-61.8	-12.9
2033	-32.4	126.5	237.8	-111.7	-20.8
2034	-45.1	96.1	179.9	-170.7	-29.7
2035	-54.6	83.0	157.2	-208.6	-35.8
2036	-63.1	72.7	136.4	-242.4	-41.3
2037	-72.5	64.3	119.8	-272.1	-46.2
2038	-83.6	-5.3	-17.0	-336.4	-55.4
2039	-91.7	-80.2	-162.9	-392.7	-63.1

CALIFORNIA AIR RESOURCES BOARD

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Emissions for User Defined Query

CEPAM2019v1.04 Emission Projection Data by EIC

2025 Annual Average Emissions (Tons/Day)

FRESNO COUNTY
MISCELLANEOUS PROCESSES
620-FARMING OPERATIONS

Download these results (as a comma delimited file).
Start a new query.

EMISSIONS INVENTORY CATEGORY	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
620-614-5400-0000 Methodology 614-TILLING DUST 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	13.76	6.25	0.94	-
620-615-5400-0000 Methodology 615-HARVEST OPERATIONS - DUST 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	17.35	7.88	1.18	-

Emissions for User Defined Query

CEPAM2019v1.04 Emission Projection Data by EIC

2025 Annual Average Emissions (Tons/Day)

FRESNO COUNTY
SOLVENT EVAPORATION
530-PESTICIDES/FERTILIZERS

Download these results (as a comma delimited file).
Start a new query.

EMISSIONS INVENTORY CATEGORY	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
530-530-3225-0000 Methodology 530-AGRICULTURAL PESTICIDES 3225-METHYL BROMIDE 0000-SUB-CATEGORY UNSPECIFIED	0.02	0.02	-	-	-	-	-	-	-
530-530-5702-0000 Methodology 530-AGRICULTURAL PESTICIDES 5702-NON - METHYL BROMIDE PESTICIDES 0000-SUB-CATEGORY UNSPECIFIED	4.02	4.02	-	-	-	-	-	-	-
530-540-5702-0000 Methodology 540-STRUCTURAL PESTICIDES 5702-NON - METHYL BROMIDE PESTICIDES 0000-SUB-CATEGORY UNSPECIFIED	0.04	0.04	-	-	-	-	-	-	-
530-918-5800-0000 918-AGRICULTURAL FERTILIZER 5800-FERTILIZERS (UNSPECIFIED) 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	-	-	-	10.37

Emissions for User Defined Query

645-UNPAVED ROAD DUST

Download these results (as a comma delimited file).
Start a new query.

EMISSIONS INVENTORY CATEGORY	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
645-638-5400-0000 Methodology 638-UNPAVED ROAD TRAVEL DUST- CITY AND COUNTY ROADS 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	1.19	0.71	0.07	-
645-640-5400-0000 Methodology 640-UNPAVED ROAD TRAVEL DUST- U.S. FOREST AND PARK ROADS 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	5.70	3.39	0.34	-
645-644-5400-0000 Methodology 644-UNPAVED ROAD TRAVEL DUST- B.L.M. ROADS 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	0.11	0.07	0.01	-
645-645-5400-0000 Methodology 645-UNPAVED TRAFFIC AREA - AGRICULTURE 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	1.92	1.92	0.11	-
645-646-5400-0000 Methodology 646-UNPAVED ROAD TRAVEL DUST- FARM ROADS 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	3.95	2.35	0.23	-

Emissions for User Defined Query

CEPAM2019v1.04 Emission Projection Data by EIC

2025 Annual Average Emissions (Tons/Day)

FRESNO COUNTY
OTHER MOBILE SOURCES
870-FARM EQUIPMENT

Download these results (as a comma delimited file).
Start a new query.

EMISSIONS INVENTORY CATEGORY	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
870-893-1100-0014 Methodology 893-AGRICULTURAL EQUIPMENT 1100-GASOLINE (UNSPECIFIED) 0014-2-Wheel Tractors-G4-5-Exhaust	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
870-893-1100-0015 Methodology 893-AGRICULTURAL EQUIPMENT 1100-GASOLINE (UNSPECIFIED) 0015-2-Wheel Tractors-G4-5-Evap	0.00	0.00	-	-	-	-	-	-	-
870-893-1100-0024 Methodology 893-AGRICULTURAL EQUIPMENT 1100-GASOLINE (UNSPECIFIED) 0024-2-Wheel Tractors-G4-15-Exhaust	0.01	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00
870-893-1100-0025 Methodology 893-AGRICULTURAL EQUIPMENT 1100-GASOLINE (UNSPECIFIED) 0025-2-Wheel Tractors-G4-15-Evap	0.00	0.00	-	-	-	-	-	-	-

ARB MISCELLANEOUS PROCESS METHODOLOGY SECTION 7.4
Agricultural Land Preparation Operations

(Revised and updated, April 2016)

EMISSION INVENTORY SOURCE CATEGORY
Miscellaneous Processes / Farming Operations

EMISSION INVENTORY CODES (CES CODES) AND DESCRIPTION
620-614-5400-0000 (47332) Agricultural Land Preparation

Method Summary. This category estimates emissions of the airborne soil particulate emissions produced during the preparation of agricultural lands for planting and post-harvest activities. Included in this methodology are mechanical operations used to prepare the soil, such as discing, shaping, chiseling, and leveling. Emissions vary seasonally and regionally according to the crop mix and the associated land preparation activities.

ARB estimates land preparation emissions for each crop by summing the products of associated operation specific emission factors, corresponding acre-passes, and harvested crop acreage. County emissions are estimated by summing the emissions from all associated crops. Emission estimates in this update were developed for the 2016 ozone SIP inventory, Version 1.04. More information on method development is provided at the embedded links below, in the references, and in the Supporting Documentation section of the methodology's webpage at http://www.arb.ca.gov/ei/areasrc/arbmiscprocfarmops.htm.

Activity Data Source. For this update, 2012 harvested acreage from the U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS), compiled from County Agricultural Commissioner reports, was used for all regions (https://www.arb.ca.gov/ei/areasrc/fullpdf/2012acreage.pdf) Acreage not subject to land preparation operations was excluded (pasture lands, mushrooms, greenhouse, nursery and flower crops, forest firewood), as well as acreage aggregated statewide as "Sum of Others". Harvested acreage for counties split among two or more air basins was apportioned based on land surface areas compiled by ARB (ARB, 2009), except for Kern County, which was assigned 98% to the San Joaquin Valley Air Basin (SJV AB) and 2% to the Mojave Desert Air Basin. Information about the operation type, number of operations, and time of year that land preparation operations occur is provided by 20 crop profiles (Crop Calendars), developed in consultation with growers and other agricultural experts to accurately reflect current California growing practices (CARB, April 2003).

Table 1
2012 Agricultural Land Preparation Emissions

Air Basin	County	Air District	2012 Harvested Acres	Annual Acre-Passes	Emissions, tons/year		
					PM10	PM2.5	Total PM
SF	Alameda	BA	10,035.00	7,335.96	12.32	1.85	27.11
SF	Contra Costa	BA	30,709.00	96,166.08	85.68	12.84	188.59
SF	Marin	BA	4,096.00	4,191.16	6.96	1.04	15.32
SF	Napa	BA	44,036.00	44,179.86	33.33	5.00	73.37
SF	San Francisco	BA	0	0	0	0	0
SF	San Mateo	BA	3,141.00	9,412.93	8.48	1.27	18.66
SF	Santa Clara	BA	19,407.00	63,068.73	65.19	9.77	143.50
SF	Solano	BA	50,426.00	83,684.52	103.93	15.58	228.76
SF	Sonoma	BA	23,967.68	22,697.25	21.19	3.18	46.64
SJV	Fresno	SJU	1,073,350.00	2,489,549.20	2,335.78	350.14	5,141.49
SJV	Kern	SJU	772,239.04	916,372.80	1,401.89	210.14	3,085.83
SJV	Kings	SJU	557,583.00	1,723,154.00	1,579.27	236.73	3,476.27
SJV	Madera	SJU	310,420.00	338,231.50	477.18	71.53	1,050.36
SJV	Merced	SJU	562,198.00	1,210,342.54	1,428.21	214.09	3,143.77
SJV	San Joaquin	SJU	690,367.00	1,320,858.52	1,436.03	215.26	3,160.98
SJV	Stanislaus	SJU	538,956.00	898,489.94	1,141.76	171.15	2,513.23
SJV	Tulare	SJU	893,908.00	1,434,574.38	1,590.55	238.42	3,501.10
SS	Imperial	IMP	565,617.00	981,288.60	1,628.80	244.16	3,585.29
SS	Riverside	SC	55,673.10	103,133.12	135.33	20.29	297.89
SV	Butte	BUT	213,910.00	637,396.51	488.00	73.15	1,074.18
SV	Colusa	COL	294,470.00	1,168,394.43	815.63	122.26	1,795.36
SV	Glenn	GLE	242,036.00	753,782.20	591.87	88.72	1,302.81
SV	Placer	PLA	6,168.30	29,332.41	17.75	2.66	39.07
SV	Sacramento	SAC	127,756.00	282,002.12	257.06	38.53	565.84
SV	Shasta	SHA	30,060.00	39,137.47	50.50	7.57	111.15
SV	Solano	YS	82,274.00	136,537.90	169.56	25.42	373.24
SV	Sutter	FR	230,115.00	858,143.44	584.66	87.64	1,286.95
SV	Tehama	TEH	63,510.00	24,759.88	74.96	11.24	165.00
SV	Yolo	YS	412,022.00	1,291,619.40	1,138.15	170.61	2,505.28
SV	Yuba	FR	63,866.00	218,611.54	141.80	21.26	312.13
Statewide Totals			9,389,416	20,576,647	21,828	3,272	48,049

YEAR	AREA	EIC	EICSUM	EICSOU	EICMAT	EICSUB	TOG	ROG	COT	NOX	SOX	PM	PM10	PM2.5
2025	FRESNO COUNTY	870-893-1100-0014	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0014-2-Wl	0	0	0.03	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0015	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0015-2-Wl	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0024	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0024-2-Wl	0.01	0.01	0.16	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0025	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0025-2-Wl	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0034	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0034-2-Wl	0	0	0.01	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0035	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0035-2-Wl	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0264	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0264-Agric	0	0	0.06	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0265	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0265-Agric	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0274	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0274-Agric	0	0	0.11	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0275	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0275-Agric	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0324	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0324-Agric	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-0344	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	0344-Agric	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3904	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3904-Hydr	0	0	0.01	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3905	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3905-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3914	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3914-Hydr	0	0	0.07	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3915	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3915-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3934	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3934-Hydr	0	0	0.06	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3935	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3935-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3964	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3964-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3965	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3965-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3984	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3984-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-3985	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	3985-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5004	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5004-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5005	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5005-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5014	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5014-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5015	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5015-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5034	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5034-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5035	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5035-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5054	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5054-Othe	0.16	0.13	1.44	0.06	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5074	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5074-Othe	0	0	0.09	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-5094	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	5094-Othe	0	0	0.02	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-8434	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	8434-Spra	0	0	0.07	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-8435	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	8435-Spra	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-8444	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	8444-Spra	0	0	0.03	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-8445	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	8445-Spra	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-8454	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	8454-Spra	0.01	0.01	0.23	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-8455	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	8455-Spra	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-9084	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	9084-Tiller	0.08	0.07	3.44	0.04	0	0	0	0
2025	FRESNO COUNTY	870-893-1100-9085	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1100-GASOLINE (UNSPECIFIED)	9085-Tiller	0.05	0.05	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-0300	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0300-Agric	0.01	0.01	0.03	0.02	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-0320	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0320-Agric	0.2	0.17	0.59	0.45	0	0.04	0.04	0.03
2025	FRESNO COUNTY	870-893-1210-0322	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0322-Agric	0.11	0.09	0.42	0.63	0	0.04	0.04	0.04
2025	FRESNO COUNTY	870-893-1210-0335	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0335-Agric	0.17	0.14	1.05	1.05	0	0.08	0.08	0.07
2025	FRESNO COUNTY	870-893-1210-0350	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0350-Agric	0.12	0.1	0.9	0.78	0	0.04	0.04	0.03
2025	FRESNO COUNTY	870-893-1210-0365	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0365-Agric	0.06	0.05	0.28	0.39	0	0.02	0.02	0.02
2025	FRESNO COUNTY	870-893-1210-0375	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0375-AGRI	0.11	0.09	0.64	0.69	0	0.03	0.03	0.03
2025	FRESNO COUNTY	870-893-1210-0750	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	0750-Bale	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-1290	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	1290-Com	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-1315	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	1315-Com	0.01	0.01	0.03	0.05	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-1325	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	1325-COM	0.02	0.02	0.1	0.13	0	0.01	0.01	0.01
2025	FRESNO COUNTY	870-893-1210-3920	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	3920-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-3950	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	3950-Hydr	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4560	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4560-Cons	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4561	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4561-Cons	0	0	0	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4562	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4562-Cons	0	0	0.02	0.02	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4563	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4563-Cons	0.01	0.01	0.07	0.07	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4564	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4564-Cons	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4565	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4565-CON	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4569	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4569-COT	0	0	0	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4572	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4572-Fora	0	0	0.01	0.02	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4573	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4573-Fora	0	0	0.02	0.03	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4574	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4574-FOR	0	0	0.01	0.02	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4575	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4575-Fork	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4576	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4576-Fork	0.01	0.01	0.06	0.08	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4577	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4577-FOR	0.01	0	0.03	0.03	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4578	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4578-Nut I	0.01	0.01	0.02	0.02	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4579	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4579-Nut I	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4580	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4580-Nut I	0.02	0.01	0.09	0.09	0	0.01	0.01	0.01
2025	FRESNO COUNTY	870-893-1210-4581	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4581-Nut I	0.01	0.01	0.05	0.06	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4582	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4582-Nut I	0	0	0.02	0.03	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4585	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4585-Othe	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4586	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4586-Othe	0.01	0.01	0.04	0.05	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4587	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4587-Othe	0.01	0.01	0.05	0.05	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4588	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4588-Othe	0.01	0.01	0.02	0.04	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4589	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4589-OTH	0	0	0.02	0.03	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4590	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4590-Hay	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4592	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4592-Hay	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4593	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4593-Hay	0	0	0	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4594	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4594-HAY	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4597	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4597-Bale	0	0	0.02	0.02	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-4598	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	4598-BALE	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-5020	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	5020-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-5040	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	5040-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-5060	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	5060-Othe	0.01	0.01	0.04	0.03	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-5100	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	5100-Othe	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8460	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8460-Spra	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8480	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8480-Spra	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8482	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8482-Spra	0.03	0.03	0.15	0.19	0	0.01	0.01	0.01
2025	FRESNO COUNTY	870-893-1210-8484	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8484-Spra	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8520	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8520-Spra	0.01	0	0.04	0.04	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8535	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8535-Spra	0	0	0.02	0.03	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8545	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8545-SPRA	0.01	0.01	0.05	0.06	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8666	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8666-Swat	0	0	0	0	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8667	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8667-Swat	0	0	0	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8668	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8668-Swat	0.01	0	0.03	0.03	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8690	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8690-Swat	0	0	0.01	0.01	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-8695	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	8695-SWA	0	0	0.01	0.02	0	0	0	0
2025	FRESNO COUNTY	870-893-1210-9100	870-FARM EQUIPMENT	893-AGRICULTURAL EQUIPMENT	1210-DIESEL (UNSPECIFIED)	9100-Tiller	0	0	0	0	0	0	0	0

Attachment 3: CT-EMFAC2021 Modeling, Traffic Emissions, AERMOD Modeling Summaries, and Health Risk Calculations

Note: Do to the size, AERMOD output files can be provided to lead agency separately upon request.

VCIP Solar, Cantua Creek, CA - Impacts from Construction
AERMOD Risk Modeling Parameters
MEI Receptor

Emissions Years	2031
Receptor Information	
Number of Receptors	578
Receptor Height (in m) =	0 m
Receptor Distances =	Residential Locations
Meteorological Conditions	
SJVAPCD Lemoore Met Data	2018 - 2022
Land Use Classification	rural
Wind Speed =	variable
Wind Direction =	variable

Construction

	TAC Concentrations (µg/m^3)		
Analysis Years	**DPM**	**Exhaust TOG**	**Evaporative TOG**
2031	0.0114	0.00065	0.00019

Operation

	TAC Concentrations (µg/m^3)		
Analysis Years	**DPM**	**Exhaust TOG**	**Evaporative TOG**
2032 - 2100	0.00034	0.00031	0.00006

VCIP Solar, Cantua Creek, CA - Impacts from Construction
AERMOD Risk Modeling Parameters
MEI Receptor

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - MEI Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2031	10	0.0114	0.0007	0.0002	0.155	0.000	0.0000	0.16
1	1	0 - 1	2031	10	0.0114	0.0007	0.0002	1.872	0.001	0.0000	1.87
2	1	1 - 2	2032	10	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
3	1	2 - 3	2033	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
4	1	3 - 4	2034	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
5	1	4 - 5	2035	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
6	1	5 - 6	2036	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
7	1	6 - 7	2037	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
8	1	7 - 8	2038	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
9	1	8 - 9	2039	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
10	1	9 - 10	2040	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
20	1	19-20	2050	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
30	1	29-30	2060	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
40	1	39-40	2070	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
50	1	49-50	2080	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
60	1	59-60	2090	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
70	1	69-70	2100	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
Total Increased Cancer Risk								2.03	0.001	0.000	**2.03**

* Third trimester of pregnancy

VCIP Solar, Cantua Creek, CA - Impacts from Operation
AERMOD Risk Modeling Parameters
MEI Receptor

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age --> / Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Cancer Risk by Year -MEI Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2031	10							
1	1	0 - 1	2031	10							
2	1	1 - 2	2032	10	0.0003	0.0003	0.0001	0.056	0.000	0.0000	0.06
3	1	2 - 3	2033	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
4	1	3 - 4	2034	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
5	1	4 - 5	2035	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
6	1	5 - 6	2036	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
7	1	6 - 7	2037	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
8	1	7 - 8	2038	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
9	1	8 - 9	2039	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
10	1	9 - 10	2040	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
11	1	10 - 11	2041	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
12	1	11 - 12	2042	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
13	1	12 - 13	2043	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
14	1	13 - 14	2044	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
15	1	14 - 15	2045	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
16	1	15 - 16	2046	3	0.0003	0.0003	0.0001	0.009	0.000	0.0000	0.01
17	1	16-17	2047	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
18	1	17-18	2048	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
19	1	18-19	2049	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
20	1	19-20	2050	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
21	1	20-21	2051	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
22	1	21-22	2052	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
23	1	22-23	2053	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
24	1	23-24	2054	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
25	1	24-25	2055	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
26	1	25-26	2056	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
27	1	26-27	2057	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
28	1	27-28	2058	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
29	1	28-29	2059	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
30	1	29-30	2060	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
31	1	30-31	2061	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
32	1	31-32	2062	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
33	1	32-33	2063	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
34	1	33-34	2064	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
35	1	34-35	2065	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
36	1	35-36	2066	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
37	1	36-37	2067	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
38	1	37-38	2068	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
39	1	38-39	2069	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
40	1	39-40	2070	1	0.0003	0.0003	0.0001	0.0010	0.0000	0.00000	0.001
41	1	40-41	2071	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
42	1	41-42	2072	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
43	1	42-43	2073	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
44	1	43-44	2074	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
45	1	44-45	2075	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
46	1	45-46	2076	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
47	1	46-47	2077	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
48	1	47-48	2078	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
49	1	48-49	2079	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
50	1	49-50	2080	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
51	1	50-51	2081	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
52	1	51-52	2082	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
53	1	52-53	2083	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
54	1	53-54	2084	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
55	1	54-55	2085	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
56	1	55-56	2086	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
57	1	56-57	2087	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
58	1	57-58	2088	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
59	1	58-59	2089	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
60	1	59-60	2090	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
61	1	60-61	2091	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
62	1	61-62	2092	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
63	1	62-63	2093	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
64	1	63-64	2094	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
65	1	64-65	2095	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
66	1	65-66	2096	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
67	1	66-67	2097	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
68	1	67-68	2098	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
69	1	68-69	2099	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
70	1	69-70	2100	1	0.000	0.000	0.000	0.000	0.0000	0.00000	0.000
Total Increased Cancer Risk								0.20	0.001	0.000	**0.20**

Maximum Chronic Hazard Index
0.00000

* Third trimester of pregnancy

VCIP Solar, Cantua Creek, CA - Impacts from Construction
AERMOD Risk Modeling Parameters
MEI Receptor

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age --> Parameter	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Decommission Cancer Risk by Year - MEI Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Age Sensitivity Factor**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	
0	0.25	-0.25 - 0*	2031	10	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
1	1	0 - 1	2031	10	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
2	1	1 - 2	2032	10	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
3	1	2 - 3	2033	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
4	1	3 - 4	2034	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
5	1	4 - 5	2035	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
6	1	5 - 6	2036	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
7	1	6 - 7	2037	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
8	1	7 - 8	2038	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
9	1	8 - 9	2039	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
10	1	9 - 10	2040	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
11	1	10 - 11	2041	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
12	1	11 - 12	2042	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
13	1	12 - 13	2043	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
14	1	13 - 14	2044	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
15	1	14 - 15	2045	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
16	1	15 - 16	2046	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
17	1	16-17	2047	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
18	1	17-18	2048	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
19	1	18-19	2049	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
20	1	19-20	2050	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
21	1	20-21	2051	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
22	1	21-22	2052	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
23	1	22-23	2053	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
24	1	23-24	2054	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
25	1	24-25	2055	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
26	1	25-26	2056	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
27	1	26-27	2057	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
28	1	27-28	2058	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
29	1	28-29	2059	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
30	1	29-30	2060	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
31	1	30-31	2061	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
32	1	31-32	2062	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
33	1	32-33	2063	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
34	1	33-34	2064	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
35	1	34-35	2065	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
36	1	35-36	2066	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
37	1	36-37	2067	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
38	1	37-38	2068	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
39	1	38-39	2069	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
40	1	39-40	2070	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
41	1	40-41	2071	1	0.0114	0.0007	0.0002	0.033	0.000	0.0000	0.03
42	1	41-42	2072	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
43	1	42-43	2073	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
44	1	43-44	2074	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
45	1	44-45	2075	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
46	1	45-46	2076	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
47	1	46-47	2077	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
48	1	47-48	2078	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
49	1	48-49	2079	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
50	1	49-50	2080	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
51	1	50-51	2081	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
52	1	51-52	2082	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
53	1	52-53	2083	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
54	1	53-54	2084	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
55	1	54-55	2085	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
56	1	55-56	2086	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
57	1	56-57	2087	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
58	1	57-58	2088	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
59	1	58-59	2089	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
60	1	59-60	2090	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
61	1	60-61	2091	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
62	1	61-62	2092	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
63	1	62-63	2093	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
64	1	63-64	2094	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
65	1	64-65	2095	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
66	1	65-66	2096	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
67	1	66-67	2097	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
68	1	67-68	2098	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
69	1	68-69	2099	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
70	1	69-70	2100	1	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
Total Increased Cancer Risk								0.00	0.000	0.000	**0.03**

* Third trimester of pregnancy

VCIP Solar, Cantua Creek, CA - Impacts from Construction & Operation
AERMOD Risk Modeling Parameters
MEI Receptor

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age --> Parameter	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Total Project Cancer Risk by Year - MEI Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Age Sensitivity Factor**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	
0	0.25	-0.25 - 0*	2031	10	0.0114	0.0007	0.0002	0.155	0.000050	0.000001	0.16
1	1	0 - 1	2031	10	0.0114	0.0007	0.0002	1.872	0.000202	0.000003	1.87
2	1	1 - 2	2032	10	0.0003	0.0003	0.0001	0.056	0.00029	0.00000	0.06
3	1	2 - 3	2033	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
4	1	3 - 4	2034	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
5	1	4 - 5	2035	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
6	1	5 - 6	2036	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
7	1	6 - 7	2037	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
8	1	7 - 8	2038	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
9	1	8 - 9	2039	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
10	1	9 - 10	2040	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
11	1	10 - 11	2041	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
12	1	11 - 12	2042	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
13	1	12 - 13	2043	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
14	1	13 - 14	2044	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
15	1	14 - 15	2045	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
16	1	15 - 16	2046	3	0.0003	0.0003	0.0001	0.009	0.00000	0.00000	0.01
17	1	16-17	2047	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
18	1	17-18	2048	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
19	1	18-19	2049	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
20	1	19-20	2050	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
21	1	20-21	2051	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
22	1	21-22	2052	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
23	1	22-23	2053	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
24	1	23-24	2054	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
25	1	24-25	2055	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
26	1	25-26	2056	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
27	1	26-27	2057	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
28	1	27-28	2058	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
29	1	28-29	2059	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
30	1	29-30	2060	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
31	1	30-31	2061	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
32	1	31-32	2062	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
33	1	32-33	2063	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
34	1	33-34	2064	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
35	1	34-35	2065	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
36	1	35-36	2066	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
37	1	36-37	2067	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
38	1	37-38	2068	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
39	1	38-39	2069	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
40	1	39-40	2070	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
41	1	40-41	2071	1	0.0003	0.0003	0.0001	0.001	0.00001	0.00000	0.001
42	1	41-42	2072	1	0.0114	0.0007	0.0002	0.033	0.00001	0.00000	0.033
43	1	42-43	2073	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
44	1	43-44	2074	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
45	1	44-45	2075	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
46	1	45-46	2076	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
47	1	46-47	2077	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
48	1	47-48	2078	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
49	1	48-49	2079	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
50	1	49-50	2080	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
51	1	50-51	2081	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
52	1	51-52	2082	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
53	1	52-53	2083	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
54	1	53-54	2084	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
55	1	54-55	2085	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
56	1	55-56	2086	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
57	1	56-57	2087	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
58	1	57-58	2088	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
59	1	58-59	2089	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
60	1	59-60	2090	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
61	1	60-61	2091	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
62	1	61-62	2092	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
63	1	62-63	2093	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
64	1	63-64	2094	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
65	1	64-65	2095	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
66	1	65-66	2096	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
67	1	66-67	2097	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
68	1	67-68	2098	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
69	1	68-69	2099	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
70	1	69-70	2100	1	0.0000	0.0000	0.0000	0.000	0.00000	0.00000	0.000
Total Increased Cancer Risk								2.26	0.0007	0.00002	**2.26**

* Third trimester of pregnancy

VCIP Solar, Cantua Creek, CA - Project Impacts - Without Mitigation
Maximum DPM Cancer Risk Calculations From Construction and Operation
Impacts at Cantua Elementary School - 1 meter - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SCAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SCAF = School Child Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (7days/SDay) x (SCHR/8 hrs)
SHR = Hours/day of emission source operation
SDay = Number of days per week of source operation
SCHR = School operation hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	Child
Age -->	**0 - <2**	**2 - <16**
Parameter		
ASF =	10	3
DPM CPF =	1.10E+00	1.10E+00
TOG Exhaust CPF	6.28E-03	6.28E-03
TOG Evaporative CPF	3.70E-04	3.70E-04
8-Hr BR* =	1200	520
SCHR =	9	9
SHR =	9	9
SDay =	5	5
A =	1	1
EF =	250	250
AT =	70	70
SCAF =	4.20	4.20

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Preschool Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)	Hazard Index
1	1	5 - 6	2031	0.0064	3	0.45	0.0013
2	1	6 - 7	2032	0.0003	3	0.02	0.0001
3	1	7 - 8	2033	0.0003	3	0.02	0.0001
4	1	8 - 9	2034	0.0003	3	0.02	0.0001
5	1	9 - 10	2035	0.0003	3	0.02	0.0001
Total Increased Cancer Risk						**0.52**	

* Children assumed to be 5 years of age with 5 years of exposure to project emissions

VCIP Solar, Cantua Creek, CA - Impacts from Construction & Operation
AERMOD Risk Modeling Parameters
Cantua Creek Elementary School MEI Receptor

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SCAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
SCAF = School Child Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (7days/SDay) x (SCHR/8 hrs)
SHR = Hours/day of emission source operation
SDay = Number of days per week of source operation
SCHR = School operation hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	Child
Age -->	**0 - <2**	**2 - <16**
Parameter		
ASF =	10	3
DPM CPF =	1.10E+00	1.10E+00
TOG Exhaust CPF	6.28E-03	6.28E-03
TOG Evaporative CPF	3.70E-04	3.70E-04
8-Hr BR* =	1200	520
SCHR =	9	9
SHR =	9	9
SDay =	5	5
A =	1	1
EF =	250	250
AT =	70	70
SCAF =	4.20	4.20

* 95th percentile 8-hr breathing rates for moderate intensity activities

Total Project Cancer Risk by Year - MEI Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)				
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL	Maximum Hazard Index
1	1	5 - 6	2031	3	0.0064	0.0014	0.0004	0.45	0.00	0.00	0.45	0.0013
2	1	6 - 7	2032	3	0.0003	0.0005	0.0001	0.02	0.00	0.00	0.02	0.00005
3	1	7 - 8	2033	3	0.0003	0.0005	0.0001	0.02	0.00	0.00	0.02	
4	1	8 - 9	2034	3	0.0003	0.0005	0.0001	0.02	0.00	0.00	0.02	
5	1	9 - 10	2035	3	0.0003	0.0005	0.0001	0.02	0.00	0.00	0.02	
Total Increased Cancer Risk								0.52	0.0014	0.00002	**0.53**	

* Third trimester of pregnancy

VCIP - Construction Emissions from Equipment and Vehicle Use

HRA Inputs

Emissions in tons

Includes 1mi trips (worker, vendor, hauling)

Construction Year	Modeled mW	Acres	Miles	Unmitigated PM10ex	Unmitigated PM2.5ex	Unmitigated PM10dust	Unmitigated PM2.5dust	Mitigated PM10ex	Mitigated PM2.5ex	Mitigated PM10dust	Mitigated PM2.5dust
2031 Total											
Solar PV + BESS	**1150**	7500		2.22	2.04	1207.42	120.49	0.31	0.31	1191.06	118.86
Gen Ties		0	**20**	0.06	0.05	7.50	0.75	0.01	0.01	6.17	0.62
Utility Substation		**40**		0.06	0.05	60.88	6.28	0.01	0.01	59.24	5.99
Internal T-Lines		0	**30**	0.11	0.10	28.33	2.83	0.02	0.02	25.68	2.56

2031 Per acre/mi emissions		
Solar PV + BESS	0.000296311	per acre
Internal T-Lines	0.003644973	per mile
Operational	0.00000433	per acre

VCIP Solar, Cantua Creek, CA

DPM Emissions and Modeling Emission Rates - Per Area Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	DPM Emission Rate ($g/s/m^2$)
2031	Construction	0.0682	CON_DPM	136.3	0.05825	7.34E-03	7.89E-09
Total		***0.0682***		***136.3***	***0.0582***	***0.0073***	

Construction Hours

hr/day =	9	(8am - 5pm)
days/yr =	260	
hours/year =	2340	

VCIP Solar, Cantua Creek, CA

DPM Emissions and Modeling Emission Rates - Internal Line Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	DPM Emission Rate ($g/s/m^2$)
2031	Construction	0.0098	CON_DPM	19.7	0.00841	1.06E-03	8.00E-08
Total		***0.0098***		***19.7***	***0.0084***	***0.0011***	

Construction Hours

hr/day =	9	(8am - 5pm)
days/yr =	260	
hours/year =	2340	

VCIP Solar, Cantua Creek, CA

DPM Emissions and Modeling Emission Rates - Per Area Operational

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	DPM Emission Rate ($g/s/m^2$)
2031	Construction	0.0010	CON_DPM	2.0	0.00023	2.86E-05	3.08E-11
Total		***0.0010***		***2.0***	***0.0002***	***0.0000***	

Operational Hours

hr/day =	24
days/yr =	365
hours/year =	8760

VCIP Solar, Cantua Creek, CA
Worker Trips - Western Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Line Area Area (sq m)	Line Area Area (sq ft)	Line Area Emission (g/s/m2)	Line Area Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Vertical Dimension (m)
DPM_WE_WOR	Western portion of West Clark Ave	Both	2	3228.5	2.01	13.3	43.7	3.4	35	18	42,988	462,720	5.453E-11	4.021E-11	6.8	3.16
									Total	800						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00005			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and DPM Emissions - DPM_WE_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	2	5.13E-08	17	11.11%	2	5.13E-08
2	0.00%	0	0.00E+00	10	11.11%	2	5.13E-08	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	2	5.13E-08	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	2	5.13E-08	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	2	5.13E-08	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	2	5.13E-08	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	2	5.13E-08	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	2	5.13E-08	24	0.00%	0	0.00E+00
								Total		18	

VCIP Solar, Cantua Creek, CA
Worker Trips - Western Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEXH_WE_WOR	Western portion of West Clark Ave	Both	2	3228.5	2.0	13.3	43.7	1.3	35	18	42,988	462,720	1.55E-09	1.14E-09	2.6	1.21
									Total	18						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.01385			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_WE_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	2	1.54E-05	17	11.11%	2	1.54E-05
2	0.00%	0	0.00E+00	10	11.11%	2	1.54E-05	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	2	1.54E-05	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	2	1.54E-05	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	2	1.54E-05	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	2	1.54E-05	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	2	1.54E-05	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	2	1.54E-05	24	0.00%	0	0.00E+00
								Total		18	

VCIP Solar, Cantua Creek, CA
Worker Trips - Western Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEVAP_WE_WOR	Western portion of West Clark Ave	Both	2	3228.5	2.0	13.3	43.7	1.3	35	800	42,988	462,720	3.25E-10	2.39E-10	2.6	1.21
									Total	800						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	0.98888			
Emissions per Vehicle per Mile (g/VMT)	0.02825			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_WE_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	89	1.40E-03	17	11.11%	89	1.40E-03
2	0.00%	0	0.00E+00	10	11.11%	89	1.40E-03	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	89	1.40E-03	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	89	1.40E-03	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	89	1.40E-03	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	89	1.40E-03	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	89	1.40E-03	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	89	1.40E-03	24	0.00%	0	0.00E+00
								Total		800	

VCIP Solar, Cantua Creek, CA
Worker Trips - Eastern Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Line Area Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Vertical Dimension (m)
DPM_EA_WOR	Eastern portion of West Clark Ave	Both	2	1606.8	1.00	13.3	43.7	3.4	35	18	21,395	230,292	6.301E-11	4.646E-11	6.8	3.16
									Total	1,088						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00050			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and DPM Emissions - DPM_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	2	2.75E-07	17	11.11%	2	2.75E-07
2	0.00%	0	0.00E+00	10	11.11%	2	2.75E-07	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	2	2.75E-07	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	2	2.75E-07	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	2	2.75E-07	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	2	2.75E-07	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	2	2.75E-07	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	2	2.75E-07	24	0.00%	0	0.00E+00
								Total		18	

VCIP Solar, Cantua Creek, CA
Worker Trips - Eastern Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEXH_EA_WOR	Eastern portion of West Clark Ave	Both	2	1606.8	1.0	13.3	43.7	1.3	35	18	21,395	230,292	2.78E-09	2.05E-09	2.6	1.21
									Total	18						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.01473			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	2	8.17E-06	17	11.11%	2	8.17E-06
2	0.00%	0	0.00E+00	10	11.11%	2	8.17E-06	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	2	8.17E-06	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	2	8.17E-06	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	2	8.17E-06	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	2	8.17E-06	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	2	8.17E-06	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	2	8.17E-06	24	0.00%	0	0.00E+00
								Total		18	

VCIP Solar, Cantua Creek, CA
Worker Trips - Eastern Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEVAP_EA_WOR	Eastern portion of West Clark Ave	Both	2	1606.8	1.0	13.3	43.7	1.3	35	18	21,395	230,292	4.89E-10	3.61E-10	2.6	1.21
									Total	18						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	0.91114			
Emissions per Vehicle per Mile (g/VMT)	0.02603			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	2	1.44E-05	17	11.11%	2	1.44E-05
2	0.00%	0	0.00E+00	10	11.11%	2	1.44E-05	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	2	1.44E-05	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	2	1.44E-05	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	2	1.44E-05	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	2	1.44E-05	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	2	1.44E-05	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	2	1.44E-05	24	0.00%	0	0.00E+00
								Total		18	

VCIP Solar, Cantua Creek, CA
Worker Trips - S San Mateo Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Line Area Area (sq m)	Line Area Area (sq ft)	Line Area Emission (g/s/m2)	Line Area Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Vertical Dimension (m)
DPM_SMA	South San Mateo Avenue	Both	2	2414.5	1.50	13.3	43.7	3.4	35	36	32,150	346,055	1.148E-10	8.468E-11	6.8	3.16
									Total	1,888						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00031			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and DPM Emissions - DPM_SMA

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	4	5.12E-07	17	11.11%	4	5.12E-07
2	0.00%	0	0.00E+00	10	11.11%	4	5.12E-07	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	4	5.12E-07	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	4	5.12E-07	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	4	5.12E-07	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	4	5.12E-07	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	4	5.12E-07	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	4	5.12E-07	24	0.00%	0	0.00E+00
								Total		36	

VCIP Solar, Cantua Creek, CA
Worker Trips - S San Mateo Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEXH_EA_WOR	South San Mateo Avenue	Both	2	2414.5	1.5	13.3	43.7	1.3	35	36	32,150	346,055	3.92E-09	2.89E-09	2.6	1.21
									Total	36						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.01436			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	4	2.39E-05	17	11.11%	4	2.39E-05
2	0.00%	0	0.00E+00	10	11.11%	4	2.39E-05	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	4	2.39E-05	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	4	2.39E-05	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	4	2.39E-05	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	4	2.39E-05	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	4	2.39E-05	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	4	2.39E-05	24	0.00%	0	0.00E+00
								Total		36	

VCIP Solar, Cantua Creek, CA
Worker Trips - S San Mateo Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEVAP_EA_WOR	South San Mateo Avenue	Both	2	2414.5	1.5	13.3	43.7	1.3	35	36	32,150	346,055	7.60E-10	5.60E-10	2.6	1.21
									Total	36						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	0.94377			
Emissions per Vehicle per Mile (g/VMT)	0.02696			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	4	4.50E-05	17	11.11%	4	4.50E-05
2	0.00%	0	0.00E+00	10	11.11%	4	4.50E-05	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	4	4.50E-05	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	4	4.50E-05	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	4	4.50E-05	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	4	4.50E-05	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	4	4.50E-05	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	4	4.50E-05	24	0.00%	0	0.00E+00
								Total		36	

VCIP Solar, Cantua Creek, CA
Worker Trips - Western Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Line Area Area (sq m)	Line Area Area (sq ft)	Line Area Emission (g/s/m2)	Line Area Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Vertical Dimension (m)
DPM_WE_WOR	Western portion of West Clark Ave	Both	2	3228.5	2.01	13.3	43.7	3.4	35	800	42,988	462,720	8.013E-11	5.908E-11	6.8	3.16
									Total	800						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00005			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and DPM Emissions - DPM_WE_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	89	2.28E-06	17	11.11%	89	2.28E-06
2	0.00%	0	0.00E+00	10	11.11%	89	2.28E-06	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	89	2.28E-06	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	89	2.28E-06	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	89	2.28E-06	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	89	2.28E-06	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	89	2.28E-06	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	89	2.28E-06	24	0.00%	0	0.00E+00
								Total		800	

VCIP Solar, Cantua Creek, CA
Worker Trips - Western Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEXH_WE_WOR	Western portion of West Clark Ave	Both	2	3228.5	2.0	13.3	43.7	1.3	35	800	42,988	462,720	4.47E-08	3.29E-08	2.6	1.21
									Total	800						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.01385			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_WE_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	89	6.86E-04	17	11.11%	89	6.86E-04
2	0.00%	0	0.00E+00	10	11.11%	89	6.86E-04	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	89	6.86E-04	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	89	6.86E-04	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	89	6.86E-04	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	89	6.86E-04	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	89	6.86E-04	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	89	6.86E-04	24	0.00%	0	0.00E+00
								Total		800	

VCIP Solar, Cantua Creek, CA
Worker Trips - Western Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEVAP_WE_WOR	Western portion of West Clark Ave	Both	2	3228.5	2.0	13.3	43.7	1.3	35	800	42,988	462,720	1.42E-08	1.05E-08	2.6	1.21
									Total	800						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	0.98888			
Emissions per Vehicle per Mile (g/VMT)	0.02825			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_WE_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	89	1.40E-03	17	11.11%	89	1.40E-03
2	0.00%	0	0.00E+00	10	11.11%	89	1.40E-03	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	89	1.40E-03	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	89	1.40E-03	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	89	1.40E-03	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	89	1.40E-03	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	89	1.40E-03	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	89	1.40E-03	24	0.00%	0	0.00E+00
								Total		800	

VCIP Solar, Cantua Creek, CA
Worker Trips - Eastern Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Line Area Area (sq m)	Line Area Area (sq ft)	Line Area Emission (g/s/m2)	Line Area Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Vertical Dimension (m)
DPM_EA_WOR	Eastern portion of West Clark Ave	Both	2	1606.8	1.00	13.3	43.7	3.4	35	1,088	21,395	230,292	1.287E-09	9.487E-10	6.8	3.16
									Total	1,088						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00050			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and DPM Emissions - DPM_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	121	1.66E-05	17	11.11%	121	1.66E-05
2	0.00%	0	0.00E+00	10	11.11%	121	1.66E-05	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	121	1.66E-05	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	121	1.66E-05	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	121	1.66E-05	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	121	1.66E-05	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	121	1.66E-05	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	121	1.66E-05	24	0.00%	0	0.00E+00
								Total		1,088	

VCIP Solar, Cantua Creek, CA
Worker Trips - Eastern Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEXH_EA_WOR	Eastern portion of West Clark Ave	Both	2	1606.8	1.0	13.3	43.7	1.3	35	1,088	21,395	230,292	1.27E-07	9.33E-08	2.6	1.21
									Total	1,088						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.01473			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	121	4.94E-04	17	11.11%	121	4.94E-04
2	0.00%	0	0.00E+00	10	11.11%	121	4.94E-04	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	121	4.94E-04	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	121	4.94E-04	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	121	4.94E-04	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	121	4.94E-04	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	121	4.94E-04	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	121	4.94E-04	24	0.00%	0	0.00E+00
								Total		1,088	

VCIP Solar, Cantua Creek, CA
Worker Trips - Eastern Portion of West Clark Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEVAP_EA_WOR	Eastern portion of West Clark Ave	Both	2	1606.8	1.0	13.3	43.7	1.3	35	1,088	21,395	230,292	2.68E-08	1.98E-08	2.6	1.21
									Total	1,088						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	0.91114			
Emissions per Vehicle per Mile (g/VMT)	0.02603			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EA_WOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	121	8.73E-04	17	11.11%	121	8.73E-04
2	0.00%	0	0.00E+00	10	11.11%	121	8.73E-04	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	121	8.73E-04	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	121	8.73E-04	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	121	8.73E-04	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	121	8.73E-04	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	121	8.73E-04	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	121	8.73E-04	24	0.00%	0	0.00E+00
								Total		1,088	

VCIP Solar, Cantua Creek, CA
Worker Trips - S San Mateo Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Line Area Area (sq m)	Line Area Area (sq ft)	Line Area Emission (g/s/m2)	Line Area Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Vertical Dimension (m)
DPM_SMA	South San Mateo Avenue	Both	2	2414.5	1.50	13.3	43.7	3.4	35	1,888	32,150	346,055	1.059E-09	7.811E-10	6.8	3.16
									Total	1,888						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.00031			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and DPM Emissions - DPM_SMA

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	210	2.68E-05	17	11.11%	210	2.68E-05
2	0.00%	0	0.00E+00	10	11.11%	210	2.68E-05	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	210	2.68E-05	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	210	2.68E-05	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	210	2.68E-05	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	210	2.68E-05	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	210	2.68E-05	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	210	2.68E-05	24	0.00%	0	0.00E+00
								Total		1,888	

VCIP Solar, Cantua Creek, CA
Worker Trips - S San Mateo Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2031

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEXH_SMA	South San Mateo Avenue	Both	2	2414.5	1.5	13.3	43.7	1.3	35	1,888	32,150	346,055	1.45E-07	1.07E-07	2.6	1.21
									Total	1,888						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.01436			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_SMA

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	210	1.26E-03	17	11.11%	210	1.26E-03
2	0.00%	0	0.00E+00	10	11.11%	210	1.26E-03	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	210	1.26E-03	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	210	1.26E-03	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	210	1.26E-03	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	210	1.26E-03	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	210	1.26E-03	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	210	1.26E-03	24	0.00%	0	0.00E+00
								Total		1,888	

VCIP Solar, Cantua Creek, CA
Worker Trips - S San Mateo Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2031**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Vertical height (m)	(Sigma z) Vertical Dimension (m)
TEVAP_SMA	South San Mateo Avenue	Both	2	2414.5	1.5	13.3	43.7	1.3	35	1,888	32,150	346,055	3.74E-08	2.76E-08	2.6	1.21
									Total	1,888						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	0.94377			
Emissions per Vehicle per Mile (g/VMT)	0.02696			

Emisson Factors from CT-EMFAC2021

2031 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_SMA

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.00%	0	0.00E+00	9	11.11%	210	2.36E-03	17	11.11%	210	2.36E-03
2	0.00%	0	0.00E+00	10	11.11%	210	2.36E-03	18	0.00%	0	0.00E+00
3	0.00%	0	0.00E+00	11	11.11%	210	2.36E-03	19	0.00%	0	0.00E+00
4	0.00%	0	0.00E+00	12	11.11%	210	2.36E-03	20	0.00%	0	0.00E+00
5	0.00%	0	0.00E+00	13	11.11%	210	2.36E-03	21	0.00%	0	0.00E+00
6	0.00%	0	0.00E+00	14	11.11%	210	2.36E-03	22	0.00%	0	0.00E+00
7	0.00%	0	0.00E+00	15	11.11%	210	2.36E-03	23	0.00%	0	0.00E+00
8	0.00%	0	0.00E+00	16	11.11%	210	2.36E-03	24	0.00%	0	0.00E+00
								Total		1,888	

Construction Trips

Description	Travel Distance (miles)	Idle Time (min)	Release Height (ft)	(m)	Initial Vertical Dimention (m)	Initial Vertical Dispersion (m)	Average Speed (mph)	Trips per Day	Emissions (g/day)	(grams/hr)	(grams/sec)	(ton/yr)
DPM from W Clark Ave, West Segment	2.00	2	11.15	3.4	6.80	3.16			0.30	0.01	3.44444E-06	0.00006
TOG Ex from W Clark Ave, West Segment	2.00	2	11.15	3.4	6.80	3.16	35	800	165.98	6.92	0.001921056	0.03293
TOG Evap from W Clark Ave, West Segment	2.00	2	4.27	1.3	2.60	1.21			52.74	2.20	0.000610419	0.01046
DPM from W Clark Ave, East Segment	1.00	2	11.15	3.4	6.80	3.16			2.38	0.10	2.75274E-05	0.000472
TOG Ex from W Clark Ave, East Segment	1.00	2	11.15	3.4	6.80	3.16	35	1,088	233.84	9.74	0.002706513	0.05
TOG Evap from W Clark Ave, West Segment	1.00	2	11.15	1.3	2.60	1.21			49.57	2.07	0.000573679	0.01
DPM from S San Mateo Ave	1.50	2	11.15	3.4	6.80	3.16			2.94	0.12	3.40561E-05	0.000584
TOG Ex from S San Mateo Ave	1.50	2	11.15	3.4	6.80	3.16	35	1,888	402.46	16.77	0.004658148	0.079855
TOG Evap from S San Mateo Ave	1.50	2	11.15	1.3	2.60	1.21			103.94	4.33	0.001203014	0.020623

Speed Category	Idle	Travel
Travel Speed (mph)	(g/veh - min)	35
DPM - W Clark Ave West	0.000140	0.000046
DPM - W Clark Ave East	0.000845	0.000496
DPM - S San Mateo Ave	0.000549	0.000307
TOG Exhaust - W Clark Ave West	0.089891	0.013846
TOG Exhaust - W Clark Ave East	0.100098	0.014733
TOG Exhaust - S San Mateo Ave	0.095814	0.014361
TOG Evap - W Clark Ave West	0.016481	0.016481
TOG Evap - W Clark Ave East	0.015186	0.015186
TOG Evap - S San Mateo Ave	0.015729	0.015729

File Name:	W Clark Ave - West.EF
CT-EMFAC2021 Version:	1.0.2.0
Run Date:	########
Area:	Fresno (SJV)
Analysis Year:	2031
Season:	Annual

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Vehicle Category	VMT Fract Diesel VM	Gas VMT Fraction
	Across Cat	Within Cat Within Category
Truck 1	0	0.448 0.461
Truck 2	0	0.913 0.015
Non-Truck	1	0.005 0.92

==========

Road Type:	NA
Silt Loading Factor:	NA
Precipitation Correction:	NA

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mpł	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
TOG	0.089891	0.057664	0.038572	0.027423	0.020714	0.016513	0.013846	0.012185	0.011238	0.010878	0.01102	0.011705	0.013027	0.013991	0.013991
Diesel PM	0.00014	0.000121	0.00009	0.000067	0.000056	0.00005	0.000046	0.000045	0.000046	0.00005	0.000055	0.000062	0.00007	0.000074	0.000074

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Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
TOG	0.988878

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor

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Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mpł	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph

==========

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor

==========END==========

File Name:	W Clark Ave - East.EF
CT-EMFAC2021 Version:	1.0.2.0
Run Date:	########
Area:	Fresno (SJV)
Analysis Year:	2031
Season:	Annual

==========

Vehicle Category	VMT Fract Diesel VM	Gas VMT Fraction
	Across Cat	Within Cat Within Category
Truck 1	0	0.448 0.461
Truck 2	0.081	0.913 0.015
Non-Truck	0.919	0.005 0.92

==========

Road Type:	NA
Silt Loading Factor:	NA
Precipitation Correction:	NA

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
TOG	0.100098	0.063756	0.041214	0.028956	0.021938	0.017557	0.014733	0.012946	0.011908	0.011494	0.011616	0.012367	0.013757	0.014646	0.014647
Diesel PM	0.000845	0.000818	0.000617	0.000499	0.00043	0.000428	0.000496	0.000633	0.000839	0.001114	0.001458	0.001869	0.002344	0.002348	0.002348

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Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
TOG	0.911137

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor

==========

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph

==========

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor

==========END==========

File Name:	S San Mateo Ave.EF
CT-EMFAC2021 Version:	1.0.2.0
Run Date:	########
Area:	Fresno (SJV)
Analysis Year:	2031
Season:	Annual

==========

Vehicle Category	VMT Fract Diesel VM	Gas VMT Fraction
	Across Cat	Within Cat Within Category
Truck 1	0	0.448 0.461
Truck 2	0.047	0.913 0.015
Non-Truck	0.953	0.005 0.92

==========

Road Type:	NA
Silt Loading Factor:	NA
Precipitation Correction:	NA

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mpł	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
TOG	0.095814	0.061199	0.040105	0.028313	0.021424	0.017119	0.014361	0.012627	0.011627	0.011236	0.011366	0.012089	0.01345	0.014371	0.014372
Diesel PM	0.000549	0.000525	0.000396	0.000318	0.000273	0.000269	0.000307	0.000386	0.000506	0.000667	0.000869	0.00111	0.001389	0.001393	0.001393

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Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
TOG	0.943769

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor

==========

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mpł	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph

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Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor

==========END==========

Operational Trips

Description	Travel Distance (miles)	Idle Time (min)	Release Height (ft)	Release Height (m)	Initial Vertical Dimention (m)	Initial Vertical Dispersion (m)	Average Speed (mph)	Trips per Day	Emissions (g/day)	Emissions (grams/hr)	Emissions (grams/sec)	Emissions (ton/yr)
DPM from W Clark Ave, West Segment	2.00	2	11.15	3.4	6.80	3.16			0.20	0.01	2.34417E-06	0.00004
TOG Ex from W Clark Ave, West Segment	2.00	2	11.15	3.4	6.80	3.16	35	18	5.75	0.24	6.65742E-05	0.00114
TOG Evap from W Clark Ave, West Segment	2.00	2	4.27	1.3	2.60	1.21			1.21	0.05	1.39598E-05	0.00024
DPM from W Clark Ave, East Segment	1.00	2	11.15	3.4	6.80	3.16			0.12	0.00	1.34813E-06	2.31E-05
TOG Ex from W Clark Ave, East Segment	1.00	2	11.15	3.4	6.80	3.16	35	18	5.13	0.21	5.93956E-05	0.00
TOG Evap from W Clark Ave, West Segment	1.00	2	11.15	1.3	2.60	1.21			0.90	0.04	1.04699E-05	0.00
DPM from S San Mateo Ave	1.50	2	11.15	3.4	6.80	3.16			0.32	0.01	3.69229E-06	6.33E-05
TOG Ex from S San Mateo Ave	1.50	2	11.15	3.4	6.80	3.16	35	36	10.88	0.45	0.00012597	0.00216
TOG Evap from S San Mateo Ave	1.50	2	11.15	1.3	2.60	1.21			2.11	0.09	2.44297E-05	0.000419

Speed Category	Idle	Travel
Travel Speed (mph)	(g/veh - min)	35
DPM - W Clark Ave West	0.000845	0.004781
DPM - W Clark Ave East	0.000845	0.004781
DPM - S San Mateo Ave	0.000845	0.004781
TOG Exhaust - W Clark Ave West	0.125321	0.034457
TOG Exhaust - W Clark Ave East	0.125321	0.034457
TOG Exhaust - S San Mateo Ave	0.125321	0.034457
TOG Evap - W Clark Ave West	0.016752	0.016752
TOG Evap - W Clark Ave East	0.016752	0.016752
TOG Evap - S San Mateo Ave	0.016752	0.016752

File Name:	Operational Trips.EF
CT-EMFAC2021 Version:	1.0.2.0
Run Date:	########
Area:	Fresno (SJV)
Analysis Year:	2032
Season:	Annual

==========

Vehicle Category	VMT Fract Diesel VM	Gas VMT Fraction
	Across Cat	Within Cat Within Category
Truck 1	0.448	0.433 0.452
Truck 2	0	0.901 0.014
Non-Truck	0.552	0.005 0.916

==========

Road Type:	NA
Silt Loading Factor:	NA
Precipitation Correction:	NA

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mpł	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
TOG	0.125321	0.094119	0.073395	0.059059	0.048608	0.04065	0.034457	0.029626	0.025936	0.02328	0.021615	0.020986	0.02149	0.022191	0.022191
Diesel PM	0.013758	0.011489	0.009615	0.008051	0.006744	0.005661	0.004781	0.004095	0.003595	0.003281	0.003151	0.003154	0.003158	0.00316	0.00316

==========

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
TOG	1.005109

==========

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor

==========

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mpł	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph

==========

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor

==========END==========

APPENDIX C – BIOLOGICAL EVALUATION

Prepared by

Live Oak Associates, Inc.

July 2025

LIVE OAK ASSOCIATES, INC.

VALLEY CLEAN INFASTRUCTURE PLAN
PROGRAMMATIC BIOLOGICAL EVALUATION
FRESNO COUNTY, CALIFORNIA

Prepared by
LIVE OAK ASSOCIATES, INC.

Rick Hopkins, Principal and Senior Conservation Biologist/Ecologist
Katrina Krakow, M.S., Sr. Project Manager and Staff Ecologist
Jeff Gurule, Sr. Project Manager and Staff Ecologist
Robert Shields, Field Manager and Staff Ecologist
Katie White, M.S., Staff Ecologist
Andy Gordus, PhD., Associate Conservation Biologist

Prepared for
Westlands Water District
c/o Bert Verrips, AICP
Environmental Consulting Service
11942 Red Hill Avenue
Santa Ana, CA 92705

July 16, 2025 PN 2863-01

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TABLE OF CONTENTS

1 INTRODUCTION 1
1.1 PROJECT DESCRIPTION 8
1.1.1 Overview of VCIP 8
1.1.2 Plan Area Definition 9
1.1.3 Development Focus Areas 9
1.1.4 Overview of VCIP Components 9
1.1.5 Infrastructure Plan 10
1.1.6 Night Lighting and Surface Treatment 12
1.2 STUDY METHODOLOGY 12

2 EXISTING CONDITIONS 14
2.1 REGIONAL BIOLOGICAL SETTING 14
2.1.1 Climate 14
2.1.2 Regional Waterways 14
2.1.3 Native Habitats and Significant Ecological Areas Within the Vicinity of the Plan Area 15
2.1.4 Avian Movement 18
2.2 PLAN AREA 23
2.3 SOILS 23
2.4 BIOTIC HABITATS/LAND USES 23
2.4.1 Alfalfa 32
2.4.2 Fallow/Idle Croplands 32
2.4.3 Open/Natural Lands 33
2.4.4 Orchard/Vineyard 34
2.4.5 Row and Field Crops 35
2.4.6 Water/Wetlands/Riparian Woodland 35
2.4.7 Ruderal/Developed 37
2.5 WILDLIFE MOVEMENT CORRIDORS 38
2.6 SPECIAL STATUS PLANTS AND ANIMALS 41
2.7 ENDANGERED, THREATENED, OR SPECIAL STATUS ANIMAL SPECIES MERITING FURTHER DISCUSSION 53
2.7.1 Crotch's Bumble Bee (*Bombus crotchii*) 53
2.7.2 Northwestern Pond Turtle (*Actinemys marmorata*) 54
2.7.3 Blunt-Nosed Leopard Lizard (*Gambelia silus*) 55
2.7.4 Swainson's Hawk (*Buteo swainsoni*) 56
2.7.5 Burrowing Owl (*Athene cunicularia*) 58
2.7.6 San Joaquin Antelope Squirrel (*Ammospermophilus nelsoni*) 59
2.7.7 San Joaquin Kit Fox (*Vulpes macrotus mutica*) 61
2.7.8 Jurisdictional Waters 62

3 IMPACTS AND MITIGATIONS 64
3.1 SIGNIFICANCE CRITERIA 64

3.2 RELEVANT GOALS, POLICIES, AND LAWS 65
3.2.1 Threatened and Endangered Species 65
3.2.2 Migratory Birds 66
3.2.3 Birds of Prey 66
3.2.4 Safe Harbor Agreement 66
3.2.5 Jurisdictional Waters and Wetlands 67
3.2.6 Local Policies or Habitat Conservation Plans 69

3.3 PROJECT IMPACTS AND MITIGATION MEASURES 77
3.3.1 Special Status Plants Potentially Occurring in the Plan Area 79
3.3.2 Loss of Habitat for Special Status Animals 81
3.3.3 General Protection of Special-Status Animal Species 83
3.3.4 Impacts to Avian Species 84
3.3.5 Longhorn Fairy Shrimp 91
3.3.6 Crotch's Bumble Bee 93
3.3.7 Western Spadefoot and Northwestern Pond Turtle 95
3.3.8 Blunt-Nosed Leopard Lizard 98
3.3.9 Impacts to Nesting and Foraging Habitat for Swainson's Hawk 99
3.3.10 Impacts to Burrowing Owls 103
3.3.11 Roosting Bats, Including, But Not Limited to Pallid Bat and Western Mastiff Bat 106
3.3.12 Burrowing Mammals Including the San Joaquin Antelope Squirrel, Short-Nosed Kangaroo Rat, and Giant Kangaroo Rat 107
3.3.13 Impacts to American Badgers 108
3.3.14 Impacts to San Joaquin Kit Fox 110
3.3.15 Impacts to Wildlife Movement Corridors 112
3.3.16 Impacts to Jurisdictional Waters, Wetlands, or Riparian Habitats 113
3.3.17 Local Policies or Ordinances Protecting Biological Resources 115
3.3.18 Local Policies or Habitat Conservation Plans 116

4 LITERATURE CITED 119

APPENDIX A: SWAINSON'S HAWK CUMULATIVE ANALYSIS 127

LIST OF FIGURES

Figure 1: Vicinity ..... **Error! Bookmark not defined.**
Figure 2: Area 1 of 7 ..... **Error! Bookmark not defined.**
Figure 2: Area 2 of 7 1
Figure 2: Area 3 of 7 1
Figure 2: Area 4 of 7 2
Figure 2: Area 5 of 7 3
Figure 2: Area 6 of 7 4
Figure 2: Area 7 of 7 6
Figure 3: Page 1 ..... **Error! Bookmark not defined.**
Figure 3: Page 2 ..... **Error! Bookmark not defined.**
Figure 3: Page 3 ..... **Error! Bookmark not defined.**
Figure 3: Page 4 ..... **Error! Bookmark not defined.**
Figure 3: Page 5 ..... **Error! Bookmark not defined.**
Figure 3: Page 6 ..... **Error! Bookmark not defined.**
Figure 3: Page 7 ..... **Error! Bookmark not defined.**
Figure 4: Connectivity ..... **Error! Bookmark not defined.**

LIST OF TABLES

TABLE 1: ACRES OF HABITATS 32

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA 43

TABLE 3. SPECIAL STATUS ANIMAL SPECIES WHICH MAY OCCUR WITHIN THE PLAN AREA BY HABITAT AS DEFINED THIS DOCUMENT AND LOCATION. 78

TABLE 4. SPECIAL STATUS PLANT SPECIES WHICH MAY OCCUR WITHIN THE PLAN AREA BY HABITAT AS DEFINED THIS DOCUMENT AND LOCATION. 79

TABLE 5. LIKELIHOOD OF SPECIAL STATUS ANIMAL SPECIES OCCURRENCE WITHIN THE PLAN AREA. 81

introduction

This report evaluates at a programmatic level, the potential that the Westlands Water District's (District) Valley Clean Infrastructure Plan (VCIP) may affect biological resources within its 535,000-acre Plan Area in Fresno County, of which 136,000 acres are planned for clean energy and related infrastructure projects (Figure 1 & 2).

The repurposing of the approximately 136,000 acres of land for clean energy and infrastructure projects could affect biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA). This report is intended to inform the Biological Resources Section of the Programmatic Environmental Impact Report (PEIR) being prepared for the proposed VCIP.

This report addresses these potential effects to biological resources related to the implementation of the VCIP on approximately 136,000 acres of Development Focus Areas (DFAs) within the approximately 535,000-acre Plan Area comprising the Fresno County portion of the District's service area. The approach was designed not to intensively survey all parcels for biological resources, but instead to map existing land cover of the 535,000-acre Plan Area using the District's 2024 Cropland Data layer; a level of analysis commensurate with the programmatic analysis conducted in the Program EIR on the VCIP. To that end, detailed protocol level or intensive species-specific surveys were not conducted for this effort and instead it relied on a conservative assessment of the likely presence of species, and established a process whereby each individual project developed under the VCIP would conduct a habitat assessment, and depending on the findings of this programmatic land cover mapping effort and subsequent project-specific habitat assessment, would conduct species-specific surveys as determined to be applicable to each project site.

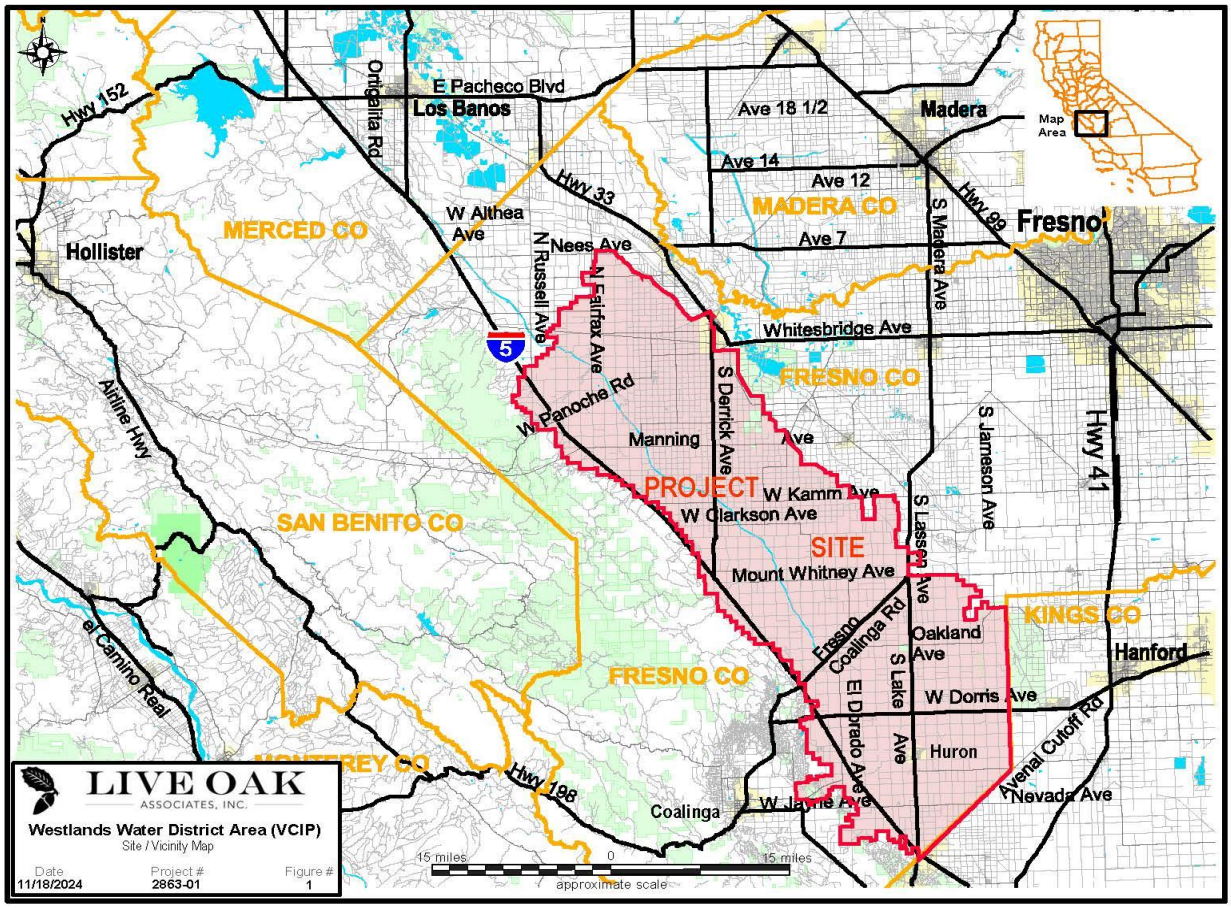
Therefore, the objectives of this report are to:

Summarize plan-level information related to existing biological resources, based on a review of the literature, a search of species databases, and reconnaissance level field surveys conducted by LOA over the entire Plan Area in July 2024;

In addition to species observed to be present within the Plan Area, make reasonable inferences about the other biological resources that could occur in the Plan Area based on habitat suitability and the proximity of the Plan Area to a species' known range;

- Summarize all state and federal natural resource protection laws that may be relevant to development of the energy and infrastructure projects within the Plan Area;
- Identify and discuss potential plan-level impacts to biological resources and provide a process how each individual project under the VCIP would map existing habitats and based on those findings conduct species specific surveys to establish the presence of sensitive biological resources on each project site; and

Where potentially significant impacts would occur to biological resources, establish mitigation strategies that can be implemented by individual projects to reduce impacts to a less than significant level by avoiding and minimizing impacts.


LIVE OAK
ASSOCIATES, INC.
Westlands Water District Area (VCIP)
Site / Vicinity Map
Date
11/18/2024
Project #
2863-01
Figure #
1
PROJECT
SITE
MERCED CO
SAN BENITO CO
MONTEREY CO
FRESNO CO
MADERA CO
KINGS CO
Los Banos
Hollister
Madera
Fresno
Hanford
Coalinga
Huron
Manning
Oakland Ave
Mount Whitney Ave
W Kamm Ave
W Clarkson Ave
W Jayne Ave
W Dorris Ave
Whitesbridge Ave
Ave 18 1/2
Ave 14
Ave 12
Ave 7
E Pacheco Blvd
W Althea Ave
N Nees Ave
W Panoche Rd
Hwy 152
Hwy 33
Hwy 99
Hwy 41
Hwy 198
Ortigalita Rd
N Russell Ave
N Fairfax Ave
S Derrick Ave
S Madera Ave
S Jameson Ave
S Lassen Ave
S Lake Ave
El Dorado Ave
Fresno Coalinga Rd
Avenal Cutoff Rd
Nevada Ave
Airline Hwy
El Camino Real
Map Area
15 miles
0
15 miles
approximate scale

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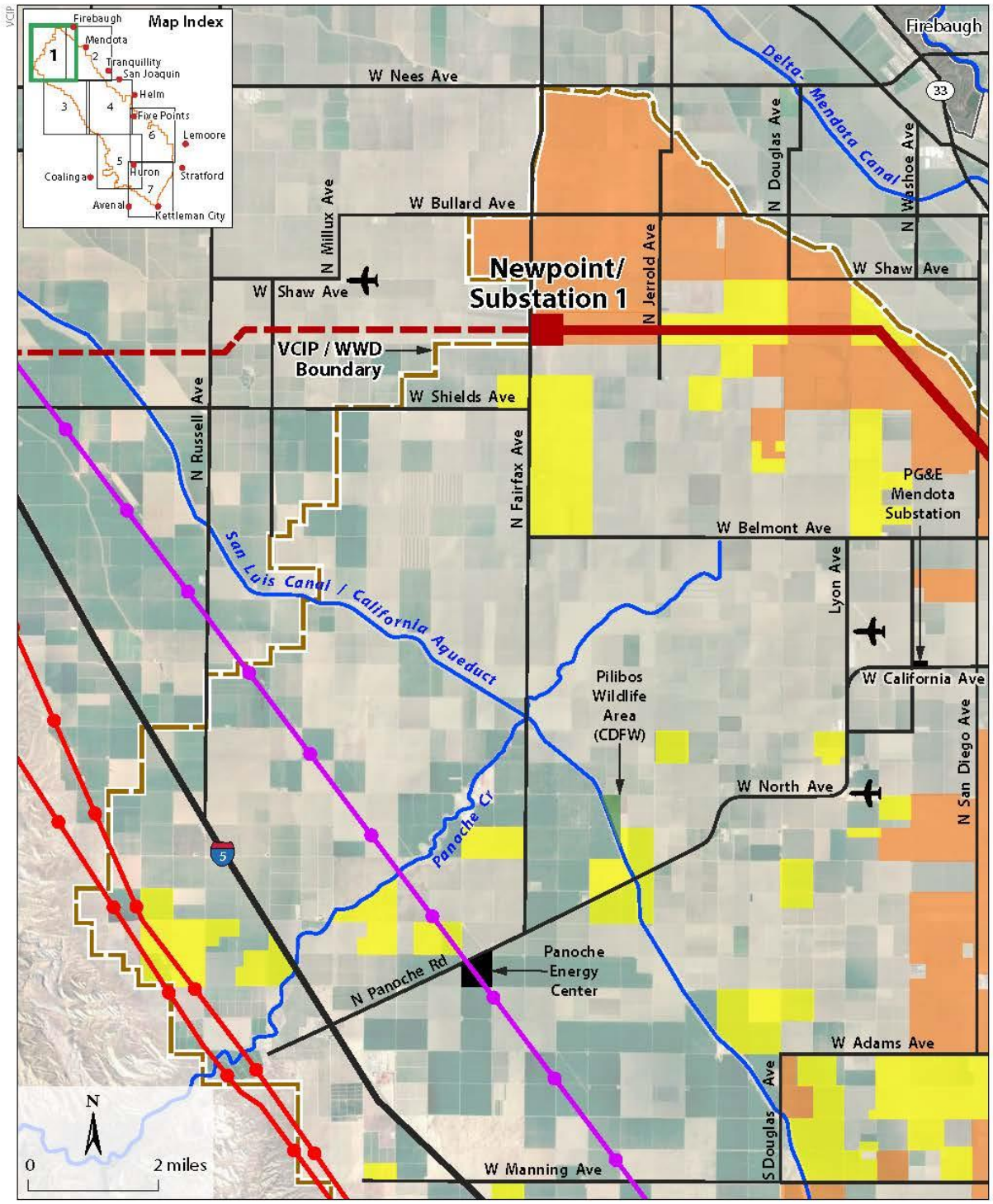
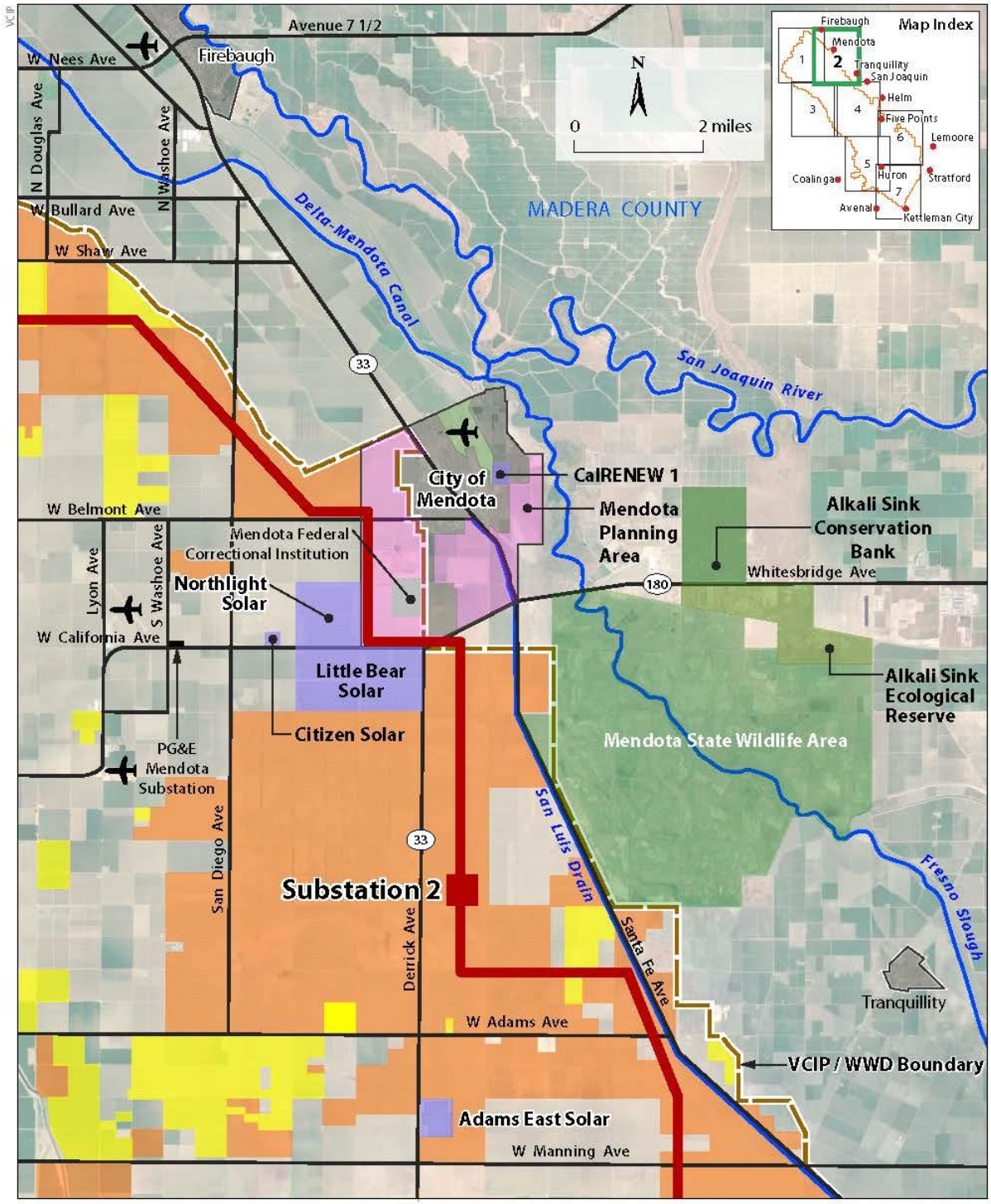
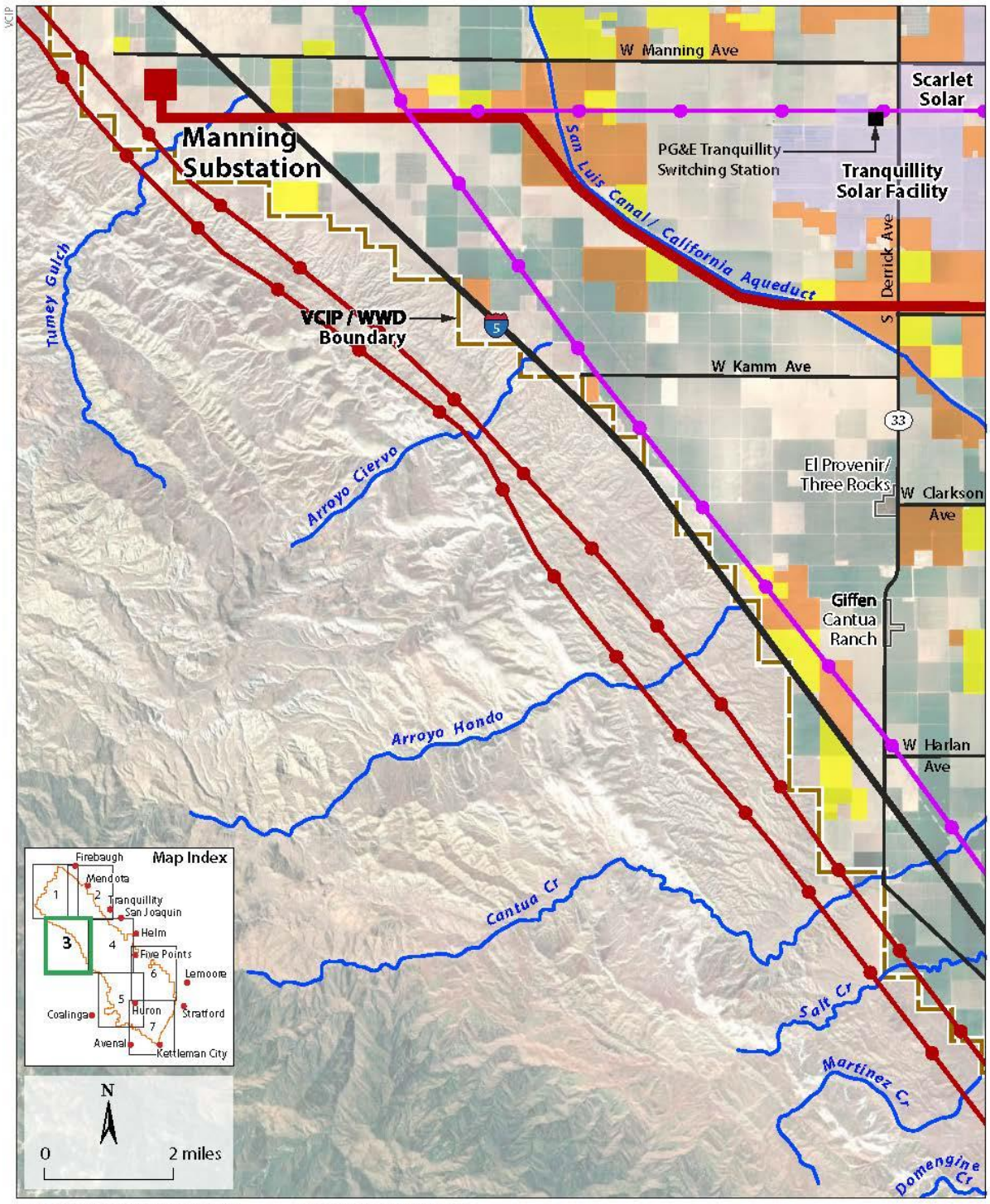


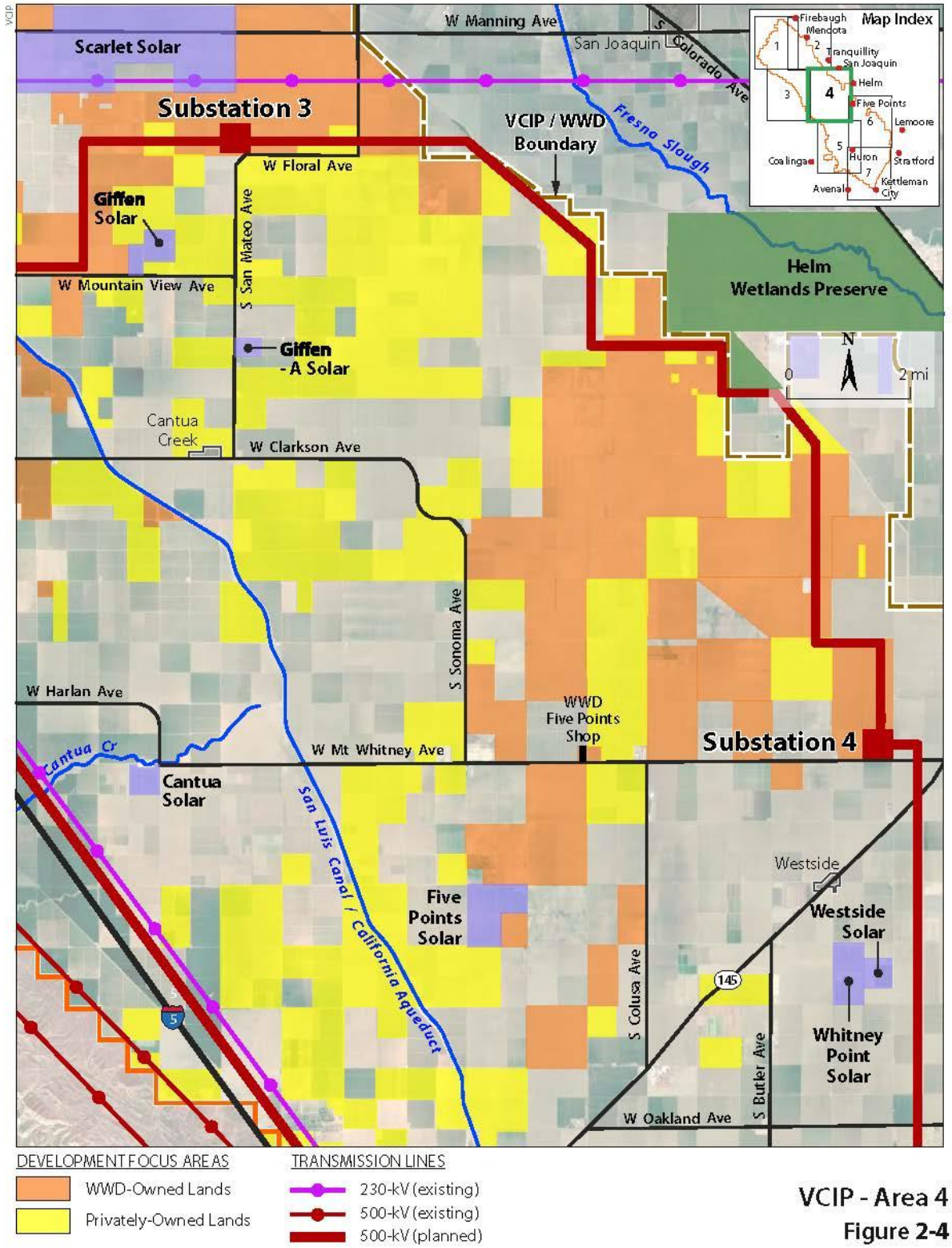
VCIP -Area 1
Figure 2-1



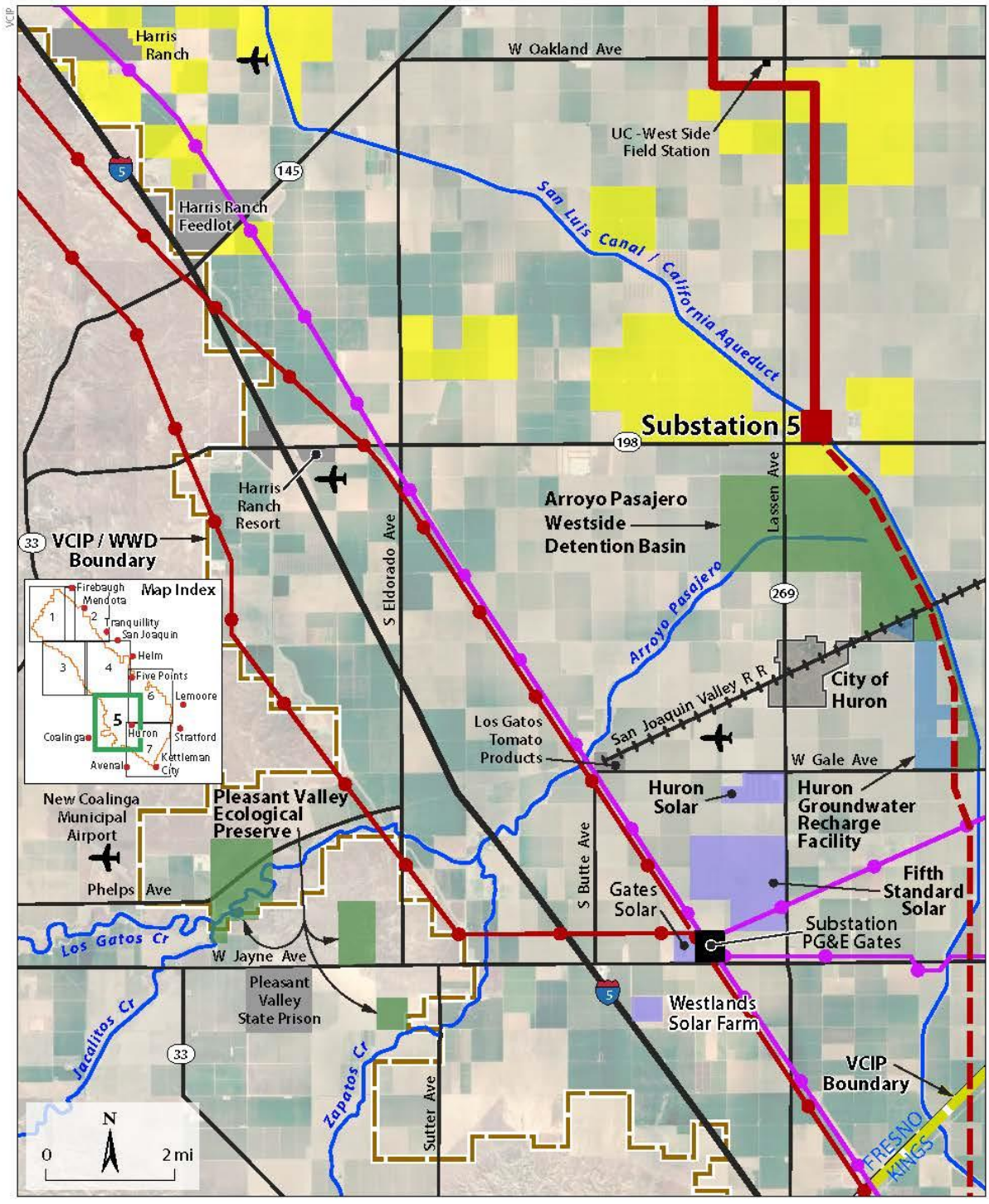
VCIP - Area 2
Figure 2-2



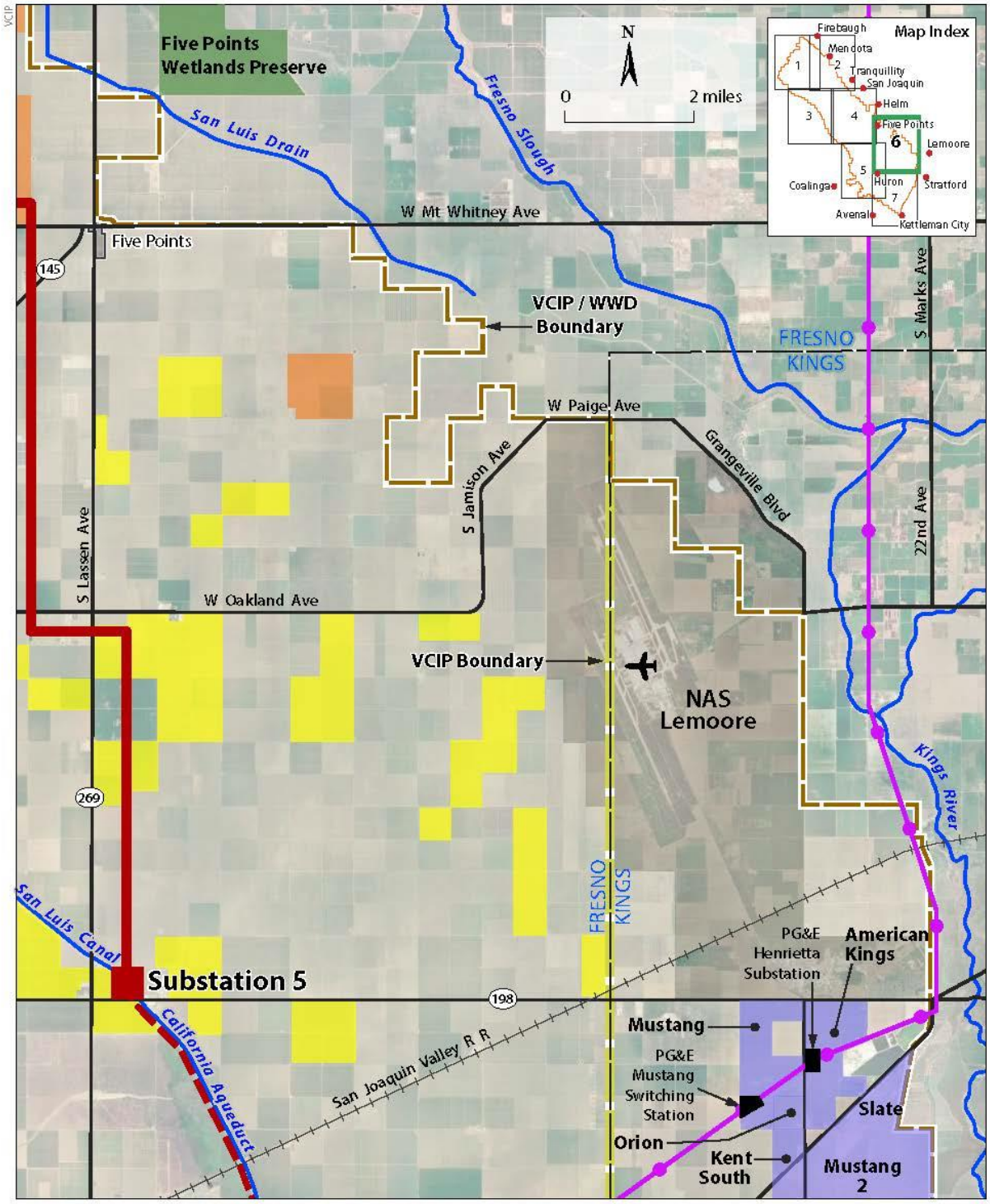
VCIP - Area 3
Figure 2-3



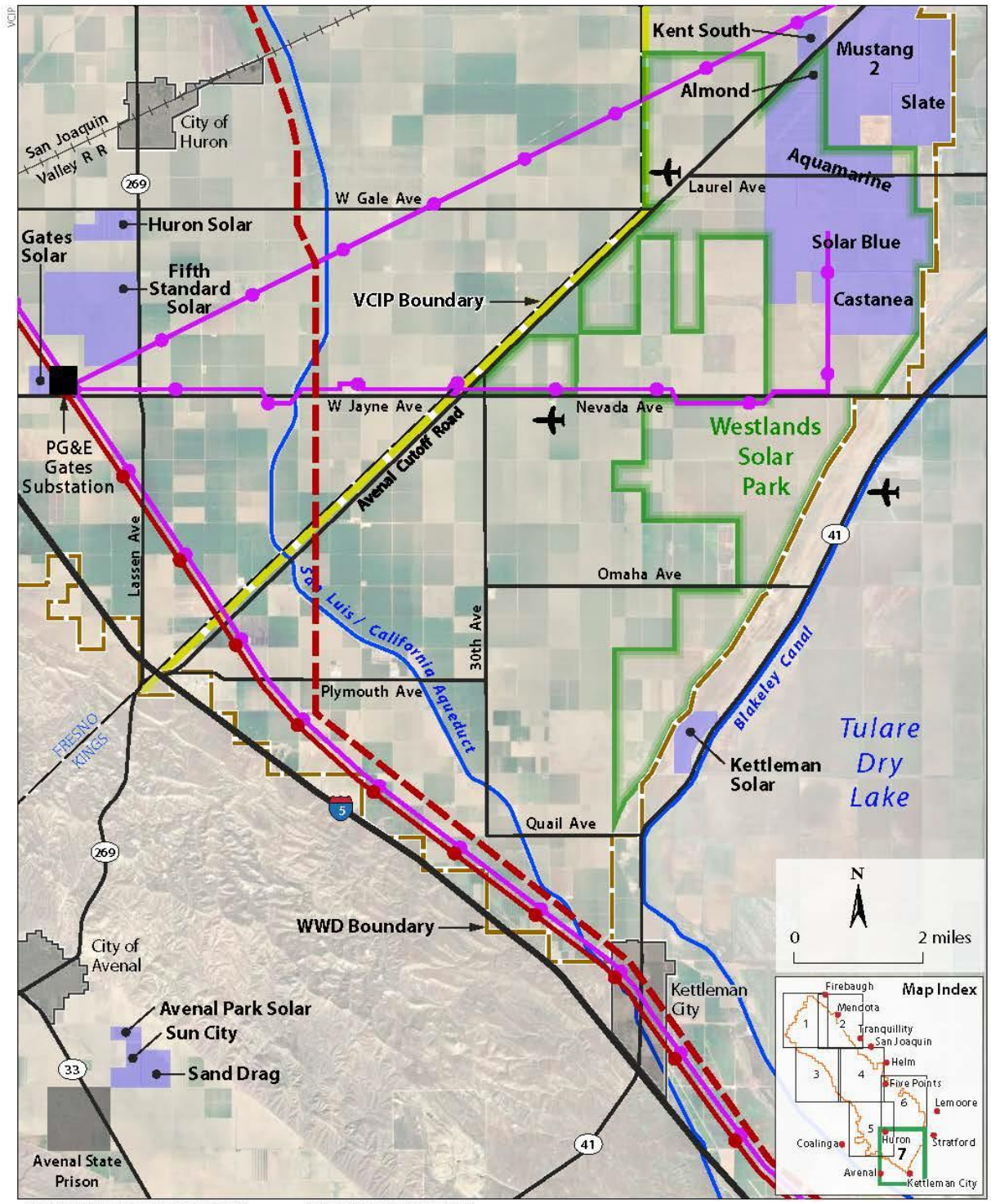
VCIP - Area 4
Figure 2-4



VCIP - Area 5
Figure 2-5



VCIP - Area 6
Figure 2-6



VCIP - Area 7
Figure 2-7

1.1 PROJECT DESCRIPTION

1.1.1 Overview of the VCIP

Consistent with the mission of Westlands Water District (District) to provide timely, reliable, and affordable water service to landowners and water users in western Fresno and Kings Counties, the proposed VCIP is intended to provide an overall plan to guide and facilitate the beneficial repurposing of drainage-impaired and other private and District-owned lands within the District's boundaries, through the development of clean energy generation, storage, transmission, and other ancillary and supportive energy uses.

The VCIP is a master planning tool for the structure and major components of clean energy projects involving potential construction of transmission lines, generation tie lines, substations and related infrastructure for conveyance of clean energy, and the actual generation and storage of renewable energy

The VCIP consists of two main elements:

1. Energy Resource Plan – This element identifies specific areas within the Plan Area (Figure 1) that have been identified for potential renewable energy development, including solar photovoltaic (PV) facilities with integrated energy storage systems (ESS), along with typical supporting facilities such as Operations and Maintenance (O&M) facilities and project substations. Separate ESS facilities located outside of solar projects and dedicated solely to energy storage are also contemplated under the Plan.
2. Infrastructure Plan – This element consists of the transmission facilities and collection substations required for the collection of solar generation within the Plan Area, and for the delivery of renewable energy to electricity markets in California. The energy produced at the solar facilities would be uploaded to generation tie-lines (gen-tie lines) for conveyance to one of five new collection substations to be distributed throughout the Plan Area. The collection substations would provide for interconnection to the state and federal power systems for delivery of the solar generation outside the VCIP.

1.1.2 Plan Area Definition

The Plan Area encompasses the entire Fresno County portion of the District's service area. This area comprises a total of about 535,000 acres within the 614,700-acre overall service area. No lands within the Kings County portion of the District's service area are included in the Plan Area.

1.1.3 Development Focus Areas (DFAs)

Within the defined Plan Area, approximately 136,000 acres have been identified as DFAs. These lands, which are suitable for clean energy development, include the following: 1) approximately 72,000 acres of District-owned land; and 2) approximately 64,000 acres of privately-owned lands for which the landowners have expressed interest in clean energy facilities. The 136,000 gross acres in the DFAs would accommodate the planned generation capacity of up to 21,000 MW under the VCIP.

1.1.4 Overview of VCIP Components

The main components of the VCIP are generally described below. The conceptual plan for clean energy development and transmission infrastructure is shown in Figure 2.

1.1.4.1 Energy Resources Plan

The primary components of the Energy Resource Plan consist of clean energy development in the form of: 1) solar PV generating facilities; and 2) stand-alone energy storage facilities, as described in turn below.

1. Solar PV Generating Facilities

The individual solar PV facilities would range in size from 100 MW (on approximately 640 acres) to about 1,150 MW (on approximately 7,500 acres), with the latter representing the approximate maximum generation that can be accommodated by a double-circuit 230-kV gen-tie line. It is assumed that a typical solar PV facility would have a generating capacity of 250 MW and would occupy about 1,600 acres. It is assumed that each solar facility would include an on-site battery energy storage system (BESS) integrated into the project design with a maximum storage capacity equivalent to the facility's generation capacity. A typical facility could include up to 250 MW of storage, which could consist of lithium-ion batteries, but could include other technologies. Each

solar facility would also include Operations and Maintenance (O&M) facilities, and an on-site 230-kV substation, which would convey the solar generation to a gen-tie line (described subsequently).

2. Energy Storage Facilities

In addition to energy storage systems that would be co-located and integrated with the solar PV facilities, the VCIP also contemplates up to 10,000 MW of stand-alone energy storage facilities (with a total storage capacity of up to 40,000 MW hours) which would operate independently of solar generation facilities, and which would occupy a total combined land area of about 500 acres. These facilities would provide temporary storage for solar power generated at off-site solar facilities and would dispatch the stored power to the electrical grid when needed. It is anticipated that each stand-alone energy storage facility would have up to 1,150 MW of storage with a capacity of 4 hours per MW, or a total capacity of 4,600 MW hours (MWh), although advances in battery technology would likely allow for longer duration of storage per MW. The locations of these stand-alone energy storage facilities have not been determined, but it is anticipated that they would be located near the VCIP collection substations described below in order minimize the length of gen-tie lines. (It is noted that while the VCIP contemplates up to 10,000 MW of energy storage facilities, it is possible that the total overall energy storage capacity of stand-alone facilities that is ultimately installed in the Plan Area may be less but is unlikely to be greater.)

1.1.5 Infrastructure Plan

The primary components of the Infrastructure Plan consist of transmission and interconnection facilities, including: 1) Gen-Tie Lines; 2) Collection Substations; and 3) Connector Transmission Lines within VCIP. These infrastructure facilities are described in turn below.

1. Gen-Tie Lines

Each solar PV generating facility and stand-alone energy storage facility would be served by a 230-kV generation-interconnection tie-line (gen-tie line) which would convey the generated power to one of five 500/230-kV collection substations within the VCIP. The gen-tie lines would branch out from each collection substation in a roughly radial pattern to serve the solar and

energy storage facilities in the vicinity. The precise alignments of the gen-tie lines would depend on the size, location and timing of solar and energy storage projects as they are planned to come on-line. Since the pattern of the gen-tie network that is ultimately constructed can vary widely, the routing of individual gen-tie lines cannot be defined at a plan level under the VCIP. However, the general construction and operational nature of the gen-tie facilities can be characterized in sufficient detail to allow for their meaningful evaluation in the PEIR.

2. Collection Substations

The Infrastructure Plan includes five collection substations which would be distributed from north to south along the backbone transmission corridor running though the eastern portion of the Plan Area (described below). These 500/230-kV substations would serve as collection points for power generated in the surrounding DFAs as received from the gen-tie network and would provide interconnection to the state and federal power systems. It is expected that each collection substation would accommodate approximately 4,000 MW of solar power generated at solar facilities occupying an average of about 26,000 acres. Each collection substation is anticipated to have a footprint of about 60 acres, to be located within larger site of about 160 acres which would provide sufficient buffer area to accommodate the convergence of incoming gen-tie lines from the nearby solar generation and energy storage facilities.

3. Connector Transmission Lines within the VCIP

The five collection substations within the VCIP would be connected by a backbone transmission corridor running through the eastern portion of Plan Area in a generally north-south direction. This corridor would include up to two parallel 500-kV transmission lines which would collect VCIP-generated power and provide interconnection to the state and federal power systems.

In addition, a central transmission corridor is planned to run between the VCIP backbone corridor at Substation No. 3 and would have the new regional Manning Substation planned for the vicinity of W. Manning Avenue and Interstate 5 (I-5). The planned Manning Substation is not included in VCIP as it is a previously planned project intended to add resilience to the larger electrical grid and will be constructed with or without VCIP solar development.

It is anticipated that VCIP connector transmission corridors would include up to two parallel 500-kV transmission lines within 1,000-foot-wide corridors. The two parallel lines would require a combined right-of-way of approximately 450 feet, with the additional width included to provide equipment maneuvering space during construction as well as design flexibility at the engineering stage.

1.1.6 Night Lighting and Surface Treatment

Nighttime lighting during operations and maintenance would be minimal, as the majority of each individual project would be unlit, with only substation control enclosures, battery storage facilities, and O & M facilities requiring nighttime lighting for safety and security. Lighting would be motion sensor-activated to provide safe entry and exit to each of the above facilities and would be manually controlled to create safe working conditions. Motion detection lighting would provide safety lighting at a level sufficient for safe entry and exit facilities, and lighting would be shielded and pointed downward to minimize glare into surrounding habitat. Outdoor lighting codes and National Electric Safety Code (NESC) requirements will be followed.

Construction activities are expected to occur during daylight hours. When nighttime construction is needed, only the work areas being worked on or areas with safety and security concerns would be lit with temporary portable lights and lighting would be shielded so it does not project off-site.

To minimize potential glare, substations, battery storage facilities, and O & M facilities would be painted a non-reflective color and neutral tone, and all other components of these facilities would have a non-reflective finish to the extent these components are commercially available. During construction, there is the potential for a slight increase in glare off work equipment and materials depending on the time of day and position of the viewer, however the glare effect would be minimal.

1.2 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the Plan Area discussed in Section 2.0. Sources of information used

in the preparation of this report included: (1) the *California Natural Diversity Database* (CDFW 2024), (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (California Native Plant Society [CNPS] 2024), and (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley region. The District's 2024 Cropland Data Layer were used to generate maps and analysis for the Plan Area. These data were combined with the United States Department of Agriculture's [USDA] *Land Cover Database* to generate a land cover map that extended 10 miles from the Plan Area. A field survey of the Plan Area was conducted on July 29-31, 2024, by LOA ecologists Natalie Neff and Katie White. This field survey was a driving survey primarily conducted to confirm general habitat conditions on-the-ground as mapped from the District's 2024 land cover data. This reconnaissance survey also identified the principal land uses and the potential for special status plant and animal species as well as sensitive habitats to occur within the Plan Area.

The level of effort undertaken during LOA's desktop mapping and field surveys was sufficient to locate and establish the general extent of special-status species habitat that might be present but was not sufficient to establish the extent of actual use of on-site habitats by special status species that may be present. These efforts were sufficient to provide the basis for assessing significance of potential biological impacts associated with implementation of the proposed VCIP over the 136,000-acre DFAs within the 535,000-acre Plan Area, and to assess the need for more detailed studies at the project-level regarding sensitive biotic resources identified in this programmatic assessment.

1.3 REGIONAL BIOLOGICAL SETTING

1.3.1 Climate

Like most of California, the Plan Area, located within the Central San Joaquin Valley, experiences a temperate climate. Warm dry summers are followed by relatively cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely rise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Average annual precipitation within the Plan Area is approximately 7.5 inches, almost 85 percent of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

1.3.2 Regional Waterways

The Fresno County (County) area of the San Joaquin Valley receives water from the San Joaquin River, Kings River, Delta-Mendota Canal, Fresno Slough, San Luis Canal/California Aqueduct, ephemeral creeks, and groundwater. The principal drainages of the region are the San Joaquin and Kings Rivers; the San Joaquin River is located approximately a mile and half to the east of the Plan Area at its closest point and runs roughly parallel with the northern portion of the eastern edge of the Plan Area (between 1.5 and 5 miles from the Plan Area boundary). The Delta-Mendota Canal parallels the San Joaquin River and the northeastern boundary of the Plan Area (between just over a mile to just under 3 miles to the east of the Plan Area). Just north of Mendota is the confluence of the San Joaquin River, Delta-Mendota Canal, and Fresno Slough, which runs parallel with the middle portion of the Plan Area's eastern boundary (between less than a mile and 5 miles) and confluences with the Kings River at its southeastern end. The Kings River is located three miles from the Plan Area's eastern boundary at its closest point, and it parallels the southeastern Plan Area boundary (between 6 and 15 miles). The Delta-Mendota Canal is completely channelized, and the Fresno Slough is primarily channelized but has some natural habitats. The San Joaquin and Kings Rivers historically contained large areas of riparian, wetland, and aquatic ecosystems which supported large populations of diverse native plants and animals. Presently, these rivers support only a fraction of the riparian habitat they once

supported and the aquatic habitat has been greatly degraded from agricultural runoff and irregular flows, particularly in the case of Kings River. These waterways work as a series of distributary channels supplying water to farmland in the region. The San Luis Canal/California Aqueduct and groundwater provides water to the region as well.

1.3.3 Native Habitats and Significant Ecological Areas Within the Vicinity of the Plan Area

Native upland biotic habitats of the San Joaquin Valley once consisted of grassland and shrubland, nearly all of which have been converted to farmland or urban use within the last 80 years or more. Native plant and animal species once abundant in the valley have become locally extirpated or have experienced large reductions in their populations. The remaining native habitat in the region is particularly valuable to native wildlife species including special status species that persist in the region. The lands surrounding the Plan Area generally consists of agricultural land, with natural habitats mainly occurring in the foothills west of I-5I-5.

Major ecological areas near the District include the San Luis Reservoir with the adjacent Cottonwood Creek Wildlife Area (WA), O'Neill Forebay with the adjacent O'Neil Forebay WA, Pacheco State Park, San Luis Reservoir State Recreation Area (SRA), Los Banos Reservoir, the Grasslands Ecological Area (EA), the Mendota Pool, Fresno Slough, the San Joaquin River, Mendota WA, Alkali Sink Ecological Reserve (ER), Kerman ER, the historic Tulare Lakebed, Kern National Wildlife Refuge (WRA) with surrounding duck clubs in Tulare and Kern Counties.

The San Luis Reservoir is 12,500 surface acres and the adjoining O'Neil Forebay is 2,250 acres. The 700-acre O'Neill Forebay WA is along the northeast edge of the forebay. The 6,300-acre Cottonwood Creek WA is along the northwest and northeast edge of the reservoir. Cottonwood WA has terrestrial habitat with ephemeral streams and a few small ponds. The O'Neil Forebay WA has riparian habitat with four small ponds for wintering waterbirds. The reservoir and wildlife areas are approximately 30 to 40 miles northwest of the Plan Area.

Pacheco State Park (6,890 acres) is along the west and southwest edge of San Luis Reservoir. The San Luis Reservoir SRA is along the east and southeast edge of the reservoir. The south boundaries of these state lands are approximately 30 miles northwest of the Plan Area. San Luis SRA is over 27,000 acres which includes the reservoir. These state lands are terrestrial habitat

with ephemeral streams. Los Banos Reservoir (620 surface acres) is approximately 22 miles northwest of the Plan Area and is part of the state park system. Los Banos Creek flows below the reservoir dam and provides riparian habitat.

The Grasslands EA is comprised of 240,000 acres divided into two districts. The North District is north of State Highway 152 and the South District is south of the highway. The South District southern border is 9 miles northwest of the Plan Area. The Grasslands EA is owned by private duck clubs, the United States (federal refuge system) and the State of California (state wildlife areas). This ecological area is primarily managed wetlands for wintering migratory birds but does include extensive riparian zones along the sloughs and San Joaquin River.

The 12,000-acre Mendota WA is along the Plan Area's northeast boundary south of State Highway 180. The wildlife area includes riparian areas and approximately half of the area is managed wetlands for wintering migratory birds. Within the north central area of Mendota WA are a few private duck clubs. The Alkali Sink ER (930 acres) is along the Mendota WA northeast boundary and the Kerman ER (1,800 acres) is approximately four miles east of Alkali Sink ER along State Highway 180. Both ecological reserves are managed for Threatened and Endangered Species such as the San Joaquin kit fox.

The Fresno Slough originates near the Kings River and flows north almost parallel to the Plan Area's eastern boundary and is approximately 3 to 5 miles from the boundary. Fresno Slough flows through the middle of Mendota WA and terminates at the Mendota Pool Dam which is also the confluent for the San Joaquin River. The Mendota Pool has approximately 1,200 surface acres with surrounding riparian areas. The San Joaquin River originates in the Sierra Nevada east of Fresno, flows to the west and eventually curves to the north in the San Joaquin Valley floor. It meets Fresno Slough at the Mendota Pool Dam and continues to flow through the Grasslands EA north to the Delta. The San Joaquin River below Friant Dam has more flows in recent years because of the Spring-run Chinook salmon restoration program.

The northwest shoreline of the historic Tulare Lakebed is approximately 7 miles southeast of the nearest Plan Area boundary. Tulare Lake was once the largest freshwater lake west of the Mississippi River. Two large flood storage areas, South Wilbur and Hacienda Ranch, which are

along the southern Tulare Lakebed shoreline, are approximately 22 miles southeast of the Plan Area. Adjacent to these flood basins is Tulare Lake Drainage District Agricultural Evaporation Basins, which also attracts waterbirds.

Kern NWR is approximately 32 miles southeast of the Plan Area. Kern NWR is 16,000 acres, of which approximately one-third to one-half is managed wetlands for wintering migratory birds. Within southwestern Tulare County and the areas south of Kern NWR include several small scattered private duck clubs.

The amount of flooded acreage for all the above ecological habitats depends on the particular water year. Low to drought water years provide almost no to very low acreage wetland habitats in the valley. Whereas, in normal, above normal to wet years, extensive areas are flooded throughout the San Joaquin Valley. For example, during 2023, a wet and very snowy year, Tulare Lakebed filled up for the first time in decades (since the 1980s). During these flood years, wetland habitats attract thousands of waterbirds to the valley and in some years provides habitat across all seasons. During normal to above normal water years the Federal and State managed wetlands receive their full allocation of Level 2 water supply from the US Bureau of Reclamation through the Central Valley Project Improvement Act, and can receive additional water if available. . This extra water is usually used for wildlife and spring and summer irrigation of food crops and provides summer water for small, ponded areas. During most years outside of the private and publicly managed wetland areas, increased amounts of wetland habitat become available in the valley during the winter and spring months after rain events. For example, the ecological reserves near Mendota WA will form small shallow pools throughout its area which provide water during the winter and spring for waterbirds.

In summary, major ecological habitats that provide water areas for wildlife range from less than three miles to 40 miles from the Plan Area boundaries. Most of these areas are to the northwest, east and southeast of the Plan Area. For a detailed discussion of waterfowl use of these ecological habitats, see “Avian Movement” subsequently in this section.

1.3.4 Avian Movement

1.3.4.1 Waterfowl Movements within the Vicinity of Plan Area

Pacific Flyway waterfowl migration occurs between the Central Valley California to as far as the most eastern Siberia (Russia) peninsula, Alaska, across the boreal forest of northern Canada's western provinces within the Central Flyway, south through the Prairie Pothole Region of Alberta, Saskatchewan, the Dakotas, Montana, southwesterly through Wyoming, Idaho, Utah, Nevada, and Oregon, to northeast California to the Sacramento Valley (Ely and Takekawa 1996, Miller et. al. 2005). Plus, a direct flight from California to Alaska across the Pacific Ocean also occurs (Miller et. al. 2005). Migratory waterfowl move through the Central Valley from the Sacramento Valley to the Delta Region, to Suisun Marsh, the San Francisco Bay, the Grasslands Region, Mendota Wildlife Area, the Tulare Lakebed and Kern NWR. Large waterbodies bodies of surface water in the region include the San Luis Reservoir, Los Banos Reservoir, and O'Neill Forebay. Apart from the San Joaquin River and the marsh and slough complex in the Mendota Wildlife Area to the northeast, there are no large waterbodies near the Plan Area, although studies have shown that waterfowl use lands within the Plan Area for foraging. A small portion will continue to southern California and Mexico (Ely and Takekawa 1996, Fleske et. al. 2002, Fleske et al. 2005).

Daily waterfowl movements have been documented primarily between wintering roosting areas to feeding areas. Common habitat use or feeding areas for wintering waterfowl in the Central Valley include but are not limited to: managed wetlands, pasture lands, alfalfa, idle croplands, corn, rice and protected lands (refugia) especially during the waterfowl hunting season (Overton and Casazza 2023). Wintering waterfowl will also use green winter wheat and barley sprout fields to feed.

Wintering female mallards (*Anas platyrchynchos*) daily movements ranged from 1.9 to 9.3 miles (Link et al. 2011). Female northern pintail (*Anas acuta*) mean daily movements ranged from 2.3 to 6.8 miles with a maximum 15.3 miles (Moon 2004). Cox and Alton (1996) documented northern pintail daily evening flights ranging from 5.4 to 15.1 miles. Fleskes (2002/2003) documented northern pintail daily movements within the Grasslands Region. Birds moved between the Northern District and Southern District on a daily basis which is approximately 30

miles long on the north-south corridor. Central Valley gadwall (*Mareca* (*Anas*) *strepera*) daily movements ranged from 2.0 to 2.5 miles, mallard from 3.0 to 3.6 miles, and northern pintail from 3.2 to 6.0 miles (McDuie et al. 2019). Seven species of ducks American wigeon (*Mareca* (*Anas*) *americana*), blue-winged teal (*Spatula* (*Anas*) *discors*), cinnamon teal (*Spatula* (*Anas*) *cyanoptera*), gadwall, mallard, northern pintail, northern shoveler (*Spatula* (Anas) *clypeata* (*spatula*) traveled 10.6 miles within the Suisun Marsh and up to 31.1 miles in the Sacramento Valley (Matchett et al. 2020). As cited by Moon (2004) mallards, green-winged teal (*Anas creca* (*carolinensus*)), and American wigeon mean daily flights were up to 3.1 miles with the longest distance was 9.3 miles. As presented in Table 3 from by Cox and Afton (1996), wintering snow geese mean flight distances were 14.3 miles, wood duck (*Aix sponsa*) 0.8-mile, American black duck (*Anas rubripes*) 3.5 miles, American wigeon 6.2 to 12.4 miles, mallard 4.0 to 24.9 miles, northern pintail 10.8 to 30.3 miles, and the canvasback (*Aythya valisineria*) 14.5 miles. Wintering white-fronted geese (*Anser albifrons*) traveled daily between 11.5 and 43.4 miles in the Central Valley (Ackerman et al. 2010). As cited by Ackerman et al. (2010), Canada geese (*Branta canadensis*) daily traveled up to 3.7 miles, greater snow geese (*Anser caerulescens caerulescens*) up to 7.3 miles and the tule greater white-fronted goose (*Anser albifrons gambeli*) 6.3 miles. Breeding female northern pintail mean home range ranges from 1.6 to 3.4 square miles (Derrickson 1978) and from 5.5 to 1,656 square miles (Moon 2004).

The U.S. Geological Survey (USGS), Dixon, California, has been studying migratory bird telemetry movements in the Central Valley for decades. Although the results for the San Joaquin Valley are preliminary and very limited, the research study does show mallards and greater white-fronted geese using the northeastern edge of the Plan Area, thus it is very likely that waterfowl move further into the Plan Area (unpublished data, pers. comm. Mike Casazza, USGS).

Major ecological habitats that provide water areas for migratory waterfowl range from less than three miles to 40 miles from the Plan Area boundaries. The above documented waterfowl movement distances are within distances between the regional habitat areas and the Plan Area boundaries. In addition, telemetry waterfowl movement studies demonstrate waterfowl use lands within the Plan Area and indicates there is a high probability waterfowl move into other

interior areas, especially areas that have grains, alfalfa and irrigated pastures within the Plan Area.

1.3.4.2 Shorebird Movements within the Vicinity of the Plan Area

Pacific Flyway shorebird migration routes are similar to waterfowl as described above. However, in addition, shorebirds have a major Pacific Ocean coastline migration route from California to Alaska and a larger proportion of shorebirds migrate to wintering grounds in Mexico and South America (O'Reilly and Wingfield 1995, Iverson et al. 1996, Butler et al. 1996, Warnock and Bishop 1998, Warnock et al. 2001, 2004, Page et al. 2014).

Pectoral sandpipers (*Caladris melanotos*) in the Great Plains generally moved within 6.2 miles of their marking site with a maximum distance of 18.6 miles at a migratory stopover area (Farmer and Parent 1997). Wintering dunlins (*C. alpina*) along coastal California shifted 8.7 miles along the coast from their capture location and later in the winter moved 87.0 miles inland into the Central Valley (Warnock et al. 1995). Long-billed dowitchers (*Limnodromus scolopaceus*) mean daily movements were 0.30 to 2.1 miles along the coastal estuary and later had a regional movement of 68.4 miles into the Central Valley including the South Grassland Ecological Area (Takekawa et al. 2002). Dowitchers home range ranged from 0.48 to 13.69 square miles. Regional movements from the coast to the Central Valley were a result of coastal inclement weather. Non-breeding sanderlings (*Calidris alba*) were documented to have a home range distance up to 39.5 miles with a mean distance of 17.3 miles (De Zeeum 1990).

Shorebird habitat preferences include but are not limited to: flooded or irrigated agricultural croplands, rice, short grass pastureland, managed wetlands, ditches, sloughs, streams, farm ponds, reservoirs, sewage ponds and agricultural evaporation basins (Colwell and Dodd 1997, Shuford et al. 1998). It should be noted that since 1998, the number and acreage of agricultural evaporation basins has decreased due to a change in crop patterns and irrigation techniques.

Similar to waterfowl, the USGS has studied shorebird bird telemetry movements in the Central Valley. Although the results are preliminary and very limited, the research study shows American avocet (*Recurvirostra americana*) using the southeastern edge of the District in Kings County.

Most of the avocet locations are on Naval Air Station, Lemoore, wastewater evaporation basin (unpublished data, pers. comm. Mike Casazza, USGS).

Major ecological habitats that provide water areas for migratory shorebirds range from less than three miles to 40 miles between the regional habitat areas and Plan Area boundaries. The above documented shorebird movement distances are within distances from Plan Area boundaries. In addition, telemetry shorebird movement studies demonstrate shorebirds use lands within the Plan Area and indicate that there is a high probability shorebirds move into other interior areas within the Plan Area.

1.3.4.3 Other Migratory and Residential Avian Species in the San Joaquin Valley

DeLuca (2021) estimated the population for 112 migratory landbird species in the Central Valley which included 89 species in the San Joaquin Basin and 91 species in the Tulare Basin. Their study did not include migratory raptors. They estimated 65,229,117 ± 2,713,517 fall migrants and 47,763,101 ± 736,814 spring migrants use the Tulare Basin. Examples of the most abundant species included, but not limited to, were Wilson's warbler (*Cardellina pusilla*), tree swallow (*Tachycineta bicolor*), orange-crowned warblers (*Oreothlypis celata*), Lawrence's goldfinch (*Spinus lawrencei*), marsh wren (*Cistothorus palustris*), and black-throated gray warblers (*Setophaga nigrescens*). The San Joaquin and Mokelumne Rivers provide important habitats for migrant willow flycatchers (*Empidonax traillii*), orange-crowned warblers, yellow warblers (*Setophaga petechia*), and Wilson's warblers (Comier et al. 2013).

Mourning dove (*Zenaida macroura*) is commonly found in open woodlands, grasslands, croplands, deserts croplands, pastures, native grasslands, open chaparral, open hardwood, hardwood-conifer, riparian, and low-elevation conifer habitats (Zeiner et al. 1988-1990). The mourning dove is a resident and migratory bird in California and is very common in the San Joaquin Valley. Doves require a nearby water source and feed on seeds of cereal grains, forbs, and grasses.

The Central Valley supports more than 90 percent of the breeding tricolored blackbird (*Agelaius tricolor*) populations, and more than 99 percent of the global population are found in the state

(Beedy and Hamilton 1997, Shuford and Gardali 2008). Most of the largest colonies are in the San Joaquin Valley. Tricolored blackbirds are listed as State Threatened and are primarily a California resident bird, but a small portion of the population migrates to the Central Valley from northern states. Nesting preference is in cattail (*Typha* sp.) and tule (*Scirpus* sp.) stands. Other minor nesting habitats include willows (*Salix* sp.), Himalayan blackberries (*Rubus discolor*), thistles (*Cirsium* and *Centaurea* spp.), and nettles (*Urtica* sp.). Because of loss of native nesting habitat, tricolored blackbirds have moved into silage, alfalfa, and grain fields for nesting (Beedy and Hamilton 1997). Tricolored blackbird feeding areas include native grasslands, irrigated pastures, dry seasonal pools, seasonal wetlands, riparian scrub habitats, open marsh borders, agriculture fields, such as cereal grains and alfalfa which are continuously mowed, rice fields, feedlots and dairies (Shuford and Gardali 2008). Birds feed within 3.1 miles of their nesting colony but can go as far as 9.3 (Beedy and Hamilton 1997) and 20 miles (Neff 1937).

The Central Valley is a major breeding area for the state-listed migratory Swainson's hawk (*Buteo swainsoni*). Swainson's hawks migrate up and down the Central Valley and winter in South America (Zeiner et al. 1988-1990, Bechard et al. 2020), although there are several individuals which are now year-round residents of the San Joaquin Valley. Swainson's hawks preferred nesting trees include valley oaks (*Quercus lobata*), Fremont's cottonwood (*Populus fremontii*), willows (*Salix* spp.), walnut (*Juglans* spp.), sycamore (*Platanus* sp.), eucalyptus (*Eucalyptus* spp.), redwoods (*Sequoia sempervivens*), conifers, and riparian forest zones (Zeiner et al. 1988-1990, Bloom 1980, Estep and Dinsdale 2012). Concentrated nesting Swainson's hawks have been observed within the vicinity of Mendota Wildlife Area along the Kings River/Fresno Slough riparian corridor (Estep and Dinsdale 2012). Swainson's hawks preferred foraging areas include native grasslands, irrigated pasture, alfalfa and harvested grain fields (Estep 1989, Smallwood 1995, Estep and Dinsdale 2012, Estep 2013). Large flocks of spring migrating Swainson's hawks have been observed in the San Joaquin Valley following moving agricultural discs after the grain has been harvested, as the heavy equipment flushes out insects and rodents for the hawks to feed.

Similar to waterfowl and shorebirds, the USGS has studied long-legged wader bird telemetry movements in the Central Valley. Although the results are preliminary and very limited, the research study does show white-faced ibis (*Plegadis chihi*) using the southeastern edge of the District in Kings County and two points in the northeast corner of the Plan Area. Most of the ibis locations are on Naval Air Station, Lemoore, wastewater evaporation basin (unpublished data, pers. comm. Mike Casazza, USGS). Other long-legged waders in the San Joaquin Valley include the great egret (*Ardea alba*), snowy egret (*Egretta thula*), cattle egret (*Bubulcus ibis*), black-crowned night heron (*Nycticorax nycticorax*), great blue heron (*Ardea herodias*), and green heron (*Butorides virescens*) (Zeiner et al. 1988-1990). Long-legged waders prefer wetlands but will feed in agricultural areas such as irrigated crops (grains, alfalfa, pastures) and irrigation canals. Nesting habitat preferences include dense cattail or tule stands, trees, and wooded riparian zones (Zeiner et al. 1988-1990).

The above-mentioned resident and migratory birds are examples of species that could potentially use lands within the Plan Area. Site environmental reviews of potential VCIP projects would provide a more detailed summary of all potential avian species that could be affected by future specific projects within the Plan Area.

1.4 PLAN AREA

Under the VCIP, the approximately 535,000-acre Plan Area would include solar and infrastructure development within Fresno County. The Plan Area is currently mostly in agricultural production with some natural lands mostly west of I-5.

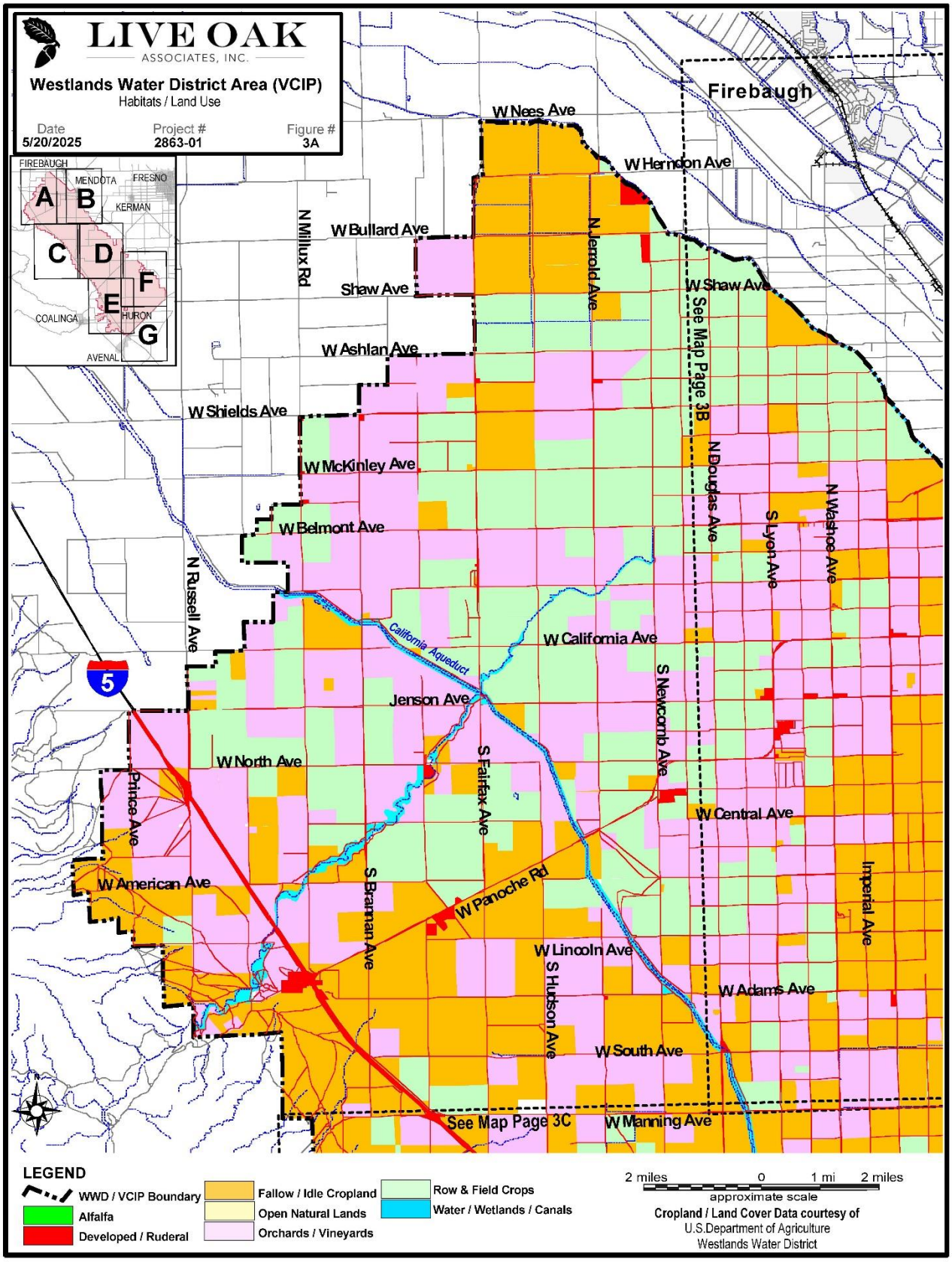
1.5 SOILS

Fifty-four soil types occur in the Plan Area (NRCS Web Soil Survey, 2024). Soils of the Plan Area vary from clay to silty loam to sandy loam. Some of these soils are wet, while others are arid, and some are also alkaline. It is of note some soils within the Plan Area have clay pans which typically support vernal pool habitat. Serpentine soils are absent from the Plan Area.

1.6 BIOTIC HABITATS/LAND USES

Eight biotic habitats and land uses occur in the Plan Area, which are characterized as alfalfa, fallow/idle croplands, open/natural lands, orchards/vineyards, row and field crops,

water/wetlands/riparian woodland, and roads/developed/ruderal (Table 1 and Figures 3a-3g). It should be noted that the Plan Area supports a number solitary trees and small clumps of trees scattered throughout; the tree mapping unit was not of sufficient size of sufficient size map and include as a separate biotic habitat. These habitat types and their constituent plant and animal species are described in more detail below.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Westlands Water District Area (VCIP)
Habitats / Land Use
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Fallow / Idle Cropland
Open Natural Lands
Orchards / Vineyards
Row & Field Crops
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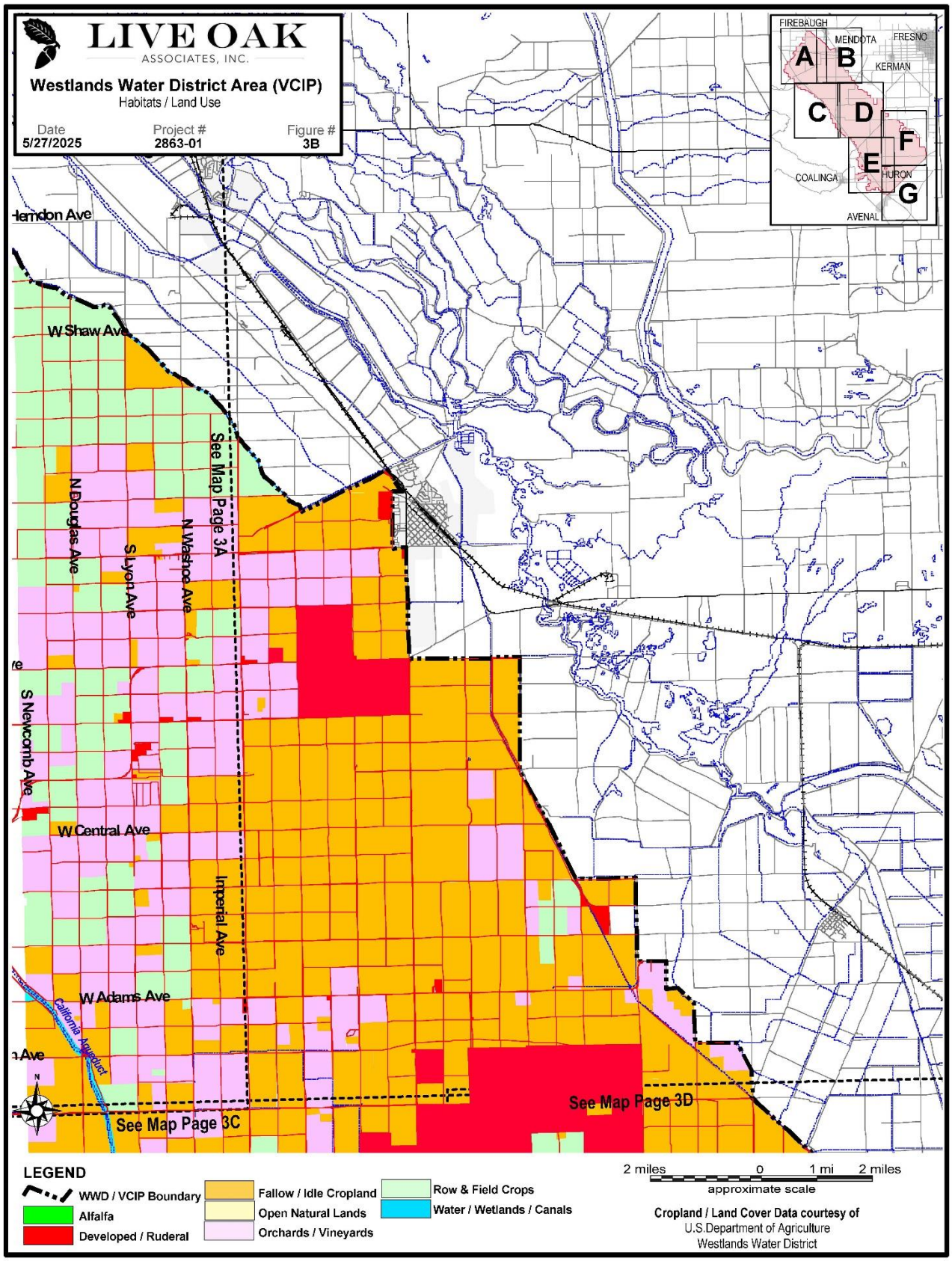
approximate scale
Cropland / Land Cover Data courtesy of
U.S.Department of Agriculture
Westlands Water District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See Map Page 3C
See Map Page 3D
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WWD / VCIP Boundary
Alfalfa
Developed / Ruderal
Fallow / Idle Cropland
Open Natural Lands
Orchards / Vineyards
Row & Field Crops
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Cropland / Land Cover Data courtesy of
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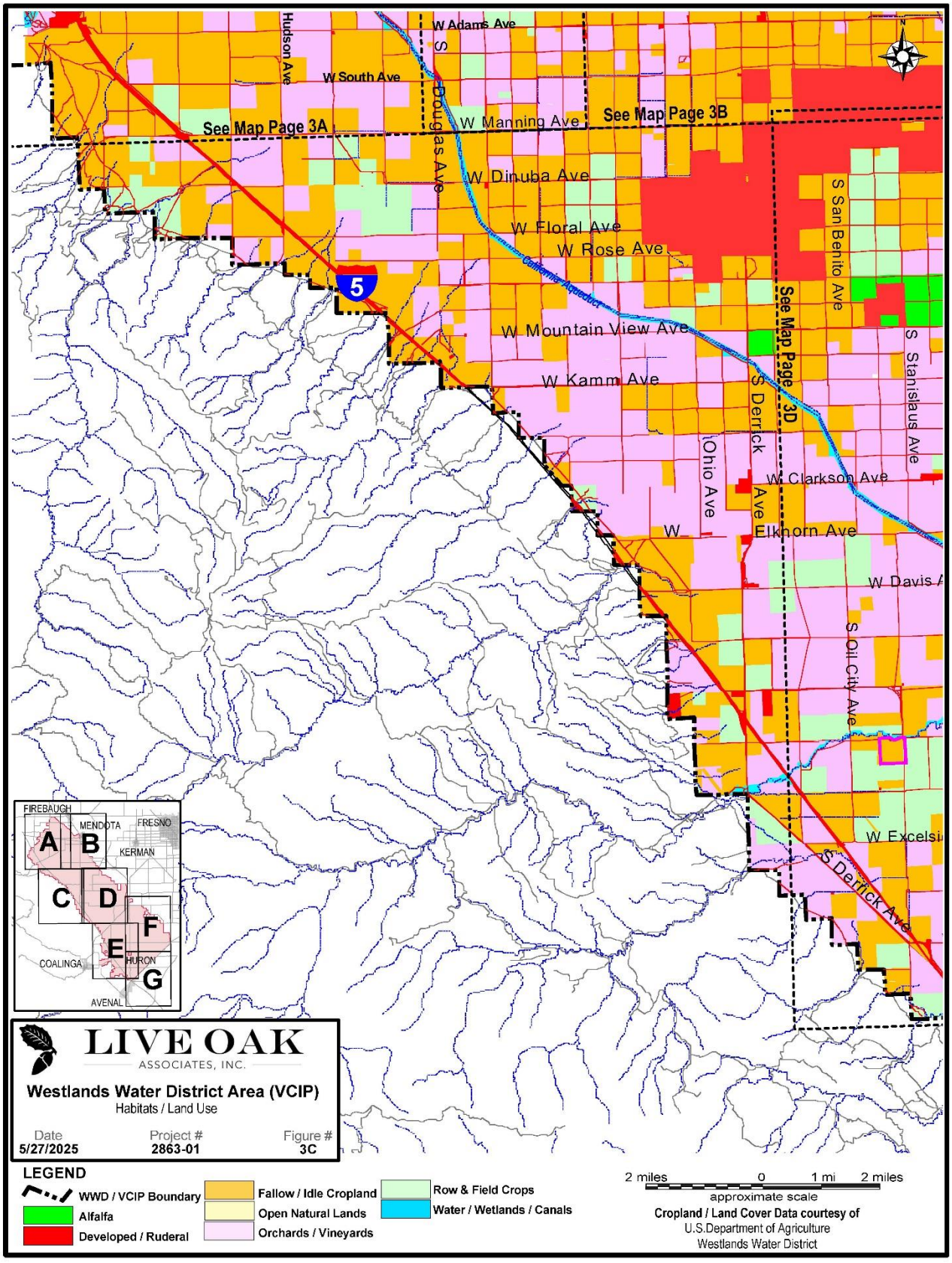
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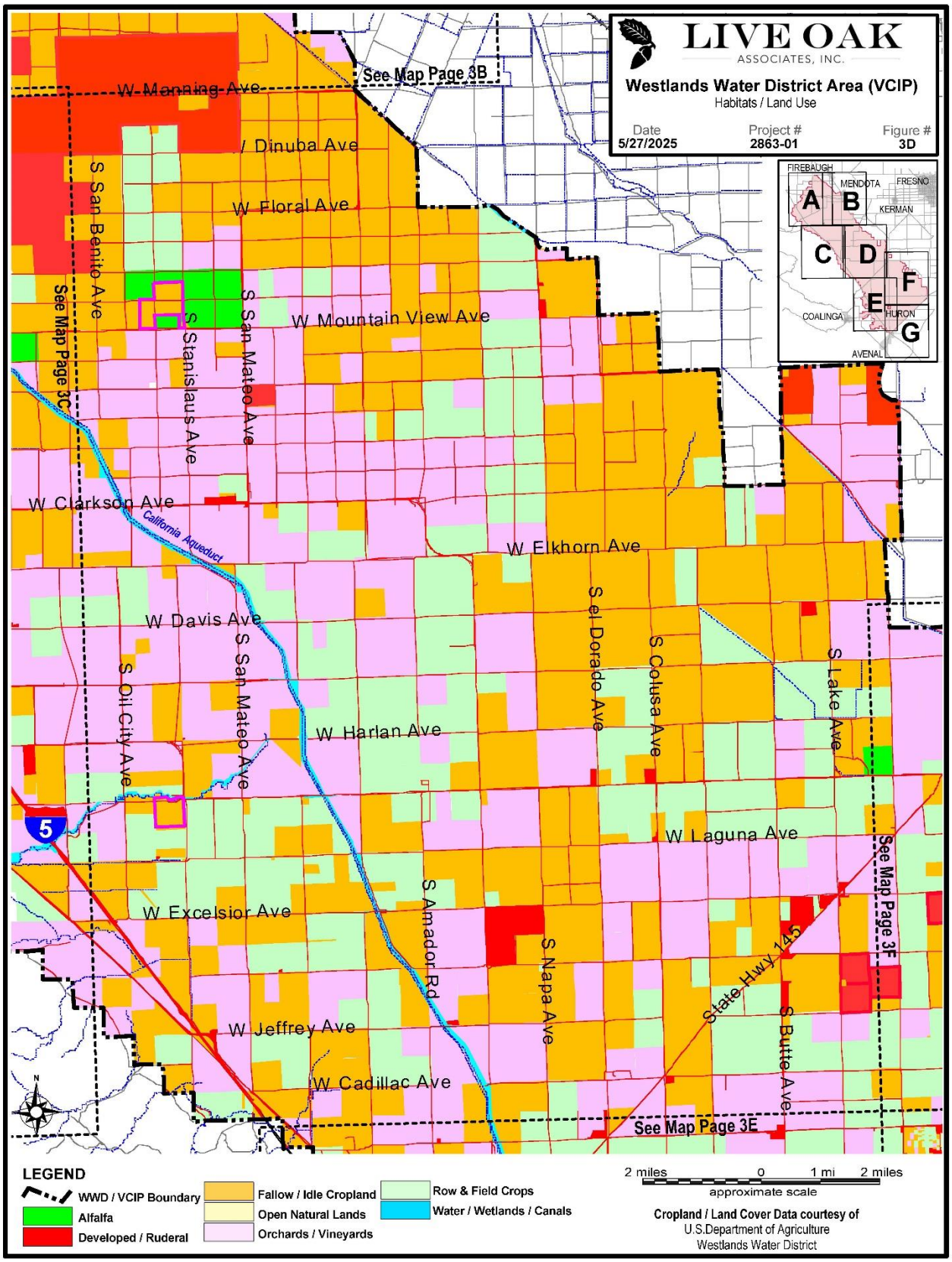
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WWD / VCIP Boundary
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approximate scale
Cropland / Land Cover Data courtesy of
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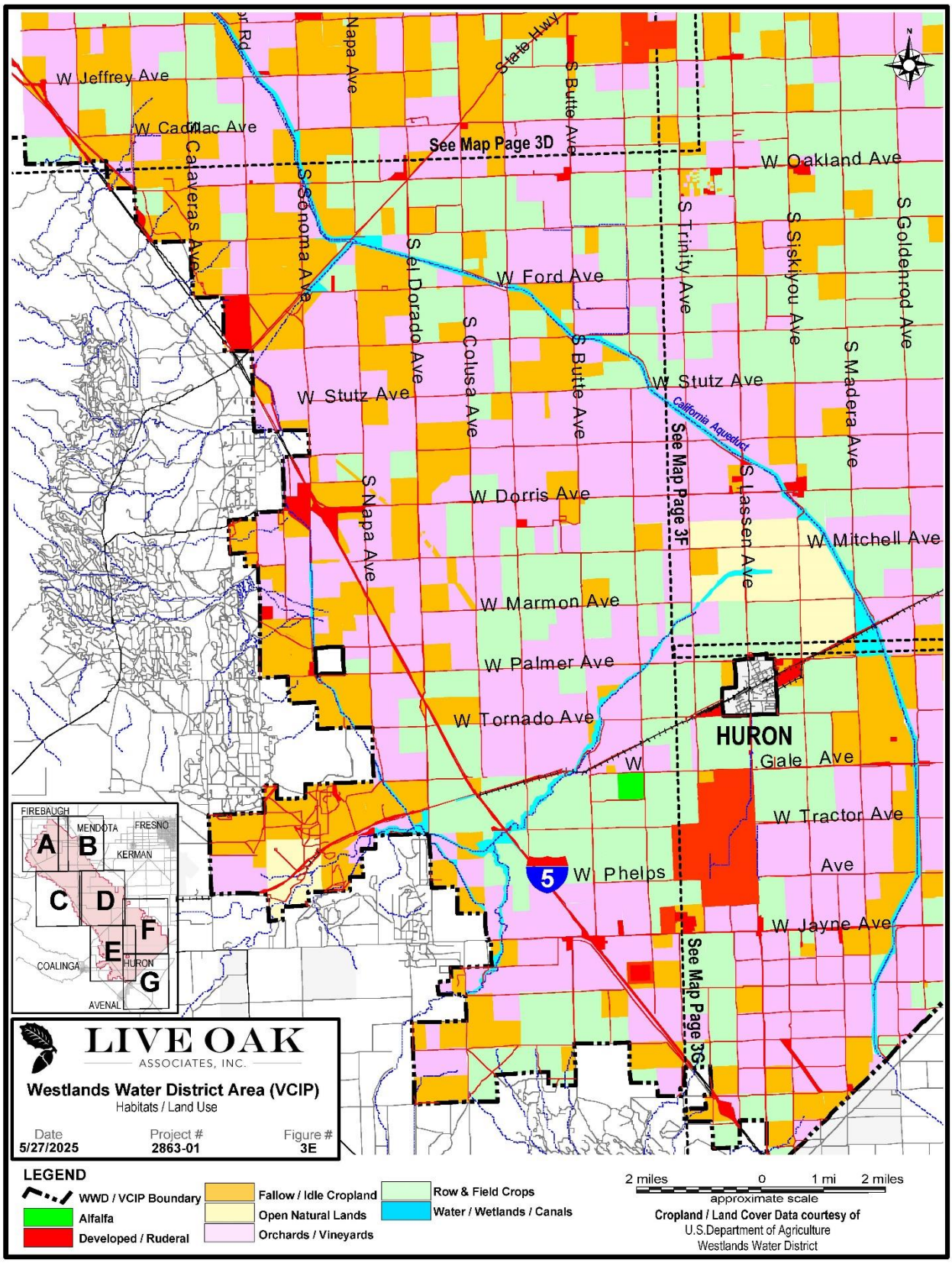
Westlands Water District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Habitats / Land Use
Date
5/27/2025
Project #
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3E
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WWD / VCIP Boundary
Alfalfa
Developed / Ruderal
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Open Natural Lands
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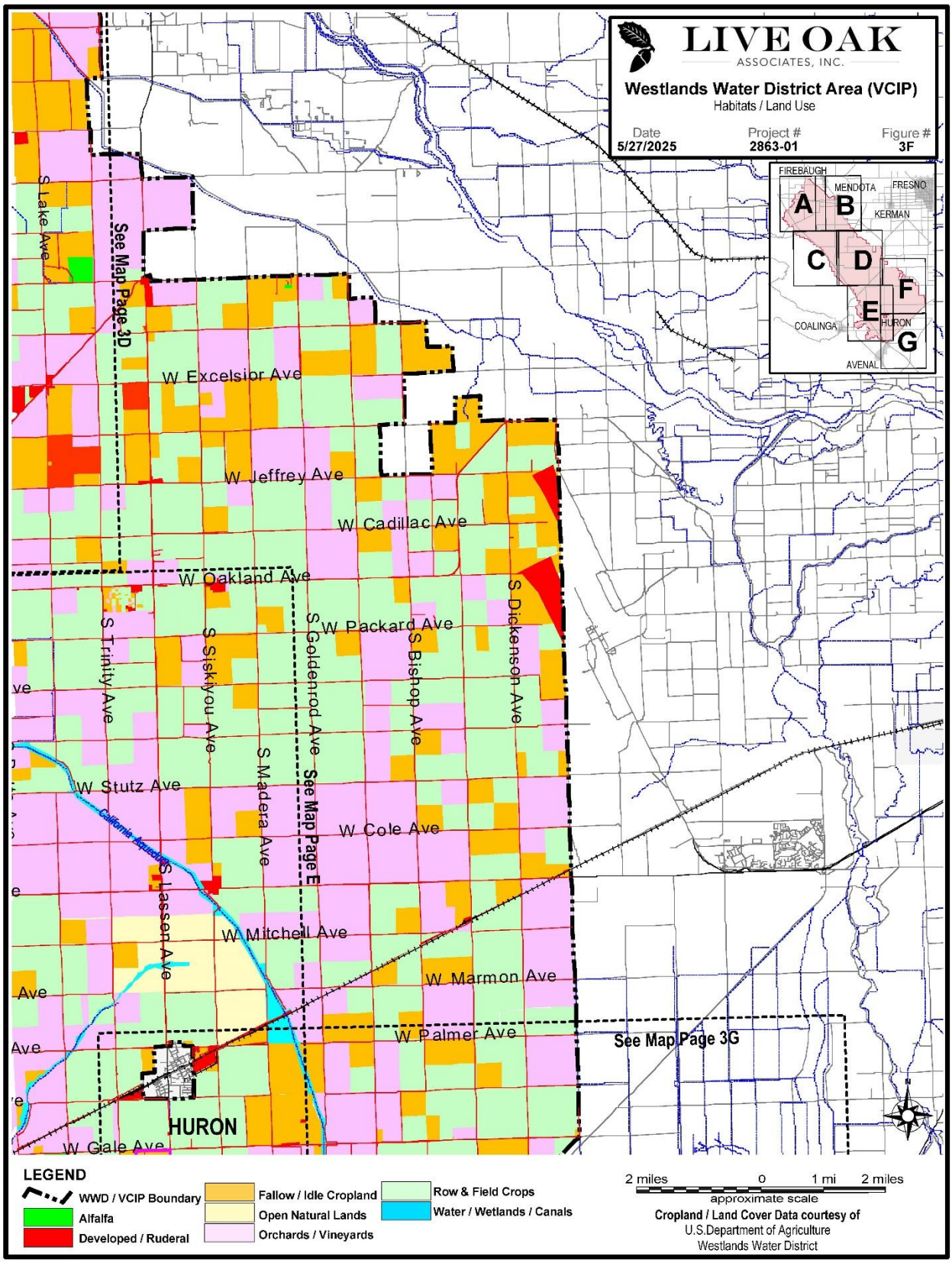
Cropland / Land Cover Data courtesy of
U.S.Department of Agriculture
Westlands Water District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Cropland / Land Cover Data courtesy of
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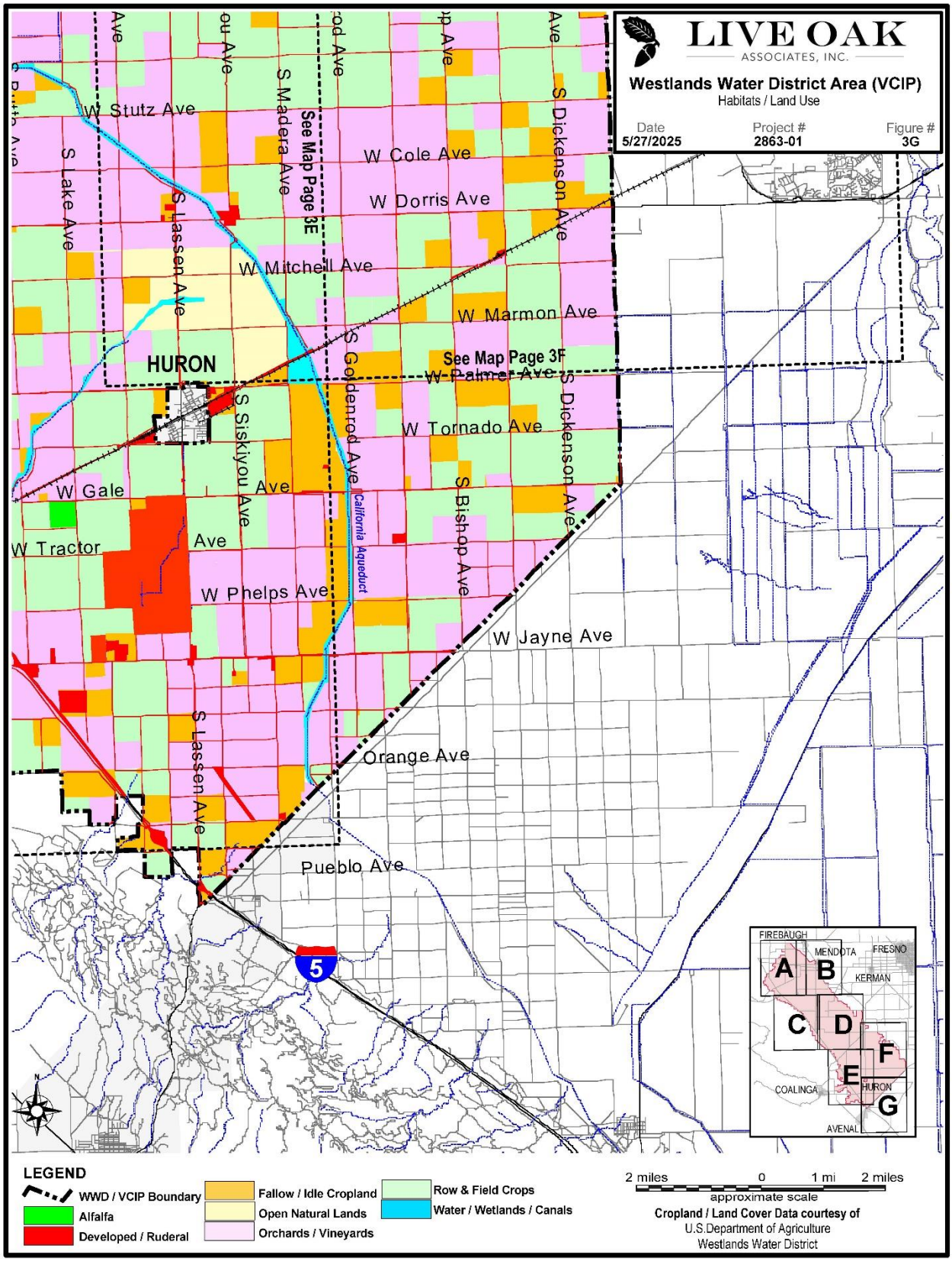
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Cropland / Land Cover Data courtesy of
U.S.Department of Agriculture
Westlands Water District

TABLE 1: ACRES OF HABITATS			
Habitats	Total acres within DFAs	Remainder within Plan Area	Total within Plan Area
Alfalfa	910	516	1,426
Fallow/Idle Crop	81,601	100,647	182,248
Open/Natural Lands	143	3,476	3,619
Row & Field Crops	28,264	114,266	142,530
Orchards/Vineyards	23,870	162,793	186,663
Water/Wetlands/Riparian Woodland	819	5,385	6,204
Developed/Ruderal	339	11,917	12,310
TOTAL	**136,000**	**399,000**	**535,000**

*Potential foraging habitat for Swainson's hawk and burrowing owl shown in green.

1.6.1 Alfalfa

Distinct from row and field crops, lands used specifically to grow alfalfa provide a unique habitat for a number of wildlife species. Plants within alfalfa fields are extremely limited, consisting largely of alfalfa (*Medicago sativa*), although a very small portion of a few weedy species such as Russian thistle (*Carduus picnocephalus*) and cheeseweed (*Malva parviflora*) may persist on the margins of these lands. Wildlife species likely to forage in alfalfa fields include various lizard species, turkey vulture (*Cathartes aura*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus cyaneus*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), California ground squirrel (*Otospermophilus beecheyi),* Botta's pocket gopher (*Thomomys bottae*), Heermann's kangaroo rat (*Dipodomys heermanni),* various native deer mice (*Peromyscus* sp.), raccoon (*Procyon lotor*), and coyote (*Canis latrans*). Lizard and rodent species listed above are also likely to breed in alfalfa fields. Notably, the northern harrier, is known to nest within agricultural fields such as alfalfa, and killdeer may nest on the edges of alfalfa fields.

1.6.2 Fallow/Idle Croplands

Approximately 34% of the Plan Area is made up of fallow or idle croplands, whereas approximately 60 percent of the Developed Focus Areas (DFAs) consist of fallow or idle croplands. These lands vary in cover from completely barren to well-vegetated. Barren lands were completely devoid of vegetation and consisted of dry, silty soils. Due to being heavily managed,

these barren lands are unlikely to support core habitat for wildlife species. Vegetated fallow or idle croplands were largely dominated by annual grasses and herbaceous species, likely including slim oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), Russian thistle, jimsonweed (*Datura wrightii*), barnyard grass (*Echinochloa crus-galli*), tropical horseweed (*Erigeron sumatrensis*), hairy leaved sunflower (*Helianthus annuus*), seaside heliotrope (*Heliotropium currasavicum* ssp. *oculatum*), mustard (*Hirschfeldia incana*), cheeseweed, and silverleaf nightshade (*Solanum elaeagnifolium*). The more vegetated fallow and idle crop lands likely support many of the same wildlife species found in alfalfa fields. Lizards, California ground squirrels and other small mammals are likely to forage and breed in these areas. Consequently, raptor species including red-tailed hawks and Swainson's hawks, will forage on fallow and idle croplands, and northern harriers may nest on these lands. Burrowing owls may also burrow on fallow and idle croplands. Finally, the same predatory mammalian species known to use alfalfa fields are also likely to pass through and forage in well-vegetated fallow and idle croplands.

1.6.3 Open/Natural Lands

Less than one percent of the Plan Area consists of open and natural lands, which provide refuge for both plants and wildlife, several of which would otherwise be unlikely to survive in the largely agricultural and managed lands of the Central Valley. These lands consist primarily of open grassland, natural scrub brush habitats and natural riparian corridors. The majority of open and natural lands within the Plan area occur to the west of I-5, with some remnant open and natural lands occurring on smaller acreages throughout the Plan Area. Plant species likely to occur in these open and natural lands include but are not limited to fiddleneck species (*Amsinckia* sp.), several salt brush species, such as cattle spinach (*Atriplex polycarpa*), common California annual grasses, hairy-leaved sunflower, and tamarisk (*Tamarix parviflora*). Various amphibian and reptile species are likely to breed and subsist in these lands, primarily in the grassland habitats, likely sustaining populations which also use more managed agricultural lands. Several bird species are known to use this habitat type as well, including northern harriers, red-tailed hawk, burrowing owls, horned lark, California quail (*Callipepla californica*), and others. Bats, while unlikely to roost in the majority of these lands (riparian areas, and other areas supporting trees

with cavities or buildings being exceptions), are known to forage in open grassland and scrub land habitats, as well as over riparian areas. A wide variety of other mammalian species also use these lands for foraging and breeding, including California ground squirrel, Botta's pocket gopher, Heermann's kangaroo rat, various species of native California mice (such as those in the genus, *Peremyscus*), black-tailed hare (*Lepus californicus*), raccoon, American badger (*Taxidea taxus*), red fox, and coyote.

1.6.4 Orchard/Vineyard

Approximately 35% of the Plan Area contains orchards and vineyards, with orchards largely predominating these lands. Orchard trees were primarily almond and pistachio trees. For the most part, orchards within the Plan Area were highly maintained with no vegetation observed beneath the orchard trees, although some orchards west of I-5 were observed to support a well-developed understory of vegetation between the rows of trees. Vineyards, which were substantially fewer in number and size than orchards, supported herbaceous vegetation in the rows between the vines. Orchards and vineyards of the Plan Area offer limited habitat value to native wildlife species due to the high level of maintenance and general lack of understory vegetation. A number of avian species will occur in these habitats due largely to the variety of forage; however, other taxa are more limited due in large part, to regular ground disturbance. For example, amphibian species are not likely to occur in the orchards and vineyards due to lack of vegetative cover and consistent ground disturbance. A limited number of amphibian species may occur in these habitats if they support understory vegetation, and/or are in close proximity to ponds, waters, and wetlands. Common reptiles would likely be limited to western fence lizards (*Sceloporus occidentalis*) and common side-blotched lizards (*Uta stansburiana*). Raptors adapted to hunt within the tree canopy such as Cooper's hawks (*Accipiter cooperii*) and sharp-shinned hawks (*Accipiter striatus*) may forage for small birds in orchards, and northern harriers and American kestrels (*Falco sparverius*) may forage over vineyards. Avian species frequenting orchards and vineyards to forage or nest include but are not limited to the mourning dove (*Zenaida macroura*), California scrub jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), Brewer's blackbird (*Euphagus cyanocephalus*),

and house finch (*Haemorhous mexicanus*). A limited number of these medium to small bird species may nest in the trees of orchards. Foraging raptors and mammalian predators may occur in the orchards and vineyards of the Plan Area from time to time. Various species of bat may forage over the orchards and vineyards for flying insects. Small mammal species such as California ground squirrels, Botta's pocket gophers, and deer mice may occur within the orchards and vineyards as well. Mammalian predators potentially occurring in the orchards and vineyards of the Plan Area are expected to include raccoons, red fox, and coyotes.

1.6.5 Row and Field Crops

At the time of the July 2024 field survey, the Plan Area contained large fields of tomatoes, cotton, and wheat, among other row and field crops. At the time of the field survey, non-crop vegetation was limited to the field margins and consisted primarily of weedy annual species including but not limited to red brome (*Bromus madritensis*), red stemmed filaree (*Erodium cicutarium*), and cheeseweed. A number of wildlife species could occur in these fields from time to time. Amphibians are expected to be uncommon in these areas due to the lack of breeding habitat, but are possible in crop lands with adjacent ponds, irrigation canals, or other water features. Common reptiles such as the common side-blotched lizard and Pacific gopher snake (*Pituophis catenifer catenifer*) could potentially occur in the fields. Avian species expected to forage in the fields include raptors such as the red-tailed hawk and American kestrel, mourning dove, western kingbird (*Tyrannus verticalis*), American crow, savannah sparrow (*Passerculus sandwichensis*), western meadowlark (*Sturnella neglecta*), and Brewer's blackbird. Small mammals expected to occur in the agricultural fields include Botta's pocket gophers, California voles (*Microtus californicus*), and deer mice. Mammalian predators with the potential to occur in the fields include disturbance-tolerant species such as raccoon and coyote.

1.6.6 Water/Wetlands/Riparian Woodland

The Plan Area contains several different types of water and wetland habitats, including natural riparian corridors, irrigation canals, irrigation ponds, the San Luis Canal/California Aqueduct, and a few naturally occurring vernal pools and wetlands. A vernal pool is a natural pool that fills up seasonally and dries down in the dry season which supports a number of plant and animal species

endemic to that unique environment. Vernal pool and seasonal wetlands are very limited within the Plan Area and are present only in few locations on the eastern margins of the Plan Area. In general, vernal pool landscapes are being converted to agricultural and urban environment and species are becoming increasingly rare and many of them being listed under the endangered species act. Natural riparian corridors occur mainly to the west of I-5 in open/natural lands but also weave through actively farmed and fallow lands within the western portions of the Plan Area. The extent of riparian woodlands within the Plan area was not estimated as this element did not rise to level of the minimum mapping unit (i.e., the smallest area that can be reliably mapped) of the mapping data used for this analysis. Common tree species that may occur within riparian woodlands include but not limited to Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemos*a), willow (*Salix* spp.), blue oak (*Quercus douglasii*), live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*). Characteristic undergrowth plant species may include mugwort (*Artemisia douglasiana*), mulefat (*Baccharis viminea*), wild rose (*Rosa californica*), and blackberry (*Rubus* spp.).

Wildlife species likely to occur in natural riparian corridors include amphibians, reptiles, and bird species common to the Central Valley, as well as raptors such as Swainson's hawks and northern harriers, native mice, bats, and various mammalian species. Irrigation canals are common throughout the Plan Area and vary in the amount of vegetation they support. Many of the canals support wetland plant species, including cattails, tule, and cottonwood trees. Species likely to use canals include Pacific chorus frogs (*Pseudacris regilla*), western toads (*Bufo boreas*), snake species, lizard and turtle species, and a number of birds such as the red-winged blackbird (*Agelaius phoeniceus*).

A large section of the San Luis Canal/California Aqueduct occurs within the Plan Area. This water conveyance structure is concrete lined and devoid of vegetation. At the time of the field survey the aqueduct held water. Due to the concrete lining and the absence of vegetation, the aqueduct has limited value to native wildlife. The aqueduct is known to support several fish species: most notably, striped bass (*Morone saxatilis*), as well as various catfish and carp species, among others.

Various species of waterfowl are known to use the San Luis Canal/California Aqueduct, such as mallards (*Anas platyrhynchos*), buffleheads (*Bucephala albeola*), lesser scaups (*Aythya affinis*), and ruddy ducks (*Oxyura jamaicensis*). Burrowing owls are likely to form colonies along the outer sides of the Aqueduct, and cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*) are expected to forage over the aqueduct and nest under bridges going over the aqueduct. Various bat species may also forage over the open water of the aqueduct, and California ground squirrels and other rodents may burrow along the outer sides of the aqueduct. Aside from bats and rodents, other mammal species occurring in habitats adjacent to the aqueduct are expected to use the aqueduct for movement but are generally less common on the aqueduct.

1.6.7 Roads/Ruderal/Developed

Ruderal/developed lands are lands regularly disturbed by human activities and/or associated with built environments. This habitat occurs throughout the Plan Area and includes vegetated areas within and around existing solar farms, residential areas, agricultural and industrial buildings, paved and dirt roads, and road shoulders, and infrastructure associated with the San Luis Canal/California Aqueduct. Except where landscaped planted varieties occurred around residential areas, these areas were barren to sparsely vegetated during the 2024 survey. Where vegetation was present, it generally consisted of common weedy grasses and forbs such as farmer's foxtail (*Hordeum murinum* spp. *leporinum*), and short-podded mustard (*Hirschfeldia incana*). Trees associated with these areas consisted of non-native ornamental tree species.

The wildlife habitat value of ruderal/developed lands within the Plan Area is relatively low; nonetheless, these lands can support some native wildlife species. Common reptiles such as the western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard, and Pacific gopher snake could potentially use ruderal habitats within the Plan Area. Avian species expected to forage on or pass over ruderal/disturbed areas of the Plan Area include the mourning dove, California scrub jay, killdeer, Brewer's blackbird, American crow, house finch, and house sparrow (*Passer domesticus*). Additionally, burrowing owls may nest along the sides of roads and Swainson's hawks may nest within medium to large trees.

Evidence of burrowing mammal activity on the ruderal/developed lands of the Plan Area was minimal. Small mammals potentially occurring on ruderal/developed lands of the Plan Area include the California ground squirrel, brown rat (*Rattus norvegicus*), Botta's pocket gopher, and house mouse (*Mus musculus*). A variety of native bat species have the potential to forage over ruderal/developed areas of the Plan Area, and some of these bat species may roost in the eaves and siding of residential, agricultural, and industrial buildings. Mammalian predators with the potential to occasionally occur on ruderal/developed lands of the Plan Area include disturbance-tolerant species such as the raccoon, Virginia opossum (*Didelphis virginiana*), and coyote.

1.7 WILDLIFE MOVEMENT CORRIDORS

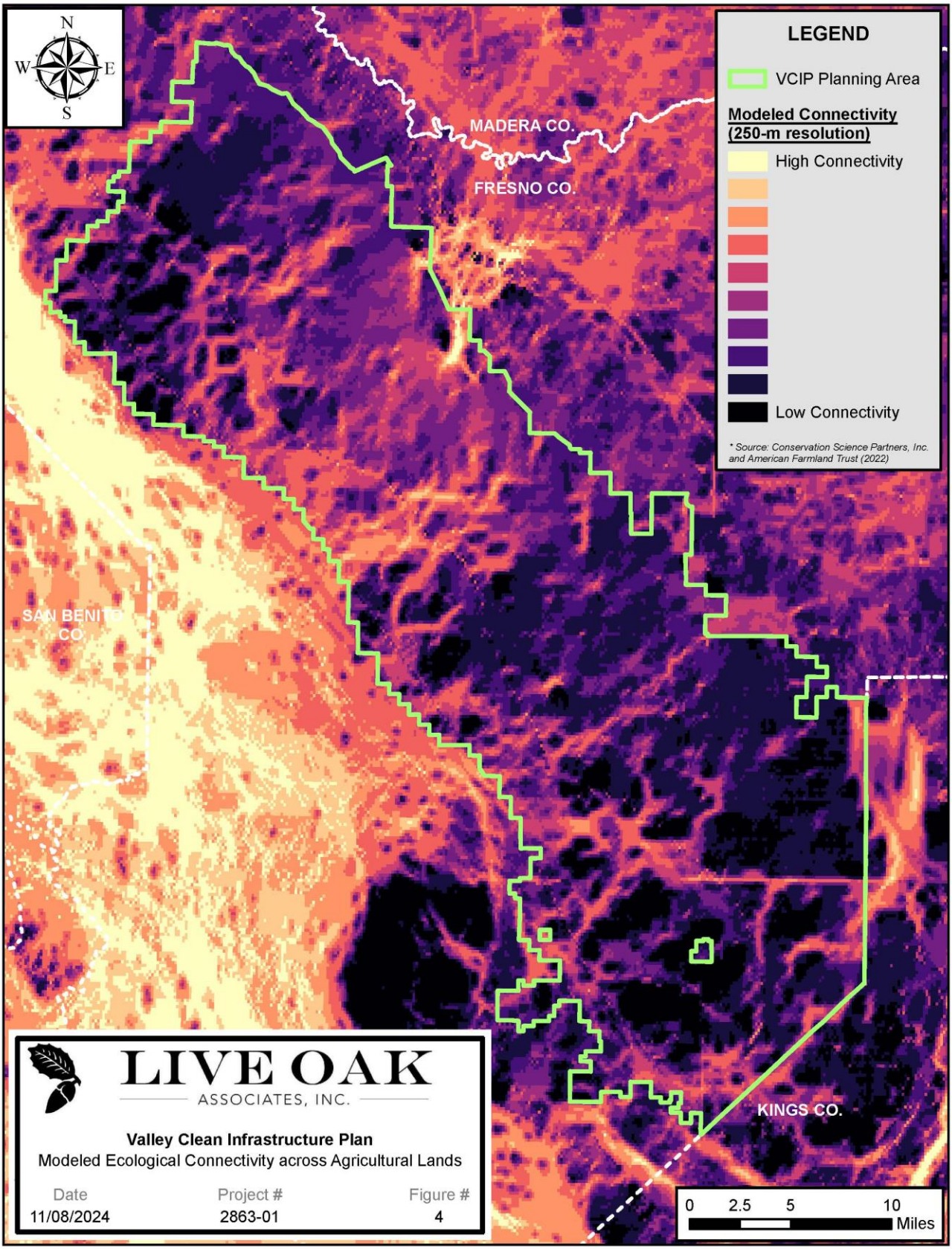
Wildlife movement corridors are areas where regional wildlife populations regularly and predictably move during dispersal or migration. Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines. In the San Joaquin Valley, which lacks many of the more pronounced topographic features found in the surrounding foothills, wildlife will often move across ill-defined undeveloped habitat patches, or regional movement is facilitated along existing linear features such as ditches, canals, farm roads, and creeks. In areas of intense farming, these existing linear features tend to be used disproportionately for movement when compared to the adjacent, intensely farmed lands. While actively farmed fields are not barriers in themselves, they are used less often than the linear features that cut through them.

The intense farming throughout the San Joaquin Valley over the last century has long altered the more traditional regional movement patterns of wildlife. While regionally occurring wildlife does, in fact, move across the broad range of the valley, they do so less effectively than they once did, relying more extensively on various linear features such as canals, ditches and creeks. Regionally, the nearest areas believed to provide for regional wildlife movement include the natural hills west of I-5 which have not been substantially altered.

The Plan Area consists of agricultural fields bisected by the San Luis Canal/California Aqueduct and also includes the lower margins of the natural hills on the western side of I-5. Canals and

ditches within the Plan Area can function as movement corridors for the regular home range or dispersal movements of native wildlife, including special status species.

CDFW's BIOS Viewer (CDFW 2024) combines linkage and wildlife corridor information from multiple sources. Overall, most of the contributing sources generally agree the hills and foothills to the west of I-5 and around the riparian corridor along the San Joaquin and Kings Rivers and the Delta-Mendota Canal and Fresno Slough, which exists within a mile from the eastern boundary of the Plan Area. Additionally, they agree the northern third of the Plan Area serves some function as a wildlife linkage/corridor, with some sources identifying a narrower southwest-northeast wildlife linkage/corridor area across the Plan Area from the region of Three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Modeled Connectivity (250-m resolution)
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* Source: Conservation Science Partners, Inc. and American Farmland Trust (2022)
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Valley Clean Infrastructure Plan
Modeled Ecological Connectivity across Agricultural Lands
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Project #
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Rocks to just south of the Mendota Wildlife Refuge. Additionally, maps within the USFWS' *Recovery Plan for Upland Species of the San Joaquin Valley* (Recovery Plan) (USFWS 1998) agree with the contributing sources the BIOS Viewer, and shows the northern portion of the Plan Area contains areas mapped as "Proposed areas where connectivity and linkages should be promoted," and the natural hills west of I-5 are likely used by native wildlife as a corridor along the foothills. Much of the foothill area west of I-5, along the edge of the Plan Area boundary, is mapped as "[a]reas along the valley's edges within which a contiguous band of natural lands and wildlife-compatible farmlands which should be maintained." Areas mapped as "Public Lands: Federal, State & Conservation lands (some lands unsuitable for species addressed in this plan)" also exist west of I-5 along the edge of the Plan Area boundaries.

1.8 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the CDFW and the USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by the CDFW. The CNPS has developed its own set of lists (i.e., California Rare Plant Ranks, or CRPR) of native plants considered rare, threatened, or endangered (CNPS 2023). Collectively, these plants and animals are referred to as "special status species".

Several special status plants and animals occur in the vicinity of the Plan Area. These species, and their potential to occur in the Plan Area, are listed in Table 2 in the following pages. Sources of information for this table included *California Amphibian and Reptile Species of Special Concern* (Thomson et.al. 2016), *California Bird Species of Special Concern* (Shuford and Gardall 2008), *California Natural Diversity Database* (CDFW 2024), *Endangered and Threatened Wildlife and*

Plants (USFWS 2024), *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFW 2024), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024). This information was used to evaluate the potential for special status plant and animal species to occur within the Plan Area. It is important to note that the California Natural Diversity Database (CNDDB) is a volunteer database.

A search of published accounts for all relevant special status plant and animal species was conducted for the Plan Area using the California Natural Diversity Database Rarefind 5 (CDFW 2024).

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA

PLANTS (adapted from CDFW 2024 and CNPS 2024)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitats	*Occurrence in the Plan Area
California jewelflower *Caulanthus californicus*	FE, CE, CRPR 1B	Habitat: Chenopod scrub, valley and foothill grassland, and pinyon-juniper woodland in sandy soils. Elevation: 65-1860 meters Blooms: February–May	**Possible.** The California jewelflower was documented in the Plan Area near Huron, CA in 1893, but is considered extirpated from this location due to agriculture and development. The closest recent observations of California jewelflower are located at least 5.5 miles southwest of the Plan Area in the foothills of the Southern Coastal Range (CDFW 2024). Open/natural lands of the Plan Area west of I-5 provide potentially suitable habitat for this species.
San Joaquin woolythreads *Monolopia congdonii*	FE, CRPR 1B	Habitat: Chenopod scrub, valley and foothill grassland in alkaline or loamy plains, and in sandy soils. Elevation: 55-840 meters. Blooms: February-May.	**Present.** Over 100 individuals of this species were documented within open/natural lands in the southwestern end of the Plan Area associated with Los Gatos Creek in 2016 (CDFW 2024). All open/natural lands of the Plan Area provide potential habitat for this species.

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA

PLANTS (adapted from CDFW 2024 and CNPS 2024)

Species Listed by CNPS

Species	Status	Habitats	*Occurrence in the Plan Area
Lost Hills Crownscale *Atriplex coronata vallicola*	CRPR 1B	Habitat: Occurs in powdery, alkaline, and vernally moist soils within chenopod scrub, valley and foothill grassland; usually in wetlands and vernal pool habitat and often associated with *Frankenia*, *Atriplex* spp., and *Distichlis*. Elevation: 45-885 meters Blooms: April to September	**Possible.** The Lost Hills crownscale has been documented as recently as 2024 (CDFW) one and a half miles outside the Plan Area within the lower foothills of the Coast Range. Potentially suitable habitat for this species is present in both open/natural lands of the Plan Area with alkaline soils and water/wetlands with alkaline soils.
Hall's tarplant *Deinandra halliana*	CRPR 1B	Habitat: Occurs in cismontane woodland, chenopod scrub, and valley and foothill grassland. Occurs in a variety of soils, including clay, sand, and alkaline soils. Elevation: 155-975 meters Blooms: April to May	**Present.** This species was documented in the western portion of the Plan Area in 1988 along a creek and is presumed extant (currently existing) in that location (CDFW 2024). Potentially suitable habitat for this species occurs in open/natural lands of the Plan Area.
Recurved larkspur *Delphinium recurvatum*	CRPR 1B	Habitat: Occurs in alkaline soils of valley saltbush or valley chenopod scrub, valley and foothill grassland, and cismontane woodland. Elevation: 3-790 meters Blooms: March to June	**Possible.** This species has been historically documented within what is now agricultural land on the Plan Area near Five Points (CDFW 2024). Open/natural lands of the Plan Area with alkaline soils provide potential habitat for this species.
Hoover's eriastrum *Eriastrum hooveri*	CRPR 4	Habitat: Occurs in chenopod scrub, valley and foothill grassland, and pinyon and juniper woodlands. Found on sparsely vegetated alkaline alluvial fans. Also found in the Temblor Range on sandy soils. Elevation: 50-915 meters Blooms: March-July	**Possible.** Although Hoover's eriastrum has not been documented within the Plan Area, it was observed in 2024 approximately 0.37 miles west of the Plan Area (CDFW 2024). Potentially suitable habitat for this species is present in open/natural lands and water/wetlands within the Plan Area.
Alkali-sink goldfields *Lasthenia chrysantha*	CRPR 1B	Habitat: Occurs in vernal pools. Elevation: 0-200 meters Blooms: February-April	**Present.** This species was documented within the southern section of the Plan Area in 1992 along a river terrace west of I-5, where it is presumed extant (CDFW 2024). In 2004, alkali-sink goldfields were documented approximately 2.75 miles east of the Plan Area in the Alkali sink Ecological Reserve (CDFW 2024). Open/natural lands of the Plan Area containing vernal pools or other seasonal wetland features provide potentially suitable habitat for this species.
Munz's tidy-tips *Layia munzii*	CNPS 1B	Habitat: Occurs in chenopod scrub, and valley and foothill grassland. Occurs on hillsides in white-grey alkaline clay soils,	**Possible.** This species has been historically documented at several locations within the Plan Area at locations which no longer appear to

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA			
PLANTS (adapted from CDFW 2024 and CNPS 2024)			
Species Listed by CNPS			
Species	**Status**	**Habitats**	***Occurrence in the Plan Area**
		with grasses and chenopod scrub associates. Elevation: 45-765 meters Blooms: March-April	support suitable habitat for this species (CDFW 2024). Open/natural lands of the Plan Area containing alkaline clay soils provide potentially suitable habitat for this species.
Panoche pepper-grass *Lepidium jaredii ssp. album*	CNPS 1B	Habitat: Occurs in valley and foothill grasslands, often in alluvial fans and washes. Found on white or grey clay lenses on steep slopes, in clay and gypsum-rich soils. Elevation: 65-1005 meters Blooms: February-June	**Present.** This species has been documented in wetland and grassland habitats within the northern end of the Plan Area as recently as 2015 between I-5 and the San Luis Canal/California Aqueduct and is presumed extant in this location (CDFW 2024). Open/natural lands and natural water/wetlands of the Plan Area provide potentially suitable habitat for this species.
Showy golden madia *Madia radiata*	CNPS 1B	Habitat: Occurs in valley and foothill grassland, and cismontane woodland. Mostly found on adobe clay, in grassland or among shrubs. Elevation: 75-1220 meters Blooms: March-May	**Present.** A historical occurrence of showy golden madia was documented in the Plan Area in a stream bed near I-5 in 1988 where it is presumed extant. This species has been observed approximately 1.6 miles from the Plan Area as recently as 2016 in the foothills of the Southern Coastal Range (Calflora 2024). Potentially suitable habitat for showy golden madia is present only in open/natural lands and water/wetlands on the western side of the Plan, primarily west of I-5.
Indian Valley bush-mallow *Malacothamnus aboriginum*	CNPS 1B	Habitat: Occurs on granitic outcrops and sandy bare soil, often in disturbed or burned areas in cismontane woodland, and chaparral. Elevation: 150-1130 meters Blooms: April-October	**Present.** This species was documented within the Plan Area south of the Highway 33 and I-5 intersection along a creek in 1998 and is presumed extant in this location (CDFW 2024). Potentially suitable habitat for Indian Valley bush-mallow is present in open/natural lands and water/wetlands on the western edge of the Plan Area as well as ruderal/developed lands.

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA			
ANIMALS (adapted from CDFW 2024 and USFWS 2024)			
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act			
Species	**Status**	**Habitats**	***Occurrence in the Plan Area**
Longhorn fairy shrimp *Branchinecta longiantenna*	FE	Occurs in seasonal wetlands and vernal pools of California.	**Possible.** Longhorn fairy shrimp were documented within the Plan Area as recently as 2009 in vernal pools within alkali sinks and California annual

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TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitats	*Occurrence in the Plan Area
			grassland on the eastern edge of the Plan Area, south of Highway 180 and east of Highway 33 (CDFW 2024). Potentially suitable habitat for longhorn fairy shrimp in the form of vernal pools is present in the Plan Area.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	**Absent.** The USFWS does not consider Fresno County as currently being within this species' range.
Crotch's bumble bee *Bombus crotchii*	CC	In California, in open grassland and scrub habitats of the southern two-thirds of California. Historically in, but largely extirpated from, the Central Valley. Flight period for queens is late February to late October peaking in April and July; flight period for males and workers is March through September peaking in early July. Constructs nests underground in animal burrows. Overwintering sites are likely in soft soils or in debris or leaf litter.	**Possible.** Crotch's bumblebee was last observed within the Plan Area in 1971 near the City of Huron, CA (CDFW 2024). Potentially suitable habitat for foraging and nesting is present in open/natural lands and could occur in fallow/idle cropland.
California tiger salamander *Ambystoma californiense*	FT, CT	Breeds in vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites.	**Absent.** No historical or current records of this species are known within the region. Intensively cultivated lands provide unsuitable habitat for this species.
Western spadefoot toad *Spea hammondii*	CSC, FC	Primarily occurs in grasslands but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	**Present.** This species has been documented in the Plan Area as recently as 2011 in a retention basin in the north-central portion of the Plan Area, within the Levis quadrangle. Five occurrences of Western spadefoot toad were also documented within the south-central portion of the Plan Area, near the City of Huron, between the years of 2001 to 2003 (CDFW 2024). Temporary wetlands required for breeding are present in the Plan Area, including retention basins and irrigation ponds. Terrestrial habitat required for dormancy is present in non-agricultural fields and orchards. The spadefoot toad hibernates (a physiological change, e.g. bears hibernate in winter) during potentially lethal environmental

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TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitats	*Occurrence in the Plan Area
			conditions. Potentially lethal environmental conditions for spadefoot toads include dry season, drought, heat, etc.
Giant garter snake *Thamnophys gigas*	FT, CT	Habitat requirements consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter.	**Unlikely.** Giant garter snake eDNA was detected in 2016 or 2017 near the Plan Area in the Mendota Dam quadrangle (the most southern known range of this species) (CDFW 2024). Potentially suitable habitats for this species are limited to suitable streams and canals in the Mendota Dam quadrangle outside the Plan Area.
Northwestern pond turtle *Actinemys marmorata*	FC	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes.	**Possible.** The northwestern pond turtle has not been documented within the Plan Area. However, this species was documented approximately 3 miles east of the Plan Area in the Fresno Slough with tule and cattails in 2001 (CDFW 2024). Marginal habitat, in the form of canals and associated ponds exist within the Plan Area. These areas could provide marginal habitat for estivation and breeding.
Temblor legless lizard *Anniella alexanderae*	CC	The Temblor legless lizard (previously called silvery legless lizard) occurs mostly underground in warm moist areas with loose soil and substrate and is known only from two sites west of Highway 33 at the base of the Temblor Range between McKittrick and Taft in Kern County.	**Absent.** The Plan Area is outside of the known range of the Temblor legless lizard.
Blunt-nosed leopard lizard *Gambelia sila*	FE, CE, CP	Frequents grasslands, alkali meadows and chenopod scrub of the San Joaquin Valley from Merced south to Kern County.	**Possible/Unlikely.** A total of 11 records of the blunt-nosed leopard lizard (BNLL) occur within the Plan Area with the last documented records from1993 in areas west of I-5, including the Panoche Hills and the Pleasant Valley Ecological Preserve. Multiple historical and museum records also exist in the Plan Area with all but two records being west

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitats	*Occurrence in the Plan Area
			of I-5 in habitats including riparian corridors, valley annual grasslands, and saltbush scrub with grasses. Outside of the Plan Area but in the vicinity of the Plan Area, the BNLL was last documented in disturbed non-native grassland less than a quarter mile west of the Plan Area in 2008 approximately 3 miles east of the intersection of Lost Hills Road and West Firestone Avenue (CDFW 2024). Potentially suitable habitat for this species is limited in the Plan Area, with the only potentially suitable habitat occurring in open/natural lands. The BNLL is unlikely to occur east of I-5 where habitats required by the blunt-nosed leopard lizard have been highly disturbed or eliminated as a result of agricultural activities, mainly regular discing.
Swainson's hawk *Buteo swainsoni*	CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Present.** Swainson's hawks were observed foraging over agricultural fields of the Plan Area during the 2024 survey. Foraging and nesting habitat is available throughout the Plan Area. Riparian habitat and lone trees suitable for nesting occur throughout the Plan Area.
Burrowing owl *Athene cunicularia*	CC, CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Present.** There are 17 documented records of burrowing owls within the Plan Area, with the most recent from 2016 (CDFW 2024). Foraging and nesting habitat in the form of ground squirrel burrows, other burrows, and culverts exists in the Plan Area. Burrowing owls will nest in fallow/idle cropland, open/natural lands, along banks of any canals, irrigation ditches, or streams, and the margins of farm access roads. Ground squirrel burrows were observed along canals and the San Luis Canal/California Aqueduct during the 2024 field survey. Burrowing owls will forage throughout the Plan Area in alfalfa or other hay and row crops but are less likely to nest in those areas.
Tricolored blackbird *Agelaius tricolor*	CT, CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets (wheat fields and Himalayan blackberry). Forages in grassland and cropland habitats.	**Possible.** The most recently documented occurrence of the tricolored blackbird within the Plan Area was in 1997 in the northwestern portion of the Plan Area where 1,000 non-nesting birds were observed. In 1994, 200-600 presumed

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitats	*Occurrence in the Plan Area
			nesting birds were observed among cattails in the northwestern portion of the Plan Area. The most recent occurrence within a five-mile buffer of the Plan Area was documented in 2014 approximately 4.7 miles southwest of the Plan Area in a small pond with cottonwoods and has been a known breeding site since 1992 (CDFW 2024). Therefore, potentially suitable foraging and minimal breeding habitat occurs within the Plan Area, with breeding habitat being limited to wheat fields, cattails, tules, and other thick vegetation appropriate for the species.
San Joaquin antelope squirrel *Ammospermophilus nelsoni*	CT	Frequents open shrublands and annual grassland habitats in central and western San Joaquin Valley and nearby Inner Coast Ranges to the west of the valley.	**Possible.** The most recently documented occurrence of the San Joaquin antelope squirrel within the Plan Area was in 1944 approximately nine miles east of Coalinga, and the most recent documented occurrence within a five-mile radius of the Plan Area was in 2017 approximately 1.73 miles west of the Plan Area on the east side of the Ciervo Hills (CDFW 2024). Habitats required by the San Joaquin antelope squirrel are highly restricted in the Plan Area. Potentially suitable habitats occur in open/natural lands west of I-5 and may also occur east of I-5 in open/natural lands.
Giant kangaroo rat *Dipodomys ingens*	FE, CE	Inhabits grasslands on gentle slopes generally less than 10°, with friable, sandy-loam soils.	**Possible/Unlikely.** The most recently documented occurrences of the giant kangaroo rat within the Plan Area as in 1992 west of I-5 where colonies were observed at the base of the foothills of the Inner Coastal Range over several miles. The most recently documented occurrence within a five-mile radius of the Plan Area occurred approximately 2.5 miles west of the Plan Area, on the north end of the Tumey Hills (CDFW 2024). Habitat required by giant kangaroo rats is marginal within the Plan Area. This species is most likely to occur in open/natural lands west of I-5. Habitat for the giant kangaroo rat is unlikely to occur in the open/natural lands east of I-5 within the Plan Area.

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COLD OCCUR IN THE VICINTY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitats	*Occurrence in the Plan Area
Fresno kangaroo rat *Dipodomys nitratoides exilis*	FE, CE	Inhabits grassland on gentle slopes generally less than 10°, with friable, sandy-loam soils.	**Absent.** This species has not been documented within the Plan Area. The most recent occurrence of the Fresno kangaroo rat within a five-mile radius of the Plan Area was in 2003 approximately 3.87 miles east of the Plan Area in the Alkali Sink Ecological Reserve (CDFW 2024). Habitats required by this species are absent from the Plan Area due to intensive agricultural developments, urbanization, and transportation infrastructures.
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	FE, CE	Inhabits arid land with grassland or salt scrub on level or near-level terrain on the San Joaquin Valley floor with alluvial fan and floodplain soils.	**Absent.** The most recently documented occurrence of the Tipton kangaroo rat in the vicinity of the Plan Area was in 2008, approximately four miles east of Lemoore Station in alkali scrub habitat in Kings County (CDFW 2024). This species only occurs east of the CA Aqueduct. Suitable habitat within the species range does not occur in the Plan Area.
Ringtail *Bassariscus astutus*	CP	Riparian and heavily wooded habitats near water.	**Absent.** Habitat for this species is absent from the Plan Area.
San Joaquin kit fox *Vulpes macrotis mutica*	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat.	**Possible.** There have been few to no recorded observations of the San Joaquin kit fox in the last 25 to 30 years within the Plan Area. The most recent documented observation within the Plan Area occurred in 1997 in the northern portion of the Plan Area and west of the San Luis Canal/California Aqueduct. This individual was observed foraging in a canal near a recently cultivated field and agricultural lands. Outside of the Plan Area, but within a five-mile radius, four individuals and a den were documented approximately 4.5 miles west of the Plan Area in the Coalinga quadrangle in 2002 (CDFW 2024). The San Joaquin kit fox may occasionally forage on or disperse through the Plan Area. However, denning habitat within the Plan Area is limited and restricted to open/natural lands and fallow/idle croplands due to the common use of intensive farming practices in the region.

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Plan Area
San Joaquin coachwhip *Masticophis flagellum ruddocki*	CSC	Chenopod scrub | Valley & foothill grassland; Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	**Possible.** Marginally suitable grassland habitat for the San Joaquin coachwhip is present in open/natural lands within the Plan Area.
California glossy snake *Arizona elegans occidentallis*	CSC	Occurs in arid areas with grassland, scrub, chaparral, and rocky washes. This species is nocturnal and spends the day in burrows.	**Possible.** Potentially suitable habitat for the California glossy snake is present in the Plan Area in both open/natural lands and fallow/idle croplands with wild grassland habitat.
Northern harrier *Circus cyaneus*	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in woodland habitats.	**Present.** Northern harriers were observed foraging over agricultural fields of the Plan Area during the 2024 survey. This species is known to nest and roost on the ground in grasslands and agricultural fields, and may occur within the Plan Area in alfalfa, fallow/idle croplands, row crops such as wheat, and open/natural lands.
Mountain plover *Charadrius montanus*	CSC	Forages in short grasslands and freshly plowed fields of the Central Valley.	**Possible.** The mountain plover has not been observed within the Plan Area. However, 60 wintering mountain plovers were documented in a barren fallow field surrounded by agricultural land within five miles of the northern end of the Plan Area in 2004 (CDFW 2024). The Plan Area provides suitable winter foraging habitat for the mountain plover.
Short-eared owl *Asio flammeus*	CSC	Occur in wide open spaces including marshes, open shrublands, grassland, prairie, and agricultural field habitats, and need dense ground cover to conceal nests.	**Possible.** This species was last observed within the Plan Area between I-5 and the San Luis Canal/California Aqueduct in 1993. Two separate observations, each of a separate pair of adults, possibly nesting, occurred in cultivated fields of tall nonnative grassland (CDFW 2024). Short-eared owls may use the Plan Area for foraging, and possibly also for nesting.
Long-eared owl *Asio otus*	CSC	Occur on edge habitats including in clumps of trees or edges of open forests that are adjacent to grasslands, shrublands, wetlands, marshes, and farmlands. Need stick nests built by other birds in trees.	**Possible.** The most recent recorded observation of the long-eared owl within the Plan Area occurred in 2005 when an adult, possibly breeding, was observed in a grove of tall tamarisks west of I-5 near Phelps Avenue (CDFW 2024). Long-eared owls forage on the

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TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Plan Area
			Plan Area and nest in trees along open fields.
Loggerhead Shrike *Lanius ludovicianus*	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Nests in tall shrubs and dense trees. Forages in grasslands, marshes, and ruderal habitats. Can often be found in cropland.	**Present.** Loggerhead shrikes were observed during the 2024 survey. Foraging and nesting habitat occurs in the Plan Area.
Le Conte's thrasher *Toxostoma lecontei*	CSC	Occurs in open desert scrub, alkali desert scrub, desert succulent scrub, and desert washes and flats habitats with saltbush. Needs tall robust saltbushes for nesting.	**Unlikely.** There is minimally suitable habitat for this species in the Plan Area.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	CSC	Occurs in freshwater marshes with cattails, tule, and bulrush during the summer and open, cultivated fields and pastures in the winter.	**Possible.** The yellow-headed blackbird was documented just south of the Plan Area in Kings County in 2016, in marsh vegetation along a large canal surrounded by active and fallow agricultural fields. This yellow-headed blackbird colony extended for one to two miles along the canal (CDFW 2024). Freshwater habitat is present in the Plan Area, providing foraging and possible breeding habitat for this species.
Pallid bat *Antrozous pallidous*	CSC	Occurs in grasslands, chaparral, woodlands, and forests; most common in dry rocky open areas providing roosting opportunities. Roost sites include caves, mines, rock crevices, and large cavities of trees.	**Possible.** There are no records for pallid bats within the Plan Area. However, this species is known to occasionally forage in agricultural fields. The pallid bat may roost in various human-made structures within the ruderal/developed lands of the Plan Area, as well as in cavities of mature oak trees and other potential tree cavities and structures which are present within some of the habitats of the Plan Area.
Western mastiff bat *Eumops perotis californicus*	CSC	Frequents open, semi-arid to arid habitats, including conifer, and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban. Requires tall locations for roosting in cliff faces and high buildings.	**Possible.** The western mastiff bat may forage in the Plan Area, but suitable roosting habitat is absent from the Plan Area.

TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Plan Area
Short-nosed kangaroo rat *Dipodomys nitratoids brevinasus*	CSC	Occurs in lighter, powdery soils such as the sandy bottoms and banks of arroyos and other sandy areas with slightly to highly saline soils on gently sloping and rolling low hill-tops with shrubs.	**Possible/Unlikely.** The short-nosed kangaroo rat was last seen in the Plan Area in 1999 on the west side of I-5 in nonnative grassland with scattered salt brush scrub (*Atriplex* sp.) along the edge of a creek where one adult male was caught and released. The most recent observation outside of the Plan Area but within a five-mile buffer, was seen just 0.39 miles south of the far western edge of the Plan Area in a willow and scrub community on the terraces of a creek surrounded by grassland and pasture, where three short-nosed kangaroo rats were salvage-trapped due to planned pipeline excavation. Habitats required by short-nosed kangaroo rats are present in the Plan Area and surrounding agricultural lands. Short-nosed kangaroo rats occur on the west side of the San Luis Canal/California Aqueduct.
Tulare grasshopper mouse *Onychomys torridus*	CSC	Arid shrubland communities in hot, arid grassland and scrub desert associations. These include blue oak woodlands at 450 meters (1476 feet); upper Sonoran subshrub scrub community; alkali sink and mesquite associations on the valley floor; and grasslands associations on the sloping margins of the San Joaquin Valley and Carrizo Plain region.	**Unlikely.** The most recent observation of the Tulare grasshopper mouse within the Plan Area occurred in 2019, along the western edge of Interstate-5 in salt brush scrub with sandy soils. Suitable shrubland habitat is marginal within the Plan Area.
American badger *Taxidea taxus*	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils, specifically grassland environments. Natal dens occur on slopes.	**Possible.** The most recent occurrence of American badger within the Plan Area was in 2005 on the western edge of the Plan Area along a creek in allscale saltbrush (*Atriplex polycarpa*) and California annual grassland habitat alliances where one badger was photographed. Outside of the Plan Area but within a five-mile buffer, the American badger was most recently recorded approximately 4.5 miles northeast of the central eastern edge of the Plan Area in annual grasslands surrounded by agricultural land, where multiple badgers and dens were observed. Suitable habitat for the

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TABLE 2: LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE VCIP PLAN AREA

ANIMALS (adapted from CDFW 2024 and USFWS 2024)

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Plan Area
			American badger is present in the Plan Area in open/natural lands and fallow/idle croplands.

*Explanation of Occurrence Designations and Status Codes
Present: Species observed within the Plan Area at time of field surveys or during recent past.
Likely: Species not observed within the Plan Area, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed within the Plan Area, but it could occur there from time to time.
Unlikely: Species not observed within the Plan Area, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed within the Plan Area, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Fully Protected
		CSC	California Species of Special Concern
		CC	California Candidate
		CRPR	California Rare Plant Ranks

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened, or Endangered in California and elsewhere
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
3	Plants about which more information is needed – a review list
4	Plants of limited distribution – a watch list

1.9 ENDANGERED, THREATENED, OR SPECIAL STATUS ANIMAL SPECIES MERITING FURTHER DISCUSSION

The species below are species for which either 1) their protected status is as a Candidate species under the California Endangered Species Act, and are therefore somewhat new to their inclusion in the threatened/endangered discussion; or 2) they have special considerations, such as large ranges or they are a regionally important species.

1.9.1 Crotch's Bumble Bee (*Bombus crotchii*)

Federal Listing Status: None; State Listing Status: Candidate as Endangered under California Endangered Species Act. While this species is being evaluated for listing under the federal Endangered Species Act, it is treated as a federally threatened species.

Legal status. The Xerces Society, Center for Biological Diversity and Center for Food Safety petitioned the California Fish and Game Commission to list the Crotch's bumble bee as

Endangered under the California Endangered Species Act (CESA). The Commission voted to advance it to candidacy in 2019. The California Court of Appeal upheld the Commission's 2019 decision, and the California Supreme Court declined to review the case. On September 30, 2022, the Commission reinstated the Crotch's bumble bee as a candidate under CESA, meaning they receive the same legal protection afforded to endangered and threatened species (CDFW 2022).

Life history and ecology. In California, inhabits open grassland and scrub habitats of the southern two-thirds of California. It has been historically found in but is now largely extirpated from the Central Valley. Flight period for queens is late February to late October peaking in April and July; flight period for males and workers is March through September peaking in early July. This species constructs nests underground in animal burrows. Overwintering sites are likely in soft soils or in debris or leaf litter.

Potential to occur within the Plan Area. Crotch's bumblebee was last observed within the Plan Area in 1971 near the City of Huron, CA (CDFW 2024). Potentially suitable habitat for foraging and nesting is present in open/natural lands and could occur in fallow/idle cropland.

1.9.2 Northwestern Pond Turtle (*Actinemys marmorata*)

Federal Listing Status: Proposed Threatened; State Listing Status: Species of Special Concern. While this species is being evaluated for listing, it is treated as a federally threatened species.

Life history and ecology. The northwestern pond turtle is the only native freshwater turtle in California and normally associates with permanent or nearly permanent aquatic habitats, including streams, lakes, and ponds. Historically, this species occurred in Pacific Coast drainages from Washington to Mexico. This species occurs in aquatic habitats with 1) basking sites such as rocks and logs, 2) dense stands of submergent or emergent vegetation, 3) abundant aquatic invertebrate resources, 4) suitable nearby nesting sites, and 5) the lack of native and exotic predators (Bury 1972; Jennings and Hayes 1994). This species can move along streams up to 3.1 miles (5 kilometers) in a short period of time, and they can tolerate at least 7 days without water (Jennings and Hayes 1994).

Potential to occur within the Plan Area. Although the northwestern pond turtle has not been documented within the Plan Area, it has been documented approximately three miles east of the Plan Area in the Fresno Slough with tule and cattails in 2001 (CDFW 2024). Therefore, there is a potential for northwestern pond turtle to occur in portions of the Plan Area containing perennial or near perennial waters, including canals and ponds.

1.9.3 Blunt-Nosed Leopard Lizard (*Gambelia silus*)

Federal Listing Status: Endangered; State Listing Status: Endangered; California Protected.

In addition to being listed as state and federally endangered, the blunt-nosed leopard lizard (BNLL) is one of fewer than forty species that has a "fully protected" status through provisions of the California State Fish & Game Code. Usually the CDFW cannot issue a "take" permit for fully protected species, and projects with fully protected species are required to completely avoid direct "take" of the species. However, pursuant to SB 147, effective on July 10, 2023, an exception passed for wind and solar projects, which allows CDFW to issue a "take" permit for fully protected species through December 31, 2033 (Fish & Game Code, section 2081.15(b)(4)-(5)). In this instance, "take" refers to direct harm, injury, or killing of an individual, not to habitat modifications (Fish & Game Code, section 86; cf. federal ESA as discussed below).

Life history and ecology. The blunt-nosed leopard lizard is a large, long-lived lizard whose short, blunt snout and pale crossbars on its back and tail give it its common name. It inhabits sparsely vegetated plains, alkali flats, low foothills, grasslands, canyon floors, large river washes, and arroyos. These opportunistic foragers feed primarily on insects—particularly grasshoppers, crickets and moths—other lizards, and occasionally plant material (CDFW 2004).

The species was originally found throughout the San Joaquin Valley and adjacent foothills, from San Joaquin County southward and into eastern San Luis Obispo County. Its distribution has been reduced by conversion of habitat to cropland. The blunt-nosed leopard lizard now occurs in scattered locations in the valley and in the eastern portions of the Coast Ranges, including the Antelope and Carrizo Plains and Cuyama Valley.

Potential to occur within the Plan Area. The BNLL is known to occur west of I-5, within the Plan Area. There are a total of 11 records of BNLL occurring within the Plan Area between 1958 and 1993, with the most recent records from 1993 in the Pleasant Valley Ecological Preserve approximately 0.25 miles north of Phelps Avenue and a record with a generalized location stretching from just south of Shields Avenue to the intersection of S. Derrick Avenue and Coalinga-Mendota Road along the eastern edge of the Plan Area.

The remaining records within the Plan Area are historic, many of which are from museum records. Two museum records were generally mapped to Levis Quadrangle between I-5 and the San Luis Canal/California Aqueduct north of West Kamm Avenue (these historic records are the only records east of I-5 in the Plan Area); a museum record and field location was recorded with the location noted as "Tumey Hill. I-5 near Manning Avenue jct"; another museum record location is noted as "Panoche Creek"; six adults (1999) were observed along the northwest edge of the Guijarral Hills nearly 0.5 miles south of Phelps Road just more than a mile west of El Dorado Avenue; one record is from Polvadero Gap west of Glenn Avenue; and three BNLL were recorded northeast of El Hocico and just west of Glenn Avenue.

Given the decades of ground disturbance, the Plan Area has experienced from agricultural use, the Plan Area provides no habitat in cultivated fields and extremely marginal habitat in fallowed areas of the Plan Area east of I-5. Therefore, it would be extremely unlikely that BNLL would occur within much of the Plan Area. BNLL are most likely to occur within potentially suitable habitat in open/natural lands west of I-5.

1.9.4 Swainson's Hawk (*Buteo swainsoni*)

Federal Listing Status: None; State Listing Status: Threatened.

The Swainson's hawk is designated as a California Threatened species. The loss of agricultural lands (i.e., foraging habitat) to urban development and additional threats such as riverbank protection projects have contributed to its decline.

Life history and ecology. Swainson's hawks are large, broad-winged, broad-tailed hawks. Male and female Swainson's hawks have similar body types, with a length generally between 17 and 22 inches and a wingspan between 47 and 57 inches. They weigh up to 2.5 pounds.

Swainson's hawks have a high degree of mate and territorial fidelity. They arrive at their nesting sites in March or April, and their nests, measuring three to four feet in diameter, can take up to two weeks to complete. The nest is likely to be a stick nest constructed in a tree. In the Central Valley, Swainson's hawks typically nest in large trees in or peripherally to riparian systems adjacent to suitable foraging habitats. The female will lay and incubate two to four eggs for approximately 28 to 35 days. The male helps with incubation when the female leaves the nest to feed. The young hatch sometime between March and July and do not leave the nest until some 4 to 6 weeks later. Other suitable nest sites include lone trees, groves of trees such as oaks, other trees in agricultural fields, and mature roadside trees. Swainson's hawks forage in large, open fields with abundant prey, including grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands.

There is some evidence of Swainson's hawks foraging in managed moderately sized solar farms, especially when they occur in a matrix with agricultural fields, however, we have not included solar farms as suitable habitats in our general assessments or cumulative impacts assessments.

Potential to occur within the Plan Area. Swainson's hawks are known to forage in areas surrounding the entire Plan Area. The trees along the San Joaquin River, Delta-Mendota Canal, Fresno Slough, Kings River just outside the Plan Area as well as other riparian habitat, other groupings of trees, and lone trees throughout the Plan Area and vicinity of the Plan Area provide potentially suitable nesting habitat for the Swainson's hawk. Swainson's hawks were observed foraging over agricultural fields of the Plan Area during the 2024 survey. Foraging and nesting habitat is available throughout the Plan Area. Riparian habitat and lone trees suitable for nesting occur throughout the Plan Area and the fallow and agricultural lands within the Plan Area provide suitable foraging habitat.

Therefore, Swainson's hawks are present within the Plan Area and likely forage within the Plan Area throughout the months of March through September and may possibly nest in trees within and outside the Plan Area.

1.9.5 Burrowing Owl (*Athene cunicularia*)

Federal Listing Status: None; State Listing Status: Candidate Species for State listing as Endangered or Threatened.

The burrowing owl as of October 9, 2024, is designated as a Candidate Species for state listing as threatened or endangered. This designation was based on the species' declining population within the state over the past 40 years, and until such time that the Fish and Game Commission reaches a final decision the species is treated as listed by the state(CDFW 2024). The population decline is mainly due to habitat destruction resulting from development and agricultural practices (CDFW 2024).

Life history and ecology. The burrowing owl is a small, long-legged bird that averages a height of 9.5 inches, has an average wingspan of 23 inches, and weighs an average of 5.25 ounces. Burrowing owls are unique in that they are the only owl that regularly lives and breeds in underground nests. In California, these birds typically occur in the Central and Imperial Valleys, primarily utilizing ground squirrel burrows (or the burrows of other animals, e.g., badgers, prairie dogs and kangaroo rats) found in grasslands, open shrub lands, deserts, and, to a lesser extent, grazed and agricultural lands. Burrowing owls in this region are typically found at elevations below 250 ft. and exhibit strong site fidelity. Pairs have been known to return to the same area year after year, and some pairs are known to utilize the same burrow as the previous year. Burrowing owls are colonially nesting raptors, and colony size is indicative of habitat quality. It is not uncommon to find burrowing owls in developed and cultivated areas where California ground squirrels are active.

Burrowing owls feed on various small mammals including deer mice, voles, and rats. They also prey on various invertebrates including crickets, beetles, grasshoppers, spiders, centipedes, scorpions and crayfish. Peak hunting periods occur around dusk and dawn.

Potential to occur within the Plan Area. There are 17 documented records of burrowing owls within the Plan Area, with the most recent from 2016 (CDFW 2024). Foraging and nesting habitat in the form of ground squirrel burrows, other burrows, and culverts exist in the Plan Area. Burrowing owls will nest in fallow/idle cropland, open/natural lands, along the banks of any canals, irrigation ditches, or streams, and the margins of farm access roads. Ground squirrel burrows were observed along canals and the San Luis Canal/California Aqueduct during the 2024 field survey. Burrowing owls will forage throughout the Plan Area in alfalfa or other hay and row crops but are less likely to nest in those areas. The Plan Area provides suitable habitat for this species in the form of California ground squirrel burrows and other burrows and culverts present in fallow/idle cropland, open/natural lands, along the banks of any canals, irrigation ditches, or streams, and the margins of farm access roads.

1.9.6 San Joaquin Antelope Squirrel (*Ammospermophilus nelsoni*)

Federal Listing Status: None; State Listing Status: Threatened.

SJAS is listed as Threatened under CESA (October 2, 1980). The species does not have its own recovery plan but is included in the Recovery Plan of Upland Species of San Joaquin Valley, CA (USFWS 1998).

Life history and ecology. The SJAS is one of five subspecies in the genus *Ammospermophilus*. This genus is generally confined to desert and arid steppe habitats and open shrubland communities in the southwest United States and portions of Mexico. Merriam (1893) collected the type specimen for this species in Tipton, Tulare County, California.

Adults weigh between 130 and 170 grams. They have a fusiform shape typical of ground dwelling squirrels. They are buffy tan, have a light stripe on their sides, and have lighter fur on the ventor. They are much smaller than the California ground squirrel (*Otospermophilus beecheyi*), and have a shorter, less bushy, flatter tail.

Grinnell and Dixon (1918) observed an uneven distribution, and they noted that the species occurred in abundance in a few spots that included the Lokern and Elk Hills.

According to Williams (1980), as of 1979, there was 680,000 acres of habitat of which only 102,000 acres was of good quality; none of the best habitat originally described by Grinnell and Dixon remained. Good quality is defined as habitat that supports one to four individuals per acre. The SJAS has been nearly eliminated from the Tulare Basin floor and continues to exist in more marginal areas such as the mountainous areas bordering the western edge of the Basin. In 1979, there was a notable decline and disappearance from a number of formerly occupied patches including Pixley, Alkali Sink and Kerman Ecological Reserves, and Allensworth State Park (although SJAS were never abundant here; Wes Rhodenhamel, pers. comm.).

SJAS are found in arid annual grassland and shrublands and are numerous in areas with sparse to moderate cover of shrubs including saltbush, ephedra (*Ephedra* sp.), bladderpod (*Isomeris arborea*), golden bushes (*Isocoma* sp.), matchweed and others. SJAS are present but tend to sparsely inhabit shrubless areas. SJAS use shrubs and burrows to escape predators and escape the heat of the sun. They may for this reason be somewhat dependent on kangaroo rats whose burrows they may enlarge and takeover. The range of the giant kangaroo rat overlaps extensively with the SJAS, but microhabitats may differ. SJAS are also associated with friable (crumbly texture) soils.

SJAS breed in late winter and early spring. Young do not breed in the first year. Gestation is 26 days, and there are six to 11 embryos. Young are born in March and April and emerge from the burrow after 30 days. The young are weaned as early as late April to late May. Mortality on the Elkhorn Plain Ecological Reserve was 0.7 for young and 0.5 to 0.6 for adults.

These squirrels are generally omnivorous eating green vegetation, fungi, insects (primarily grasshoppers), and seeds (including filaree, brome, ephedra, and saltbush). SJAS are diurnal.

Potential to occur within the Plan Area. The most recently documented occurrence of the San Joaquin antelope squirrel within the Plan Area was in 1944 approximately nine miles east of Coalinga, and the most recent documented occurrence within a five-mile radius of the Plan Area was in 2017 approximately 1.73 miles west of the Plan Area on the east side of the Ciervo Hills (CDFW 2024). Habitats required by the San Joaquin antelope squirrel are highly restricted in the Plan Area. Potentially suitable habitats occur in open/natural lands west of I-5 and may also occur

east of I-5 in open/natural lands. The Plan Area east of I-5 has been largely heavily managed for agricultural uses for decades with a limited amount of open/natural lands east of I-5. Agricultural lands are not generally suitable for the SJAS.

1.9.7 San Joaquin Kit Fox (*Vulpes macrotus mutica*)

Federal Listing Status: Endangered; State Listing Status: Threatened.

By the time the U.S. Fish and Wildlife Service listed it as an Endangered species under the authority of the Federal Endangered Species Act on 11 March 1967, the San Joaquin kit fox had been extirpated from much of its historic range. In 1998, the USFWS adopted a final recovery plan for the San Joaquin kit fox. On 27 June 1971, the State of California listed the kit fox as a Threatened species.

Life history and ecology. The San Joaquin kit fox, the smallest North American member of the dog family (Canidae), historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County (Grinnell et al. 1937). Critical habitat has yet to be established for the San Joaquin kit fox. Local surveys, research projects, and incidental sightings indicate that kit foxes currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills.

Kit foxes prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and, to a lesser extent, valley oak woodlands. In the southern and central portion of the Central Valley, kit foxes are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). Kit foxes may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields (USFWS 1998).

Kit fox diets vary geographically, seasonally, and annually. In the central portion of their range, which includes lands around the Plan Area, known prey includes white-footed mice, insects, California ground squirrels, black-tailed hares, San Joaquin antelope squirrels, kangaroo rats, desert cottontails, and ground-nesting birds (Archon 1992; Jensen 1972).

The kit fox requires underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions (Golightly and Ohmart 1984). In the central portion of their range, they usually occupy burrows excavated by small mammals, such as ground squirrels. Denning habitat consists of ground squirrel complexes in which some burrows have been enlarged to 4 to 6 inches in diameter for the length of a human arm (approximately 2 ft.).

Potential to occur within the Plan Area. There have been little to no recorded observations of the San Joaquin kit fox in the last 25 to 30 years within the Plan Area. The most recent documented observation within the Plan Area occurred in 1997 in the northern portion of the Plan Area and west of the San Luis Canal/California Aqueduct. This individual was observed foraging in a canal near a recently cultivated field and agricultural lands. Outside of the Plan Area, but within a five-mile radius, four individuals and a den were documented approximately 4.5 miles west of the Plan Area in the Coalinga quadrangle in 2002 (CDFW 2024). The San Joaquin kit fox may occasionally forage on or disperse through the Plan Area. However, denning habitat within the Plan Area is limited and restricted to open/natural lands and fallow/idle croplands due to the common use of intensive farming practices in the region. The majority of the Plan Area has been heavily managed for agricultural uses for decades. Agricultural lands are not generally suitable for the San Joaquin kit fox. Having been modified for agricultural use, the Plan Area provides a limited prey base especially in the cultivated fields and, therefore, constitutes poor foraging habitats for kit fox. Open/natural lands and fallow idle croplands within the Plan Area offer marginal foraging habitat.

1.9.8 Jurisdictional Waters

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.5 of this report for additional discussion of these agencies' roles and responsibilities.

Hydrologic features within the Plan Area include the San Luis Canal/California Aqueduct, canals and some ephemeral drainages which are expected to be dry nearly the entire year. The Plan Area also likely supports a few vernal pools and seasonal wetlands along its eastern boundary. The San Luis Canal/California Aqueduct is considered unlikely to be jurisdictional by the USACE, RWQCB and CDFW.

Ephemeral drainages are not likely to meet the criteria to be jurisdictional by the USACE, RWQCB and CDFW. However, specifics and contexts are important and whether any of these agencies would exert jurisdiction over such a feature can only be ascertained by conferring with each agency.

Vernal pools and seasonal wetlands on the other hand, while likely meeting the criteria of the USACE will only be considered jurisdictional if they have a continuous surface connection with a body of water that is itself a “water of the United States”. The RWQCB will likely consider these features as water of the state. CDFW does not have jurisdiction over vernal pools or seasonal wetlands.

1.10 SIGNIFICANCE CRITERIA

General plans, area plans, and specific projects are subject to the provisions of the California Environmental Quality Act. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are constructed. For example, site development may require the removal of some or all of its existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on a site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant. According to 2024 CEQA Status and Guidelines (2024), "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Under Appendix G of the CEQA Guidelines, project impacts to biological resources may be considered "significant" if they will:

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

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

1.11 RELEVANT GOALS, POLICIES, AND LAWS

1.11.1 Threatened and Endangered Species

State and federal "endangered species" legislation has provided the CDFW and the USFWS with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal Endangered Species Acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the CNPS are collectively referred to as "species of special status." Permits may be required from both the CDFW and the USFWS if activities associated with a proposed project will result in the take of a listed species. To "take" a listed species, as defined by the State of California, is "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" said species (California Fish and Game Code, section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm," which may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns of a listed species (16 United States Code (U.S.C.), section 1532(19); 50 Code of Federal Regulations (CFR), section 17.3). Furthermore, the CDFW and the USFWS are responsible agencies under CEQA. Both agencies review CEQA documents to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

1.11.2 Migratory Birds

State and federal laws also protect most bird species. The State of California passed Assembly Bill 454 in 2019, which clarifies native bird protection and increases protections where California law previously deferred to federal law. The federal Migratory Bird Treaty Act (MBTA) (16 U.S.C., section 703) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

1.11.3 Birds of Prey

Birds of prey are protected in California under provisions of the Fish and Game Code, section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by CDFW.

Additionally, the Bald and Golden Eagle Protection Act (16 U.S.C., sections 668-668d) prohibits anyone from taking bald or golden eagles, including their parts, nests, or eggs, unless authorized under a federal permit. The act prohibits any disturbance that directly affects an eagle or an active eagle nest as well as any disturbance caused by humans around a previously used nest site during a time when eagles are not present such that it agitates or bothers an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

1.11.4 Safe Harbor Agreement

A Safe Harbor Agreement is a voluntary agreement between private or other non-federal property owners and the USFWS or the National Oceanic and Atmospheric Administration (NOAA), with the goal for non-federal property owners to contribute to the recovery of endangered or threatened species under the ESA. If the landowners contribute as promised, the

USFWS or NOAA will not require any additional or different management activities by the participants without their consent (USFWS 2025).

Examples of conservation benefits include:

- maintenance, restoration, or enhancement of existing habitats;
- reduced habitat fragmentation; increases in habitat connectivity;
- stabilized or increased numbers or distribution;
- the creation of buffers for protected areas; and
- opportunities to test and develop new habitat management techniques.

1.11.5 Jurisdictional Waters and Wetlands

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C., section1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C., section 1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE). These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule) (Federal Register 2023), with certain interpretive modifications imposed by the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*. These waters include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- The territorial seas.

- Interstate waters, including interstate wetlands.
- Impoundments of waters otherwise defined as waters of the United States under the definition.
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water.
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters.

The 2023 WOTUS Rule also defines several exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems.
- Prior converted cropland.
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water.
- Certain artificial features, e.g., irrigation basins, swimming pools, borrow pits, and artificially irrigated areas.
- Swales and erosional features characterized by low volume, infrequent, or short duration flow.

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("waters of the State"). Nine RWQCBs oversee water quality at the local

and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must comply with the Construction General Permit under the Construction Storm Water Program. A prerequisite for showing compliance with the general permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that directly discharge wastewater, storm water, or other pollutants into a water of the U.S. may also require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically provides that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

1.11.6 Local Policies or Habitat Conservation Plans

1.11.6.1 Fresno County General Plan

The Open Space and Conservation Element of the Fresno County General Plan contains a number of policies related to Natural Resources. These policies are directed specifically to the protection of special habitat areas such as wetlands and riparian areas, as well as fish and wildlife habitat.

The Fresno County General Plan (Fresno County 2024b) contains the following goals and policies related to biological resources that may be relevant to the VCIP:

Open Space and Conservation Element

D. Wetland and Riparian Areas

GOAL OS-D To conserve the function and values of wetland communities and related riparian areas throughout Fresno County while allowing compatible uses where appropriate. Protection of these resource functions will positively affect aesthetics, water quality, floodplain management, ecological function, and recreation/tourism.

Policy OS-D.1 No-Net-Loss Wetlands Policy

The County shall support the “no-net-loss” wetlands policies of the US Army Corps of Engineers, the US Fish and Wildlife Service, and the California Department of Fish and Game Wildlife. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

Policy OS-D.2 Wetland Loss Mitigation

The County shall require new development to fully mitigate wetland loss for function and value in regulated wetlands to achieve "no-net-loss" through any combination of avoidance, minimization, or compensation. The County shall support mitigation banking programs that provide the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

Policy OS-D.3 Adjacent Wetland Protection

The County shall require development to be designed in such a manner that pollutants and siltation do not significantly degrade the area, value, or function of wetlands. The County shall require new developments to implement the use of Best Management Practices (BMPs) to aid in this effort.

Policy OS-D.4 Riparian Protection Zones

The County shall require riparian protection zones around natural watercourses and shall recognize that these areas provide highly valuable wildlife habitat. Riparian protection zones shall include the bed and bank of both low- and high-flow channels and associated riparian vegetation, the band of riparian vegetation outside the high-flow channel, and buffers of 100 feet in width as measured from the top of the bank of unvegetated channels and 50 feet in width as measured from the outer edge of the dripline of riparian vegetation.

Policy OS-D.5 Upland Habitat Protection

The County shall strive to identify and conserve remaining upland habitat areas adjacent to wetland and riparian areas that are critical to the feeding, hibernation, or nesting of wildlife species associated with these wetland and riparian areas.

E. Fish and Wildlife Habitat

GOAL OS-E To help protect, restore, and enhance habitats in Fresno County that support fish and wildlife species so that populations are maintained at viable levels.

Policy OS-E.1 Avoid Habitat Loss

The County shall support efforts to avoid the "net" loss of important wildlife habitat where practicable. In cases where habitat loss cannot be avoided, the County shall impose adequate mitigation for the loss of wildlife habitat that is critical to supporting special-status species and/or other valuable or unique wildlife resources. Mitigation shall be at sufficient ratios to replace the function and value of the habitat that was removed or degraded. Mitigation may be achieved through any combination of creation, restoration, conservation easements, and/or mitigation banking. Conservation easements should include provisions for maintenance and management in perpetuity. The County shall recommend coordination with the US Fish and Wildlife Service and the California Department of Fish and Wildlife to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed. Important habitat and habitat components include nesting, breeding, and foraging areas, important spawning grounds, migratory routes, migratory stopover areas, oak woodlands, vernal pools, wildlife movement

corridors, and other unique wildlife habitats (e.g., alkali scrub) critical to protecting and sustaining wildlife populations.

Policy OS-E.2 Construction Buffers

The County shall require adequate buffer zones between construction activities and significant wildlife resources, including both on-site habitats that are purposely avoided and significant habitats that are adjacent to the project site, to avoid the degradation and disruption of critical life cycle activities such as breeding and feeding. The width of the buffer zone should vary depending on the location, species, etc. A final determination shall be made based on informal consultation with the US Fish and Wildlife Service and/or the California Department of Fish and Wildlife.

Policy OS-E.3 Wildlife Habitat Protection

The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the value of the habitat for wildlife is maintained.

Policy OS-E.8 Pest Control

The County shall promote effective methods of pest (e.g., ground squirrel) control on croplands bordering sensitive habitat that do not place special-status species at risk, such as the San Joaquin kit fox.

Policy OS-E.9 Biological Resource Evaluation

Prior to approval of discretionary development permits, the County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and/or special-status plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible mitigation measures or indicate why mitigation is not feasible.

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Policy OS-E.17 Endangered Species Habitat

The County should preserve, to the maximum possible extent, areas defined as habitats for rare or endangered animal and plant species in a natural state consistent with State and Federal endangered species laws.

Policy OS-E.19 Nesting Birds

For development projects on sites where tree or vegetation/habitat removal is necessary and where the existence of sensitive species and/or bird species protected by California Fish and Game Wildlife Code Sections 3503 and 3503.5 and 305.33503.5 and Migratory Bird Treaty Act has been determined by a qualified biologist, surveys for nesting birds shall be conducted within 14 days prior to project activities by a qualified biologist for all construction sites where activities occurring during nesting bird season (February 1 through September 15). The surveys shall include the entire disturbance area plus at least a 500-foot buffer around the project site.

If active nests are located, all construction work shall be conducted outside a buffer zone from the nest to be determined by the qualified biologist. The buffer shall be a minimum of 250 feet for non-raptor bird species and at least 500 feet for raptor species, unless determined otherwise by the qualified biologist. Buffer distances for bird nests shall be site-specific and an appropriate distance, as determined by a qualified biologist. The buffer distances shall be specified to protect the bird's normal behavior thereby preventing nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established.

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Larger buffers may be required depending upon the status of the nest and the construction activities occurring in the vicinity of the nest. The buffer area(s) shall be closed to all construction personnel and equipment until the adults and young are no longer reliant on the nest site. A qualified biologist shall confirm that breeding/nesting is completed, and young have fledged the nest prior to removal of the buffer. The biologist shall submit a report of these pre-construction nesting bird surveys to the County to document compliance within 30 days of its completion.

F. Vegetation

GOAL OS-F To preserve and protect the valuable vegetation resources of Fresno County.

Policy OS-F.1 Terrain and Vegetation Preservation

The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually sensitive areas such as hillsides and ridges, and along important transportation corridors, consistent with fire hazard and property line clearing requirements.

Policy OS-F.3 Significant Natural Vegetation Areas

The County shall support the preservation of significant areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

Policy OS-F.4 Landmark Trees

The County shall ensure that landmark trees are preserved and protected whenever possible.

Policy OS-F.5 Rare, Threatened, and Endangered Species

The County shall establish procedures for identifying and preserving rare, threatened, and endangered plant species that may be adversely affected by public or private development projects. As part of this process, the County shall require, as part of the environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant plant resources and/or special-status plant

species. Such evaluation shall consider the potential for significant impact on these resources and shall either identify feasible mitigation measures or indicate why mitigation is not feasible.

1.11.6.2 Fresno County Code

The Fresno County Code of Ordinances (County Code) contains the following provisions related to the protection of trees and biological resources. Section 13.12.040 requires tree permits for removal of any trees within county roadways that have been declared to be scenic drives by the Board of Supervisors. Section 17.20.020(A)(5) provides that a proposed tentative or final map may be rejected if "the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially unavoidably injure fish or wildlife or their habitat." The County Code includes no other specific provisions or requirements related to the protection of trees or biological resources that may be applicable to the VCIP.

1.11.6.3 Habitat Conservation Plans/Natural Community Conservation Plans

The federal Endangered Species Act mandates protection of threatened and endangered species and their habitat on federal and private land by prohibiting "take" of listed species through direct harm to individuals or habitat destruction. To balance species protection with private landowner development interests, Congress amended section 10(a)(1)(B) of the Endangered Species Act in 1982 to allow non-federal entities to obtain an incidental take permit (ITP) for otherwise lawful projects that might result in the take of an endangered or threatened species (16 U.S.C., section 1539(a)(1)(B)). To receive an ITP, the applicant must satisfy certain requirements, including the design and implementation of a Habitat Conservation Plan (HCP) that will minimize and mitigate harm to the impacted species during the proposed project (16 U.S.C., section 1539(a)(2)(A)).

The State of California's Natural Community Conservation Planning Act (NCCP Act), enacted in 1991, and now codified as Fish and Game Code section 2800 et seq., authorizes the Department of Fish and Wildlife to establish a program that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity (see Fish & Game Code, sections 2801, 2820). The NCCP program is a cooperative effort involving numerous private and public partners. An NCCP identifies and provides for the regional or area-wide protection of

plants, animals, and their habitats, while allowing compatible and appropriate economic activity (Fish & Game Code, section 2820(a)(5). The NCCP Act, while not intended to supersede the requirements of the federal and state Endangered Species Acts, is intended to allow for comprehensive, regional multi-species planning in a manner which satisfies the requirements of these endangered species laws (CDFW 2025).

1.11.6.4 Recovery Plan area for Upland Species of the San Joaquin Valley

The USFWS has adopted the Recovery Plan for Upland Species of the San Joaquin Valley (Recovery Plan) developed by the U.S. Fish and Wildlife Service which covers 34 species of plants and animals that occur in the San Joaquin Valley (USFWS 1998). The majority of these species occur in arid grasslands and scrublands of the San Joaquin Valley and the adjacent foothills and valleys. The plan includes information on recovery criteria, habitat protection, umbrella and keystone species, monitoring and research program, adaptive management, and economic and social considerations.

The Recovery Plan shows the northern portion of the Plan Area being mapped as "Proposed areas where connectivity and linkages should be promoted," and the natural hills west of I-5 are likely used by native wildlife as a corridor along the foothills. Much of the foothill area west of I-5, just outside the Plan Area boundary, is mapped as "[a]reas along the valley's edges within which a contiguous band of natural lands and wildlife-compatible farmlands which should be maintained."

The western edge of the Plan Area is adjacent to the Ciervo-Panoche Natural Area, which the Recovery Plan defines as "natural lands along the western edge of the Valley and in the contiguous foothills and coastal range, from the Panoche Hills and Valley, Fresno and San Benito Counties, south to Anticline Ridge near Coalinga, Fresno County." The Ciervo-Panoche Natural Area encompasses an area of approximately one-half million acres in the Coastal Ranges immediately west of the Plan Area. Within this Natural Area, the goals of the Recovery Plan are to protect the natural lands to facilitate the recovery of specific species and to maintain and

enhance existing movement corridors as well as connecting other natural lands within the recovery area.

1.12 PROJECT IMPACTS AND MITIGATION MEASURES

Implementation of the VCIP would allow multiple individual solar generation, energy storage, and infrastructure facilities within the Plan Area. The potential solar and energy storage projects would be developed within specific areas of the Plan Area known as DFAs. The DFAs would comprise a total of approximately 136,000 acres within the approximately 535,000-acre Plan Area. Most of the habitats in the Plan Area are unsuitable for those special-status plant and animal species that occur regionally. Nonetheless, potentially suitable habitats do occur in scattered locations throughout the Plan Area. This PEIR provides general guidance at a programmatic level regarding the potential occurrence of protected species as indicated by their affinity for the specific habitat types identified and mapped for the Plan Area. To provide guidance for future biological surveys for individual projects developed under the VCIP, the various habitats occurring within the Plan Area are listed in Tables 3 and 4 along with the species potentially occurring in those habitats which would require species-specific surveys at the project-specific level of review.

Action: Prior to the development of each individual project under the VCIP, initial site surveys would identify the habitats on and adjacent to the project site under review. The habitats identified in the surveys would be mapped on land cover maps which would serve as the basis for ascertaining if additional species-specific surveys need to occur at a given site. (The habitat mapping in Figure 3 provides a plan-level overview of habitat types expected to be found on a given project site within the Plan Area.) Species-specific surveys as outlined in Table 3, and Sections 3.3.1 and Section 3.3.2, are recommended only on individual sites which support habitats that are potentially suitable for the various special status plant and animal species.

TABLE 3. SPECIAL STATUS ANIMAL SPECIES WHICH MAY OCCUR WITHIN THE PLAN AREA BY HABITAT AS DEFINED THIS DOCUMENT AND LOCATION.									
Species	**Section in Report**	**Alfalfa**	**Fallow/Idle Croplands**	**Open/Natural Lands**	**Orchard/Vineyard**	**Row and Field Crops**	**Water/Wetlands/Riparian Woodland**	**Ruderal/Developed**	**Other Qualifiers**
General Pre-construction Surveys	3.31	X	X	X	X	X	X	X	For all projects in all habitats
Special Status Plants	3.3.2		X	X			X	X	
Avian Species	3.3.4	X	X	X	X	X	X	X	
Longhorn Fairy Shrimp	3.3.5						X		
Crotch's Bumble Bee	3.3.6		X	X					
Western Spadefoot	3.3.7						X		
Northwestern Pond Turtle	3.3.7						X		
Blunt-Nosed Leopard Lizard	3.3.8			X					West of I-5
Swainson's Hawk	3.3.9	X	X	X	X	X	X	X	Nests in riparian, clumps of trees, and lone trees
Burrowing Owl	3.3.10		X	X			X		
Roosting Bats	3.3.11	X	X	X	X	X	X	X	Assess wherever trees or structures are
San Joaquin Antelope Squirrel	3.3.12			X					
Short-Nosed Kangaroo Rat	3.3.12			X					West of I-5
Giant Kangaroo Rat	3.3.12			X					West of I-5
American Badger	3.3.13	X	X	X	X	X	X	X	Primarily in open/natural lands and fallow/idle cropland, may periodically move through the Plan Area.
San Joaquin Kit Fox	3.3.14	X	X	X	X	X	X	X	Primarily in open/natural lands and fallow/idle cropland, may periodically move through the Plan Area.

1.12.1 Special Status Plants Potentially Occurring in the Plan Area

Potentially Suitable Habitats. Open/natural lands, water/wetlands, and ruderal/developed.

Potential Impacts. Eleven of the special status plant species have some potential to occur within the Plan Area (Table 2). These species with their corresponding habitats are shown in Table 4:

TABLE 4. SPECIAL STATUS PLANT SPECIES WHICH MAY OCCUR WITHIN THE PLAN AREA BY HABITAT AS DEFINED THIS DOCUMENT AND LOCATION.

Species	Alfalfa	Fallow/Idle Croplands	Open/Natural Lands	Orchard/Vineyard	Row and Field Crops	Water/Wetlands/Riparian Woodland	Ruderal/Developed	Other Qualifiers
California jewelflower *Caulanthus californicus*			X					West of I-5
San Joaquin woolythreads *Monolopia congdonii*			X					
Lost Hills Crownscale *Atriplex coronata vallicola*			X			X		Alkaline soils
Hall's tarplant *Deinandra halliana*			X					
Recurved larkspur *Delphinium recurvatum*			X					Alkaline soils
Hoover's eriastrum *Eriastrum hooveri*			X			X		
Alkali-sink goldfields *Lasthenia chrysantha*			X			X		Vernal pools or other seasonal wetland features
Munz's tidy-tips *Layia munzii*			X					Alkaline clay soils
Panoche pepper-grass *Lepidium jaredii ssp. album*			X			X		
Showy golden madia *Madia radiata*			X			X		
Indian Valley bush-mallow *Malacothamnus aboriginu*			X			X	X	

AM0019.1

As shown in Table 4, special status plant species are not expected to occur over the majority of the Plan Area, with most species occurring in open/natural lands and water/wetlands habitats except for the Indian Valley bush-mallow which may also occur in ruderal/developed habitats. Additionally, see Table 2 above for additional soil and geographical limitations for some species.

The initial site surveys and land cover mapping efforts for each individual project would provide the basis for determining the need to conduct any follow-up species-specific rare plant surveys (see Sections 3.3.1 and 3.3.2). Individuals and populations of rare plants could be damaged or destroyed if any of the plant species noted above occur in areas proposed to be developed or disturbed. Impacts to any special status plant species would be potentially significant. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To avoid potentially significant impacts to special status plant species due to VCIP implementation, the following mitigation measures are applicable at the project-specific level.

Mitigation Measure 3.3.1a (Initial Biological Site Survey and Land Cover Mapping). Prior to site-specific project approval and any ground disturbance, a qualified biologist shall be retained to conduct an initial biological site survey and prepare land cover maps that delineate the habitat types present on the project site. Based on the habitat types found to be present on the project site, the biologist shall identify the specific species of protected plants, if any, that will be subject to pre-construction surveys to be conducted prior to ground-disturbing activities for the project.

Mitigation Measure 3.3.1b (Pre-construction Surveys). Prior to the initial ground disturbance, a qualified biologist shall conduct a protocol-level rare plant survey following CDFW's 2018 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* or the most recent CDFW guidance, if potentially suitable habitats were detected on an individual project site during land cover mapping efforts. Surveys shall target all suitable habitats of the project site that would be subject to project-related ground disturbance, and shall be conducted during appropriate times of year, when local populations of the target species are in bloom and readily identifiable. If suitable habitats are found to be

absent, or if special status plant species are found to be absent from the site, no further action is required.

Mitigation Measure 3.3.1c (Avoidance). If individuals or populations of the target plant species are identified in planned disturbance areas, project design will be modified, to the extent feasible, to avoid the plants. A qualified biologist will identify an appropriate buffer around the plants, and no construction or other project-related activities will be permitted within the area demarcated for the special status plant species.

Mitigation Measure 3.3.1d (Relocation/Salvage). If it is not feasible to avoid individuals or populations of rare plant species observed on a project site, the affected populations shall be salvaged in accordance with a plan prepared by a qualified biologist and approved by CDFW that will include contingencies for an unsuccessful salvage effort. Salvage methods may include seed collection and dispersal, and/or topsoil collection and redispersal, as appropriate to the species. The relocation area(s) shall be located on portions of the project site that support suitable habitat and soils for the affected species and that will not be subject project-related ground disturbance. Relocation areas will be monitored for a period of five years to ensure successful establishment. Although annual plants' success in any single year depends on climatic conditions year-to-year, on average, replacement plantings should occupy the same area (no net-loss of area) of the new population and a relocation area would occupy a larger area than the original area (net-gain of area). In addition, if federally protected rare plants are present on the site, the project proponent may be required to consult with the USFWS if there is a federal nexus for the individual project.

Compliance with the above mitigation measures would reduce impacts to rare plant species to a less than significant level.

1.12.2 Loss of Habitat for Special Status Animals

Potential Impacts. Of the 32 special-status animal species potentially occurring in the region, eight species would be absent or unlikely to occur within the Plan Area due to unsuitable habitat conditions or because the Plan Area is outside the species range. An additional 24 species may

regularly or occasionally utilize the Plan Area for foraging or breeding. Table 5 shows each species' likelihood of occurring in the Plan Area.

TABLE 5. LIKELIHOOD OF SPECIAL STATUS ANIMAL SPECIES OCCURRENCE WITHIN THE PLAN AREA.

Occurrence	Species
Not likely to occur to unlikely to occur	Valley elderberry longhorn beetle, California tiger salamander, giant garter snake, Temblor legless lizard, Le Conte's thrasher, Fresno kangaroo rat, Tipton kangaroo rat, and ringtail
Occurs rarely to occasionally and does not require specific mitigations*	San Joaquin coachwhip, California glossy snake, northern harrier, mountain plover, short-eared owl, long-eared owl, loggerhead shrike, tricolored blackbird, yellow-headed blackbird, and Tulare grasshopper mouse
Species which may require specific mitigation measures for impacts to individuals	longhorn fairy shrimp, Crotch's bumble bee, western spadefoot, northwestern pond turtle, blunt-nosed leopard lizard, Swainson's hawk, burrowing owl, giant kangaroo rat, short-nosed kangaroo rat, San Joaquin antelope squirrel, pallid bat, California mastiff bat American badger, and San Joaquin kit fox
Species which may require specific mitigation measures for breeding and foraging habitat	Longhorn fairy shrimp, Crotch's bumble bee, western spadefoot, northwestern pond turtle, blunt-nosed leopard lizard, giant kangaroo rat, short-nosed kangaroo rat, San Joaquin antelope squirrel, Swainson's hawk and burrowing owl

*Although these species would be surveyed for during pre-construction surveys, should they occur on-site, they would be allowed to move off-site on their own or moved off-site by a qualified biologist (See Section 3.3.3).

The Plan Area does not provide regionally important foraging or breeding habitat for the species listed in Table 5, except for the potential to impact breeding and foraging habitat for the Swainson's hawk or burrowing owl, which are discussed in Sections 3.3.9 and 3.3.10. Considerable habitat suitable for migratory movements and winter foraging would continue to be available for these species on other lands within the region following development of the proposed VCIP energy and infrastructure potential projects. Therefore, development of individual solar projects throughout the Plan Area would result in a less-than-significant impact on these species' habitat.

Mitigation. For individuals of species subject to potentially significant impacts due to construction of individual projects within the Study Area, mitigation measures are identified below for each as follows: raptors and migratory birds (including special status birds) (section 3.3.3); longhorn fairy shrimp (section 3.3.5); Crotch's bumble bee (section 3.3.6); western spadefoot and northwestern pond turtle (section 3.3.7); blunt-nosed leopard lizard (section 3.3.8); Swainson's hawk (section 3.3.9); burrowing owl (section 3.3.10); roosting bats (section 3.3.11); San Joaquin antelope squirrel, short-nosed kangaroo rat, and giant kangaroo rat (section 3.3.12); American badger (section 3.3.13); and San Joaquin kit fox (section 3.3.14).

1.12.3 General Protection of Special-Status Animal Species

Potentially Suitable Habitats. All habitats.

Potential Impacts. Potentially suitable habitat for foraging special status animal species may occur throughout the Plan Area. If a project has the potential to cause injury or mortality to special status species, this would constitute a significant adverse impact. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To avoid potentially significant impacts to special status animal species due to VCIP implementation, the following mitigation measures are applicable at the project-specific level.

Mitigation Measure 3.3.3a (Initial Biological Site Surveys). Prior to site-specific project approval and any ground disturbance, a qualified biologist shall be retained to conduct an initial biological site survey and prepare land cover maps that delineate the habitat types present on the project site. Based on the habitat types found to be present on the project site, the biologist shall identify the specific species of protected animals, if any, that shall be subject to pre-construction surveys to be conducted prior to ground-disturbing activities for the project, as specified for each species as set forth in Mitigation Measure 3.3.1a, and follow up with pre-construction surveys, as applicable for individual species as specified in Mitigation Measures 3.3.5 through 3.3.14.

Mitigation Measure 3.3.3b (Minimization Measures). If individuals of any special status species noted in Table 5 as "Occurs rarely to occasionally and does not require specific mitigations", it

should be allowed to move off-site on its own. Alternatively, a qualified biologist may assist individuals with moving off-site. If a species in the "Species which may require specific compensation measures" is observed, appropriate mitigation measures will be followed as discussed in Sections 3.3.5 through 3.3.14.

In addition to direct injury or mortality impacts to special-status animal species, these species would also be subject to noise and vibration during construction, operation, and decommissioning. However, individuals of the species would move or be relocated away from the noise source, as discussed in MM 3.3.3b. The effects of construction disturbance would be largely temporary and once completed the facilities would still provide opportunities for regionally occurring wildlife to forage, breed, and pass through the site.

Noise and vibration from construction would also potentially disrupt breeding behavior. To provide protections from breeding disturbance, MMs 3.3.4 through 3.3.14 establish setback distances or buffers from breeding sites which are intended to minimize the effects of disturbance including noise and vibration.

1.12.4 Impacts to Avian Species

General Discussion. Very little information is available about negative impacts to avian species that fly over or use utility-scale solar energy facilities. The few publicly available publications summarize bird injury and mortality for solar facilities in California's Sonoran and Mojave Desert Regions and in central western San Luis Obispo County north of the Carrizo Plain, California (Kagan et al. 2014, Walston et al. 2016, Kosciuch et al. 2020, Diehl et al. 2021). It should be noted these publications summarize avian injury and mortality at sites in very dry desert-like conditions.

These facilities produce electricity using PV or concentrating solar power technology. PV facilities use cells to convert sunlight to electricity, whereas, concentrating solar power uses reflective surfaces (mirrors) to concentrate sunlight to heat a receiver. In concentrating solar facilities, the heat is converted to electricity using a thermoelectric power cycle (Walston et al. 2016). Walston et al (2016) discussed collision-related mortality and solar flux-related mortality at concentrating solar facilities. Collision-related injury or mortality is a result of birds hitting the infrastructure

and solar flux-related injury or mortality is a result of burning or singeing from exposure to the concentrated sunlight produced by the mirrors. Singeing of the feathers causes loss of flight and impairment to forage and predator avoidance (Kagan et al. 2014, Walston et al. 2016). In addition, the mirror light attracts insects, which attracts insectivorous avian species, which attracts avian predators, causing a domino effect increasing bird use, injury and mortality associated with the mirrors (Corey 2014).

The future PV solar projects within Plan Area will not be concentrating solar power technology centers, so singeing will not be an issue for projects within the Plan Area.

1.12.4.1 Potential Lake Effects from Photovoltaic Solar Facilities

General Discussion. In solar PV facilities, one of the most concerning negative impacts is Reflective-Polarization or reflective light from the PV (solar panel) surface (Diehl et al. 2021). This is commonly referred to as the "lake effect", a phenomenon where migrating waterfowl are attracted to solar photovoltaic (PV) facilities because the solar arrays can be mistaken for water surfaces, causing the birds to collide with the structures as they attempt to land on the panels.

Most concerning about the lake effect is in relation to waterbirds that are water associated birds or water obligated birds (Kosciuch et al. 2020). Water-associated birds depend on water but have the ability to fly off of the water and land, such as shorebirds, dabbling ducks, and geese. Water obligated birds need water to take off for flight and are unable to take off from land. Examples of these species include diving ducks, grebes, and loons. Upland avian species also need daily water and can be attracted to the lake effect.

San Joaquin Valley. The San Joaquin Valley landscape is substantially different from the desert regions of California. The valley is primarily agriculture that does attract migratory birds and has a substantial population of resident avian species. As described above in the Regional Setting section (Section 2.1), the valley has significant aquatic and wildlife habitat areas that have habitats that support millions of birds across the seasons within the vicinity of Westlands WD.

VCIP-Specific. As the future PV solar projects within the Plan Area will have tracking panels which track the sun, there will only be a few hours in the middle of the day when the solar panels will reflect fully upwards with the potential for "lake effect". At all other times of day, the panels would be angled. Additionally, between sunset and sunrise, the panels would rest nearly vertically either angling where they last tracked the sun or in a pre-set position to be ready to track the morning sun. Therefore, during morning and late afternoon/evening hours when waterfowl are most likely to land in large bodies of water, the panels would be in a position which would avoid producing the "lake effect" during those critical hours, greatly minimizing potential harm to birds from the "lake effect".

Therefore, impacts to avian species are expected to be lower at the non-reflective solar facilities planned as a part of the VCIP. Thus, build out of the project is not expected to introduce a significant adverse impact on resident or migratory birds due to the potential "lake effect" from PV facilities. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation: To reduce impacts to a less-than-significant level, the project will follow the below measure.

***Mitigation Measure 3.3.4.1a* (*Minimization*).** At night, the panels shall be positioned where they last tracked the sun or pre-positioned toward the east to capture sunrise (i.e., panels should be in a close to vertical position). This measure would be implemented during operation and maintenance activities.

Other potential impacts to avian species are discussed in Sections 3.3.3.1 (nesting birds), 3.3.3.2 (night lighting), and 3.3.3.3 (transmission lines).

1.12.4.2 Disturbance to Active Raptor and Migratory Bird Nests (Including Special Status Birds)

Potentially Suitable Habitats. Nesting migratory birds and raptors including special status species such as the white-faced ibis, northern harrier, mountain plover, short-eared owl, long-eared owl,

Loggerhead shrike, California horned lark, tricolored blackbird, yellow-headed blackbird, and other species may occur in any habitat within the Plan Area.

Potential Impacts. In addition to the Swainson's hawk and burrowing owl (discussed below in Sections 3.3.9, 3.3.10, and 3.3.11), several other raptor species such as the northern harrier, red-tailed hawk, bald eagle, golden eagle, short-eared owl, and long-eared owl are known to forage near the Plan Area or could potentially do so. Additionally, the Plan Area provides nesting habitat for several migratory bird species, including, but not limited to, the common raven, house finch, and Brewer's blackbird. Other migratory birds that could occur in the Plan Area include the white-faced ibis, northern harrier, mountain plover, short-eared owl, long-eared owl, Loggerhead shrike, California horned lark, tricolored blackbird, and yellow-headed blackbird, among others. Nearly all native bird species are protected by the federal Migratory Bird Treaty Act. The Aqueduct habitat, as well as habitat around ephemeral drainages, power towers/poles, trees, shrubs, and ground on and adjacent to the Plan Area, provide potential nesting habitat for these species. If birds were to nest in these areas in the future prior to construction, such project-related activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that adversely affect the nesting success of raptors or migratory birds or result in mortality of individual birds would violate state and federal laws (see Section 3.2.2 and 3.2.3) and would be considered a significant impact under CEQA. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To minimize construction disturbance to active raptor and other bird nests due to VCIP implementation, the following mitigation measures are applicable at the project-specific level.

***Mitigation Measure 3.3.4.2a* (*Pre-construction surveys*).** If tree removal, site preparation, grading, construction or decommissioning is planned to occur within the breeding period (i.e., between February 1 and August 31), a qualified biologist shall conduct pre-construction surveys for active nests of migratory birds within 10 days prior to the onset of these activities. If

construction activity is planned to commence outside the breeding period, no pre-construction surveys are required for nesting birds and raptors.

***Mitigation Measure 3.3.4.2b* (*Monitoring Active Nests*).** Should any active nests be discovered in or near proposed construction zones, a qualified biologist shall monitor identified nests to establish a behavioral baseline. Once work commences, the qualified biologist should monitor all nests to detect any behavioral changes because of the project. If behavioral changes are observed, stop the work causing that change and consult with the California Department of Fish and Wildlife for additional avoidance and minimization measures.

***Mitigation Measure 3.3.4.2c* (*Establish Buffers*).** Alternatively, should any active nests be discovered in or near planned construction zones, the qualified biologist shall establish an appropriate construction-free buffer (exclusion zone) around the nest depending on the species of bird, activity level of the area, and terrain. This buffer shall be identified on the ground with flagging or fencing and shall be maintained until the qualified biologist has determined that the young have fledged.

***Mitigation Measure 3.3.4.2d* (*Tailgate Training*).** All construction and operations workers on the project site should be trained by a qualified biologist. The tailgate (on-site) training should include a description of the Migratory Bird Treaty Act, instructions on what to do if an active nest is located, and the importance of capping pipes and pipe-like structures standing upright to avoid birds falling into the pipes and getting stuck.

Mitigation Measure 3.3.4.2d (Capping of Hollow Poles and Posts). Should any vertical tubes, such as solar mount poles, chain link fencing poles, or any other hollow tubes or poles be utilized on the project site, the poles shall be capped immediately after installation to prevent entrapment of birds.

Implementation of the above measures would ensure that construction of the solar would have a less than significant impact on nesting raptors and migratory birds and that the project would follow state and federal laws protecting nesting birds.

1.12.4.3 Night Lighting

Potentially Suitable Habitats. Nesting migratory birds and raptors may occur in any habitat within the Plan Area, and would be subject to potential increases in night lighting.

Potential Impacts. Night lighting, particularly upward-facing lights and lights within facilities behind glass windows, can attract night-migrating birds and move them off their migratory track; night lighting inside buildings can attract birds and cause collisions with windows. Minimal night lighting is expected for individual projects within the Plan Area. Section 1.1.4 above details lighting standards each individual project will follow. Of significance for potential impacts to migratory birds and raptors is the use of non-reflective materials, minimal use of night-lighting for security for substation control enclosures, battery storage facilities, and O & M facilities only, motion-sensor lighting, and night lighting will be downward facing (San Francisco Planning Department 2011). Lighting for the typical solar and energy storage facility would be designed to provide minimum illumination for safety and security. Light fixtures would be hooded and downward directed. Low-level lighting would be installed at the entry gates, substation, and O&M building, and there would be no lighting along any internal access driveways, or around the facility perimeter. Lighting systems would be light activated to automatically come on in the evening and shut off in the morning. There would be no lighting within the solar fields except at the power conversion system inverter/transformer pads (PCSs), which would be activated only when needed by switch or motion sensors. Since each individual solar project would include minimal and low-intensity lighting as described in Section 1.1.4., project lighting would result in a less-than-significant impact for migratory birds and raptors.

Mitigation. No mitigation necessary, as projects will follow night lighting standards in Section 1.1.4.

1.12.4.4 Transmission Lines: Collision and Electrocution

Potentially Suitable Habitats. Nesting migratory birds and raptors may occur in any habitat in the Plan Area where VCIP gen-tie lines and internal transmission lines are planned.

Potential Impacts. Transmission lines can negatively impact avian species due to collisions and electrocutions. Collisions can occur when powerline wires have poor visibility, as birds can fly into them, which can cause injury or death. Electrocution can occur when phase conductors are separated by less than wrist-to-wrist distance (the wrist being the joint toward the middle of the leading edge of a bird's wing); less than the head-to-foot distance of a bird; or when the distance between grounded hardware and any energized phase conductor is less than the wrist-to-wrist or head-to-foot distance of a bird (ALPIC 2006). In addition, grounding conductors and bonded hardware without appropriate coverings can cause electrocution. Injury or mortality from collision or electrocution would be a significant impact. Therefore, each gen-tie and transmission project will design transmission facilities to avoid bird strikes and electrocutions consistent with the Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (Avian Power Line Interaction Committee [APLIC] 2006) where practicable. Collision reduction devices would also be installed in accordance with Reducing Avian Collisions with Power Lines: The State of Art in 2012 (Avian Power Line Interaction Committee 2012) for transmission facilities. Application of the above design requirements would reduce collision and electrocution impacts to a less than significant level. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. Each gen-tie and transmission project shall implement applicable BMPs, as recommended in the documents mentioned above.

Mitigation Measure 3.3.4.4a **(Minimization).** To minimize impacts to birds from collision and electrocution during construction and operation and maintenance activities, design of power lines will incorporate appropriate measures from the APLIC guidelines in accordance with *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012) and *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006). Transmission lines and all electrical components will be designed, installed, and maintained in accordance with APLIC guidance to reduce the likelihood of large bird collisions and electrocutions.

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1.12.5 Longhorn Fairy Shrimp

Potentially Suitable Habitats. Vernal pools and seasonal wetlands.

Potential Impacts. The longhorn fairy shrimp, a federally-listed endangered species, is a small freshwater shrimp which lives in vernal pools and seasonal wetlands. The shrimp's eggs lay dormant in the dry pools during the summer and hatch when winter rains fill the pools. A vernal pool is a natural pool that fills up seasonally and dries down in the dry season which supports a number of plant and animal species endemic to that unique environment. Vernal pools typically must hold water for two months for this fairy shrimp species to complete its lifecycle. Vernal pool and seasonal wetlands are very limited within the Plan Area and are present only in few locations on the eastern margins of the Plan Area. In general, vernal pool landscapes are being converted to agricultural and urban environment and species are becoming increasingly rare and many of them being listed under the endangered species act. As such, the potential for the occurrence of the longhorn fairy shrimp is limited within the Plan Area. Any impact to vernal pools or seasonal wetlands supporting longhorn fairy shrimp would constitute a significant adverse impact. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To minimize potentially significant impacts to longhorn fairy shrimp due to VCIP implementation, the following mitigation measures are applicable at the project-specific level.

***Mitigation Measure 3.3.5a* (*Habitat Survey*).** Conduct initial biological survey and habitat mapping for each project as set forth in Mitigation Measure 3.3.1a. If the initial biological survey on the project site determines that vernal pools or seasonal wetlands are present on the site, the project proponent may either assume presence of the longhorn fairy shrimp, or conduct protocol surveys as specified in Mitigation Measure 3.3.5b. Protocol surveys for longhorn fairy shrimp are not required if the initial biological survey determines suitable habitats are absent from the project site.

***Mitigation Measure 3.3.5b* (*Species-Specific Surveys*).** Protocol surveys during normal rainfall years, consisting of surveys in (1) two wet seasons, or (2) one wet season and one dry season

survey are required to demonstrate the species is absent from an individual project site. Wet-season sampling entails the sampling of all pools at 10-day intervals after the pools have filled with water. Ten to 12 sampling visits are generally required during a winter of average rainfall, depending on rainfall patterns. The USFWS can reject negative findings from any wet season survey if conditions are below normal in rainfall or if the rainfall pattern was highly skewed (e.g., all falling within a very short period). Dry season effort involves collecting soil from the bottoms of on-site vernal pools, examining the soil for potential longhorn fairy shrimp eggs, and rearing shrimp from these eggs to determine if they are longhorn fairy shrimp.

The USFWS will consider listed vernal pool species to be absent from a site if two wet season surveys are negative, or if a dry season survey combined with a subsequent wet season survey in a normal year are negative. If protocol surveys do not detect presence of longhorn fairy shrimp on the project site, no mitigation is required.

If longhorn fairy shrimp are observed early in the survey period and the USFWS agrees that continuing the surveys after shrimp have been found is unnecessary, further surveys would not be required, and all vernal pool habitat on the site would be considered inhabited by this species.

Alternatively, the entire survey effort could be foregone and the presence of this species on the site may be presumed with the understanding that doing so would require mitigation measures for the take of this species.

***Mitigation Measure 3.3.5c* (*Obtain "Take" Authorization*).** Direct and possibly indirect disturbance to vernal pools of the site would be considered a "take" of this federally listed species if this species is detected or if presence is assumed by the project proponent. The "take" of this species would require the project proponent obtain take authorization from the USFWS via Section 7 of the federal Endangered Species Act (ESA) (if there is federal nexus, such as the requirement for Section 404 permit under the federal Clean Water Act for fill of a jurisdictional wetland) or Section 10 (if no federal nexus). If the project has a federal nexus, then a Section 7 consultation process must be initiated by the U.S. USACE (the applicable federal permitting agency) prior to the issuance of the Section 404 permit. Once the consultation process has

formally begun, the USFWS has 135 days to issue either a Biological Opinion (BO), which would authorize the take of a listed species incidental to the implementation of a lawful project, or a jeopardy opinion (which is rare) which would determine that the "take" of the listed species would jeopardize the continued existence of the species. If there is no federal nexus, the project proponent would need to obtain take authorization under Section 10 of the ESA, which is a process administered by the U.S., Fish and Wildlife Service Endangered Species Branch in Sacramento.

***Mitigation Measure 3.3.5d* (*Typical Mitigation Measures*).** Take authorization would require avoidance and minimization measures, as well as compensatory mitigation measures which would reduce the magnitude of the "take" of this species. Current mitigation standards of the USFWS for this species consist of the following: 1) a 250-foot buffer around avoided pools in which fairy shrimp occur; 2) the preservation of existing fairy shrimp habitat at a 2:1 ratio; and 3) the creation of new shrimp habitat at a 1:1 ratio. The preservation requirement can be met by purchasing preservation credits from an agency approved mitigation bank and by purchasing vernal pool creation credits from either the applicable in-lieu fee program or a USACE approved mitigation bank.

Indirect impacts to preserved vernal pool habitat can generally be avoided if a development-free buffer of 250 feet is provided around preserved pools. A buffer of this size may not be sufficient if the planned development is within the watershed of the pool such that runoff drains from developed areas of the project site into the vernal pool or deprives the vernal pool of natural runoff water.

1.12.6 Crotch's Bumble Bee

Potentially Suitable Habitats. Open/natural lands and fallow/idle cropland.

Potential Impacts. Potentially suitable habitat for foraging and nesting is present in open/natural lands and could occur in fallow/idle cropland within the Plan Area. The remainder of the Plan Area does not contain suitable habitat for this species. Grading and disturbance to areas occupied by the Crotch's bumble bee would constitute a significant adverse impact. With the

implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To minimize potentially significant impacts to Crotch's bumble bee due to VCIP implementation, the following mitigation measures are applicable at the project-specific level.

***Mitigation Measure 3.3.6a* (*Habitat Assessment*).** Conduct initial biological survey and habitat mapping for each project as set forth in Mitigation Measure 3.3.1a. If the initial biological survey on the project site determines that there is no potential for Crotch's bumble bee to occur on the site, no additional surveys are required. If there is potential for the species to occur on the site, conduct pre-construction surveys as specified in Mitigation Measure 3.3.6b.

Mitigation Measure 3.3.6b (Pre-construction Surveys). A qualified biologist shall conduct pre-construction surveys during the three stages of Crotch's bumble bee flight period with a methodology approved by CDFW, as provided in CDFW's 2023 *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* or its most recent guidance document. This survey shall be conducted during the season prior to the start of work (i.e., if work is scheduled to start in the late summer, surveys may be conducted that same year; if work is scheduled to start in winter or early spring, the surveys shall occur during the year before the year construction is scheduled). If Crotch's bumble bees are observed on the site, intensive surveys would be required (see Mitigation Measure 3.3.6c).

Mitigation Measure 3.3.6c (Intensive Surveys and Avoidance). If Crotch's bumble bees are observed on the site, intensive surveys to locate underground nests shall be conducted. If an underground nest is located, individuals at the nest shall be photographed to confirm species. If the underground nest is confirmed to be occupied by Crotch's bumble bees, the nest shall be flagged and a 25-foot exclusion zone established around the nest.

Mitigation Measure 3.3.6d (Minimization). If a Crotch's bumble bee or a Crotch's bumble bee nest is observed, an avoidance plan shall be developed in consultation with CDFW prior to project work and/or vegetation removal or other ground disturbance within the 25-foot exclusion zone.

Mitigation Measure 3.3.6e (Compensation). If Crotch's bumble bee is found to be present on-site and if take avoidance is not feasible, then a mitigation plan that provides for on- or off-site compensation shall be prepared and implemented. The mitigation plan shall provide for a minimum of a 1:1 replacement ratio of suitable habitat, at an on-site or off-site location. The plan shall define measures to restore and/or enhance existing habitat, management strategies to maintain the conservation value of the habitat into perpetuity, and a funding source for the ongoing management of the mitigation site.

If the Crotch's bumble bee is permanently listed as threatened or endangered prior to the time of project development, the project proponent will be required to obtain an Incidental Take Permit from CDFW under the California Endangered Species Act (CESA). If the California Fish and Game Commission decides to not list the Crotch's bumble bee under the CESA, then implementation of Mitigation Measure 3.3.6b through 3.3.6e would not be required.

1.12.7 Western Spadefoot and Northwestern Pond Turtle

Potentially Suitable Habitats. Wetlands/Waters (western spadefoot may occur in seasonal wetlands, irrigation ponds, and retention basins and northwestern pond turtle may occur in irrigation ponds, retention basins, and canals).

Potential Impacts. These two species occur in and around water features. The western spadefoot toad has the potential to occur and breed within vernal pools, ephemeral drainages, irrigation ponds, and retention basins and the northwestern pond turtle has the potential to occur within irrigation ponds, retention basins, and canals and may nest near these features within the Plan Area. Individual project construction activities could cause harm or injury to these species, should an individual be present on the project site or move onto the site prior to ground disturbing activities. This would be considered a potentially significant impact. Individual projects may impact wetlands and waters habitat; see section 3.3.16 for impacts to wetlands and waters. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To reduce the likelihood of mortality to the western spadefoot and northwestern pond turtle, the following mitigation measures are applicable at the project-specific level.

***Mitigation Measure 3.3.7a* (*Habitat Assessment*).** Conduct initial biological survey and habitat mapping for each project as set forth in Mitigation Measure 3.3.1a. If the initial biological survey on the project site determines that there is no suitable breeding habitat for western spadefoot toad (i.e., vernal pools or ephemeral pools, including some ponded water which holds water for at least two weeks to one month), no species-specific surveys for the western spadefoot are required. If the initial biological survey on the project site determines that there is no suitable habitat for northwestern pond turtles (i.e., ponds, retention basins, or suitable canals), no species-specific surveys for the western spadefoot are required. If suitable breeding habitat for western spadefoot is present on the project site, then Mitigation Measure 3.3.7c can be implemented at the election of the project proponent, and Mitigation Measure 3.3.7d is required to be implemented. If suitable habitat for the northwestern pond turtle is present on the project site, then Mitigation Measure 3.3.7c would be implemented.

***Mitigation Measure 3.3.7b* (*Elective Species-Specific Surveys*).** Instead of assuming the presence of western spadefoot pursuant to Mitigation Measure 3.3.7d, the project proponent may retain a qualified biologist to survey the project site for the presence of suitable habitat during the appropriate times in March, April, and May in an at least average rain year when any western spadefoot would above ground and observable.. If western spadefoot toads are identified at or near wetland features, those features shall have exclusion zones established prior to ground disturbing activity associated with the project, as specified in Mitigation Measure 3.3.7c.

***Mitigation Measure 3.3.7c* (*Pre-construction Surveys*).** During the course of the construction surveys for other species, a qualified biologist shall also determine the presence or absence of western spadefoot toads and suitable breeding habitat for this species (i.e., vernal pools or ephemeral pools, including some ponded water which holds water for at least two weeks to one month) prior to the start of ground disturbing activities. The absence of western spadefoot can only be confirmed through the species-specific surveys described in Mitigation Measure 3.3.7b.

Thus, if only pre-construction surveys for other species are conducted for western spadefoot, then the presence of western spadefoot shall be assumed pursuant to Mitigation Measure 3.3.7d.

Pre-construction surveys for the northwestern pond turtle shall also be conducted during this time. If construction is scheduled to begin during northwestern turtle nesting season (late May through mid-July), a qualified biologist shall conduct a survey within the project site for nests within 1000 ft of any suitable water feature.

If a northwestern turtle nest is observed, a construction-free buffer shall be established by the consulting biologist around the nest until young have hatched and moved from the nest. If spadefoot or northwestern pond turtle individuals are found to be present on the project site prior to or during project construction, they shall be allowed to move off-site independently. Alternatively, a qualified biologist may assist the individual(s) with moving off the project site.

***Mitigation Measure 3.3.7d* (*Avoidance*).** If a northwestern pond turtle is identified during pre-construction surveys within any area subject to project impacts, the turtle shall be avoided until it has moved out of the work area on its own or relocated by a permitted qualified biologist.

If potential breeding habitat for western spadefoot is identified during pre-construction surveys within or immediately adjacent to an area subject to project impacts, and species-specific surveys described in Mitigation Measure 3.3.7b have not been conducted, then presence of the western spadefoot on the site shall be assumed. A project activity buffer of 860 feet (262 meters) from those breeding pools shall be established, as this is the maximum distance spadefoot toads have been recorded away from their breeding pool (Baumberger et. al. 2019). This distance is necessary, as spadefoot toads dig straight down and leave no trace on the surface of where they are located, and they spend most of their lives underground—without an indication of where they are buried; therefore, a conservative buffer must be established. Buffers shall remain until absence can be confirmed through appropriate surveys (Mitigation Measure 3.3.7b).

***Mitigation Measure 3.3.7e* (Compensation)** If impacts to western spadefoots are anticipated, mitigation shall consist of either: 1) preservation of suitable on- or off-site land at a minimum of

a 1:1 impact to mitigation ratio of lost habitat acreage to compensatory habitat acreage which can support the various lifecycles of the western spadefoot; or 2) purchase of credits equivalent to lost habitat at an appropriate mitigation bank. As this species is currently a Federal candidate species which is anticipated to be listed under the ESA, the project proponent may seek a Biological Opinion for this species in anticipation of it being listed. Once the species is Federally listed under the ESA, a Biological Opinion would be required for any impacts to the western spadefoot.

Implementation of these measures would minimize potential impacts to western spadefoot toads and northwestern pond turtles to a less-than-significant level.

1.12.8 Blunt-Nosed Leopard Lizard

Potentially Suitable Habitats. Open/natural lands west of I-5.

Potential Impacts. The open/natural lands west of I-5 may support potentially suitable habitat for the blunt-nosed leopard lizard with rodent burrows and other burrows and dens. Individual project activities could cause harm or injury to a blunt-nosed leopard lizard, should one move onto the project site prior to ground disturbing activities. This would be considered a potentially significant adverse impact. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To avoid mortality to the blunt-nosed leopard lizard, the following measures will be implemented prior to the onset of project implementation for open/natural lands west of I-5.

***Mitigation Measure 3.3.8a* (*Species-Specific Surveys*).** Protocol-level surveys in suitable habitat for the blunt-nosed leopard lizard by qualified biologists shall be completed following the CDFW's *Revised Approved Survey Methodology for the Blunt-nosed Lizard* (2019) protocol or its most recent guidelines to determine the presence or absence of blunt-nosed leopard lizard prior to the start of ground disturbing activities. This protocol requires a minimum of two surveyors and includes 12 days of adult surveys between April 15 and July 15 with a maximum of four survey days per week and eight survey days within any 30-day period; at least one survey session should be conducted for four consecutive days. Additionally, five juvenile surveys are required between

August 15-September 30, with at least two survey days August 15-30 and at least two survey days September 15-30. See the protocol for surveyor qualification and weather requirements.

Mitigation Measure 3.3.8b (No Detection). If surveys fail to detect blunt-nosed leopard lizards, then no further action is warranted.

Mitigation Measure 3.3.8c (Avoidance and Compensation). If a blunt-nosed leopard lizard is identified during surveys within or immediately adjacent to an area subject to ground disturbing activities, the project should be redesigned to avoid the area where blunt-nosed leopard lizards occur. If the project cannot avoid occupied habitat, the project shall obtain a take permit and follow avoidance, minimization, and possibly compensation measures in the permit. A take permit from the USFWS (likely under Section 10 of ESA) and Incidental Take Permit (ITP) from CDFW (2081 Application under CESA) will likely be required. The project proponent would need to develop procedures to avoid and minimize take, while compensating for lost habitat at a minimum of a 3:1 (compensation to impact) ratio. This compensation could occur either on- or off-site and would need to preserve lands via a conservation easement or some other legal instrument which protects and manages the land into perpetuity. The applicant would need to identify the area for preservation, develop a Long-term Management Plan (LTMP) that maintains the conservation value of the land, and provide adequate funding based on the strategies of the LTMP.

Implementation of these measures would avoid potential impacts to blunt-nosed leopard lizards and reduce impacts to a less-than-significant level, as defined by CEQA.

1.12.9 Impacts to Nesting and Foraging Habitat for Swainson's Hawk

Potentially Suitable Habitats. Nesting in riparian areas, clumps of trees, and lone trees. SWHA forage throughout the site, particularly in alfalfa and row and field crops as well as fallowed/idle cropland habitats.

Potential Impacts. Foraging habitat is available throughout the Plan Area; however, nesting habitat occurs in trees within the Plan Area, which may occur on or near each individual project site. Swainson's hawks typically nest in large trees in or peripheral to riparian systems adjacent

to suitable foraging habitats. Other suitable nest sites include lone trees, groves of trees such as oaks, other trees in agricultural fields, and mature roadside trees. Suitable nesting trees may occur on or near planned project sites within the Plan Area. Construction activities in the vicinity of nest trees could result in the abandonment of active Swainson's hawk nests or direct mortality to these birds. Suitable trees may occur within a half mile of many of the individual project sites, and Swainson's hawks may forage on the project sites. Potentially suitable foraging habitat is identified in Table 1 (Alfalfa, Fallow/Idle Crop, Open/Natural Lands, and Row & Field Crops), resulting in a total of 329,823 acres within the Plan Area; after total build-out of the Plan Area, this is expected to reduce to 218,905 acres. This results in a retention of approximately 66 percent potentially suitable foraging habitat withing the Plan Area post-build-out. This is considered a less-than-significant impact to foraging habitat since abundant foraging habitat would remain in the Plan Area and surrounding lands after VCIP buildout. However, there could be potentially significant impacts to nest tree habitat. In addition, Swainson's hawks could be directly impacted by collisions with power lines or electrocuted by power line strikes. See Section 3.3.4.3 for a discussion of design requirements to reduce risk of collision or electrocution. Individual projects within the Plan Area are unlikely to impact nest trees, however, they have some potential to impact nesting activity in current nest trees. Construction activities in the vicinity of nest trees could result in the abandonment of active Swainson's hawk nests or direct mortality to these birds. Given their protected status, project activities that adversely affect their nesting success or result in mortality of individual birds would be considered a significant impact under CEQA.

With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. Since it is likely many individual VCIP projects may have a potential nest tree within a half mile of their sites, the following mitigation measures are applicable at the project-specific level.

Mitigation Measure 3.3.9a (Pre-construction Surveys). During the nesting season prior to the construction on the project site within a half mile of a potential nest tree, pre-construction surveys shall be conducted within the construction zones and adjacent lands to identify any nesting pairs of Swainson's hawks. These surveys shall conform to the guidelines of CDFW as presented in *RECOMMENDED TIMING AND METHODOLOGY FOR SWAINSON'S HAWK NESTING SURVEYS IN CALIFORNIA'S CENTRAL VALLEY,* Swainson's Hawk Technical Advisory Committee, May 31, 2000, and any updates to these guidelines. Pre-construction surveys are not required for construction activity located farther than a half mile from a potential nest tree.

Mitigation Measure 3.3.9b (Establish Buffers). If any active nests are discovered in or near proposed construction zones (within 0.5 mile), a qualified biologist shall establish a suitable construction-free buffer around the nest. The qualified biologist shall establish the buffer based on topography, nature of construction work, distance to the nest tree, and individual behavior of the nesting pair and young, if they are present. This buffer shall be identified on the ground with flagging or fencing and shall be maintained until the qualified biologist has determined the young have fledged.

Mitigation Measure 3.3.9c (Biological Monitoring). If it is necessary to undertake construction work within the established buffer, a biologist familiar with the active nest should establish a record of "regular" behavior of the nesting pair and then establish an exclusion zone based on the tolerance of the nesting pair to construction activity in the vicinity of the nest. The qualified biologist shall conduct monitoring of the nest whenever work is planned to occur within the buffer. If a change in behavior from the previously observed "regular" behavior occurs, the biologist shall increase the size of the exclusion zone or reestablish the original standard buffer.

Mitigation Measure 3.3.9d (Mitigation for Loss of Breeding Habitat). If it is determined that a Swainson's hawk nest tree(s) is located on or near the individual project site (within 0.5 mile) within the last 5 years, the qualified biologist shall coordinate with the project proponent to determine whether the nest tree(s) is planned to be directly impacted (trimmed or removed) or

if the nest tree is planned to be preserved such that potential impacts to the nesting Swainson's hawks would only occur during nesting season.

If the nest tree(s) is not planned to be permanently impacted, the project shall include establishment of a permanent buffer zone(s) of adequate size around current nest tree location(s). The buffer zone shall require adequate management for the life of the project to ensure the buffer area remains suitable for Swainson's hawks. Annual monitoring of the suitability of management activities may be required by CDFW.

If the project will impact a nest tree, avoidance and minimization measures shall be implemented during the nesting season, as specified in measures 3.3.9b and 3.3.9c above, and an off-site conservation easement shall be required as described below. If removal of a nest tree is planned to occur within the nesting season prior to active nesting, a temporary nest structure shall be established within a 0.5 mile of the tree to be removed and shall remain in place throughout the nesting season. The potential impact to nest trees shall be compensated for through a conservation easement or through purchase of credits at a conservation bank for Swainson's hawk breeding habitat (nest trees and associated foraging habitat). The conservation easement shall be established at a 1:1 ratio for foraging/breeding habitat preservation. The easements shall include habitats determined to be suitable for foraging and/or breeding year-round and seasonal use. The easement must include a tree of suitable nesting type and size as well as additional plantings for new potential nest trees.

Mitigation Measure 3.3.9c (Tailgate Training). Construction workers on all VCIP projects shall attend a tailgate training session conducted by a qualified biologist. The training shall include a description of the species, a summary of its biology, and minimization measures and instructions on what to do if a Swainson's hawk is observed on or near the construction zone.

Implementation of the above measure would reduce impacts to nesting Swainson's hawks to a less-than-significant level.

1.12.10 Impacts to Burrowing Owls

Potentially Suitable Habitats. Fallow/idle cropland, open/natural lands, along banks of any canals, irrigation ditches, or streams, and margins of farm access roads.

Potential Impacts. Suitable habitat within the Plan Area consists mainly of small mammal burrows and culverts and associated nearby foraging habitats within the above habitats.

The development of each individual project site could result in the loss of foraging and breeding habitat for burrowing owls. As burrowing owls are known to occur in the area, it is possible they may occur on a given VCIP project site, particularly along canals and margins of the agricultural fields.

Potentially suitable foraging habitat is identified in Table 1 (Alfalfa, Fallow/Idle Crop, Open/Natural Lands, and Row & Field Crops), resulting in a total of 329,823 acres within the Plan Area; after total build-out of the Plan Area, this is expected to reduce to 218,905 acres. This results in a retention of approximately 66 percent potentially suitable foraging habitat within the Plan Area post-build-out. The highest quality habitat for burrowing owls in the Plan Area, open/natural lands and canals (within the waters/wetlands habitat type), are planned to be avoided or have limited impacts, as these are the two smallest habitat types within the Plan Area (Table 1). For any burrowing owls occurring elsewhere within the Plan Area, both breeding and foraging habitat could be lost; however, there is abundant suitable breeding and foraging habitat on agricultural lands to the west of the Plan Area and the entire Plan Area will not be developed and retains lands which are not planned for solar or other development in the foreseeable future by Fresno County. Therefore, the impacts from VCIP implementation on burrowing owl habitat would be less-than-significant on a Plan-wide basis. However, in the case of some VCIP projects, it is possible that sufficient foraging habitat on adjacent or nearby lands would not be available either because they do not contain suitable habitat, or because they are already developed. Since the habitat requirements for a burrowing owl pair are 200 acres of suitable foraging habitat within two miles of the nest site, it is possible that situations may arise where this habitat

requirement cannot be met. In such cases, the loss of habitat would represent a significant impact.

Ground disturbance from project construction may also result in the mortality of burrowing owls, as they are known to retreat into their burrows ahead of approaching grading activity. These small raptors are protected under the federal Migratory Bird Treaty Act and the California Fish and Game Code. Thus, the mortality of individual burrowing owls would constitute a significant environmental impact. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. Prior to the construction of each individual project, the following measures should be implemented which will avoid or substantially reduce impacts to the burrowing owl to a less-than-significant level:

Mitigation Measure 3.3.10a (pre-construction surveys). Pre-construction surveys shall be conducted for burrowing owls by a qualified biologist no more than 14 days in advance of the on-set of ground-disturbing activity. These surveys should be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) or the most recent CDFW guidelines. The surveys should cover all areas of suitable burrowing owl habitat within the construction zones.

Mitigation Measure 3.3.10b (Avoidance of active nests during breeding season). If pre-construction surveys are undertaken during the breeding season (February through August) and active nest burrows are located within or near construction zones, a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer zones shall be enclosed with temporary fencing, and construction equipment and workers shall not be allowed to enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season.

Mitigation Measure 3.3.10c (Avoidance of occupied burrows during non-breeding season, and passive relocation of resident owls). During the non-breeding season (September through January), any burrows occupied by resident owls in areas planned for construction or decommissioning shall be protected by a construction-free buffer with a radius of 150 to 250 feet

around each active burrow, with the required buffer distance to be determined in each case by a qualified biologist. Passive relocation of resident owls is not recommended by CDFW where it can be avoided. Given the burrowing owl's recent status change to a state candidate species for listing, an ITP would likely be required to conduct passive relocation.

Mitigation Measure 3.3.10d (Mitigation for Loss of Breeding and/or Foraging Habitat). If it is determined that burrowing owl nest(s) are located on or near the individual project site, the biologist shall coordinate with the project proponent to determine whether these nests are to be impacted or if they are planned to be avoided. If the on-site or nearby nests are to remain in place, the qualified biologist shall determine whether sufficient foraging habitat will be available on adjacent or nearby lands after project completion, and if so, no further mitigation is required. (Approximately 200 acres of year-round foraging habitat within about 2 miles of the burrowing owl burrow is required to support a burrowing owl pair.) If it is determined that insufficient nearby foraging habitat would be available after project completion, the biologist shall determine the amount of off-site (or on-site) foraging habitat that would be required to sustain the burrowing owl pair. The potential impact to foraging habitat shall be either avoided through implementation of measure #1 below (on-site buffer zone), or compensated through implementation of measure #2 (conservation easement) or measure #3 (long-term agreement on adjacent lands) below:

1. Establishment on the project site of permanent buffer zones of adequate size around current burrowing owl locations, such that the total acreage of on-site (potentially combined with adjacent off-site) habitat is sufficient to support the resident burrowing owls. These buffer zones shall require adequate management for the life of the project to ensure the buffer area remains suitable for burrowing owls. Annual monitoring of management activities may be required by CDFW.
2. Establishment of an off-site conservation easement for foraging/breeding habitat preservation, with the lands covered by the easement containing sufficient acreage to

support the impacted burrowing owls. These easements shall include habitats determined to be suitable for foraging and/or breeding year-round and seasonal use.

3. Short or long-term compensation for foraging habitat by providing farmers on adjacent lands incentives to plant particular crops known to be suitable forage habitat for burrowing owls (i.e., winter wheat, alfalfa, etc.) and to enact a farmer burrowing owl safety program where farmers are trained in how to reduce burrowing owl mortalities on their lands and farm roads.

Mitigation Measure 3.3.10e (Tailgate Training). All construction workers should attend tailgate training that shall include a description of the species, a summary of their biology, and minimization measures and instructions on what to do if a burrowing owl is observed within or near a construction zone.

Compliance with the above mitigation measures would reduce impacts to burrowing owls to a less-than-significant level.

1.12.11 Roosting Bats, Including, But Not Limited to Pallid Bat and Western Mastiff Bat

Potentially Suitable Habitats. Trees and buildings/structures.

Potential Impacts. These and other bat species may forage over the Plan Area and roosting habitat may occur on individual project sites in the form of trees or buildings/structures. Loss of roosting or foraging habitat for bats is not considered significant as such habitat is abundantly available regionally. Activities that may result in harm or mortality to roosting bats or a maternity colony would constitute a significant adverse impact. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To ensure that harm or mortality to bats from project construction is avoided, the following mitigation measures shall be implemented at the project-specific level.

Mitigation Measure 3.3.11a (Initial Survey): Initial surveys for each individual project shall identify if trees or buildings are on the individual project site. If none exist on the site, no further

surveys for bats are required. If trees or buildings occur on the individual project site, the below measures would apply.

Mitigation Measure 3.3.11b (Daytime Habitat Assessment/Humane Eviction): A daytime bat assessment/survey shall be conducted prior to removal of any intact trees or buildings on the project site. If a non-breeding bat colony is observed, the individuals shall be humanely evicted via two-step removal process under the direction of a qualified biologist to ensure that no harm or "take" would occur to any bats as a result of building or tree removal activities.

Mitigation Measure 3.3.11c (Minimization): If a maternity colony is detected, then a construction-free buffer zone shall be established around the applicable building or tree and remain in place until the nursery is no longer active. Removal of the building or tree should be conducted between March 1 and April 15 or August 15 and October 15 to avoid interfering with an active nursery.

1.12.12 Burrowing Mammals Including the San Joaquin Antelope Squirrel, Short-Nosed Kangaroo Rat, and Giant Kangaroo Rat

Potentially Suitable Habitats. Open/natural lands (east and west of I-5) for the San Joaquin antelope squirrel (SJAS) and west of I-5 for the short-nosed kangaroo rat and giant kangaroo rat).

Potential Impacts. The SJAS could occur in open/natural lands within the Plan Area, while the short-nosed kangaroo rat and giant kangaroo rat would only occur in this habitat in the areas of the Plan Area located west of I-5. Project activities could cause harm or injury to these species, should they occur on a individual project site. This would be considered a potentially significant impact. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. To reduce the likelihood of harm or mortality to these species, the following measures will be implemented prior to the onset of project implementation.

Mitigation Measure 3.3.12a (Preliminary Surveys/Actions). Preliminary daytime surveys shall be conducted by a qualified biologist to identify SJAS during their active season (April 1-September 30) in daylight hours between 20 and 30 degrees Celsius (68-86 degrees Fahrenheit).

During these surveys, if kangaroo rat burrows are identified, live trapping by a permitted qualified biologist may be required to identify the species of kangaroo rat and to ascertain presence or absence of the giant and short-nosed kangaroo rats. If preliminary surveys identify the project as supporting potentially suitable habitat for any of these species, the qualified biologist shall identify avoidable burrows within a particular work area. Any avoidable burrows in the work area shall be avoided as discussed below. Should preliminary surveys identify that there are unavoidable burrows within a particular work area, protocol-level surveys for the SJAS, giant kangaroo rat, and short-nosed kangaroo rat shall be conducted before starting construction activities in that work area.

Mitigation Measure 3.3.12b (Pre-construction Surveys). During the pre-construction surveys for other species, if burrows are identified that were not previously identified during the preliminary surveys, a qualified biologist shall flag burrows within the project site and any off-highway access driveways for the project, and any other work areas within the open/natural lands.

Mitigation Measure 3.3.12c (No Detection). If preliminary surveys and pre-construction surveys fail to detect burrows, then no further action is required.

Mitigation Measure 3.3.12d (Avoidance and Compensation). If protocol level surveys are conducted due to the presence of suitable habitat (see Section 3.3.12a) and burrows are identified within or immediately adjacent to an area subject to project activity, a project-activity-free buffer of at least 10 meters shall be established for each burrow.

If active burrows cannot be avoided, it may be necessary to obtain an ITP, under which suitable habitat may be required to be preserved either on- or off-site.

Implementation of these measures would minimize potential impacts to the above species to a less-than-significant level.

1.12.13 Impacts to American Badgers

Potentially Suitable Habitats. Open/natural lands and fallow/idle croplands and may periodically move through the Plan Area.

The American badger has been previously recorded within the Plan Area and may occur in pen/natural lands and fallow/idle croplands. Therefore, the project has the potential to result in a significant impact to American badgers. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigations. Implementation of the following measures prior to the construction of the project will reduce impacts to American badgers from direct mortality to a less-than-significant level.

Mitigation Measure 3.3.13a (Pre-construction Surveys). During the pre-construction surveys for other species, a qualified biologist shall also determine the presence or absence of badgers prior to the start of construction. If badgers are found to be absent, a report shall be written to the applicant so stating and no other mitigations for the protection of badgers would be required.

Mitigation Measure 3.3.13b (Avoidance and Monitoring). If an active badger den is identified during pre-construction surveys within or immediately adjacent to an area subject to construction, a construction-free buffer of up to 300 feet shall be established around the den. Once the qualified biologist has determined the badger has vacated the burrow, the burrow shall be collapsed or excavated and ground disturbance can proceed. Should the burrow be determined to be a natal or reproductive den, and because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present on-site during construction activities in the vicinity of the burrows to ensure the buffer is adequate to avoid direct impact to individuals or natal/reproductive den abandonment. The monitor will be required to be present until it is determined that young are of an independent age and construction or decommissioning activities would not harm individual badgers. Once the den has been confirmed to be inactive by the qualified biologist, it may be excavated, then collapsed.

Mitigation Measure 3.3.13c (Tailgate Training). All workers on the project should attend a tailgate training session conducted by a qualified biologist. The training shall include a description of the species, a summary of its biology, and minimization measures and instructions on what to do if an American badger is observed.

Implementation of the above measures would reduce potential impacts to the American badger to a less-than-significant level.

1.12.14 Impacts to San Joaquin Kit Fox

Potentially Suitable Habitats. Core habitat in open/natural land, may also occur in fallow/idle cropland and may periodically move through the site.

Potential Impacts. The entire Plan Area consists of agricultural land with open/natural lands mainly occurring along the western edge. Therefore, the site has some potential for occurrence of SJKF. The majority of the Plan Area has been highly modified for and due to agricultural use, while the lands along the western edge of the Plan Area as well as lands to the west of the Plan Area have retained their natural habitat quality. Therefore, SJKF may occur within the open/natural lands and fallow/idle croplands and may occasionally forage within or disperse through the rest of the Plan Area. As such, VCIP implementation could have a potentially *significant impact* upon the SJKF. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. The following measures should be implemented in conjunction with the construction of each individual project site.

Mitigation Measure 3.3.14a (Pre-construction surveys). Pre-construction surveys for SJKF should be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any project activity likely to impact the SJKF. These surveys shall be conducted in accordance with the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior To or During Ground Disturbance* (USFWS 2011) or the most recent USFWS guidelines. The primary objective of these recommendations is to identify SJKF habitat features (e.g., potential dens and refugia) on the project site and evaluate their use by SJKF. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS should be contacted immediately to determine the best course of action.

Mitigation Measure 3.3.14b (Avoidance). Should kit fox be found to be using the project site during pre-construction surveys, the construction activity should avoid the habitat occupied by kit fox and the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW should be notified.

Mitigation Measure 3.3.14c (Tailgate Training). All workers on the project shall attend a tailgate training session conducted by a qualified biologist. The training shall include a description of the species, a summary of their biology, and minimization measures and instructions on what to do if a SJKF is observed on the project site.

Mitigation Measure 3.3.14d (Minimization of Potential Disturbance to Kit Fox*)*. Whether or not kit foxes are found to be present, all permanent and temporary construction activities, decommissioning activities, and other types of project-related activities should be carried out in a manner that minimizes potential disturbance to SJKF. This shall be accomplished through implementation of minimization measures, which include but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.

Mitigation Measure 3.3.14e (Wildlife-Friendly Fencing). The perimeter fencing surrounding each phase of the project shall consist of wildlife-friendly or permeable fencing that allows SJKFand other wildlife to move through the site unimpeded. The bottom of the perimeter fencing shall be 5 to 7 inches above the ground, as measured from the top of the ground to the lowest point of the fence. The bottom of the fence edges shall be knuckled (wrapped back to form a smooth edge) to allow wildlife to pass through safely. The fencing shall not be electrified.

***Mitigation Measure 3.3.14f (Mortality Reporting)*.** The Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW shall be notified in writing within three working days in case of the accidental death or injury to a SJKF during project-related activities. Notification must

include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.

Mitigation Measure 3.3.14g (Minimization). If active dens are identified during pre-activity surveys within or immediately adjacent to an area subject to project activity, a project-activity-free buffer of at least 300 feet shall be established for the active den. This buffer shall be maintained until the young have moved on from the den. Once the den has been confirmed to be inactive by a qualified biologist, it shall be excavated, then collapsed. If active burrows cannot be avoided, an ITP may be required.

Implementation of these measures would reduce impacts to the SJKF to a less-than-significant level and would minimize the risk that construction activities during the development of the project site would result in mortality to individual SJKF. Should SJKF be observed within an individual project site, the applicant may wish to contact the USFWS for implementation of a Safe Harbor Agreement. If allowed, this agreement will allow the applicant "assurances that additional land use restrictions as a result of their voluntary conservation actions would not be imposed by the USFWS" (USFWS, 1998).

1.12.15 Impacts to Wildlife Movement Corridors

Potential Impacts. As the majority of potential wildlife linkage/corridors known or suggested to exist occur in the northern third of the Plan area with a more well defined, narrowed wildlife linkage/corridor from the southwest-northeast across the Plan Area from the region of Three Rocks to just south of the Mendota Wildlife Refuge. In addition, the natural hills on the western side of I-5 act as a wildlife linkage/corridor. While the Plan Area is large, each individual project will be a smaller portion and the entire Plan Area will not be fully built out, as only 25 percent of the Plan Area will be repurposed for renewable energy and related infrastructure projects, so there is some built-in flexibility to allow for continued wildlife movement along the edges and across the Plan Area. The individual solar and energy storage projects within the Plan Area will have wildlife-friendly fencing so animals can pass through the majority of the individual project sites in addition to being able to move in between individual project sites. Since the development

within the Plan Area is expected to affect only a small portion within the natural habitat area along the foothills, it is expected wildlife currently using this area for movement will continue to use it to move along the foothills and vicinity after project build-out.

To allow for ground movement of wildlife through the majority of individual project sites, all fencing enclosing each solar facility is planned to consist of "wildlife friendly" fencing with a continuous 5- to 7-inch separation from the top of the ground to the lowest point of the bottom of the fence along the entire fence. Such fencing will not be electrified.

Therefore, wildlife currently using the Plan Area for movement is expected to continue to use the Plan Area after buildout, as wildlife friendly fencing will be used, and canal systems are expected to be retained to allow for wildlife movement through the Plan Area without substantial interference.

Impacts to movement corridors for local wildlife would be less-than-significant.

Mitigations. Mitigation for impacts to wildlife movements is not warranted.

1.12.16 Impacts to Jurisdictional Waters, Wetlands, or Riparian Habitats

Potential Impacts. Hydrologic features within the Plan Area include the San Luis Canal/California Aqueduct, Coalinga Canal, canals and some ephemeral drainages which are expected to be dry nearly the entire year. The Plan Area also likely supports a few vernal pools and seasonal wetlands along its eastern boundary. The San Luis Canal/California Aqueduct is considered unlikely to be jurisdictional by the USACE, RWQCB and CDFW.

Ephemeral drainages are not likely to meet the criteria to be jurisdictional by the USACE, RWQCB and CDFW. However, specifics and contexts are important and whether any of these agencies would exert jurisdiction over such a feature can only be ascertained by conferring with each agency.

Vernal pools and seasonal wetlands on the other hand, while likely meeting the criteria of the USACE would only be considered jurisdictional if they have a continuous surface connection with a body of water that is itself a "water of the United States". The RWQCB would likely consider

these features as water of the state. CDFW does not have jurisdiction over vernal pools or seasonal wetlands.

None of the hydrologic features within the Plan Area are expected to be impacted by the potential VCIP projects particularly since there are few hydrologic features in the Plan Area and each project would have sufficient acreage for design flexibility to avoid such features (Section 2.7.8). Therefore, impacts associated with most, if not all, VCIP projects would be less than significant. Suitable permits may be required if a VCIP project would involve impacts to hydrologic features regulated by the USACE, RWQCB and/or CDFW; the affected projects would be subject to mitigation conditions as stipulated in any relevant permit. With the implementation of mitigation measures below, the potential impact would be avoided or substantially reduced to less than significant.

Mitigation. Mitigation measures are not expected to be required for most, if not all, VCIP projects. However, if an individual proposed VCIP project includes plans to impact a hydrologic feature, the following mitigation measures would apply at the project-specific level. To ensure consistency with applicable "no net loss" policies:

Mitigation Measure 3.3.16a (Minimization). If a proposed VCIP project includes plans to fill a Water of the U.S., and/or a Water of the State, the project shall be designed to minimize impacts to Waters to such waters to the maximum extent practicable.

Mitigation Measure 3.3.16b (Compensatory Mitigation). Compensation for the loss of Waters of the U.S. and/or Waters of the State may be required unless a waiver is granted. This may be accomplished by purchasing in-kind credits at an approved mitigation bank, payment into an established in-lieu fund, or through the preservation of on-site or off-site lands with similar hydrologic features. Any preservation lands would be placed under conservation easement held by a third party and managed in perpetuity with an agency approved endowment fund.

Mitigation Measure 3.3.16c (Creation of New Waters). As an alternative to Mitigation Measure 3.3.16b, a project proponent may compensate for the loss of waters of the U.S. and/or State through the creation of in-kind waters at a ratio determined by the USACE and/or RWQCB on

preserved lands, on-site or off-site, which have characteristics necessary for creation of similar hydrologic features. Such created wetlands would be placed under conservation easement held by a third party and managed in perpetuity with an agency approved endowment fund.

Mitigation Measure 3.3.16d (Employee Education Program). During the construction phases of the project, a qualified biologist will conduct an environmental awareness program for all construction and on-site personnel prior to impacting any jurisdictional waters. Training will include a discussion of avoidance and minimization measures being implemented to protect biological resources (including wetlands) as well as terms and conditions of the permits.

1.12.17 Local Policies or Ordinances Protecting Biological Resources

Potential Impacts. Since the Plan Area is within Fresno County, the VCIP energy and infrastructure development may be subject to the policies and regulations of Fresno County. The Fresno County General Plan includes a number of policies related to the protection of biological species and habitats, as enumerated in section 3.2.6.2. These include policies for the protection of sensitive species and habitats during project development by requiring biological surveys for discretionary projects and implementing mitigation for potential biological impacts. Open Space and Conservation Policy OS-F.4 Landmark Trees specifically provides for the preservation and protection of landmark trees whenever possible.

The biological resources impacts associated with VCIP implementation are identified previously in this section. The mitigation measures identified for potential impacts provide detailed prescriptive actions to be undertaken at the project-specific stage to avoid or substantially reduce potentially significant impacts to biological resources to less-than-significant levels. It is expected that VCIP energy and infrastructure development would take place in a manner that would not conflict with local policies or ordinances protecting biological resources. As such, the impact of VCIP implementation with regard to conflicts with local policies and ordinances protecting biological resources would be less than significant.

Mitigation. No mitigations are warranted.

1.12.18 Local Policies or Habitat Conservation Plans

Potential Impacts. USFWS adopted the *Recovery Plan for Upland Species of the San Joaquin Valley* (USFWS 1998) which covers 34 species of plants and animals that occur in the San Joaquin Valley. The majority of these species occur in arid grasslands and scrublands of the San Joaquin Valley and the adjacent foothills and valleys. The Plan includes information on recovery criteria, habitat protection, umbrella and keystone species, monitoring and research program, adaptive management, and economic and social considerations.

The western edge of the Plan Area is adjacent to the Ciervo-Panoche Natural Area, which the Plan defines as "natural lands along the western edge of the Valley and in the contiguous foothills and coastal range, from the Panoche Hills and Valley, Fresno and San Benito Counties, south to Anticline Ridge near Coalinga, Fresno County." The Ciervo-Panoche Natural Area encompasses an area of approximately one-half million acres in the Coastal Ranges immediately west of the Plan Area. The western margins of the Plan Area form a narrow strip of land at the foothill/valley transition on the extreme eastern edge of the Natural Area. Within this Natural Area, the goals of the Recovery Plan are to protect the natural lands to facilitate the recovery of specific species and to maintain and enhance existing corridors as well as connecting other natural lands within the Recovery area.

The Ciervo-Panoche Natural Area is included in the species-specific recovery plans for three plant species (California jewelflower, San Joaquin woolythreads, and Hoover's eriastrum) and two animal species (giant kangaroo rat and blunt-nosed leopard lizard). Suitable habitat for all of these species consists of open/natural lands, while cultivated agricultural land is unsuitable habitat for these species. Almost all of the Plan Area lands west of I-5 consist of lands in cultivation for row or tree crops, although there are a few pockets of natural/open lands or fallowed lands. Among the VCIP DFAs located west of I-5, there are a total of approximately 50 acres in open/natural or fallowed lands. Before these lands can be developed for solar and energy storage facilities, rigorous pre-construction surveys for these species will be required, as set forth in Mitigation Measures 3.3.1a, 3.3.1b, 3.3.12a, 3.3.12b, and 3.3.8a above, which will confirm presence or absence of these species and provide the basis for mitigation as appropriate in each

case. As such, impacts to individuals of these species would be avoided or mitigated to less than significant levels. The loss of up to 50 acres of potential habitat at the extreme eastern edge of the Ciervo-Panoche Natural Area would not impair or impede the recovery of the five species sought to be protected, and the impact would be less than significant.

Another species addressed in the Recovery Plan that potentially occurs within or in the vicinity of the Plan Area is the SJKF. While the Recovery Plan covers the SJKF, it does not include a species-specific recovery plan for this species as it does for the five species mentioned above and others. However, any potential impacts to kit fox would be avoided through implementation of Mitigation Measure 3.3.14 above. Therefore, the implementation of the VCIP would not conflict with the goals of the Recovery Plan for protecting the SJKF and the impact would be less than significant.

The Recovery Plan also identifies potential wildlife movement corridors and indicates that the northern portion of the Plan Area contains areas mapped as "[p]roposed areas where connectivity and linkages should be promoted," and the natural hills west of I-5 are likely used by native wildlife as a corridor along the foothills. In this context, it is noted that the solar and energy storage projects planned under the VCIP would include wildlife-friendly fencing which would include a 5- to 7-inch continuous gap at the bottom of the fencing to permit passage of wildlife through the facilities. In addition, the ditches and canals that pass through the solar and energy storage sites would not be enclosed within the facilities' perimeter fencing and would therefore allow open access through the area for wildlife movement. As such, the VCIP projects would not impede wildlife movement, including the movement of SJKF through the Plan Area, and the impact would be less than significant.

In summary, the solar and energy storage projects planned under the proposed VCIP would not conflict with the provisions of the Recovery Plan, and the impact to the Recovery Plan would be less than significant.

The Plan Area is not covered by any existing HCP or NCCP, or any other conservation plan area adopted at the local, regional, state, or federal level. Therefore, the implementation of the VCIP Energy Resource and Infrastructure Plans would not conflict with any such plans.

The Plan Area is not included in any Critical Habitat Area designated by the USFWS or CDFW (CDFW 2024).

Mitigation. No mitigations are warranted.

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Personal Communications

Michael L. Casazza, Research Wildlife Biologist, Mike_casazza@usgs.gov . U.S. Geological Survey, Western Ecological Research Center, Dixon Field Station, 800 Business Park Drive, Dixon, CA 95620. Other contacts: Austen A. Lorenz, Geographer, aalorenz@usgs.gov ,Cory T. Overton, Wildlife Biologist, coverton@usgs.gov

APPENDIX A: SWAINSON'S HAWK CUMULATIVE ANALYSIS

APPENDIX A: ANALYSIS OF CUMULATIVE IMPACTS TO SWAINSON'S HAWK FORAGING HABITAT IN THE VICINITY OF THE VALLEY CLEAN INFRASTRUCTURE PLAN AREA

The purpose of this analysis is to provide information to complete a cumulative impacts assessment for the Valley Clean Infrastructure Plan (VCIP) in accordance with Section 15130 of the California Environmental Quality Act (CEQA) Guidelines.

In accordance with the CEQA Guidelines, the following discussion of cumulative impacts reflects the standards of practicality and reasonableness and focuses on those cumulative impacts likely to result from the proposed project in combination with other past, present, and probable future solar projects in the vicinity.

The subject of this analysis is the Swainson's hawk (SWHA) (*Buteo swainsoni*), a California threatened species that relies largely on agricultural lands to meet its foraging needs. The objectives of this analysis include using available data to:

1. Identify past, current, and probable future projects for cumulative impacts assessment.
2. Determine distribution and abundance of nesting Swainson's hawks in the study area.
3. Determine Swainson's hawk foraging habitat requirements in the study area.
4. Assess the cumulative impacts of the VCIP on the distribution and abundance of Swainson's hawk foraging habitat.

This report is an appendix to the Programmatic Biological Evaluation for the VCIP Programmatic EIR. The Biological Evaluation addresses the potential effects to biological resources related to the development of the individual VCIP projects (i.e., 136,000 acres) dispersed amongst the approximately 535,000 acres within the Westlands Water District's service area in Fresno County. The approach was designed not to intensively survey all parcels for biological resources, but instead to map existing land cover of the 535,000 acres Plan Area using the USDA Cropland Data layer; a level of analysis commensurate with a programmatic analysis. To that end, detailed protocol level or intensive species-specific surveys were not conducted for this effort and instead it relied on a conservative assessment of the likely presence of species, and established a process whereby each individual VCIP project would conduct a habitat assessment, and depending on the findings of the land cover mapping effort, would conduct a series of species-specific surveys.

CUMULATIVE STUDY AREA

The Cumulative Study Area includes the entire VCIP Plan Area plus a 10-mile buffer around the Plan Area which contain a combined total of approximately 1.7 million acres and includes the cities of Firebaugh, Mendota, San Joaquin, Lemoore, Huron, Coalinga, and Avenal (Figure 1A & 1B). The lands within the cumulative study area are similar to the VCIP Plan Area with alfalfa, fallow/idle cropland, open/natural lands, orchards/vineyards, row and field crops, water/wetlands and developed/ruderal (District's 2024 & USDA 2024).

PROPOSED AND APPROVED PROJECTS WITHIN THE CUMULATIVE STUDY AREA

As of May 2025, 70 completed, approved and pending projects (aka "Cumulative Projects") located outside of the VCIP DFAs were identified within the non-DFA areas of the VCIP Plan Area and a 10-mile buffer area outside VCIP. Acreages for these projects were calculated using aerial imagery and information obtained from Fresno and Kings Counties.

METHODS

LOA conducted a regional analysis of foraging habitat availability and Swainson's hawk abundance patterned after methodologies developed by Jim Estep (Estep 2011), a wildlife biologist who has monitored Swainson's hawk populations and conducted research on the Swainson's hawk for over 35 years. This methodology has formed the basis of cumulative impact studies for a large number of CEQA analysis for solar projects within Yolo, Sacramento, Fresno, and Kings Counties. As such, using this widely accepted methodology is appropriate to analyze cumulative impacts related to the Swainson's hawk associated with the proposed VCIP. The analysis included in this PEIR follows the strategies developed by Estep. Briefly, the analysis consisted of (1) estimating the abundance of nesting Swainson's hawks in the study area, (2) estimating the amount of suitable Swainson's hawk foraging habitat in the study area, (3) estimating the amount of "surplus" foraging habitat in the study area beyond what is needed by the study area's nesting pairs, (4) assessing cumulative impacts to Swainson's hawk foraging habitat in the study area with an eye to retaining sufficient surplus acreage for population expansion.

LEGEND

- WWD / VCIP Boundary
- 10 Mile VCIP Buffer
- Completed Projects
- Pending Projects
- Alfalfa
- Developed / Ruderal
- Open Natural Lands
- Fallow / Idle Cropland
- Orchards / Vinyards
- Row & Field Crops
- Water / Wetlands / Canals
- Woodlands

10 mile buffer

Firebaugh

Mendota

San Joaquin

Fresno

Main Cnl

Outside Cnl

Delta-Mendota Cnl

First Lift Cnl

Lone Willow Slough

San Joaquin River

Panoche

Fresno Slough

California Aqueduct

State Hwy 33

Firebaugh Blvd

RD 9

AVENUE 12TH

AVENUE 7TH

99

5

N Oxford Ave

N RUSSELL AVE

N Jerrold Ave

N FAIRFAX AVE

S LYON AVE

S San Diego Ave

SANTA FE AVE

S Hudson Ave

S JAMES RD

S PLACER AVE

N DICKENSON AVE

S HENDERSON AVE

S Marks Ave

S Tuolumne Ave

S Stanislaus Ave

Derrick Ave

S JAMESON AVE

COLORADO RD

Merrill Ave

W Oxalis Ave

W NEES AVE

W Herndon Ave

COUNTY HWY J1

W Belmont Ave

CALIFORNIA AVE

W NORTH AVE

W American Ave

W PANOCHE RD

W Adams Ave

W Manning Ave

W Dinuba Ave

Nebraska

W Davis Ave

W SHAW AVE

W SHIELDS AVE

W BELMONT AVE

Whiteshridge Ave

W KEARNEY BLVD

W JENSEN AVE

W AMERICAN AVE

W MANNING AVE

W Floral Ave

W KAMM AVE

W MULLEN

Panoche Rd

PANOCHE RD

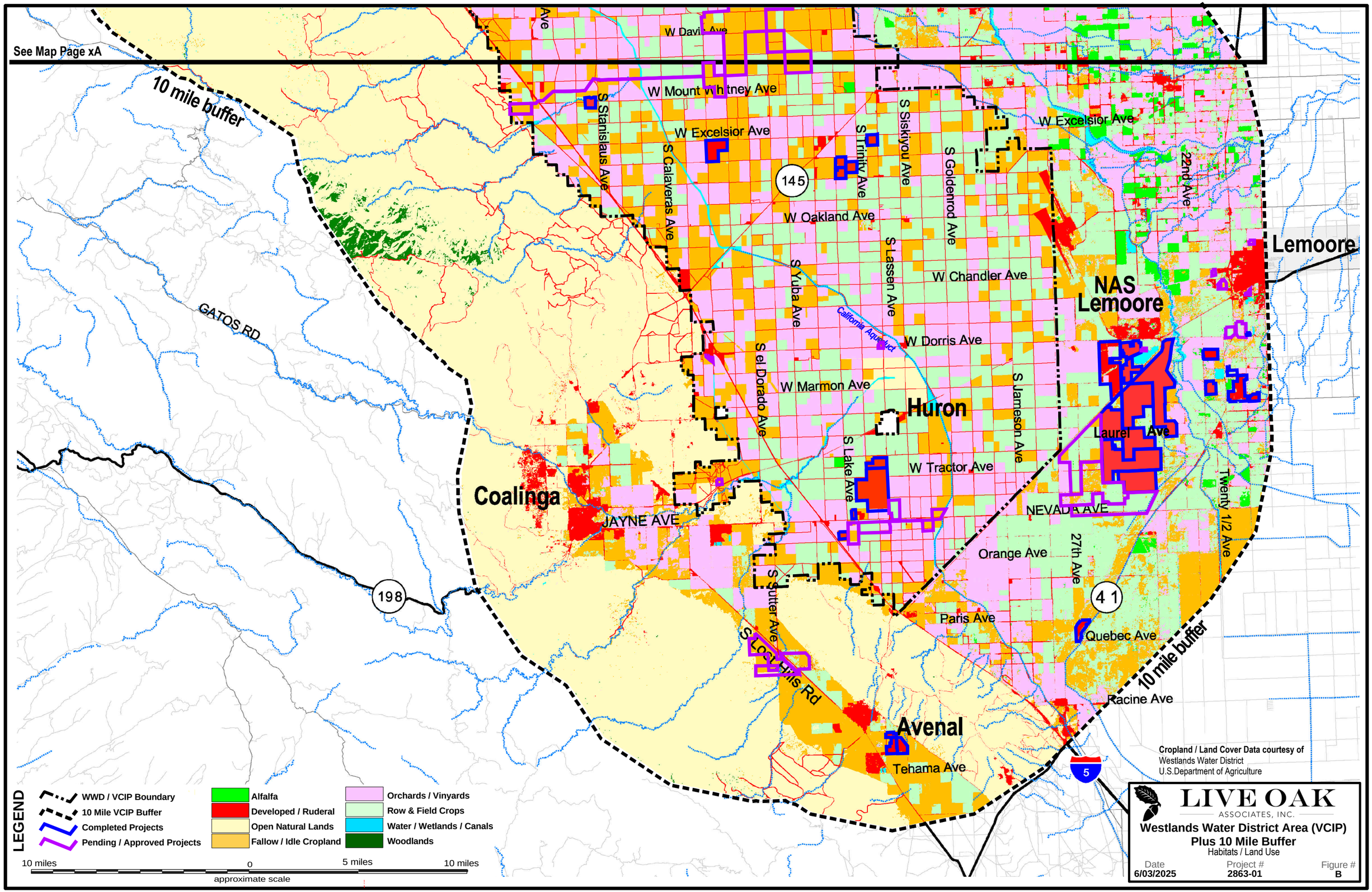
Cropland / Land Cover Data courtesy of
Westlands Water District
U.S.Department of Agriculture

10 miles 0 5 miles 10 miles
approximate scale

LIVE OAK ASSOCIATES, INC.

Westlands Water District Area (VCIP)
Plus 10 Mile Buffer
Habitats / Land Use

Date	Project #	Figure #
6/03/2025	2863-01	A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10 mile buffer
GATOS RD
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S Siskiyou Ave
S Goldenrod Ave
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W Oakland Ave
S Yuba Ave
S Lassen Ave
W Chandler Ave
California Aqueduct
W Dorris Ave
S El Dorado Ave
W Marmon Ave
Huron
S Jameson Ave
S Lake Ave
W Tractor Ave
NAS Lemoore
Laurel Ave
Lemoore
22nd Ave
Twenty 1/2 Ave
NEVADA AVE
Orange Ave
27th Ave
41
Paris Ave
Quebec Ave
10 mile buffer
Racine Ave
S Gutter Ave
S Lone Tree Rd
Avenal
Tehama Ave
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LEGEND
WWD / VCIP Boundary
10 Mile VCIP Buffer
Completed Projects
Pending / Approved Projects
Alfalfa
Developed / Ruderal
Open Natural Lands
Fallow / Idle Cropland
Orchards / Vinyards
Row & Field Crops
Water / Wetlands / Canals
Woodlands
10 miles
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approximate scale
Cropland / Land Cover Data courtesy of
Westlands Water District
U.S.Department of Agriculture
LIVE OAK
ASSOCIATES, INC.
Westlands Water District Area (VCIP)
Plus 10 Mile Buffer
Habitats / Land Use
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B

Swainson's Hawk Abundance

LOA did not conduct extensive surveys of the VCIP Plan Area and the 10-mile buffer area, i.e., Cumulative Study Area. However, LOA conducted a similar cumulative Swainson's hawk habitat study based on Estep's methodology for the Daylight Solar Project in King's County in 2023 (LOA 2023). The number of Swainson's hawk nesting territories within the VCIP Cumulative Study Area was calculated by extrapolating the density estimate (number of territories/acres of suitable habitat) for the Daylight Solar Project. This resulted in an estimate of 131 bird territories for the VCIP Cumulative Study Area. It is important to note, that considerably greater proportion of the Daylight Solar buffer lands are within proximity of the Fresno Slough and Kings River, indicating, that the Daylight Solar density is likely higher than what is occurring for the VCIP Cumulative Study Area.

Also noteworthy in this context are Estep's (2021) observations that Swainson's hawks in Sacramento County foraged at moderate-sized solar array fields at a level that exceeded expected use based on their relative availability compared to recognized suitable foraging habitats. In other words, the Swainson's hawks spent relatively more time foraging on a given acreage of solar farm than on the same acreage of non-solar farm foraging habitat. Estep's findings suggest that treating existing solar farms as developed with no forage value for Swainson's hawk may underestimate the total available foraging habitat within the Cumulative Study Area. However, this analysis assumes that solar farms have no foraging value, which results in a conservative (i.e., more environmentally protective) approach.

For this analysis, a conservative approach was followed in conducting the cumulative impact analysis uses 131 Swainson's hawk territories within the VCIP Cumulative Study Area.

Land Use Classification

To determine the amount of suitable Swainson's hawk foraging habitat in the Cumulative Study Area, the study area's land uses were first identified and mapped within the Plan Area using the District's 2024 Cropland data, and then using the 2024 U.S. Department of Agriculture (USDA) National Agricultural Statistics Service Cropland Data Layer (CDL) for the 10-mile buffer area (USDA 2024; Han et al. 2012; Boryan et al. 2011). The CDL is a raster-format, georeferenced, crop-

specific land cover data layer created annually for the continental United States using moderate resolution satellite imagery and extensive agricultural ground truthing (USDA 2024).

LOA classified the study area's 71 CDL-derived land uses into seven cover type categories based on relative foraging suitability for Swainson's hawks. Habitat suitability was determined based on expert opinion (Estep 1989, Estep 2011) and agency guidelines (CDFG 1994). The seven categories are:

- Alfalfa
- Fallow/Idle Cropland
- Open Natural Lands
- Row and Field Crops
- Orchard and Vineyard
- Developed/Ruderal
- Water/Wetland/Riparian Woodland

As will be discussed in more detail in the Results section, the first four categories above are considered suitable as Swainson's hawk foraging habitat, while the latter three categories are considered unsuitable. LOA calculated the acreage of each cover type category, both within the VCIP Plan Area and larger Cumulative Study Area. The collective acreage of the four suitable categories within the study area is hereafter referred to as *available foraging habitat*.

Required and Surplus Foraging Habitat

To estimate the amount of foraging habitat needed to sustain nesting pairs of Swainson's hawks within the study area, LOA multiplied the number of known nest locations by 6,820 acres, which Estep (1989) found to be the average amount of foraging habitat utilized per pair. The resulting number was then reduced by 30 percent to account for overlap of foraging ranges of different pairs (Estep 2011). The value obtained from these steps is referred to as *required foraging habitat*.

Next, the study area's required foraging habitat acreage was subtracted from available foraging habitat acreage to yield an estimate of *surplus foraging habitat*, or foraging habitat within the study area that is in excess of what is required by the Swainson's hawk pairs nesting within. Finally, the percent loss of surplus foraging habitat that would cumulatively result from VCIP

projects and other developments in the Cumulative Study Area was calculated. This was accomplished by dividing the approximate acreage of these developments by surplus foraging habitat acreage and multiplying by 100 to convert to percentages. Project-related loss of foraging habitat was considered a significant impact if it exceeded a 30 percent reduction of surplus foraging habitat, consistent with the Estep (2011) methodologies.

RESULTS

Swainson's Hawk Abundance

This analysis assumes that 131 active nests occur within the VCIP 10-mile Cumulative Study Area. This analysis assumes all 131 nests would be occupied in any given year considering the generally high degree of nest fidelity by Swainson's hawks.

Land Use Cover Types and Foraging Suitability

There are seven cover type categories in the 1,715,510-acre Cumulative Study Area, which includes the 535,000 acres in the VCIP Plan Area, of which 136,000 acres are planned to be developed. The areal extent, relative abundance, and SWHA foraging value of each of the study area's cover type categories is listed in Table 1 and described below.

TABLE 1. LAND COVER AND HABITAT SUITABILITY OF CUMULATIVE STUDY AREA AND VCIP IMPLEMENTATION FOCUS AREAS (DFAs) (USDA 2024).

Land Cover Type Category	SWHA Foraging Value	Cumulative Study Area Acres (Percent of Total Land Area)	VCIP DFAs Acres (Percent of Total DFA Area)
Alfalfa	High	33,627 (1.96%)	910 (0.67%)
Fallow/Idle Cropland	Medium-High	274,556 (16.00%)	81,357 (59.82%)
Open Natural Land	Medium-High	464,115 ((27.05%)	143 (0.11%)
Row and Field Crops	Medium	309,091 (18.02%)	28,264 (20.78%)
Total Foraging Habitat		1,081,389 (63.04%)	110,674 (81.38%)
Orchard and Vineyard	Low-None	497,638 (29.01%)	23,870 (17.55%)
Road/develop/Ruderal	None	106,496 (6.21%)	637 (0.47%)
Water /Wetland/Riparian Woodland	None	29,987 (1.75%)	819 (0.60%)
Total Land Area		1,715,510 (100%)	136,000 (100%)

Alfalfa. Alfalfa is considered to have the highest foraging value for SWHA (Estep 1989, 2011, 2012). This crop remains in fields for up to five years. Alfalfa management includes mowing and irrigation, which can expose rodent prey and make prey more accessible to SWHA (Estep 2011, 2012).

Fallow/Idle Cropland. This cover type category includes lands classified in the CDL as fallow/idle cropland. This cover type may provide medium to high forage value to Swainson's hawks depending upon prey availability

Open Natural Land. This cover type category includes lands classified in the CDL as grassland/pasture, herbaceous wetlands, and shrubland. This cover type may provide medium to high forage value to Swainson's hawks depending upon prey availability.

Row and Field Crops. The cover type category includes all of the CDL's cultivated, non-woody crop classifications save alfalfa. In the study area, this category is dominated by winter wheat, tomatoes, and cotton. Other crops include barley, cantaloupes, carrots, corn, durum wheat, garlic, honeydew melons, lettuce, oats, onions, other hay/non-alfalfa, rice, rye, safflower, sorghum, and triticale. Row and field crops are generally of moderate foraging suitability for SWHA (Estep 1989). Foraging value may fluctuate based on timing of harvest and planting.

Orchard and Vineyard. This cover type category includes all tree and vine crops classified in the CDL. In the study area, this category is dominated by pistachios and almonds, but also includes cherries, citrus, grapes, nectarines, oranges, peaches, pecans, plums, pomegranates, and walnuts. Orchards and vineyards are of little to no foraging value to SWHA due to a lack of prey accessibility (Woodbridge 1998).

Road/Developed/Ruderal. This cover type category includes lands classified in the CDL as low, medium, or high intensity development, developed open space, and barren. In the study area, it includes the towns of Firebaugh, Mendota, San Joaquin, Lemoore, Huron, Coalinga, Avenal and also includes roads and rural developments (e.g., cattle corrals and other infrastructure). This cover type has no appreciable value as Swainson's hawk foraging habitat; however, trees located on these lands may provide nesting habitat in some situations.

Water/Wetland/Riparian Woodland. This category includes open water and all tree-dominated natural lands, which in the study area include deciduous forest, mixed forest, evergreen forest, and woody wetlands as classified by the CDL. It is important to note that the study area's forest and woodland habitats are likely to provide nesting habitat for SWHA despite being unsuitable for foraging.

Foraging Habitat Cumulative Analysis

Table 2 below presents LOA's calculations with respect to available foraging habitat, required foraging habitat, and surplus foraging habitat for Swainson's hawks is the Cumulative Study Area, as well as the cumulative loss of surplus foraging habitat expected to result from other undeveloped cumulative projects.

	TABLE 2. CUMULATIVE IMPACT ANALYSIS FOR SWHA FORAGING HABITAT WITHIN THE STUDY AREA. THIS ANALYSIS ASSUMES 131 SWAINSON'S HAWK TERRITORIES.		
	Foraging Habitat	Acres	Percent
a	Pre-development foraging habitat in study area	1,081,389	
b	Unadjusted foraging habitat required to support 131 SWHA pairs	893,420	-
c	Adjusted foraging habitat required to support 131 SWHA pairs (adjusted for 30% range overlap)	625,394	-
d	Surplus SWHA foraging habitat (a-c)	455,995	-
e	Loss of foraging habitat due to VCIP implementation	110,674	
f	Loss of foraging habitat due to other cumulative development in study area	19,222	-
g	Cumulative loss of foraging habitat from VCIP and other cumulative projects	129,896	-
h	Remaining available foraging habitat following VCIP and non-VCIP cumulative development (a-g)	951,493	88.0%
i	Remaining available surplus SWHA foraging habitat following all VCIP and cumulative development (d-g)	326,099	71.5%

The VCIP Cumulative Study Area contains 1,081,389 acres of available foraging habitat for Swainson's hawks before implementation of VCIP and the other cumulative projects. The required foraging habitat for 131 nesting pairs is 625,394 acres; again, this assumes 6,820 acres per pair, less 30 percent to account for foraging overlap. Hence, there are 455,995 acres of surplus foraging habitat in the study area. VCIP implementation would result in the loss of 110,674 net acres of habitat, and the 70 non-VCIP cumulative projects impact 19,222 net acres suitable for Swainson's hawk foraging. Upon full buildout of the VCIP DFAs and all other cumulative development within the Cumulative Study Area, 326,099 acres of surplus foraging habitat will remain available to the study area's Swainson's hawks following buildout.

Estep (2011) considered a loss of 30 percent or more of surplus foraging habitat "significant" per the provisions of CEQA because, in his opinion, this level of loss could reduce the distribution and abundance of an existing Swainson's hawk population and/or prevent that population from

expanding. Along with the completed, approved and pending projects in the VCIP Cumulative Study Area, the VCIP Project will contribute to an overall 28.5 percent reduction in surplus foraging habitat for Swainson's hawks. Based on the 30 percent threshold established by Estep (2011), a recognized expert in the field, it is concluded that the Swainson's hawk population in the Cumulative Study Area can tolerate a 28.5 percent loss of foraging habitat without adverse impacts.

It is also worth noting that: 1) Swainson's hawks have been observed foraging within solar facilities, indicating that these facilities provide some foraging value and that these lands are therefore not completely removed from available foraging habitat in practice; and 2) upon decommissioning of the VCIP facilities, much of the land repurposed for clean energy production under VCIP over the short-term will be restored to a condition suitable for agriculture, thus increasing the acreage of available foraging habitat. Therefore, the estimate of 71.5 percent of surplus foraging habitat that would remain under cumulative development conditions is considered a conservative (low) estimate for both short-term and long-term conditions.

Therefore, cumulative impacts to Swainson's hawk foraging habitat associated with implementation of the VCIP are considered less than significant under CEQA.

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APPENDIX D – NOISE MEASUREMENT DATA

Prepared by

Illingworth & Rodkin, Inc.

January 2025

Noise Levels at Noise Measurement Site LT-1
Firebaugh - 45 feet from the Centerline of 13th Street at Q Street
Tuesday, October 8, 2024

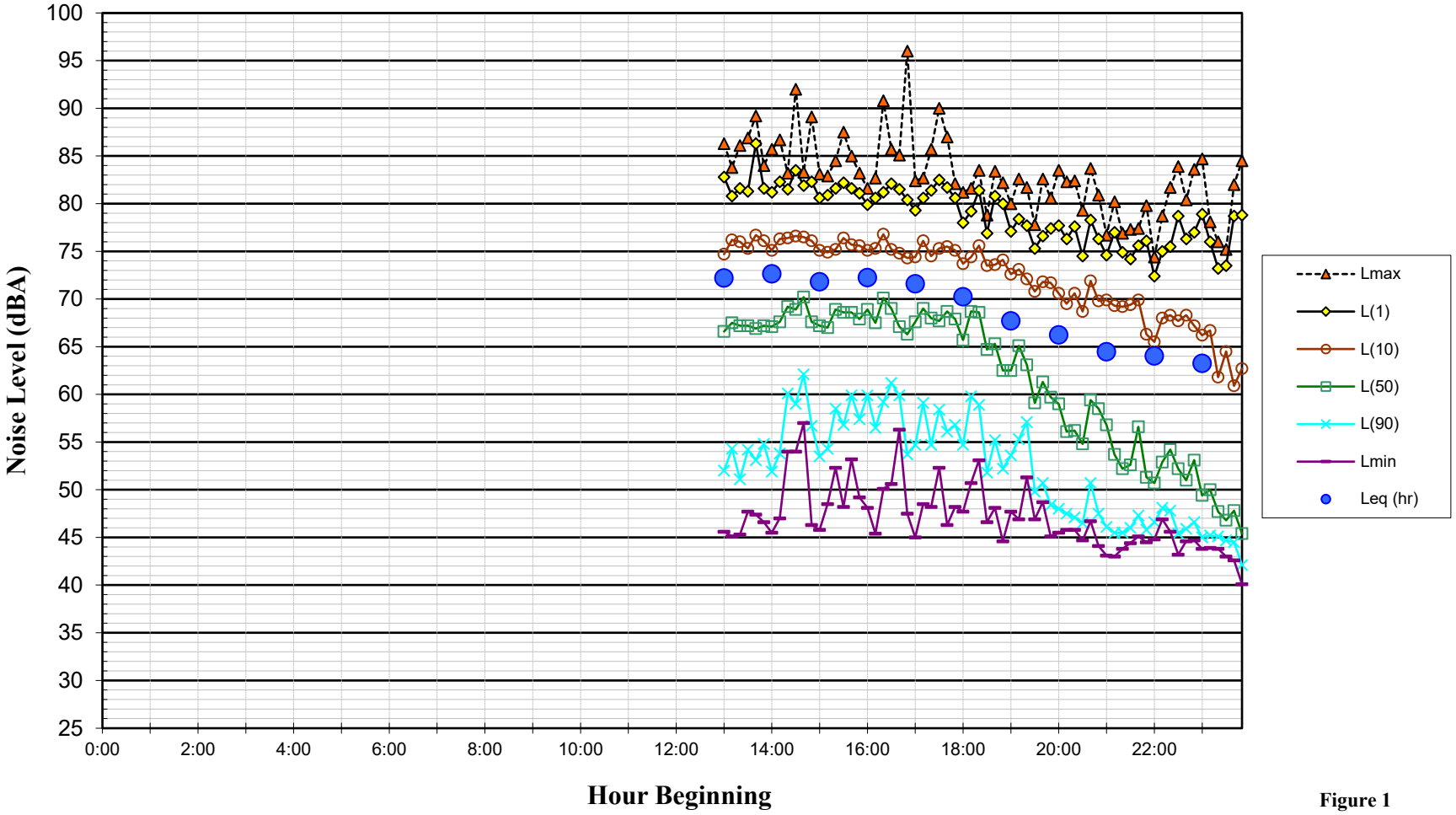
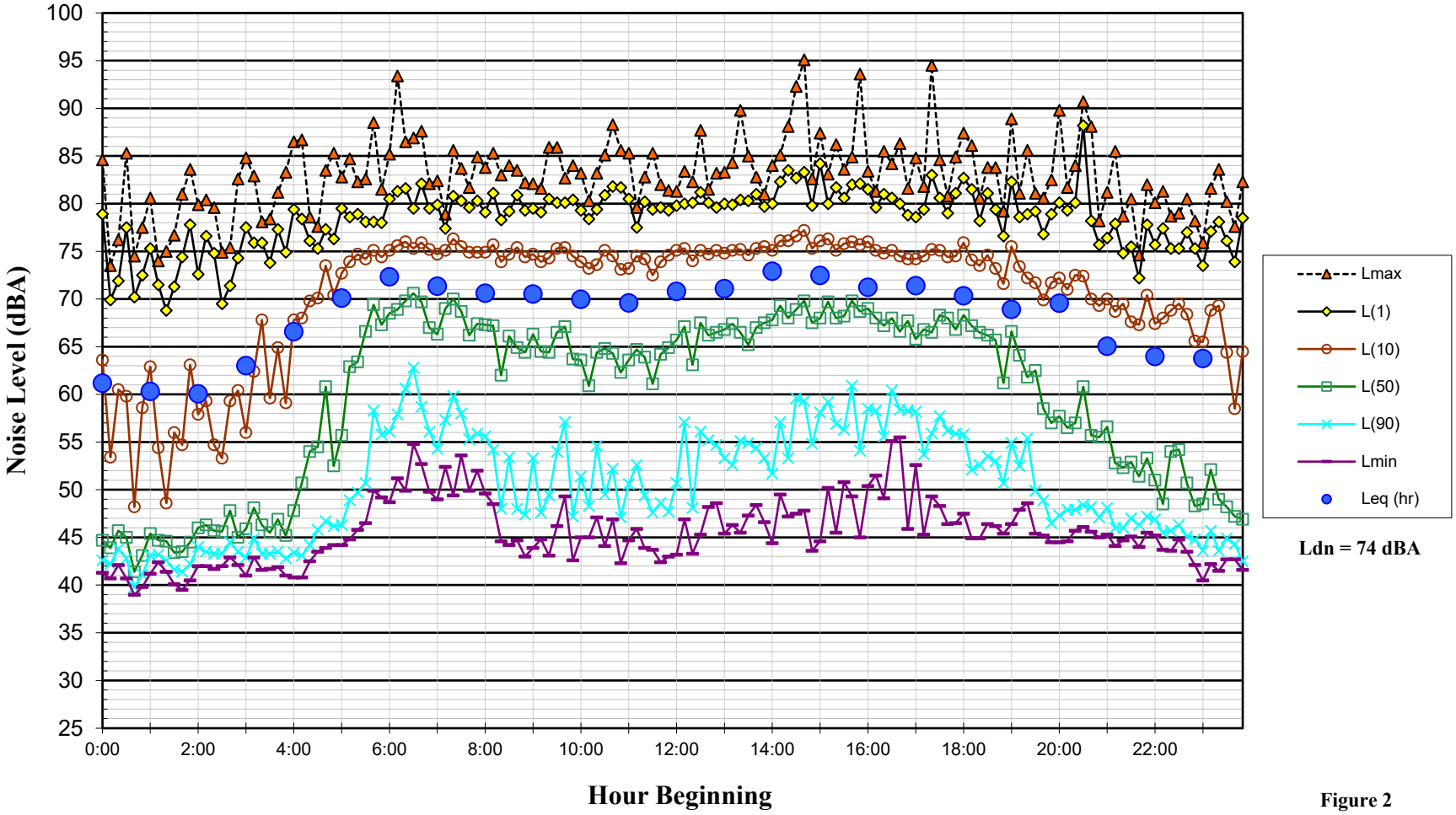


Figure 1

Noise Levels at Noise Measurement Site LT-1
Firebaugh - 45 feet from the Centerline of 13th Street at Q Street
Wednesday, October 9, 2024



Ldn = 74 dBA

Figure 2

Noise Levels at Noise Measurement Site LT-1
Firebaugh - 45 feet from the Centerline of 13th Street at Q Street
Thursday, October 10, 2024

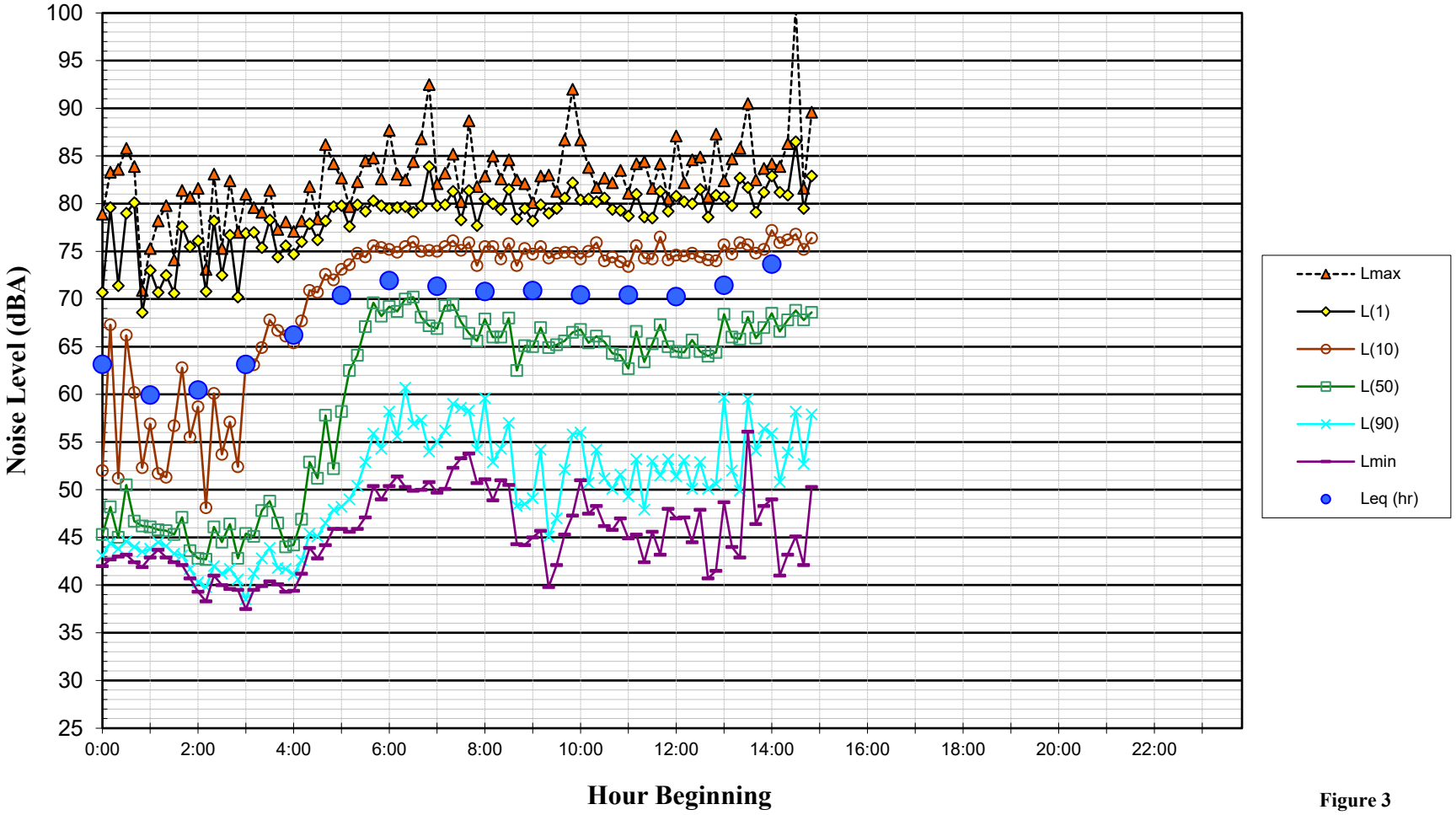


Figure 3

Noise Levels at Noise Measurement Site LT-2
Mendota - 75 feet from the Centerline of Belmont Avenue at 9th Street
Tuesday, October 8, 2024

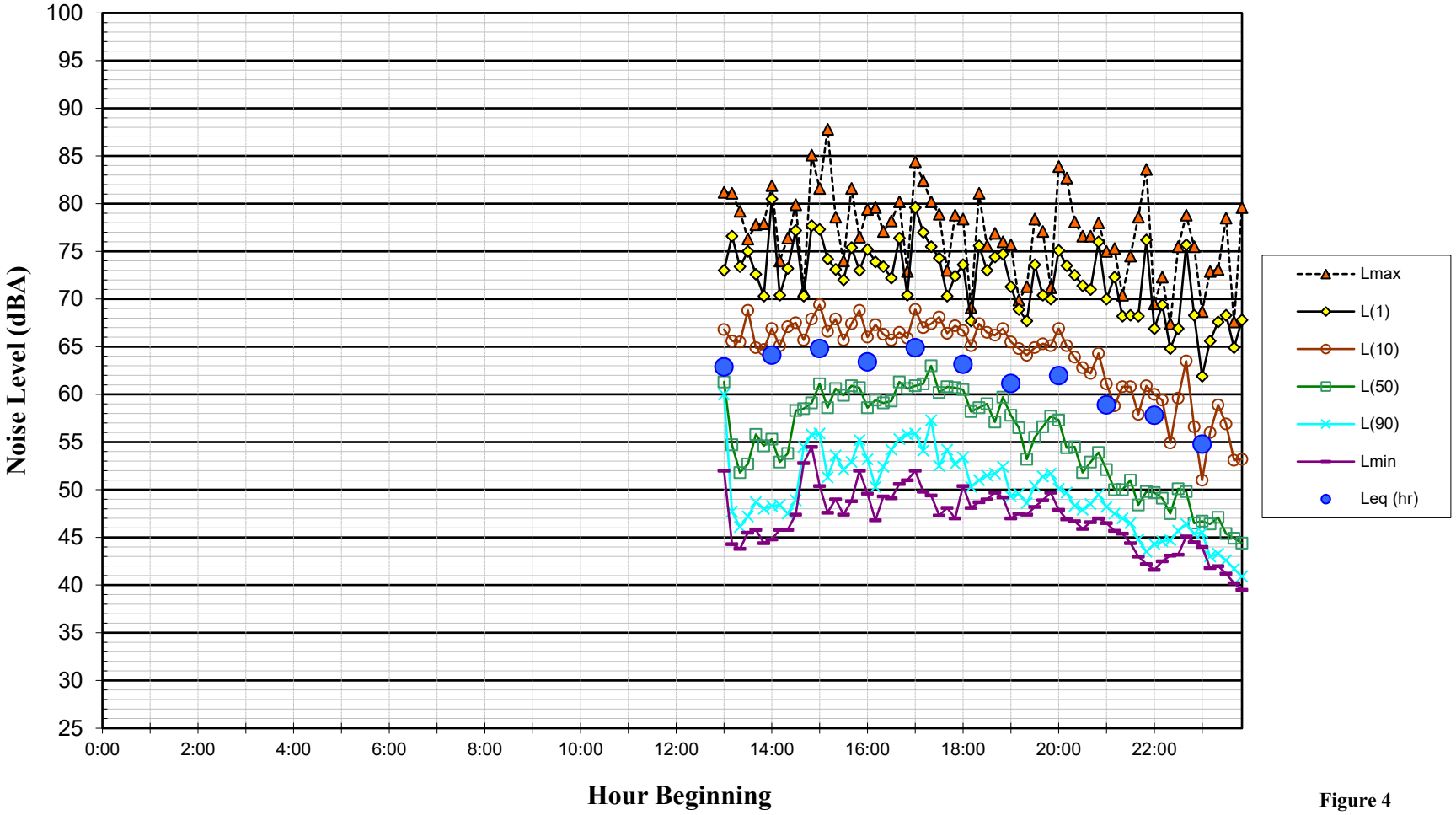
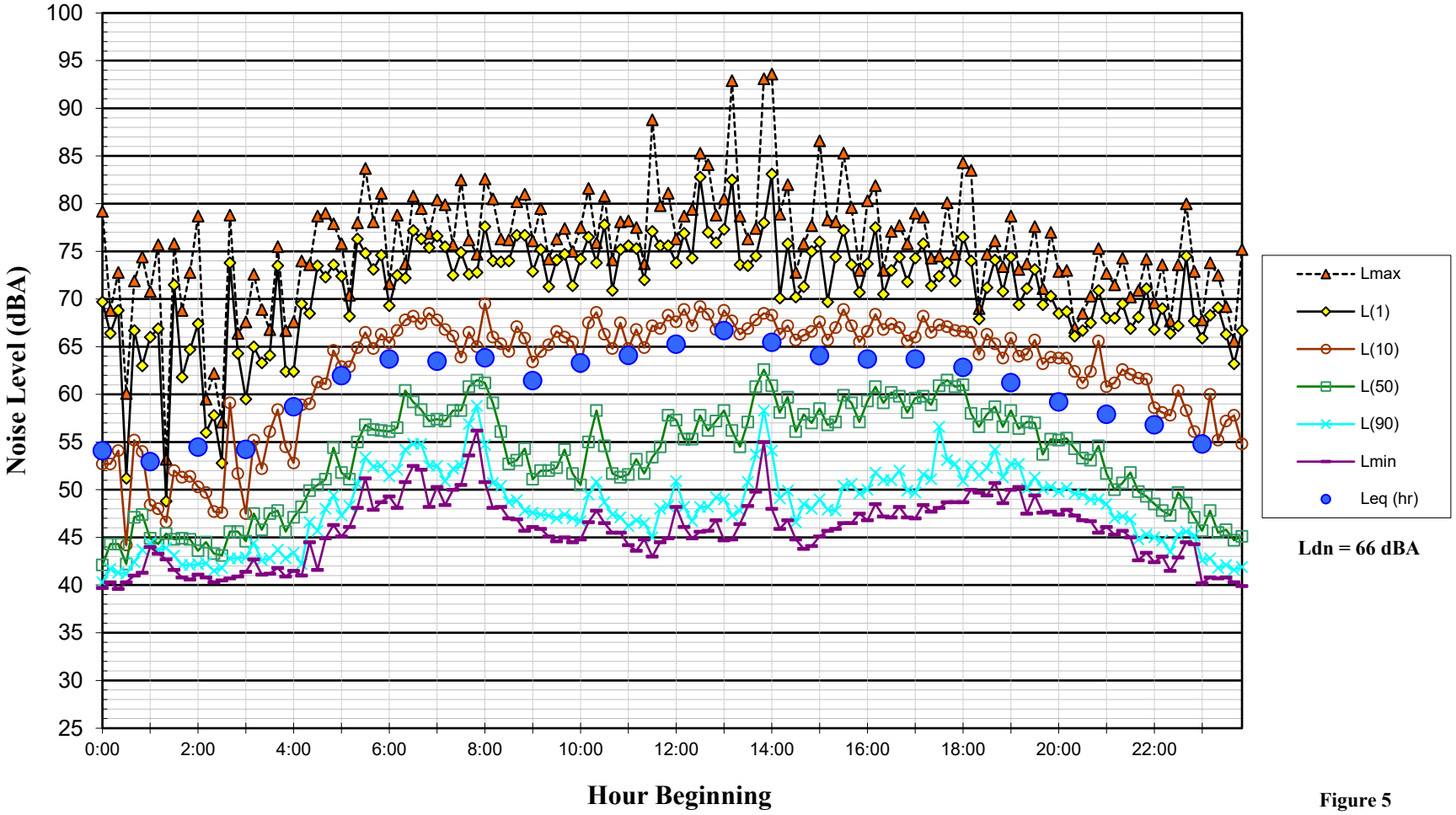


Figure 4

Noise Levels at Noise Measurement Site LT-2
Mendota - 75 feet from the Centerline of Belmont Avenue at 9th Street
Wednesday, October 9, 2024



Ldn = 66 dBA

Figure 5

Noise Levels at Noise Measurement Site LT-2
Mendota - 75 feet from the Centerline of Belmont Avenue at 9th Street
Thursday, October 10, 2024

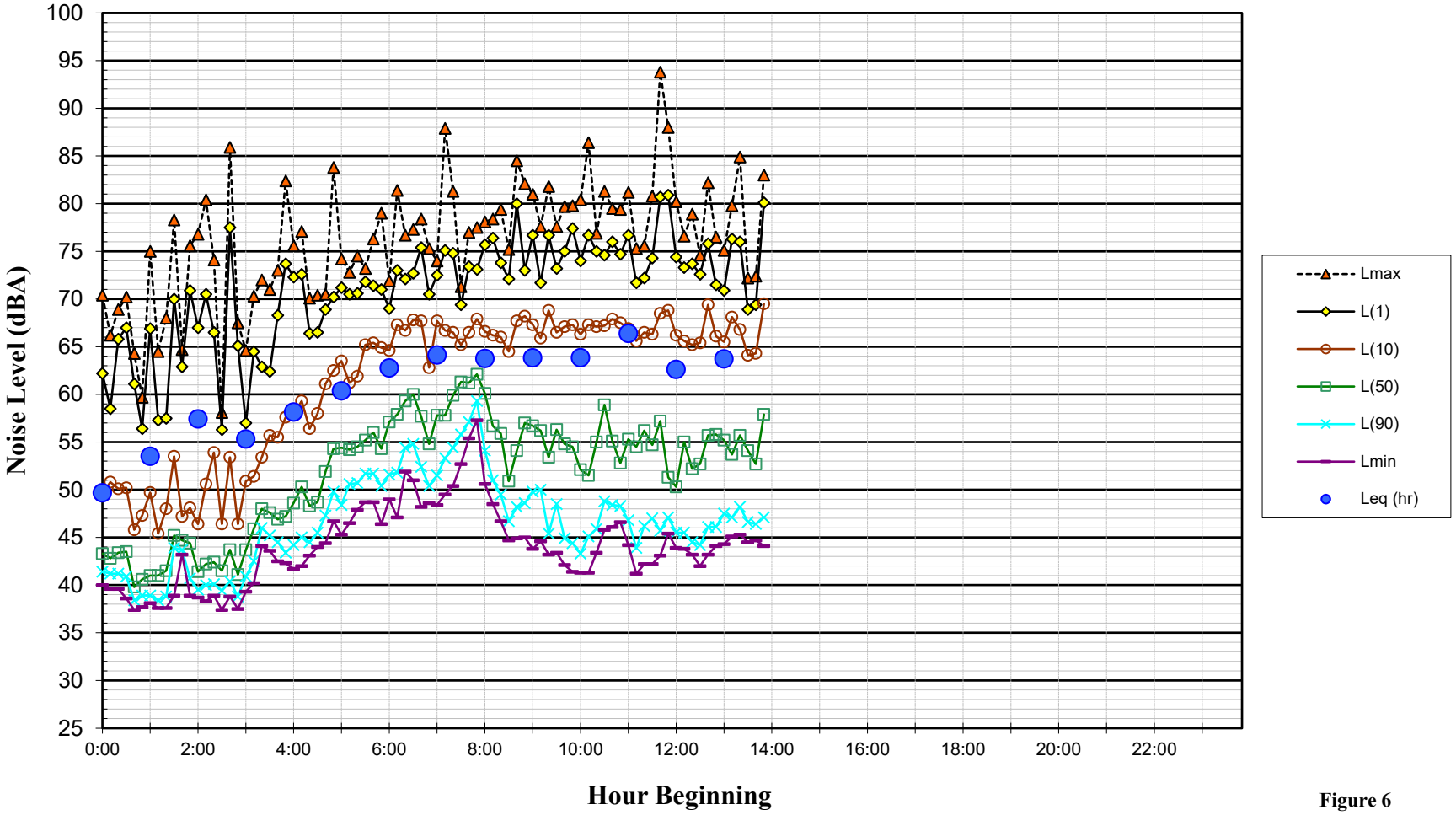


Figure 6

Noise Levels at Noise Measurement Site LT-3
Kerman - 100 feet from the Centerline of Whitesbridge Avenue at S. Del Norte Avenue
Tuesday, October 8, 2024

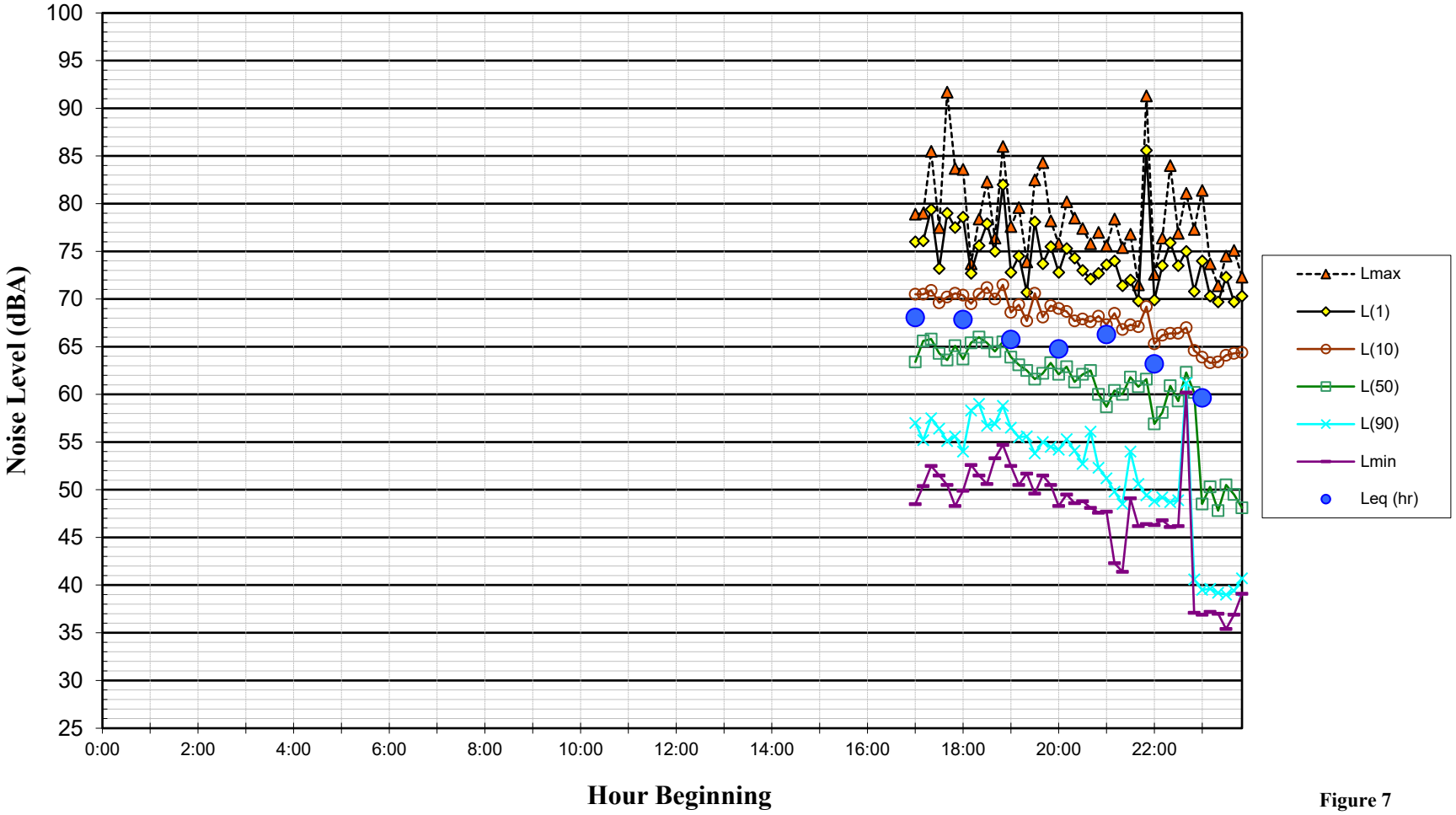
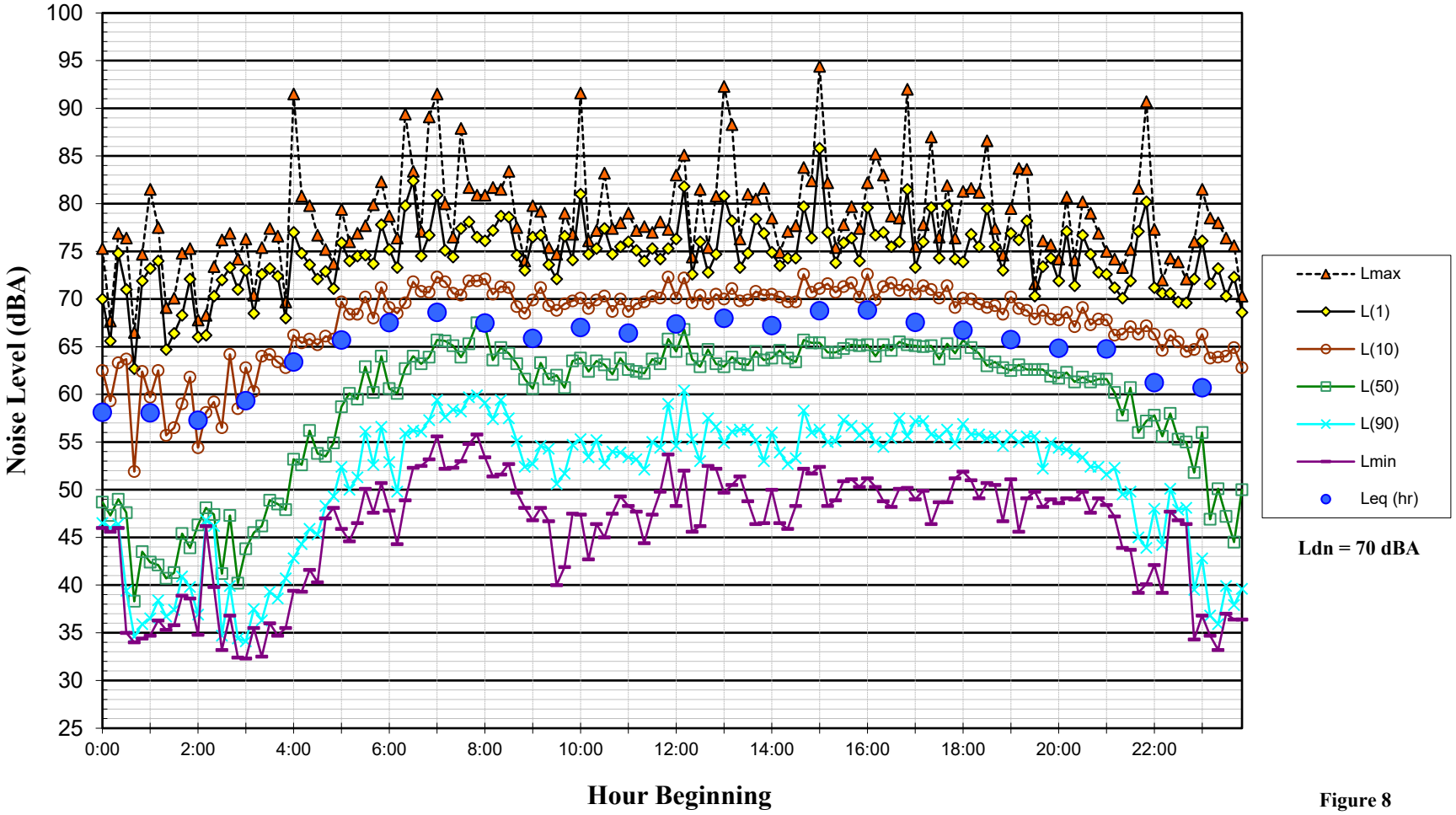


Figure 7

Noise Levels at Noise Measurement Site LT-3
Kerman - 100 feet from the Centerline of Whitesbridge Avenue at S. Del Norte Avenue
Wednesday, October 9, 2024



Ldn = 70 dBA

Figure 8

Noise Levels at Noise Measurement Site LT-3
Kerman - 100 feet from the Centerline of Whitesbridge Avenue at S. Del Norte Avenue
Thursday, October 10, 2024

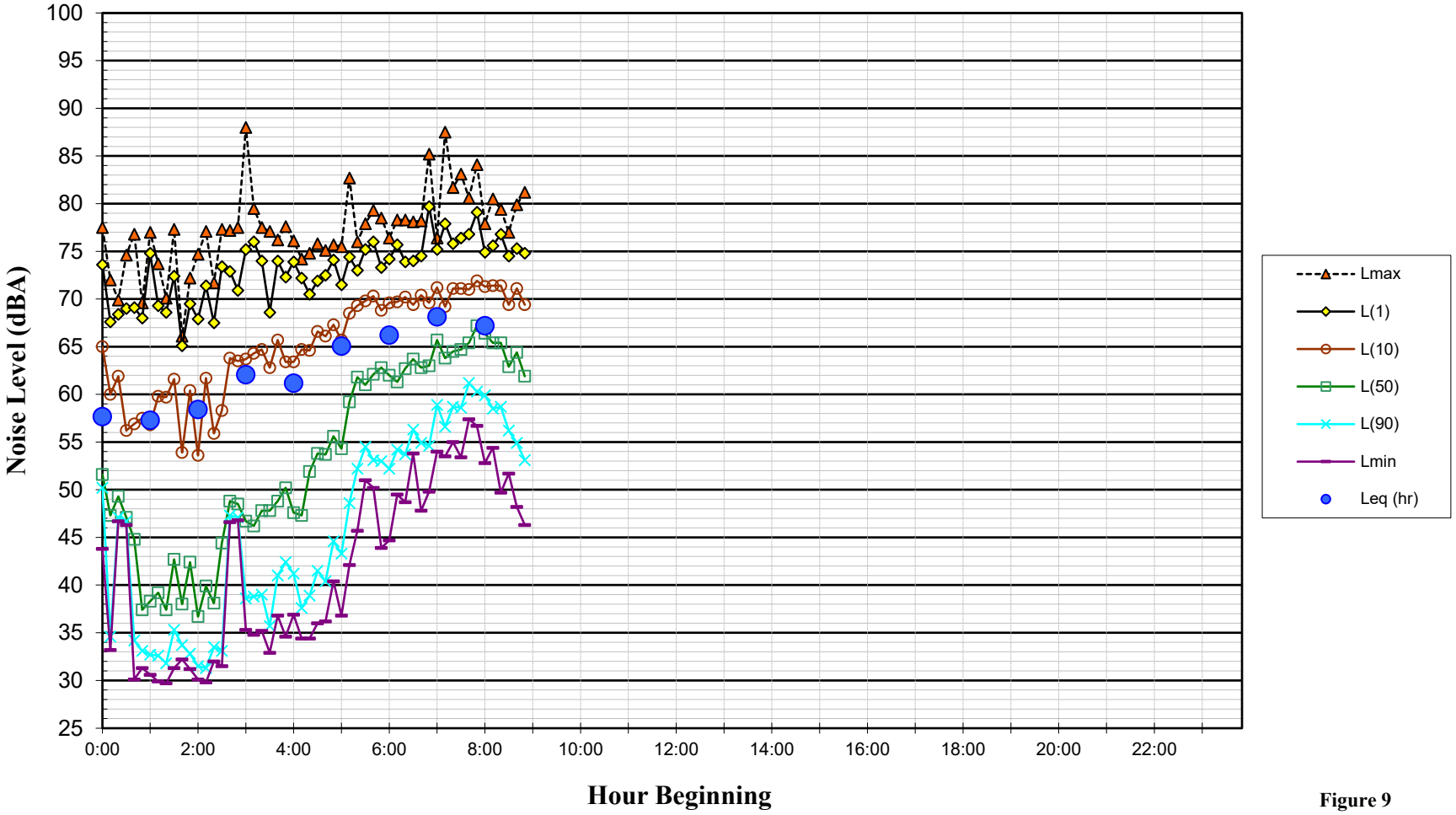


Figure 9

Noise Levels at Noise Measurement Site LT-4
Three Rocks - 50 feet from the Centerline of S. Derrick Avenue at El Progresso Avenue
Tuesday, October 8, 2024

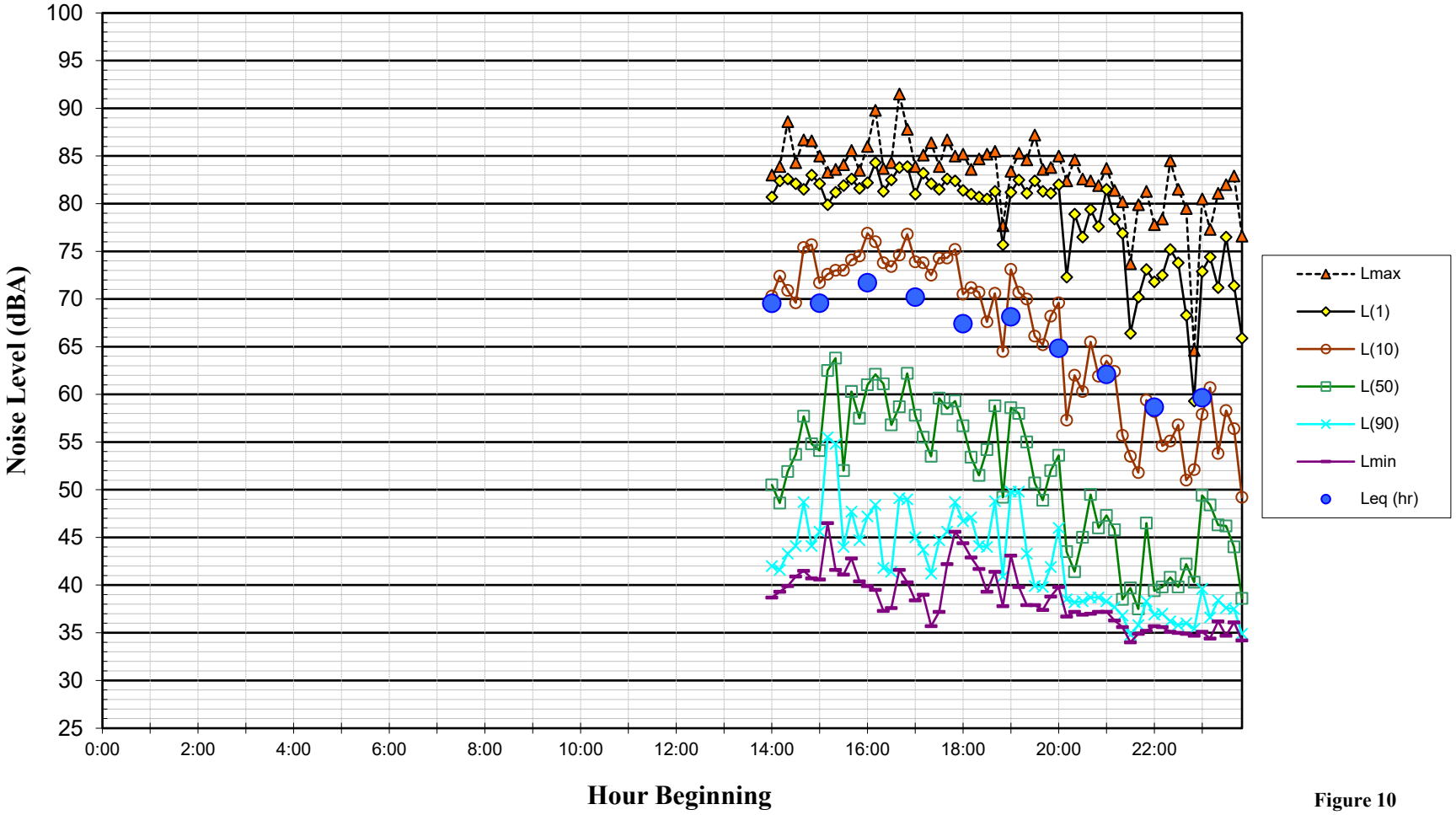
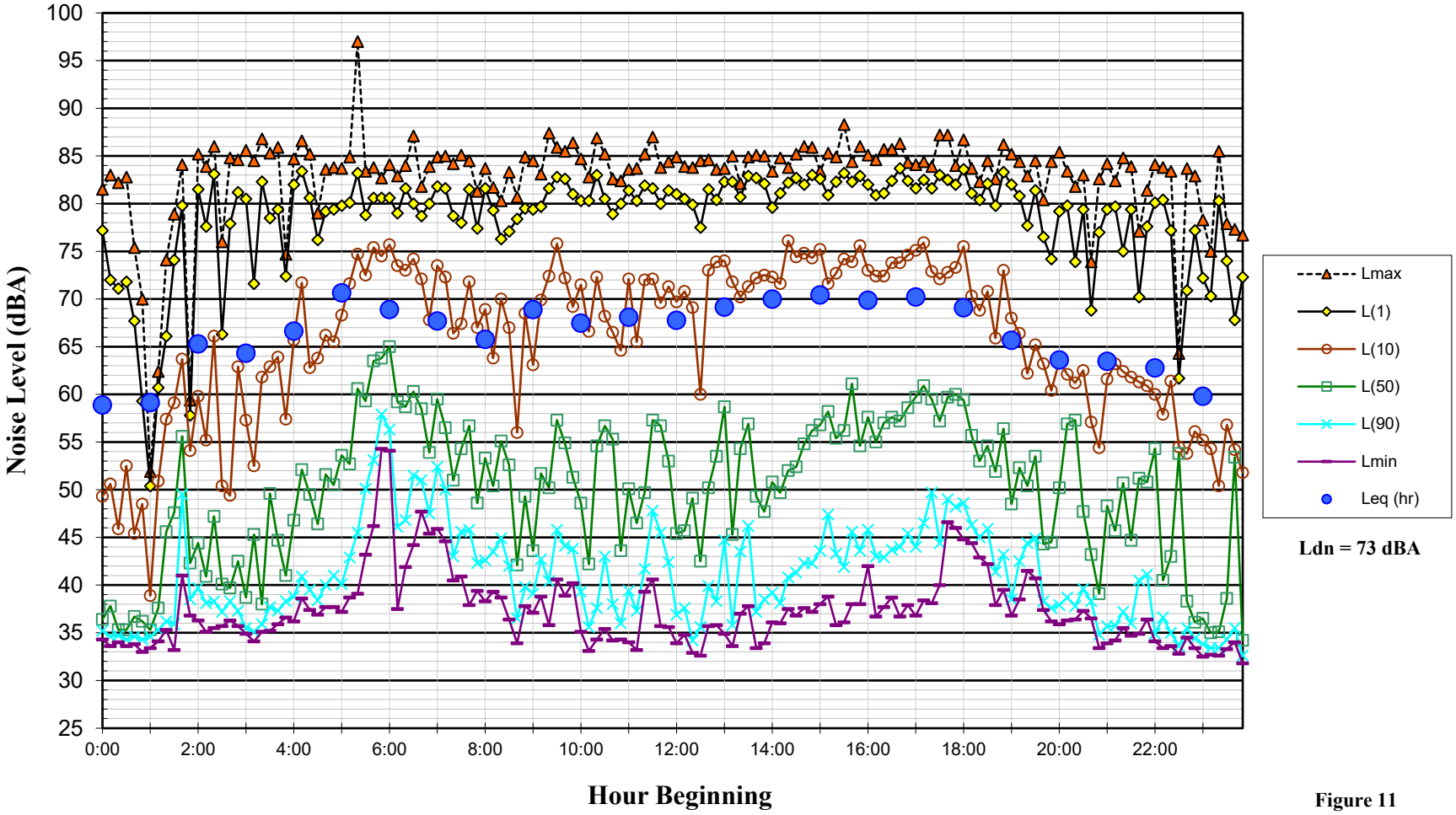


Figure 10

Noise Levels at Noise Measurement Site LT-4
Three Rocks - 50 feet from the Centerline of S. Derrick Avenue at El Progresso Avenue
Wednesday, October 9, 2024



Ldn = 73 dBA

Figure 11

Noise Levels at Noise Measurement Site LT-4
Three Rocks - 50 feet from the Centerline of S. Derrick Avenue at El Progresso Avenue
Thursday, October 10, 2024

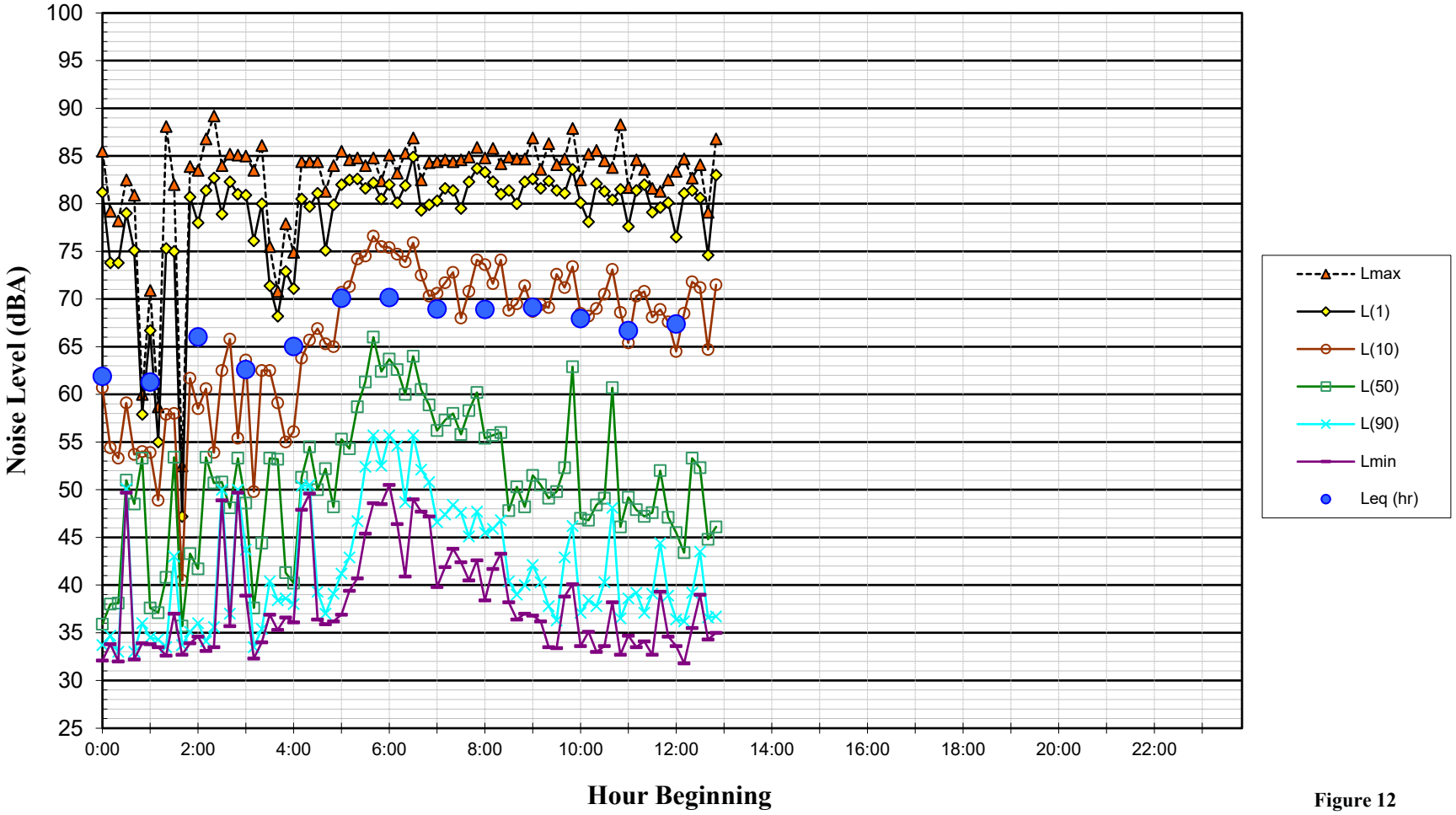


Figure 12

Noise Levels at Noise Measurement Site LT-5
Cantua Creek - 25 feet from the Centerline of W. Latta Avenue
Tuesday, October 8, 2024

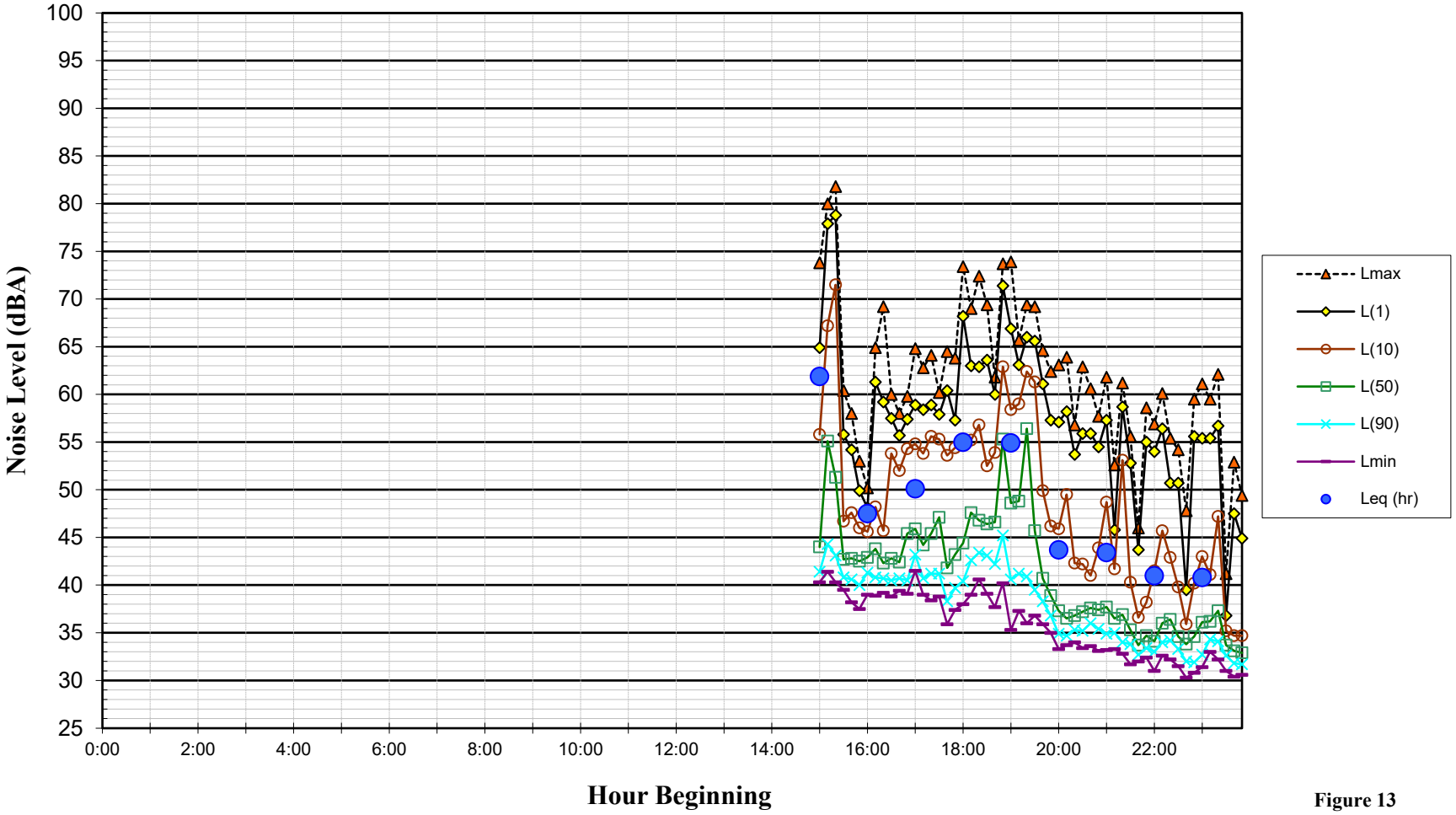
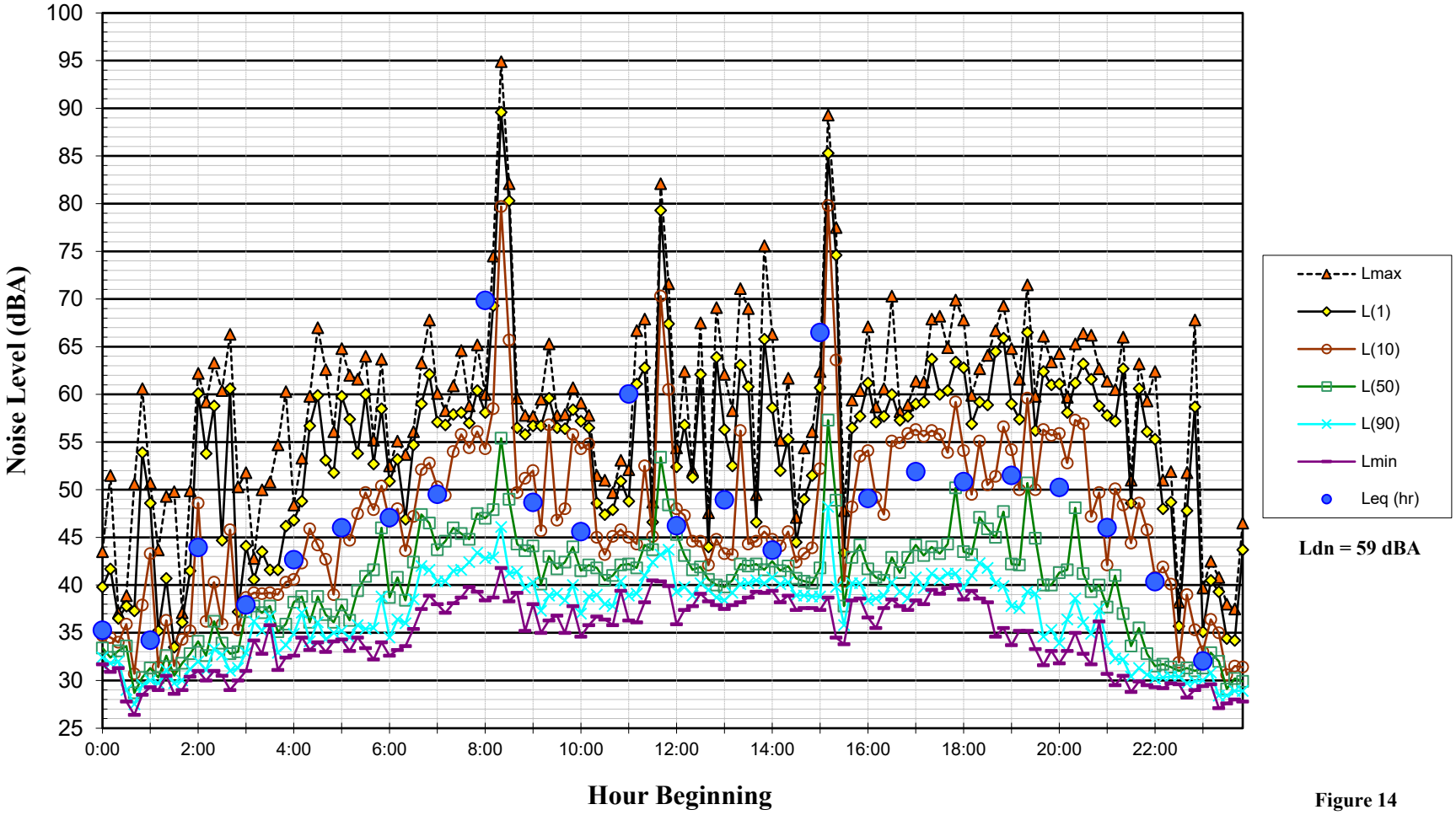


Figure 13

Noise Levels at Noise Measurement Site LT-5
Cantua Creek - 25 feet from the Centerline of W. Latta Avenue
Wednesday, October 9, 2024



Ldn = 59 dBA

Figure 14

Noise Levels at Noise Measurement Site LT-5
Cantua Creek - 25 feet from the Centerline of W. Latta Avenue
Thursday, October 10, 2024

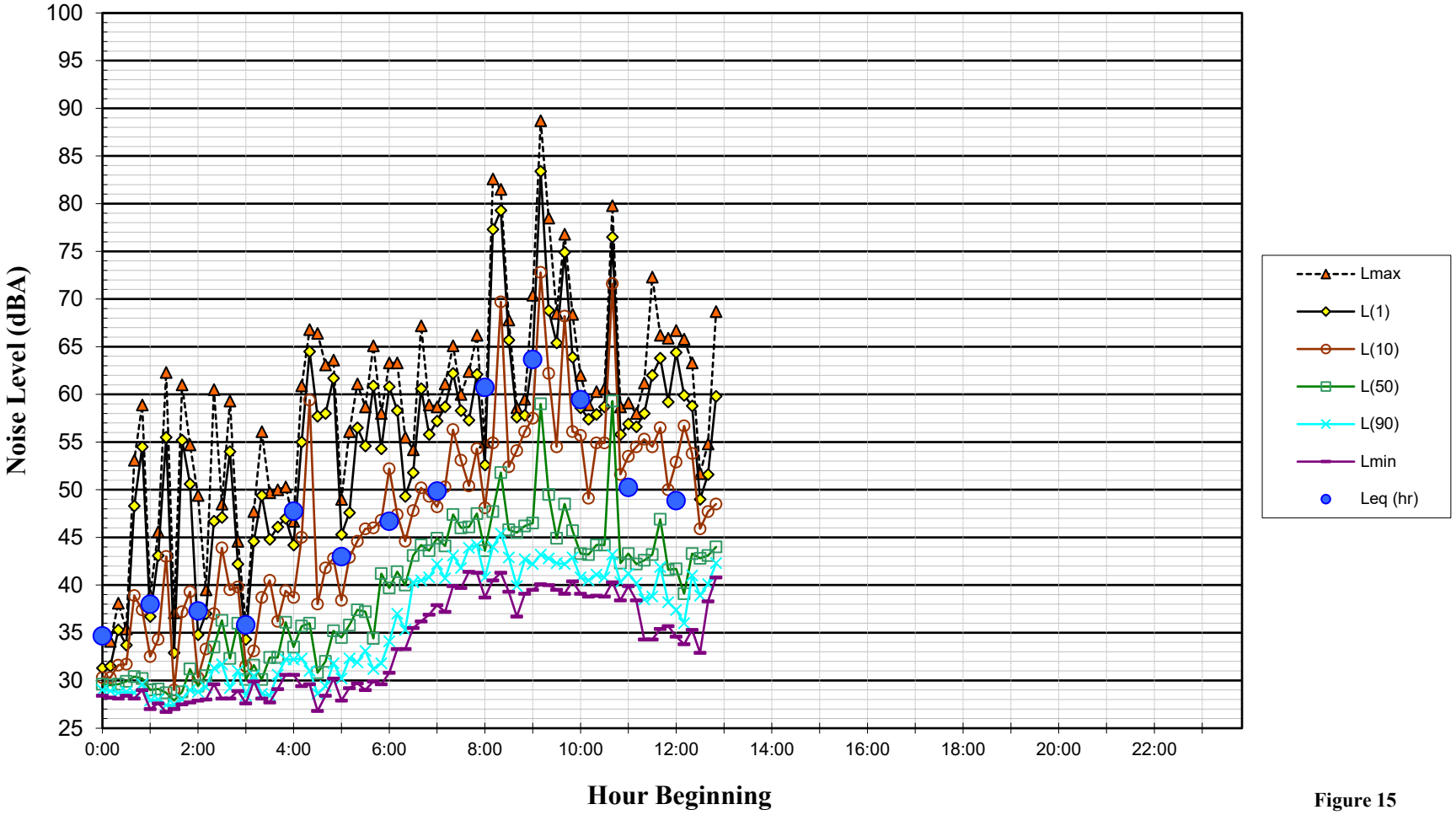


Figure 15

Noise Levels at Noise Measurement Site LT-6
Cantua Creek - 40 feet from the Centerline of Clarkson Avenue
Tuesday, October 8, 2024

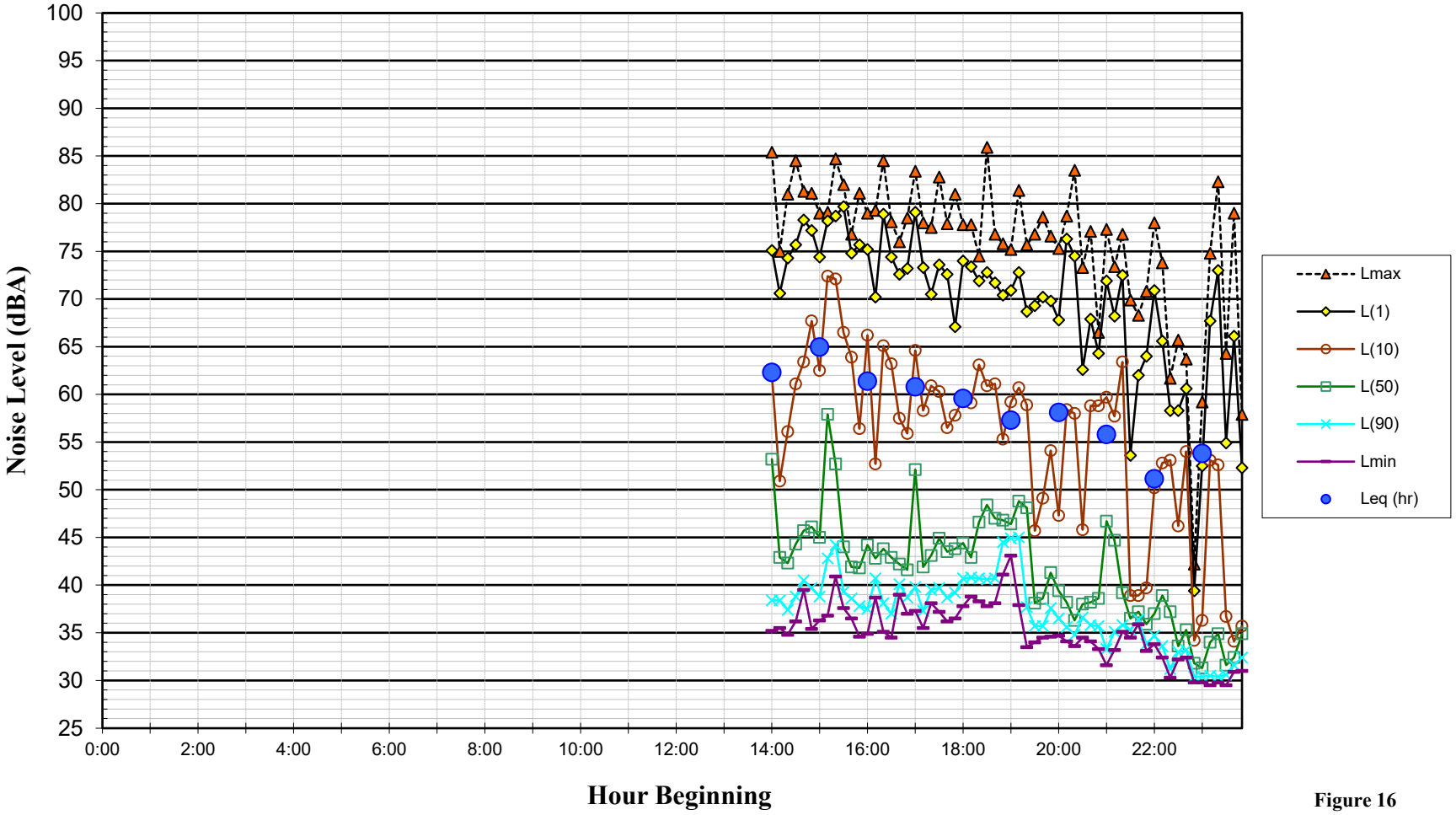
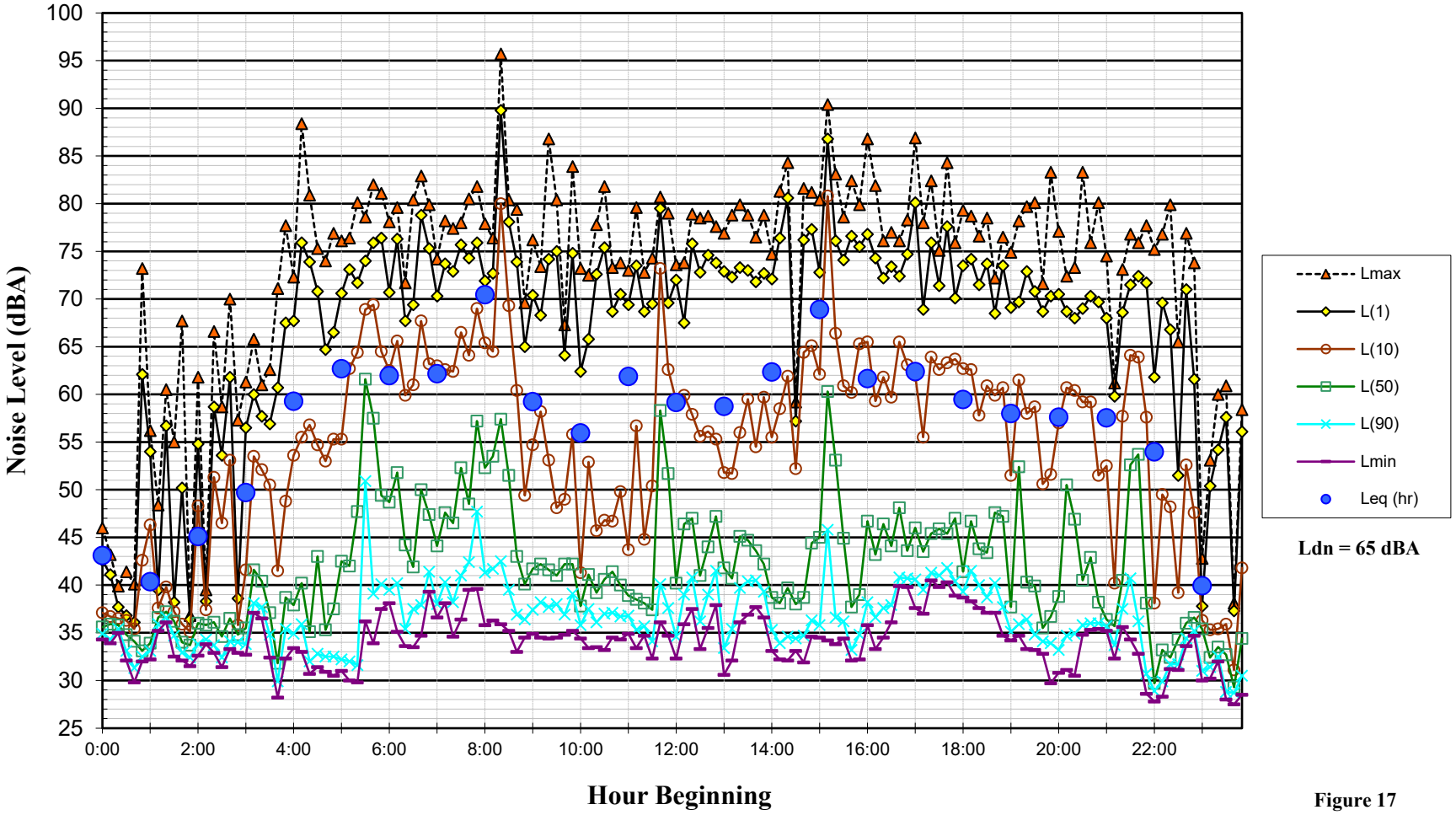


Figure 16

Noise Levels at Noise Measurement Site LT-6
Cantua Creek - 40 feet from the Centerline of Clarkson Avenue
Wednesday, October 9, 2024



Ldn = 65 dBA

Figure 17

Noise Levels at Noise Measurement Site LT-6
Cantua Creek - 40 feet from the Centerline of Clarkson Avenue
Thursday, October 10, 2024

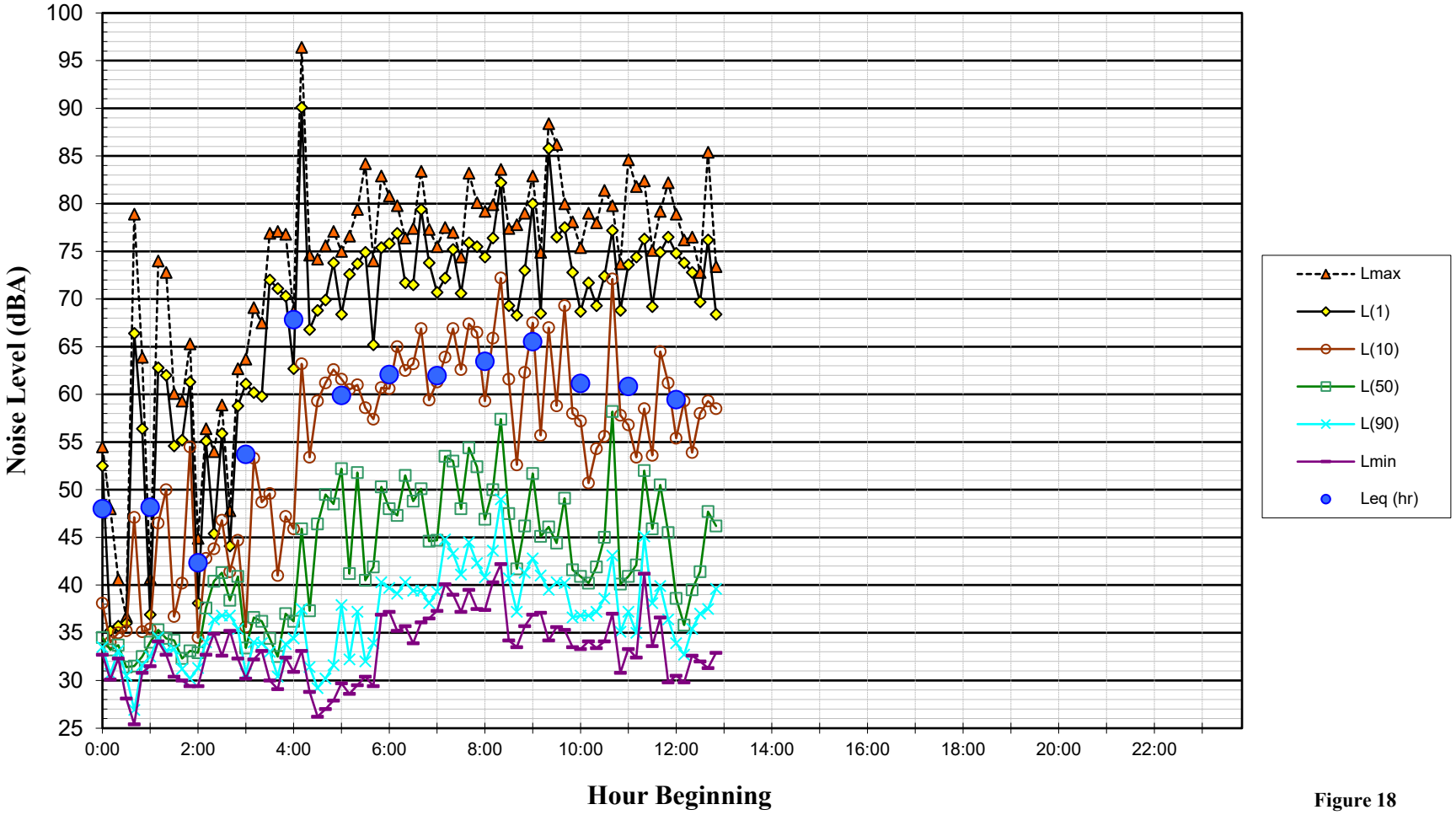


Figure 18

Noise Levels at Noise Measurement Site LT-7
Five Points - 35 feet from the Centerline of Lassen Avenue
Tuesday, October 8, 2024

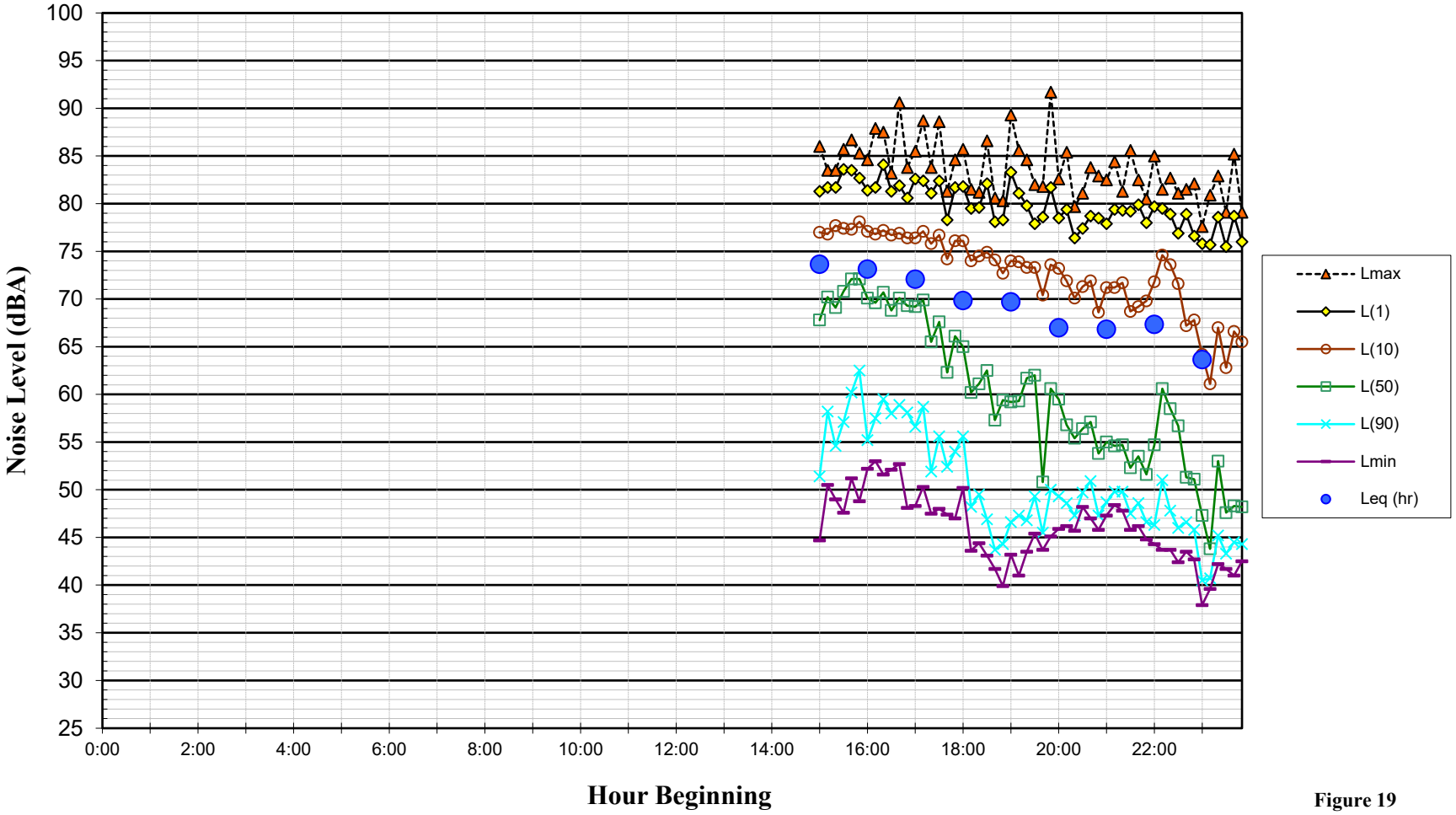
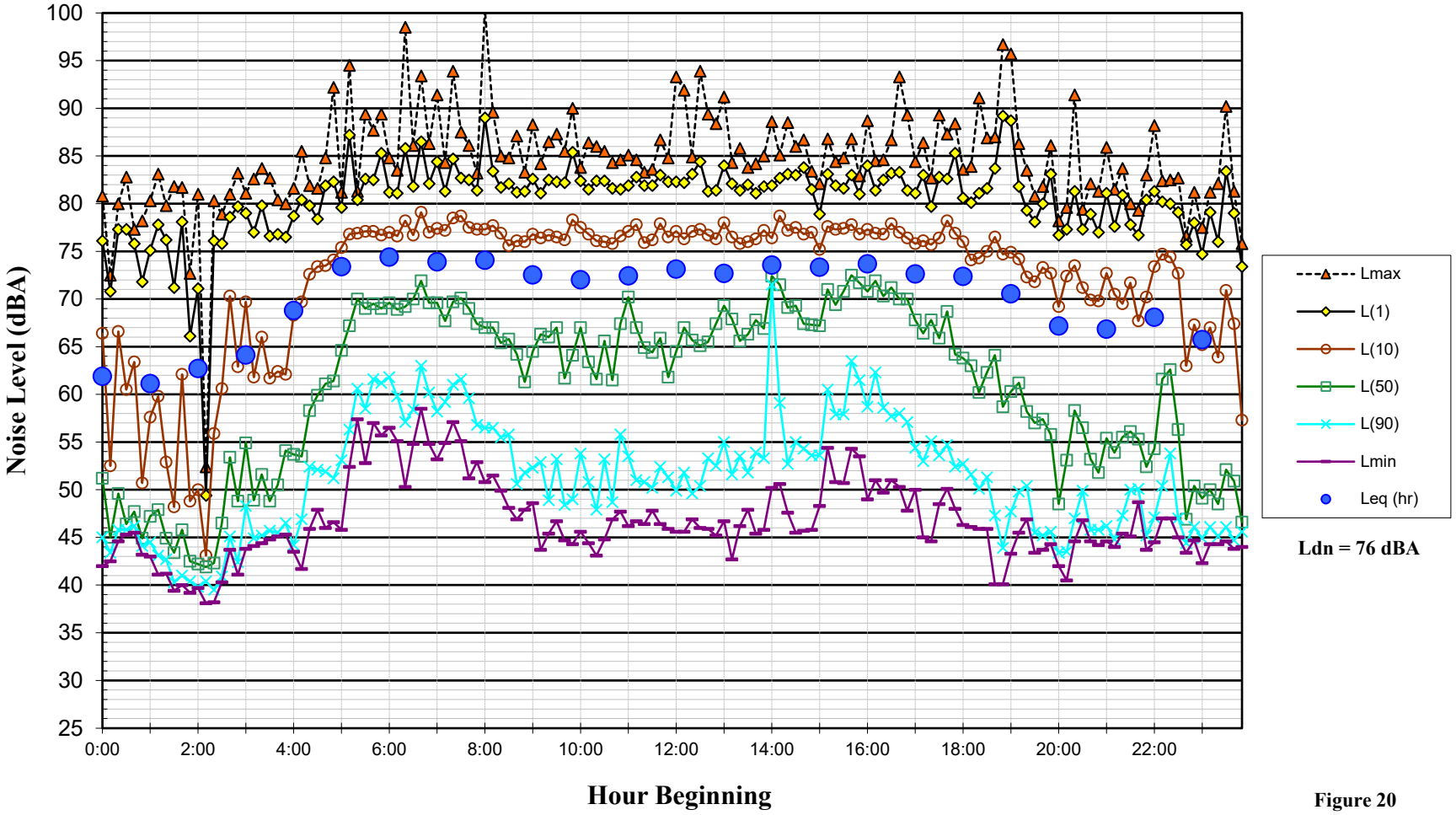


Figure 19

Noise Levels at Noise Measurement Site LT-7
Five Points - 35 feet from the Centerline of Lassen Avenue
Wednesday, October 9, 2024



Ldn = 76 dBA

Figure 20

Noise Levels at Noise Measurement Site LT-7
Five Points - 35 feet from the Centerline of Lassen Avenue
Thursday, October 10, 2024

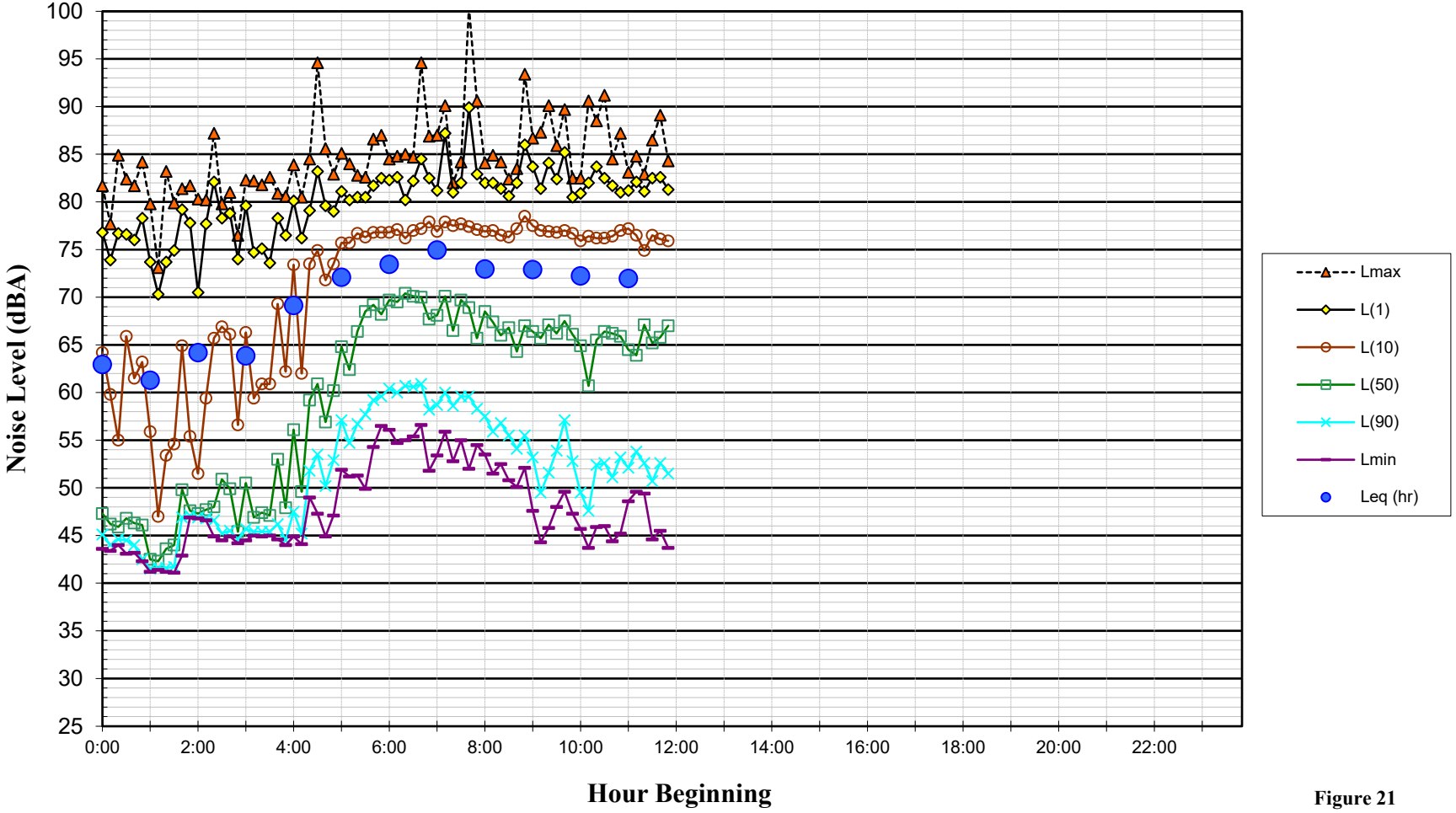


Figure 21

Noise Levels at Noise Measurement Site LT-8
Westside - 100 feet from the Centerline of Fresno Coalinga Road
Tuesday, October 8, 2024

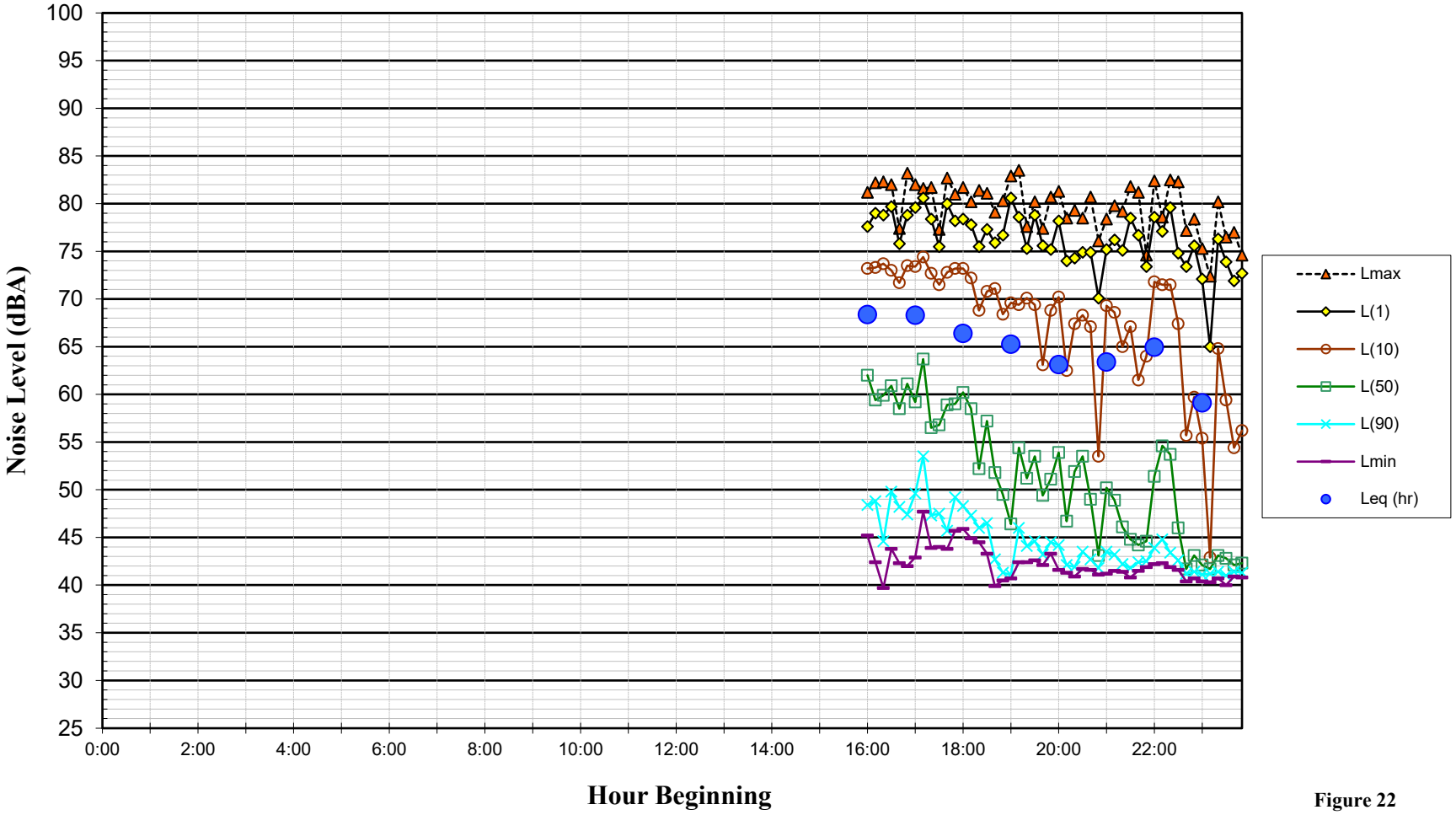
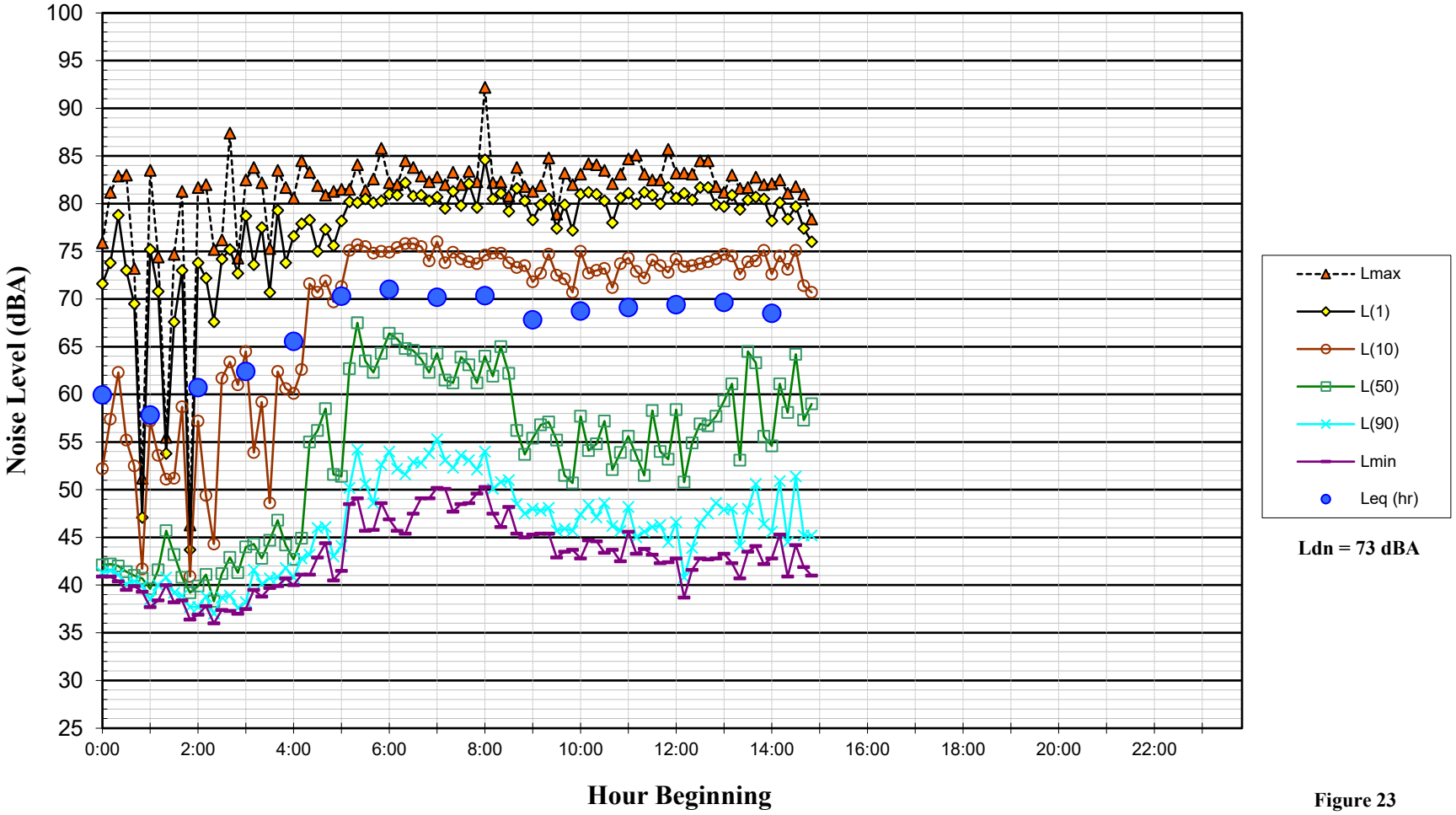


Figure 22

Noise Levels at Noise Measurement Site LT-8
Westside - 100 feet from the Centerline of Fresno Coalinga Road
Wednesday, October 9, 2024



Ldn = 73 dBA

Figure 23

APPENDIX E – TRAFFIC STUDY

Prepared by

Peters Engineering Group

July 2025

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

Westlands Water District
c/o Mr. Bert Verrips, AICP
Bert Verrips, AICP, Environmental Consulting
11942 Red Hill Avenue
Santa Ana, California 92705

July 7, 2025

Subject: Traffic Study
Proposed Valley Clean Infrastructure Plan
Various Locations Within the Westlands Water District Region
Fresno County, California

Dear Mr. Verrips:

1 INTRODUCTION

This report presents the results of a traffic study for the proposed Valley Clean Infrastructure Plan (VCIP) in Fresno County and Kings County, California. The analyses focus on the anticipated effect of vehicle traffic that would be generated by the VCIP. It is important to note that this is a program-level analysis of potential traffic impacts expected from VCIP buildout over an approximately 10-year period. The intention is to identify, at a general level, the places and times when VCIP traffic generation would likely result in traffic issues within the surrounding roadway network, and to identify feasible mitigation strategies which could be further refined and applied at the project level. Detailed traffic impact studies would be required at the project level, based on the details of the construction and operations plans for each VCIP project, which would identify project-specific impacts and mitigation measures, as appropriate to each project at the time when it is brought forward for project-level review and approval.

2 PROJECT DESCRIPTION

The VCIP provides for 21,000 megawatts of solar photovoltaic (PV) generation to be developed by a number of individual projects on approximately 136,000 acres, with interconnection to be provided by five regional substations to be constructed as part of the VCIP along with 500 kilovolt transmission lines. The solar and infrastructure development is planned to occur within several Development Focus Areas (DFAs) consisting of numerous properties in unincorporated areas of Fresno County within the Westlands Water District.

The VCIP buildout is planned to be phased over a 10-year period, with the peak construction traffic expected in approximately 2029.

During peak construction years there will be approximately 6,000 construction workers and supervisors commuting to the site. Deliveries will primarily arrive from the Port of Oakland for solar components, with other materials and equipment originating from various California

ports, as well as Fresno and Sacramento. Aggregate and concrete is expected to be delivered from the Los Banos area or the Coalinga Area, depending on the location of the specific project within the VCIP Plan Area.

Staging areas for worker parking and equipment deliveries will be established within each individual solar project site.

3 STUDY AREA AND TIME PERIOD

The study locations were determined based on the anticipated distribution of trips generated by construction workers and delivery trucks.

Traffic counts and analyses were performed at the following key intersections:

1. N Street (State Route 33) / 12th Street (Firebaugh)
2. N Street (State Route 33) / 13th Street (Firebaugh) (summer and during school)
3. Whitesbridge Road (State Route 180) / Panoche Road (Mendota) (summer and during school)
4. Whitesbridge Road (State Route 180) / Madera Avenue (State Route 145) (Kerman) (summer and during school)
5. Derrick Avenue (State Route 33) / Clarkson Avenue (Three Rocks) (summer and during school)
6. Mt. Whitney Avenue / Fresno Coalinga Road (State Route 145) (Five Points)
7. Mt. Whitney Avenue / Lassen Avenue (State Route 145) (Five Points)
8. Derrick Avenue (State Route 33) / Belmont Avenue (Mendota)
9. Oller Street (State Route 180) / Belmont Avenue (Mendota)

Traffic counts and analyses were performed at the following road segments:

1. Nees Avenue west of Russell Avenue, Fresno County
2. Avenue 7½ west of Firebaugh Boulevard, Madera County
3. Avenue 7 east of Firebaugh Boulevard, Madera County
4. Bullard Avenue east of Washoe Avenue, Fresno County
5. Shields Avenue west of Russell Avenue, Fresno County
6. Belmont Avenue east of San Diego Avenue, Fresno County
7. California Avenue east of San Diego Avenue, Fresno County
8. Panoche Road east of Interstate 5 (I-5), Fresno County
9. Manning Avenue east of I-5, Fresno County
10. Derrick Avenue (State Route 33) north of Adams Avenue, Fresno County
11. James Road north of Jefferson Avenue, Fresno County
12. Dickenson Avenue south of Jensen Avenue, Fresno County
13. McMullin Grade (State Route 145) west of Madera Avenue (also State Route 145), Fresno County
14. Kamm Avenue east of I-5, Fresno County
15. Kamm Avenue east of Napa Avenue, Fresno County
16. Kamm Avenue east of Del Norte Avenue, Fresno County
17. Clarkson Avenue immediately east of Santa Clara Avenue and west of the Cantua School playground (summer and during school), Fresno County

18. Clarkson Avenue west of San Mateo Avenue and east of Cantua School (summer and during school), Fresno County
19. Elkhorn Avenue east of Lassen Avenue, Fresno County
20. Lassen Avenue (State Route 145) south of Elkhorn Avenue, Fresno County
21. Lassen Avenue (State Route 145) north of State Route 198, Fresno County
22. Manning Avenue east of Derrick Avenue, Fresno County
23. Manning Avenue west of James Avenue, Fresno County
24. San Mateo Avenue north of Clarkson Avenue, Fresno County

Based on the operational characteristics of the VCIP, the study time periods are 15-minute intervals from 5:00 a.m. to 7:00 a.m. and from 3:30 p.m. to 6:00 p.m. The 15-minute intervals were analyzed for the following conditions:

- Existing Conditions;
- Year 2029 Baseline Conditions;
- Year 2029 Conditions with VCIP;
- Year 2031 Baseline Conditions;
- Year 2031 Conditions with VCIP;
- Year 2033 Baseline Conditions;
- Year 2033 Conditions with VCIP.

The analysis years were selected to reflect the fact that, given the large scale and long duration of VCIP development, different areas within VCIP would be subject to peak traffic volumes in different years. The planned phasing of VCIP development would commence in the north and progress southward incrementally, resulting in large variations in the distributions of worker and delivery trips depending on the phase of development.

The most intense construction activity would occur around VCIP collection Substations 1, 3, and 5 during the early peak construction years of 2029, 2031, and 2033. Thus, the three study years of 2029, 2031, and 2033 represent the greatest extent of the VCIP's reasonably foreseeable impacts related to traffic conditions that would occur in the northern, central, and southern sections of the Plan Area. In the subsequent construction years of 2034-2038, potential VCIP project development would be more evenly distributed, which would result in much lower traffic volumes on any given roadway used as a construction access route in those latter buildout years. Since impacts related to traffic conditions in those latter buildout years would not approximate the conditions anticipated in the early development years, it is not necessary to evaluate the plan-wide traffic impacts for those years to identify plan-level measures which would provide feasible LOS mitigation for all potential VCIP projects. In addition, each VCIP project would be subject to its own project-level traffic study which would provide a location and time-specific analysis of project traffic impacts as well as refined mitigation measures tailored to the unique circumstances of each project.

4 SIGNIFICANCE CRITERIA

4.1 Vehicle Miles Traveled (VMT)

The State of California Governor's Office of Planning and Research document entitled *Technical Advisory on Evaluating Transportation Impacts in CEQA* dated December 2018

(Technical Advisory) provides guidance for determining a project's transportation impacts based on VMT.

The Technical Advisory states: "*Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. 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.*" Regarding land use plans, the Technical Advisory further recommends that "agencies should analyze VMT outcomes of land use plans across the full area over which the plan may substantively affect travel patterns, including beyond the boundary of the plan or the jurisdiction's geography." (OPR 2018, p. 18.) It further provides that a land use plan may have a significant impact on transportation if proposed new uses would in the aggregate exceed the respective thresholds.

County of Fresno General Plan Policy TR-A.25, Vehicles Miles Traveled (VMT) Threshold, states: "*Projects that would generate or attract more than 110 daily vehicle trips shall be evaluated for a transportation VMT impact on an individual basis. The threshold of significance shall be 87 percent below the countywide average rate of VMT. Any individual project resulting in VMT that exceeds 87 percent below the countywide average shall be required to implement project specific mitigation measures aimed at reducing VMT generated by the project.*" In the PEIR on the County's General Plan Update, the threshold 22.4 VMT per employee was identified as representing the 87 percent threshold set forth in Policy TR-A.25.

Additional guidance for SB 743 implementation is provided in Fresno COG's document entitled *Fresno County SB 743 Implementation Regional Guidelines* dated January 2021 (Regional Guidelines). The Regional Guidelines reaffirmed the 87 percent significance threshold from the County General Plan, and also provided further refinement of screening thresholds contained in OPR's Technical Advisory. In a detailed analysis that correlated VMT with a common GHG threshold of 3,000 MTCO2e/yr, the Regional Guidelines established a higher screening threshold of 500 daily trips as the level below which projects may be presumed to create a less than significant impact. With respect to conducting VMT assessments for land use plans, the recommended methodology is to compare the existing VMT per capita and/or VMT per employee for the region with the expected horizon year VMT per capita and/or VMT per employee for the land use plan of the jurisdiction. However, as discussed subsequently, the County's VMT threshold of 22.4 VMT per employee is intended to apply to urban areas consistent with the purpose of SB 743 to limit urban sprawl by shortening work trips through infill development. This threshold is not intended to apply to rural areas where work trips are unavoidably longer than urban trips and because these trips bear no relation to urban sprawl. This is recognized in the Technical Advisory, which states: "[i]n rural areas of non-MPO counties (i.e., areas not near established or incorporated cities or towns), fewer options may be available for reducing VMT, and significance thresholds may be best determined on a case-by-case basis."

4.2 Level of Service

4.2.A General

The State of California does not recognize traffic congestion and delay as an environmental impact per the California Environmental Quality Act (CEQA). However, the General Plans of local agency typically require a minimum level of service at intersections and on roadways.

The Transportation Research Board *Highway Capacity Manual*, 7th *Edition*, (HCM) defines level of service (LOS) as, "a quantitative stratification of a performance measure or measures representing quality of service. The measures used to determine LOS for transportation system elements are called *service measures*. The HCM defines six levels of service, ranging from A to F, for each service measure or combination of service measures. LOS A represents the best operating conditions from the traveler's perspective and LOS F the worst." Automobile mode LOS characteristics for road segments are presented in Table 1.

Table 1
Level of Service Characteristics for Road Segments

Level of Service	Description
A	Free-flow operations. High operating speeds with a small amount of platooning.
B	Reasonably free-flow operations. Speed reductions are present and platooning becomes noticeable.
C	Most vehicles traveling in platoons and freedom to maneuver noticeably restricted.
D	Platooning increases significantly and speeds begin to decline.
E	Demand approaching capacity. Speeds seriously curtailed.
F	Demand exceeds capacity and heavy congestion exists. Unstable flow.

Reference: *Highway Capacity Manual*, 7th *Edition,* Transportation Research Board, 2022

4.2.B County of Fresno Requirements

The Fresno County General Plan states: "*The County shall plan and design its roadway system in a manner that strives to meet Level of Service (LOS) D on urban roadways within the spheres of influence of the cities of Fresno and Clovis and LOS C on all other roadways in the county.*"

4.2.C County of Madera Requirements

The Madera County General Plan requires that LOS D or better be maintained on all State and County roadways.

4.2.D City of Firebaugh Requirements

The City of Firebaugh General Plan states: *"A level of service C will be the desirable minimum service level in Firebaugh at which arterial and collector segments will operate. A level of service of B will be the desirable minimum service level in Firebaugh at which intersections will operate."*

4.2.E City of Mendota Requirements

Policy C-1.2 of the City of Mendota General Plan states that the City shall: "*Seek to maintain operations on all roadways and intersections at Level of Service C or better at all times, including peak travel times, unless maintaining this Level of Service would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. Congestion in excess of Level of Service C may be accepted in these cases, provided that provisions are made to improve traffic flow and/or promote non-vehicular transportation as part of a development project or a City-initiated project.*"

4.2.F City of Kerman Requirements

The City of Kerman General Plan Policy CIRC-2.2 states: "*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.*"

4.2.G State of California (Caltrans) Requirements

Caltrans has traditionally endeavored to maintain a target LOS at the transition between LOS C and LOS D on State highways, but does not currently identify a specific LOS goal.

4.2.H Level of Service Criteria

For purposes of the traffic study, a traffic issue may be identified on State highways and roadways in Fresno County, the City of Firebaugh, the City of Mendota, and the City of Kerman if the addition of the traffic generated by the VCIP results in any one of the following:

- Triggers an intersection operating at acceptable LOS (A, B, or C) to operate at unacceptable levels of service (D, E, or F);
- Increases the average delay for a study intersection that is already operating at unacceptable LOS (D, E, or F) by 5.0 seconds or more.

For purposes of the traffic study, a traffic issue may be identified on Madera County roadways if the addition of the traffic generated by the VCIP results in any one of the following:

- Triggers an intersection operating at acceptable LOS (A, B, C, or D) to operate at unacceptable levels of service (E or F);
- Increases the average delay for a study intersection that is already operating at unacceptable LOS (E or F) by 5.0 seconds or more.

6 EXISTING TRAFFIC VOLUMES

Twenty-four-hour traffic counts were performed on the study road segments and 24-hour turning-movement counts were performed at key study intersections. Traffic counts were performed in July and September of 2024. The traffic count data sheets are presented in the attached Appendix A.

Daily and seasonal adjustment factors available from County of Fresno staff were reviewed and it was determined that the average Countywide adjustment factors for weekdays and for the months of July through September are less than 1.0. Therefore, no adjustment factor to reduce the observed volumes was applied because the counts were performed during periods that represent above-average traffic volumes. The seasonal adjustment factors are presented in Appendix B.

Existing daily traffic volumes on key road segments are presented in Figures 1A and 1B, Existing Daily Traffic Volumes, following the text of this report.

7 VCIP PROJECT TRIP GENERATION

7.1 Construction Trips

Data provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*, are typically utilized to estimate the number of trips anticipated to be generated by a proposed project. However, ITE does not include data relative to the construction of solar facilities; therefore, the trip generation estimates are based on a description of the activities that will occur at the site.

It is anticipated that a maximum of 6,000 workers per day will be required during peak construction. Based on experience with construction of similar solar projects, it is expected that 25 percent of workers will not drive and will ride with another worker that drives (carpool). It is anticipated that there will be approximately 149 truck deliveries per day originating from the Port of Oakland, 151 gravel/concrete deliveries originating from the Los Banos area (for northern portions of the VCIP) or the Coalinga area (for southern portions of the VCIP), approximately 67 truck deliveries per day from the Fresno area, and approximately nine deliveries per day from the Sacramento area.

Table 2 summarizes the daily trips expected to be generated during peak construction periods.

Table 2
Daily Construction Trips

Type	Enter	Exit	Total
Employee	4,500	4,500	9,000
Truck delivery	376	376	752
TOTALS	**4,876**	**4,876**	**9,752**

Construction schedules will be 10-hour work days on Monday through Thursday with no work performed on Fridays. Table 3 presents a general breakdown of the anticipated daily schedule for various workers.

Table 3
Daily Schedule for Construction Trips

Type	Number of Workers	Approximate Start Time	Approximate End Time
Iron Workers, Equipment Operators	1,165	5:30 a.m.	3:30 p.m.
Electrical Workers	4,085	6:30 a.m.	4:30 p.m.
Management	580	7:00 a.m.	6:00 p.m.
High-Voltage Electricians (switchyard)	80	6:30 a.m.	4:30 p.m.
High-Voltage Electricians (Gen-Tie/T-Line)	90	6:30 a.m.	4:30 p.m.
TOTALS	**6,000**	-	-

Truck trips are expected to arrive and leave the site in a generally even distribution over a 10-hour work day from approximately 5:30 a.m. to 3:30 p.m. It is noted that Table 3 shows the total number of workers as 6,000, while the 4,500 worker trips (one-way) shown in Table 2 reflects the 25-percent reduction expected from carpooling.

7.2 Operational Trip Generation

Operational trips, once each individual project is complete, would be generated by a few permanent staff at each facility, and by occasional visits from maintenance and repair workers. The number of daily trips generated by operational workers would be very small, and given the large area of dispersal for these trips, average daily traffic volumes for operations are considered negligible. Therefore, operational traffic is not considered further in this report.

8 VCIP PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

It is anticipated that workers will live in various cities within commuting distance of the project sites and also beyond commuting distance, in which case workers will likely utilize lodging within commuting distance. It was assumed that workers would live in various cities ranging from the San Francisco Bay area and the counties of Merced, Madera, Fresno, Tulare, Kern, and Kings. It is anticipated that the number of worker trips generated from each area within commuting distance will be roughly proportional to the population of the city and roughly inversely proportional to the distance to the city.

As discussed above, specific project sites throughout the VCIP will have different distributions of worker and delivery trips, thus resulting in annual variations in the locations of traffic concentrations within the Plan Area. Plan-level estimates of the peak construction traffic volumes expected on roadways for the north, central, and south portions of the Plan Area were made for the following locations and are considered representative of the most impacted traffic conditions for the northern, central, and southern sections of the Plan area that would be reasonably foreseeable during the 10-year VCIP buildout period:

- Year 2029: Intersection of Bullard and Fairfax Avenues (North VCIP)
- Year 2031: Intersection of Kamm and Napa Avenues (Central VCIP)
- Year 2033: Intersection of Lassen Avenue (State Route 145) and State Route 198 (South VCIP).

The VCIP trips are presented in the following figures:

- Figures 2A and 2B, Year 2029 Daily Project Worker Trips
- Figures 3A and 3B, Year 2029 Daily Project Truck Trips
- Figure 4A and 4B, Year 2031 Daily Project Worker Trips
- Figure 5A and 5B, Year 2031 Daily Project Truck Trips
- Figure 6A and 6B, Year 2033 Daily Project Worker Trips
- Figure 7A and 7B, Year 2033 Daily Project Truck Trips

9 VEHICLE MILES TRAVELED (VMT)

The Technical Advisory indicates: " '*For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project.' Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks.*" Therefore, truck trips typical of those that will be generated by the proposed VCIP are generally excluded from the requirements of CEQA as they pertain to transportation impacts and VMT.

To evaluate potential VMT impact associated with VCIP implementation, three aspects of implementation were considered, including: 1) construction VMT, 2) typical solar/BESS operation VMT, and 3) plan-wide VMT.

Construction VMT

Both the CEQA Guidelines and the Technical Advisory are focused on a project's operational contribution to VMT, and do not provide specific guidance for determining construction impacts. However, CEQA Guidelines section 15064.3(b)(3) states: "For many projects, a qualitative analysis of construction traffic may be appropriate." The Regional Guidelines provide: "If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. . . . For many projects, a qualitative analysis of construction traffic may be appropriate." Temporary construction traffic cannot be measured against employee or per capita VMT thresholds for operational traffic from permanent land use projects. However, it can be qualitatively noted for informational purposes only, that the mitigation measures for construction traffic identified in this report would result in a 21 percent reduction in daily construction worker trips compared to unmitigated construction traffic generation by the VCIP.

Typical Solar/BESS Project Operations VMT

On an individual project basis, the 30 trips (one-way) generated by each potential solar/BESS project would be substantially below the screening threshold of 110 trips (two-way) per day for individual projects recommended by both the Technical Advisory and Fresno County General Plan Policy TR-A.25, and far below the 500-trip screening threshold set forth in the Regional Guidelines. As such, at the project level, this volume of daily trips (i.e., 30 trips) "may be presumed to create a less than significant impact" (Fresno COG 2021). Therefore, the operation of the individual VCIP solar/BESS facilities would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). In addition, given the widely dispersed nature of the VCIP solar/BESS facilities throughout the Plan Area, the overall effect of operational traffic on service levels at full VCIP buildout would also be negligible.

Plan-Wide VMT

Due to the remoteness of the Plan Area relative to regional population centers, all VCIP operational workers would have an average round trip commute of 95 VMT per employee. This far exceeds the County's 22.4 VMT per employee threshold. Given the dispersed locations of the solar/BESS facilities in the Plan Area, and the relatively few permanent staff at each facility, it is unlikely that operational VMT could be feasibly reduced to meet the VMT threshold at individual facilities. However, it is noted that the relatively low threshold of 22.4 VMT per employee (or 11.2 mile one-way work trip) is intended to apply to urban areas, which is consistent with the purpose of SB 743 to limit urban sprawl by shortening urban work trips. It is unreasonable to apply this threshold to rural contexts, which by definition consist of large areas where trips to work are unavoidably much longer than urban work trips, and because these trips bear no relation to urban sprawl. This is recognized in the Technical Advisory, which states: "In rural areas of non-MPO counties (i.e., areas not near established or incorporated cities or towns), fewer options may be available for reducing VMT, and significance thresholds may be best determined on a case-by-case basis" (OPR 2018, p. 19).

10 YEAR 2029, 2031, AND 2033 TRAFFIC VOLUMES

Baseline traffic volumes for the years 2029, 2031, and 2033 were projected based on an annual growth that was determined based on regional growth projections available in the Fresno County travel model maintained by the Fresno Council of Governments (COG) and regional growth projections available in the Fresno County General Plan Background Report. An annual growth rate of one percent per year was applied to the existing traffic volumes to estimate the future baseline volumes. The year 2029, 2031, and 2033 baseline traffic volumes, and traffic volumes with VCIP trips added, are presented in the tables provided in Appendices D through F. It is noted that other years of VCIP buildout were not analyzed for the following reasons. In the years 2030 and 2032, the traffic conditions would be very similar to conditions analyzed for the analysis years immediately before and after those years (i.e., 2029, 2031, 2033), so separate analyses of those years are not warranted. During the years 2034 through 2038, the destinations of construction traffic would generally be the same as the north, central, and south VCIP destinations evaluated in the 2029, 2031, and 2033 scenarios, but with substantially lower traffic volumes generated within specific areas of the Plan Area in the latter years (i.e., VCIP traffic in later years would be distributed throughout the Plan Area, whereas in each of the early years all construction traffic would be directed specifically to either the north, central or south section of the Plan Area). Therefore, the analysis of 2029, 2031, and 2033 conditions for the northern, central, and southern areas of VCIP represent the most impacted traffic conditions that would be reasonably foreseeable during the 10-year VCIP buildout period.

11 ROAD SEGMENT ANALYSES

Road segment levels of service were determined based on procedures outlined in the HCM utilizing tables presented in the Florida Department of Transportation (FDOT) 2023 Multimodal Quality/Level of Service Handbook (Florida tables). It should be noted that the Florida tables present generalized correlations between traffic volumes and LOS based on the nationally-utilized and accepted HCM; the Florida tables are frequently utilized throughout California for road segment analyses. The Florida tables present LOS criteria based on the type of roadway being analyzed and the regional setting (i.e., urban areas or transitioning

areas). Florida Tables C1, C2T, and C3C were utilized in the analyses and are presented in Appendix C. The tables include adjustment factors for the characteristics of the facility, such as the presence of a median or left-turn lanes. Since the analyses presented herein are based on 15-minute volumes, the Florida peak-hour volumes were corrected for the peak-hour factor (PHF) listed in the corresponding Florida table and divided by four. The thresholds utilized in the analyses are presented in Table 6.

Table 6
15-Minute Directional Volume Thresholds for Roadway Levels of Service

Florida Table	Configuration	B	C	D	E	F
C1	1 lane, undivided, no turn lanes	≤68	69 - 122	123 – 207	208 – 423	>423
C2T	1 lane, divided with left-turn and right-turn lanes (State)	*	≤205	206 – 268	>268	**
C2T	1 lane, divided with left-turn and right-turn lanes (non-State)	*	≤185	186 – 241	>241	**
C3C	2 lanes, divided with left-turn lanes (State)	*	≤400	401 – 476	>476	**

Tables provided in Appendices D through F present the road segment analyses for key road segments expected to carry worker vehicles. The analyses are presented in 15-minute increments because construction schedules are not expected to affect roadways consistently over the course of an entire hour. The 15-minute analysis provides a more accurate representation of expected traffic conditions.

Road segments that are operating at an LOS worse than the target LOS in the existing condition are identified in Table 7. The 15-minute interval during which the road segment operates worse than the target LOS is indicated in the table.

Table 7
Road Segment Analyses - Existing Conditions

Road	Segment and Direction	LOS	Time Period
12th St	West of SR 33, WB	D	5:15 to 5:30 a.m.
		D	5:30 to 5:45 a.m.
		D	5:45 to 6:00 a.m.
		D	6:30 to 6:45 a.m.
12th St	West of SR 33, EB	D	4:00 to 4:15 p.m.
California Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.
Belmont Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Road segments that are expected to operate at an LOS worse than the target LOS in the year 2029 without VCIP trips (baseline conditions) are presented in Table 8.

Table 8
Road Segment Analyses – Year 2029 Baseline Conditions

Road	Segment and Direction	LOS	Time Period
12th St	West of SR 33, WB	D	5:15 to 5:30 a.m.
		D	5:30 to 5:45 a.m.
		D	5:45 to 6:00 a.m.
		D	6:30 to 6:45 a.m.
12th St	West of SR 33, EB	D	4:00 to 4:15 p.m.
Dickenson Ave	South of Jensen Ave, SB	D	5:30 to 5:45 a.m.
California Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.
Belmont Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Road segments that are expected to operate at an LOS worse than the target LOS in the year 2029 with VCIP trips are presented in Table 9. Time periods and LOS that are not exacerbated by VCIP trips are identified in italic font.

Table 9
Road Segment Analyses – Year 2029 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
Oller St (SR 180)	North of Belmont Ave, NB	E/F	6:00 to 6:15 a.m.
Oller St (SR 180)	North of Belmont Ave, SB	E/F	4:45 to 5:00 p.m.
		D	5:00 to 5:15 p.m.
Belmont Ave	West of Oller St, WB	E/F	6:00 to 6:15 a.m.
Belmont Ave	West of Oller St, EB	E/F	4:45 to 5:00 p.m.
Whitesbridge Rd (SR 180)	East of Madera Ave, WB	E/F	6:00 to 6:15 a.m.
Whitesbridge Rd (SR 180)	East of Madera Ave, EB	E/F	4:45 to 5:00 p.m.
		D	5:00 to 5:15 p.m.
Whitesbridge Rd (SR 180)	West of Madera Ave, EB	E/F	6:00 to 6:15 a.m.
Whitesbridge Rd (SR 180)	West of Madera Ave, EB	E/F	4:45 to 5:00 p.m.
13th St	East of SR 33, WB	E	5:00 to 5:15 a.m.
		D	5:45 to 6:00 a.m.
		F	6:15 to 6:30 a.m.
		D	6:45 to 7:00 a.m.
13th St	East of SR 33, EB	E	3:30 to 3:45 p.m.
		D	3:45 to 4:00 p.m.
		F	4:30 to 4:45 p.m.
		E	4:45 to 5:00 p.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Table 9 (Continued)
Road Segment Analyses – Year 2029 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
N St (SR 33)	North of 13th St, NB	D	5:00 to 5:15 a.m.
		E/F	6:15 to 6:30 a.m.
N St (SR 33)	North of 13th St, SB	E/F	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.
12th St	West of SR 33, WB	E	5:00 to 5:15 a.m.
		D	*5:15 to 5:30 a.m.*
		D	*5:30 to 5:45 a.m.*
		E	5:45 to 6:00 a.m.
		D	6:00 to 6:15 a.m.
		F	6:15 to 6:30 a.m.
		D	*6:30 to 6:45 a.m.*
		E	6:45 to 7:00 a.m.
12th St	West of SR 33, EB	E	3:30 to 3:45 p.m.
		D	3:45 to 4:00 p.m.
		D	*4:00 to 4:15 p.m.*
		F	4:30 to 4:45 p.m.
		E	4:45 to 5:00 p.m.
Dickenson Ave	South of Jensen Ave, SB	*D*	*5:30 to 5:45 a.m.*
California Ave	East of San Diego Ave, WB	*D*	*5:30 to 5:45 a.m.*
Panoche Rd	East of I-5, EB	E	6:00 to 6:15 a.m.
Panoche Rd	East of I-5, WB	E	4:45 to 5:00 p.m.
Belmont Ave	East of San Diego Ave, WB	*D*	*5:30 to 5:45 a.m.*
		F	6:00 to 6:15 a.m.
Belmont Ave	East of San Diego Ave, EB	D	3:45 to 4:00 p.m.
		E	4:45 to 5:00 p.m.
		D	5:00 to 5:15 p.m.
Bullard Ave	East of Washoe Ave, WB	D	5:00 to 5:15 a.m.
		F	6:15 to 6:30 a.m.
Bullard Ave	East of Washoe Ave, EB	D	3:30 to 3:45 p.m.
		E	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.
Ave 7	East of Firebaugh Blvd, WB	E	5:00 to 5:15 a.m.
		F	6:15 to 6:30 a.m.
Ave 7	East of Firebaugh Blvd, EB	E	3:30 to 3:45 p.m.
		F	4:30 to 4:45 p.m.
		E	4:45 to 5:00 p.m.
Ave 7½	West of Firebaugh Blvd, WB	E	5:00 to 5:15 a.m.
		F	6:15 to 6:30 a.m.
		E	6:45 to 7:00 a.m.
Ave 7½	West of Firebaugh Blvd, EB	E	3:30 to 3:45 p.m.
		F	4:30 to 4:45 p.m.
		E	4:45 to 5:00 p.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Table 9 (Continued)
Road Segment Analyses – Year 2029 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
Nees Ave	West of Russel Ave, EB	D	6:15 to 6:30 a.m.
Nees Ave	West of Russel Ave, WB	D	4:30 to 4:45 p.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Road segments that are expected to operate at an LOS worse than the target LOS in the year 2031 without VCIP trips (baseline conditions) are presented in Table 10.

Table 10
Road Segment Analyses – Year 2031 Baseline Conditions

Road	Segment and Direction	LOS	Time Period
12th St	West of SR 33, WB	D	5:15 to 5:30 a.m.
		D	5:30 to 5:45 a.m.
		D	5:45 to 6:00 a.m.
		D	6:30 to 6:45 a.m.
12th St	West of SR 33, EB	D	4:00 to 4:15 p.m.
Dickenson Ave	South of Jensen Ave, SB	D	5:30 to 5:45 a.m.
California Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.
Belmont Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Road segments that are expected to operate at an LOS worse than the target LOS in the year 2031 with VCIP trips are presented in Table 11. Time periods and LOS that are not exacerbated by VCIP trips are identified in italic font.

Table 11
Road Segment Analyses – Year 2031 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
12th St	West of SR 33, WB	*D*	*5:15 to 5:30 a.m.*
		D	*5:30 to 5:45 a.m.*
		D	*5:45 to 6:00 a.m.*
		D	*6:30 to 6:45 a.m.*
12th St	West of SR 33, EB	*D*	*4:00 to 4:15 p.m.*
San Mateo Ave	North of Clarkson Ave, NB	D	5:00 to 5:15 a.m.
		F	6:15 to 6:30 a.m.
		D	3:30 to 3:45 p.m.
		F	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Table 11 (Continued)
Road Segment Analyses – Year 2031 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
San Mateo Ave	North of Clarkson Ave, SB	D	5:00 to 5:15 a.m.
		F	6:15 to 6:30 a.m.
		D	3:30 to 3:45 p.m.
		F	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.
Manning Ave	West of James Ave, EB	D	5:00 to 5:15 a.m.
		F	6:15 to 6:30 a.m.
Manning Ave	West of James Ave, WB	D	3:30 to 3:45 p.m.
		E	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.
Manning Ave	East of Derrick Ave, EB	D	5:00 to 5:15 a.m.
		F	6:15 to 6:30 a.m.
Manning Ave	East of Derrick Ave, WB	E	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.
California Ave	East of San Diego Ave, WB	*D*	*5:30 to 5:45 a.m.*
Lassen Ave	North of SR 198, NB	D	6:00 to 6:15 a.m.
Lassen Ave	North of SR 198, SB	D	4:45 to 5:00 p.m.
Lassen Ave	South of Elkhorn Ave, NB	D	6:15 to 6:30 a.m.
Lassen Ave	South of Elkhorn Ave, SB	D	4:30 to 4:45 p.m.
Elkhorn Ave	East of Lassen Ave, WB	E	6:15 to 6:30 a.m.
Elkhorn Ave	East of Lassen Ave, EB	E	4:30 to 4:45 p.m.
Clarkson Ave	West of San Mateo, WB	E	6:15 to 6:30 a.m.
Clarkson Ave	West of San Mateo, EB	E	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.
Clarkson Ave	East of Santa Clara Ave, WB	E	6:15 to 6:30 a.m.
Clarkson Ave	East of Santa Clara Ave, EB	E	4:30 to 4:45 p.m.
		D	4:45 to 5:00 p.m.
Kamm Ave	East of Napa Ave, WB	F	5:00 to 5:15 a.m.
		E	5:45 to 6:00 a.m.
		D	6:00 to 6:15 a.m.
		F	6:15 to 6:30 a.m.
		E	6:45 to 7:00 a.m.
Kamm Ave	East of Napa Ave, EB	F	3:30 to 3:45 p.m.
		D	3:45 to 4:00 p.m.
		F	4:30 to 4:45 p.m.
		F	4:45 to 5:00 p.m.
McMullin Grade	West of Madera Ave, WB	F	5:00 to 5:15 a.m.
		E	5:45 to 6:00 a.m.
		D	6:00 to 6:15 a.m.
		F	6:15 to 6:30 a.m.
		D	6:30 to 6:45 a.m.
		E	6:45 to 7:00 a.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Table 11 (Continued)
Road Segment Analyses – Year 2031 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
McMullin Grade	West of Madera Ave, EB	F	3:30 to 3:45 p.m.
		E	3:45 to 4:00 p.m.
		F	4:30 to 4:45 p.m.
		F	4:45 to 5:00 p.m.
Dickenson Ave	South of Jensen Ave, SB	E	5:30 to 5:45 a.m.
		D	5:45 to 6:00 a.m.
		F	6:00 to 6:15 a.m.
		E	6:30 to 6:45 a.m.
Dickenson Ave	South of Jensen Ave, NB	F	3:45 to 4:00 p.m.
		E	4:00 to 4:15 p.m.
		F	4:45 to 5:00 p.m.
		F	5:00 to 5:15 p.m.
Derrick Ave	North of Adams Ave, SB	E	6:00 to 6:15 a.m.
Derrick Ave	North of Adams Ave, NB	E	4:45 to 5:00 p.m.
Manning Ave	East of I-5, EB	D	6:00 to 6:15 a.m.
Manning Ave	East of I-5, WB	D	4:45 to 5:00 p.m.
Belmont Ave	East of San Diego Ave, WB	*D*	*5:30 to 5:45 a.m.*

EB: eastbound WB: westbound NB: northbound SB: southbound

Road segments that are expected to operate at an LOS worse than the target LOS in the year 2033 without VCIP trips (baseline conditions) are presented in Table 12.

Table 12
Road Segment Analyses – Year 2033 Baseline Conditions

Road	Segment and Direction	LOS	Time Period
12th St	West of SR 33, WB	D	5:15 to 5:30 a.m.
		D	5:30 to 5:45 a.m.
		D	5:45 to 6:00 a.m.
		D	6:30 to 6:45 a.m.
12th St	West of SR 33, EB	D	4:00 to 4:15 p.m.
McMullin Grade	West of Madera Ave, EB	D	3:30 to 3:45 p.m.
Dickenson Ave	South of Jensen Ave, SB	D	5:30 to 5:45 a.m.
California Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.
Belmont Ave	East of San Diego Ave, WB	D	5:30 to 5:45 a.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Road segments that are expected to operate at an LOS worse than the target LOS in the year 2033 with VCIP trips are presented in Table 13. Time periods and LOS that are not exacerbated by VCIP trips are identified in italic font.

Table 13
Road Segment Analyses – Year 2033 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
12th St	West of SR 33, WB	*D*	*5:15 to 5:30 a.m.*
		D	*5:30 to 5:45 a.m.*
		D	*5:45 to 6:00 a.m.*
		D	*6:30 to 6:45 a.m.*
12th St	West of SR 33, EB	*D*	*4:00 to 4:15 p.m.*
Madera Ave (SR 145)	South of Whitesbridge, SB	E/F	6:00 to 6:15 a.m.
Madera Ave (SR 145)	South of Whitesbridge, NB	E/F	4:45 to 5:00 p.m.
McMullin Grade	West of Madera Ave, WB	E	5:30 to 5:45 a.m.
		E	5:45 to 6:00 a.m.
		F	6:00 to 6:15 a.m.
		D	6:15 to 6:30 a.m.
		E	6:30 to 6:45 a.m.
McMullin Grade	West of Madera Ave, EB	*D*	*3:30 to 3:45 p.m.*
		F	3:45 to 4:00 p.m.
		E	4:00 to 4:15 p.m.
		F	4:30 to 4:45 p.m.
		F	4:45 to 5:00 p.m.
Dickenson Ave	South of Jensen Ave, SB	E	5:30 to 5:45 a.m.
		D	5:45 to 6:00 a.m.
		F	6:00 to 6:15 a.m.
		E	6:30 to 6:45 a.m.
Dickenson Ave	South of Jensen Ave, NB	F	3:45 to 4:00 p.m.
		E	4:00 to 4:15 p.m.
		F	4:45 to 5:00 p.m.
		F	5:00 to 5:15 p.m.
California Ave	East of San Diego Ave, WB	*D*	*5:30 to 5:45 a.m.*
Lassen Ave	North of SR 198, SB	F	5:00 to 5:15 a.m.
		E	5:45 to 6:00 a.m.
		D	6:00 to 6:15 a.m.
		F	6:15 to 6:30 a.m.
		E	6:45 to 7:00 a.m.
Lassen Ave	North of SR 198, NB	F	3:30 to 3:45 p.m.
		D	3:45 to 4:00 p.m.
		F	4:30 to 4:45 p.m.
		F	4:45 to 5:00 p.m.
Lassen Ave	South of Elkhorn Ave, NB	E	5:30 to 5:45 a.m.
		E	5:45 to 6:00 a.m.
		F	6:00 to 6:15 a.m.
		D	6:15 to 6:30 a.m.
		E	6:30 to 6:45 a.m.

EB: eastbound WB: westbound NB: northbound SB: southbound

Table 13 (Continued)
Road Segment Analyses – Year 2033 Conditions With VCIP Project Trips

Road	Segment and Direction	LOS	Time Period
Lassen Ave	South of Elkhorn Ave, SB	F	3:45 to 4:00 p.m.
		E	4:00 to 4:15 p.m.
		F	4:45 to 5:00 p.m.
		F	5:00 to 5:15 p.m.
Belmont Ave	East of San Diego Ave, WB	*D*	*5:30 to 5:45 a.m.*

EB: eastbound WB: westbound NB: northbound SB: southbound

11 INTERSECTION ANALYSES

Intersection analyses were performed at key intersections for specific 15-minute periods in the year 2029 based on the results of the road segment analyses. The intersection levels of service were determined using the computer program Synchro 12, and the analysis sheets are presented in Appendix G. Table 14 presents the results of the intersection analyses.

It is noted that no intersection analyses were performed for years after 2029 for the following reasons. First, since 2029 is the first year of peak construction, and because the transportation system is most constrained during this time regarding access to the northern portion of the Plan Area relative to the Fresno metropolitan area, the major source of commuting workers. That is, since there are fewer direct access routes between northern VCIP and Fresno, the commute traffic volumes will be more focused on those routes and thus result in the greatest potential traffic impact to intersections on those routes. Second, the analysis of intersections in subsequent construction years is not warranted because the roadway segment analysis showed that, because there are more available direct access routes to the central and southern portions of VCIP, the traffic added to roadways and intersections would more dispersed and less likely to result in impacts at a given location. Also, the complex vehicle movements at intersections becomes less predictable the farther in the future the study extends, so evaluating potential intersection impacts up to 15 years in the future would have limited validity. Moreover, the objective of this program-level analysis is to provide guidance as to the magnitude of impacts that may be expected when project-specific traffic analyses are to be conducted. The roadway segment analysis provides sufficient guidance as to the general level of traffic impacts that can be expected in future development years.

Table 14
Intersection Analyses – Year 2029 Conditions

Intersection	Time Period	Level of Service	
		2029 Baseline	2029 With VCIP
N St (SR 33) / 12th St	6:15 – 6:30 a.m.	B	F
	4:30 – 4:45 p.m.	C	F
N St (SR 33) / 13th St	6:15 – 6:30 a.m.	A	F
	4:30 – 4:45 p.m.	A	F
Oller St (SR 180) / Belmont Ave (one-way stop)	6:00 – 6:15 a.m.	B	F
	4:45 – 5:00 p.m.	C	F
Whitesbridge Rd (SR 180) / Madera Ave (SR 145)	6:00 – 6:15 a.m.	B	F
	4:45 – 5:00 p.m.	B	F

12 DISCUSSION OF ANALYSES

The results of the road segment analyses indicate that a majority of the study road segments are operating at acceptable LOS throughout the study time periods, with some road segments operating at LOS D during specific 15-minute periods.

With the addition of trips expected to be generated by projects within the proposed VCIP, a number of road segments are expected to operate at an LOS worse than the target LOS for durations typically lasting less than 15 to 30 minutes.

The results of the intersection operational analyses suggest that worker trips are likely to cause the intersections to operate at an LOS worse than the target LOS, specifically in the urban areas of Firebaugh, Mendota, and Kerman, with long queues expected on approaches carrying worker trips.

VCIP trips affecting the LOS are not expected to occur after 7:00 a.m. on weekday mornings. In some cases, the VCIP trips affecting the LOS coincide with the p.m. peak hour that typically occurs between the hours of 4:00 and 6:00 p.m.

Potential mitigation measures to reduce the number of worker trips may include utilizing shuttle buses, staggered work hours, ride sharing, and utilizing alternative routes.

There are no existing transit (bus) options in the VCIP area capable of accommodating the workers. It is calculated that, in order for VCIP construction traffic volumes to remain within the target LOS for each affected intersection and roadway, the number of workers commuting solo would need to be reduced from approximately 4,500 to 3,550. Although the mitigation measures suggested above (i.e., staggered work hours, ride sharing) would provide some reduction in trips, it is unlikely that 950 one-way trips would be reduced by these measures alone. One effective measure would be the use of shuttle buses to transport construction workers from population centers to the work sites. It is estimated that one bus could replace approximately 38 worker vehicles. Mitigated intersection analyses suggest that providing on the order of 25 buses to offset approximately 950 worker vehicles could cause the intersections to operate at more acceptable LOS. Table 15 summarizes the mitigated conditions and the number of buses. Since intersection operations typically govern LOS as compared to road segment operations, the recommended number of buses is also expected to improve road

segment LOS to acceptable levels. The mitigated intersection analysis sheets are presented in Appendix H.

Table 15
Mitigated Intersection Analyses – Year 2029 Conditions With VCIP Project Trips

Intersection	Time Period	Number of Buses	Level of Service
N St (SR 33) / 12th St	6:15 – 6:30 a.m.	25	C
	4:30 – 4:45 p.m.	23	C
N St (SR 33) / 13th St	6:15 – 6:30 a.m.	25	B
	4:30 – 4:45 p.m.	23	B
Oller St (SR 180) / Belmont Ave	6:00 – 6:15 a.m.	22	C
	4:45 – 5:00 p.m.	20	C
Whitesbridge Rd (SR 180) / Madera Ave (SR 145)	6:00 – 6:15 a.m.	15	B
	4:45 – 5:00 p.m.	15	C

13 CONCLUSIONS AND RECOMMENDATIONS

Generally-accepted traffic engineering principles and methods were employed to estimate the amount of traffic expected to be generated by the VCIP, to analyze the existing traffic conditions, and to analyze the traffic conditions projected to occur in the future.

With respect to vehicle miles traveled (VMT), the Technical Advisory focuses almost exclusively on permanent residential, office, and retail projects as primarily responsible for increasing VMT in the state. Temporary construction trips will not contribute to the long-term per-capita or per-employee VMT and will not constitute a significant transportation impact. The individual solar projects within the VCIP, once constructed and operational, are expected to generate substantially fewer than 110 trips per day. Therefore, the transportation impact of each project within the VCIP is expected to be less than significant.

A majority of the study road segments are operating at acceptable LOS throughout the study time periods, with some road segments operating at LOS D during specific 15-minute periods. With the addition of trips expected to be generated by VCIP projects, several road segments are expected to operate at an LOS worse than the target LOS for durations typically lasting less than 15 to 30 minutes.

The results of the intersection operational analyses suggest that worker trips are likely to cause certain intersections to operate at an LOS worse than the target LOS, with long queues expected on approaches carrying worker trips.

VCIP trips affecting the LOS are not expected to occur after 7:00 a.m. on weekday mornings. In some cases, the VCIP project trips affecting the LOS coincide with the p.m. peak hour that typically occurs between the hours of 4:00 and 6:00 p.m.

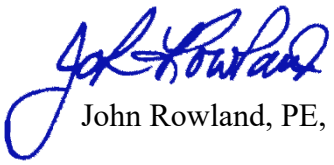
Potential mitigation measures to reduce the number of worker trips may include utilizing shuttle buses, staggered work hours, and ride sharing. It is recommended that the individual projects provide on the order of 25 buses from designated parking lots in various cities to offset worker vehicles.

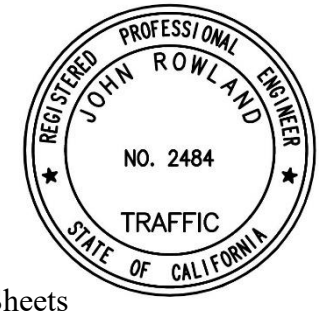
It is recommended that portable changeable message signs (PCMS) be considered to warn motorists at least one week in advance of potential delays.

Individual projects within the VCIP would be required to perform project-specific traffic analyses to identify localized traffic issues. Traffic index analyses and pavement surveys may be required to ensure that individual VCIP projects do not reduce the life of existing pavements.

Thank you for the opportunity to perform this traffic study. Please feel free to contact our office if you have any questions.

PETERS ENGINEERING GROUP





John Rowland, PE, TE

Attachments: Figures
Appendix A - Traffic Count Data Sheets
Appendix B – Seasonal Adjustment Factors
Appendix C – Florida Tables C1, C2T, and C3C
Appendix D – Road Segment Analyses – Year 2029
Appendix E – Road Segment Analyses – Year 2031
Appendix F – Road Segment Analyses – Year 2033
Appendix G – Intersection Analyses
Appendix H – Mitigated Intersection Analyses

FIGURES

EXISTING DAILY TRAFFIC VOLUMES

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California

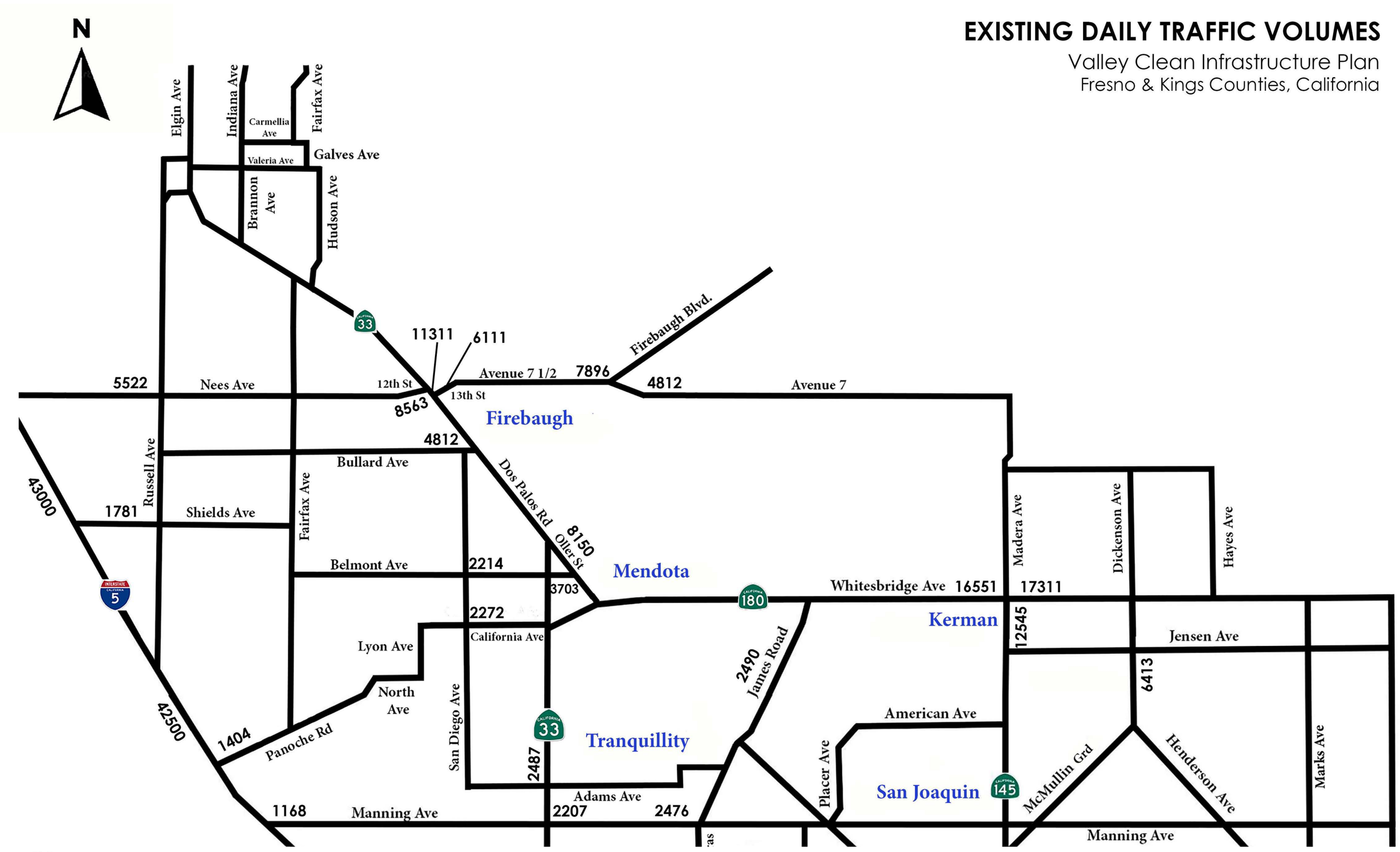


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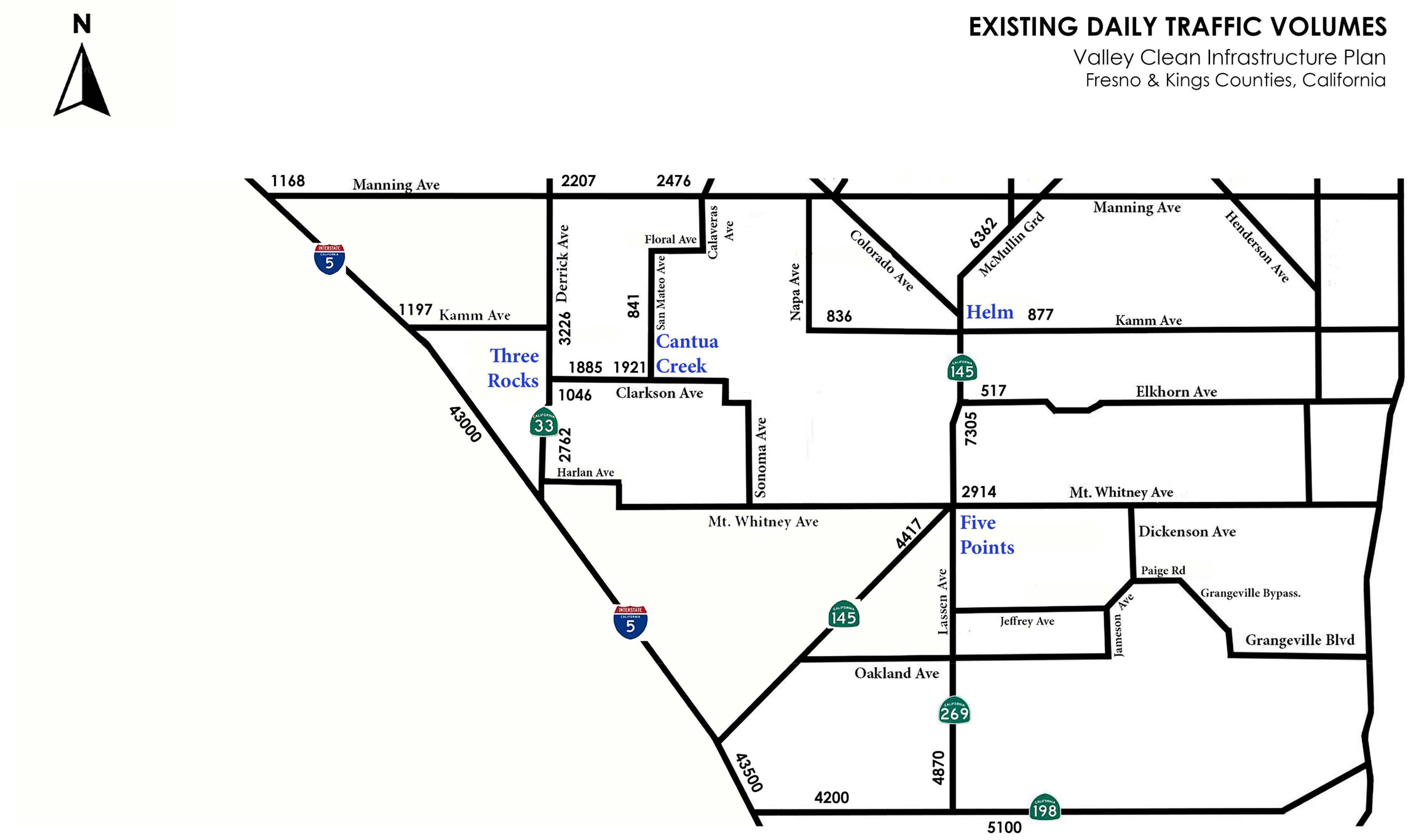
Figure 1A

EXISTING DAILY TRAFFIC VOLUMES

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California



YEAR 2029 DAILY PROJECT WORKER TRIPS

Valley Clean Infrastructure Plan
Fresno & Kings Counties, California

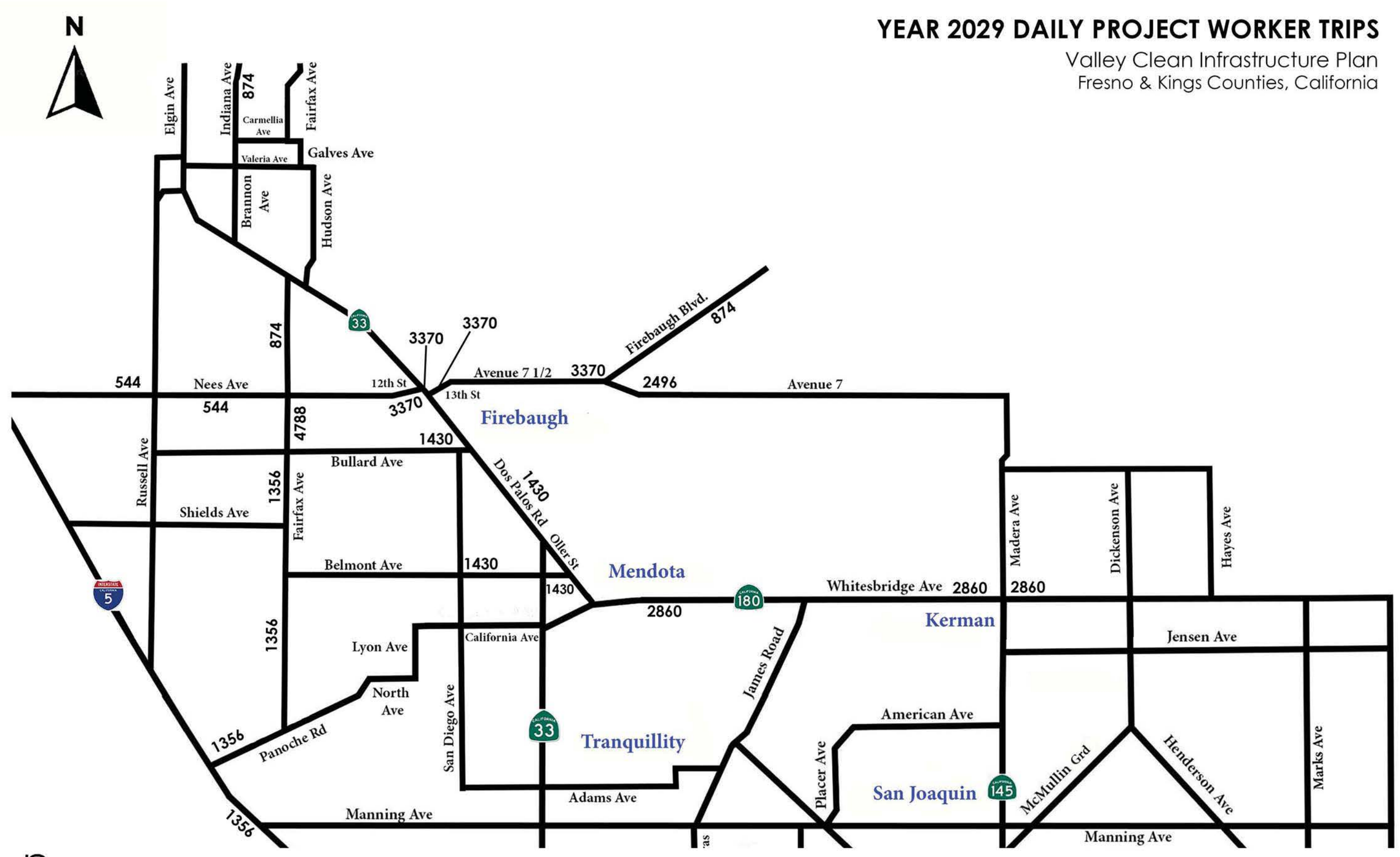


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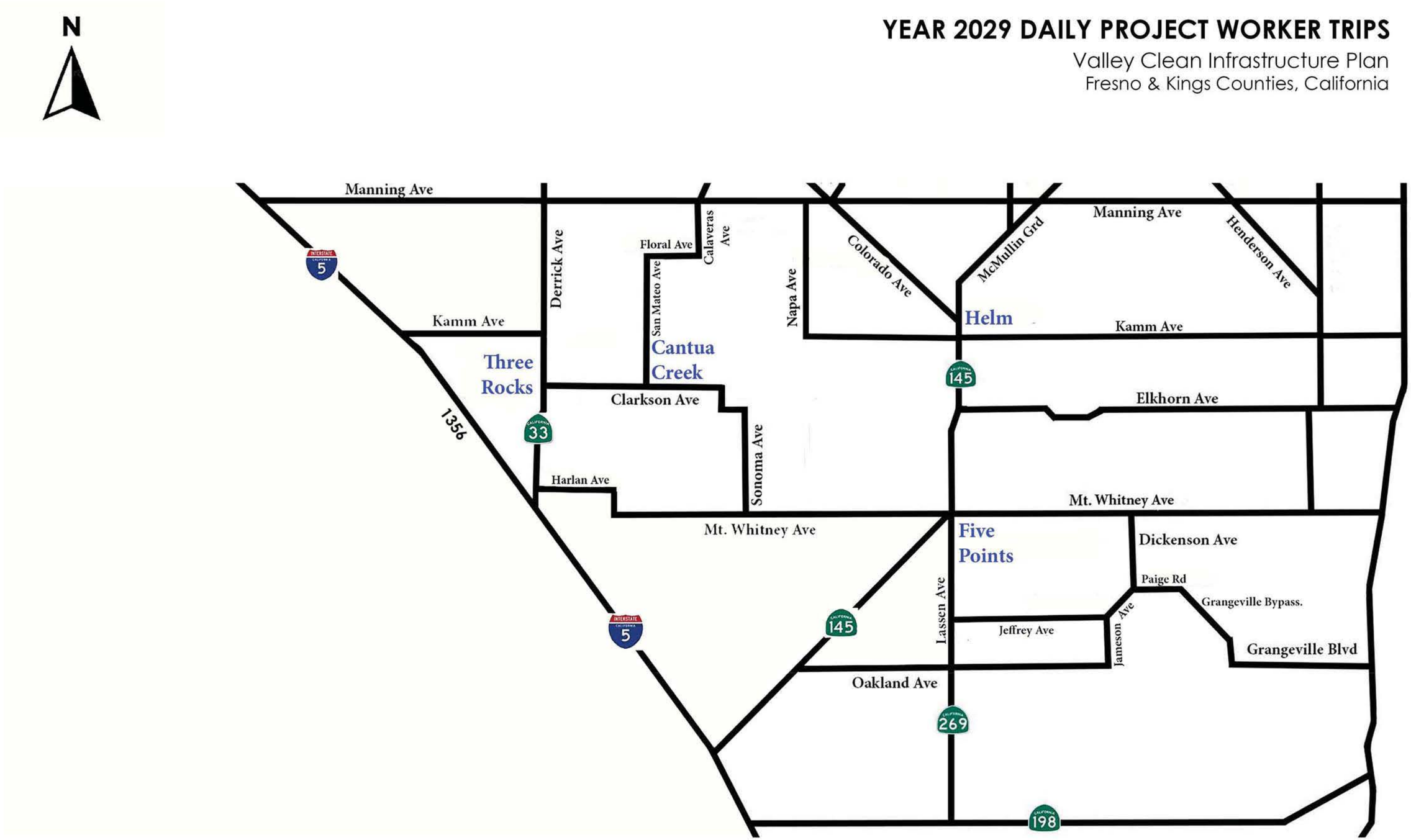
Figure 2A

YEAR 2029 DAILY PROJECT WORKER TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California



YEAR 2029 DAILY PROJECT TRUCK TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California

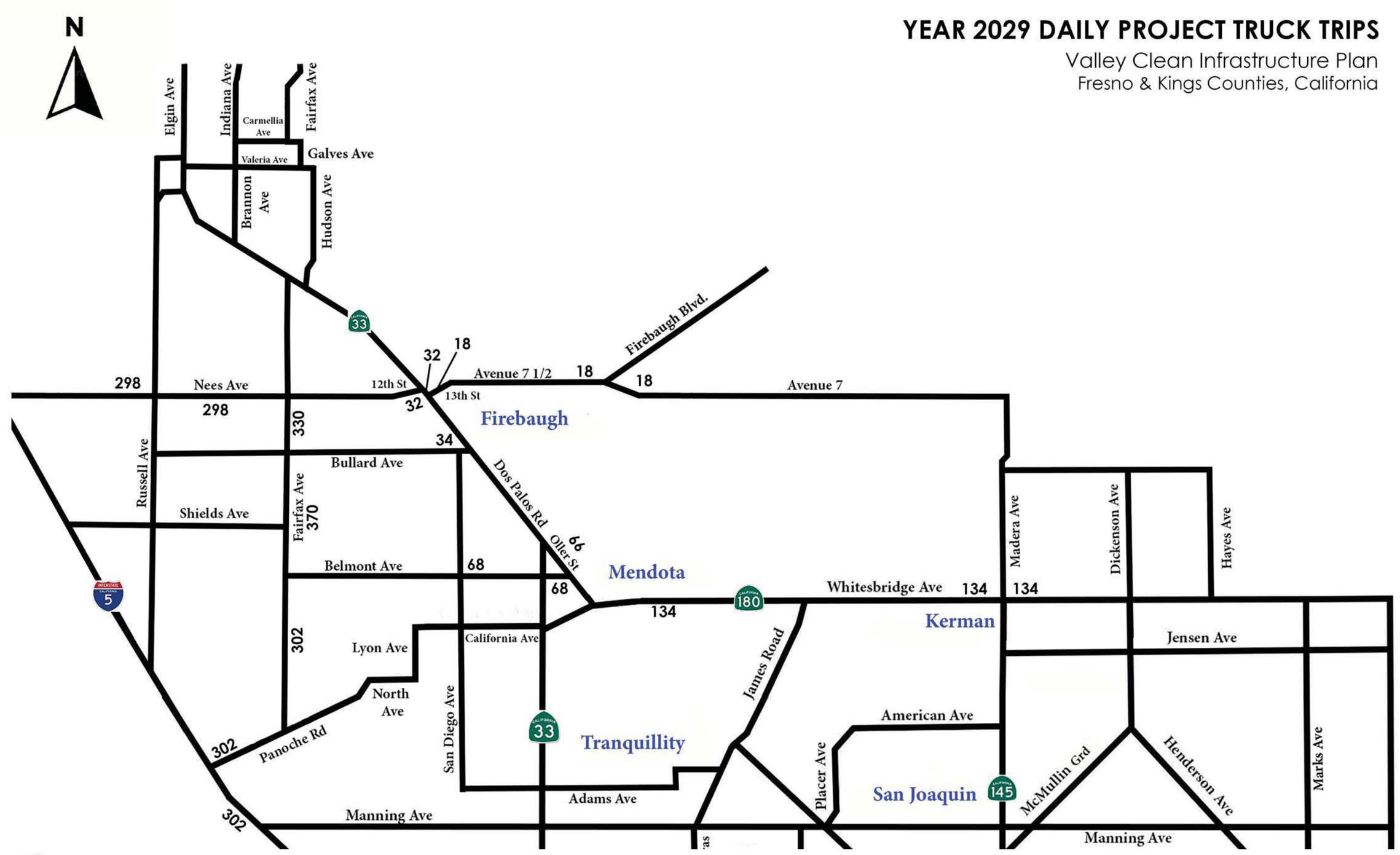


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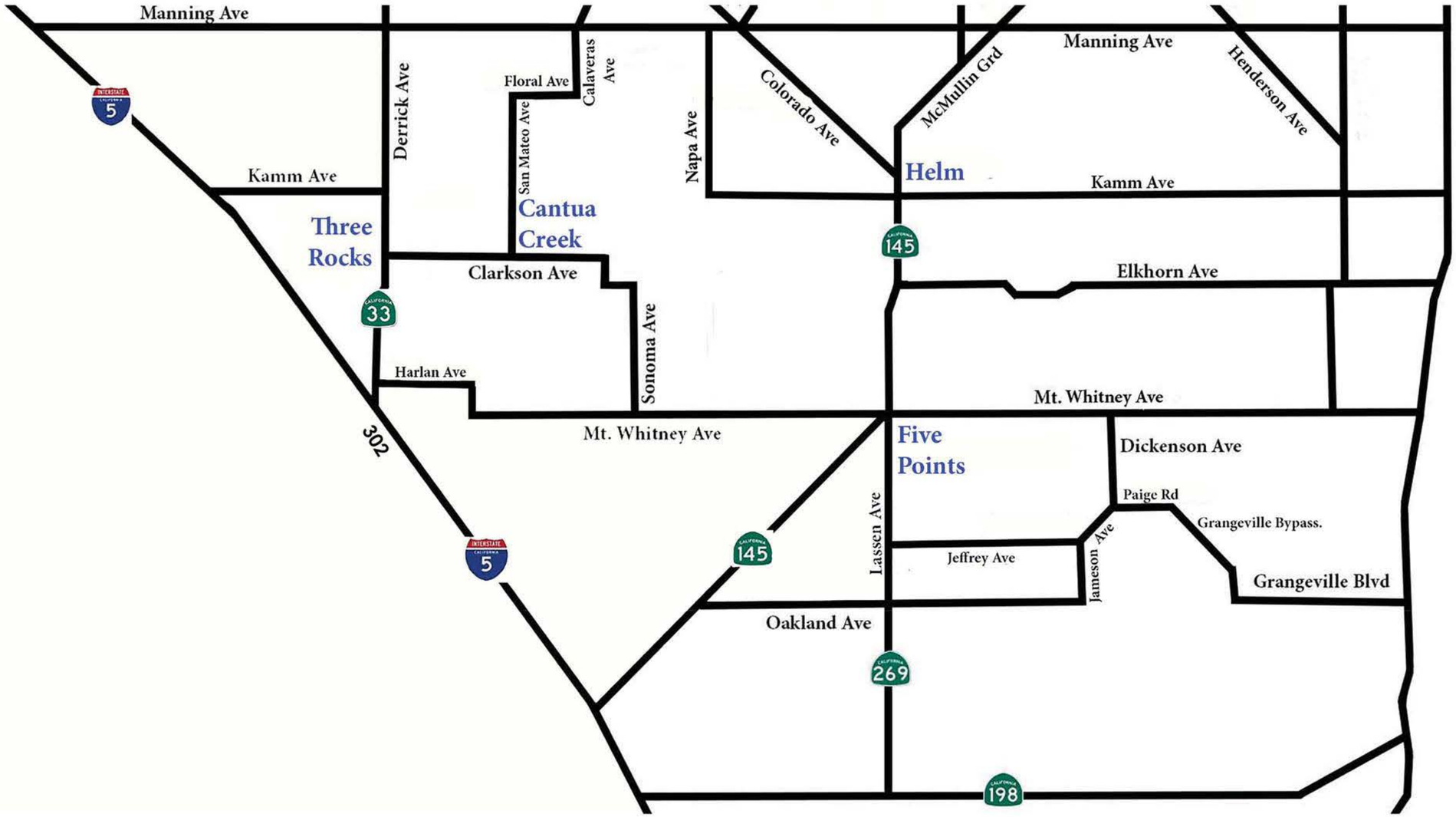
Figure 3A

YEAR 2029 DAILY PROJECT TRUCK TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California

N



YEAR 2031 DAILY PROJECT WORKER TRIPS

Valley Clean Infrastructure Plan
Fresno & Kings Counties, California

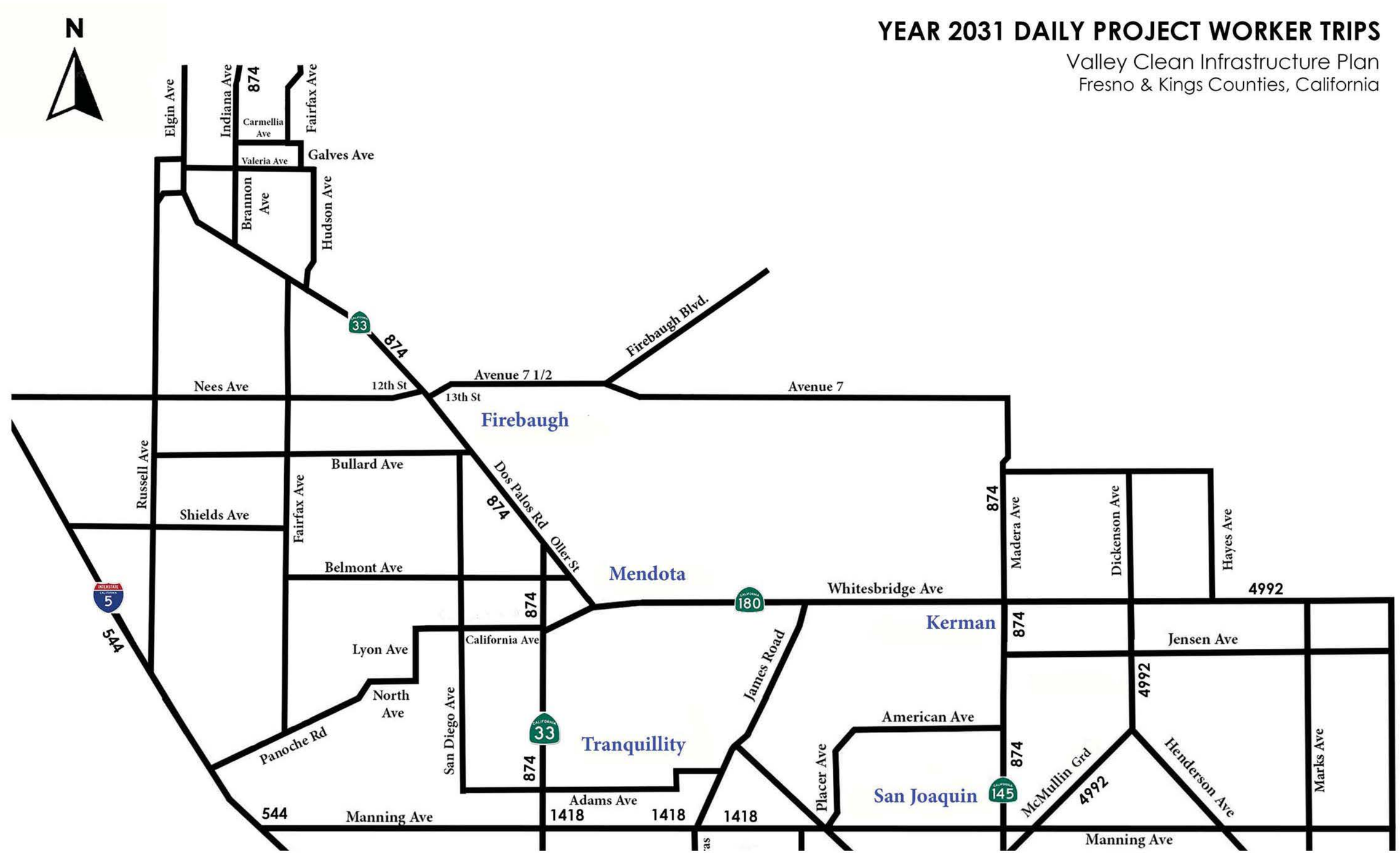


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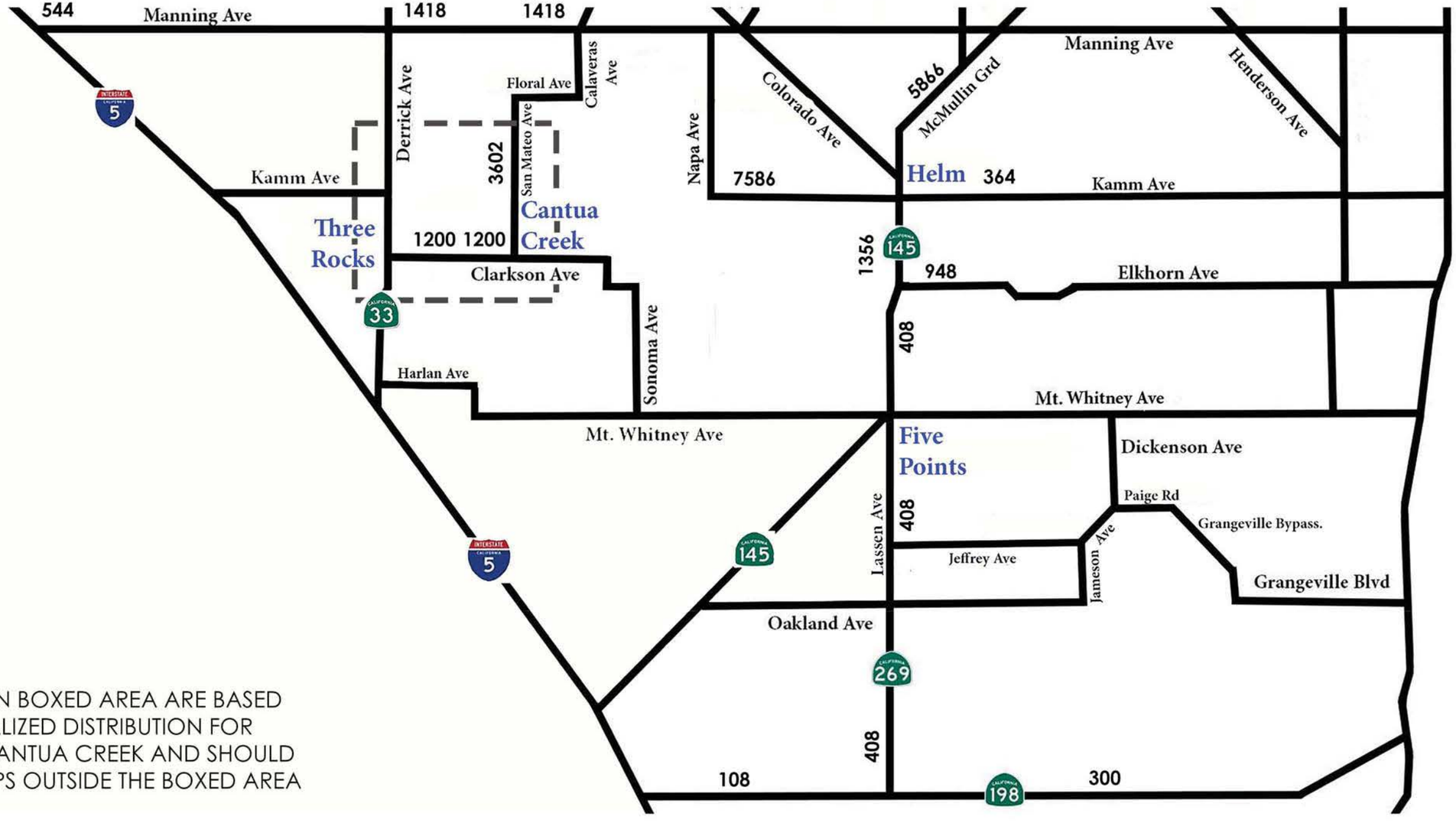
Figure 4A

YEAR 2031 DAILY PROJECT WORKER TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California



NOTE: WORKER TRIPS IN BOXED AREA ARE BASED ON A SEPARATE LOCALIZED DISTRIBUTION FOR WORK AREAS NEAR CANTUA CREEK AND SHOULD NOT BE ADDED TO TRIPS OUTSIDE THE BOXED AREA

YEAR 2031 DAILY PROJECT TRUCK TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California

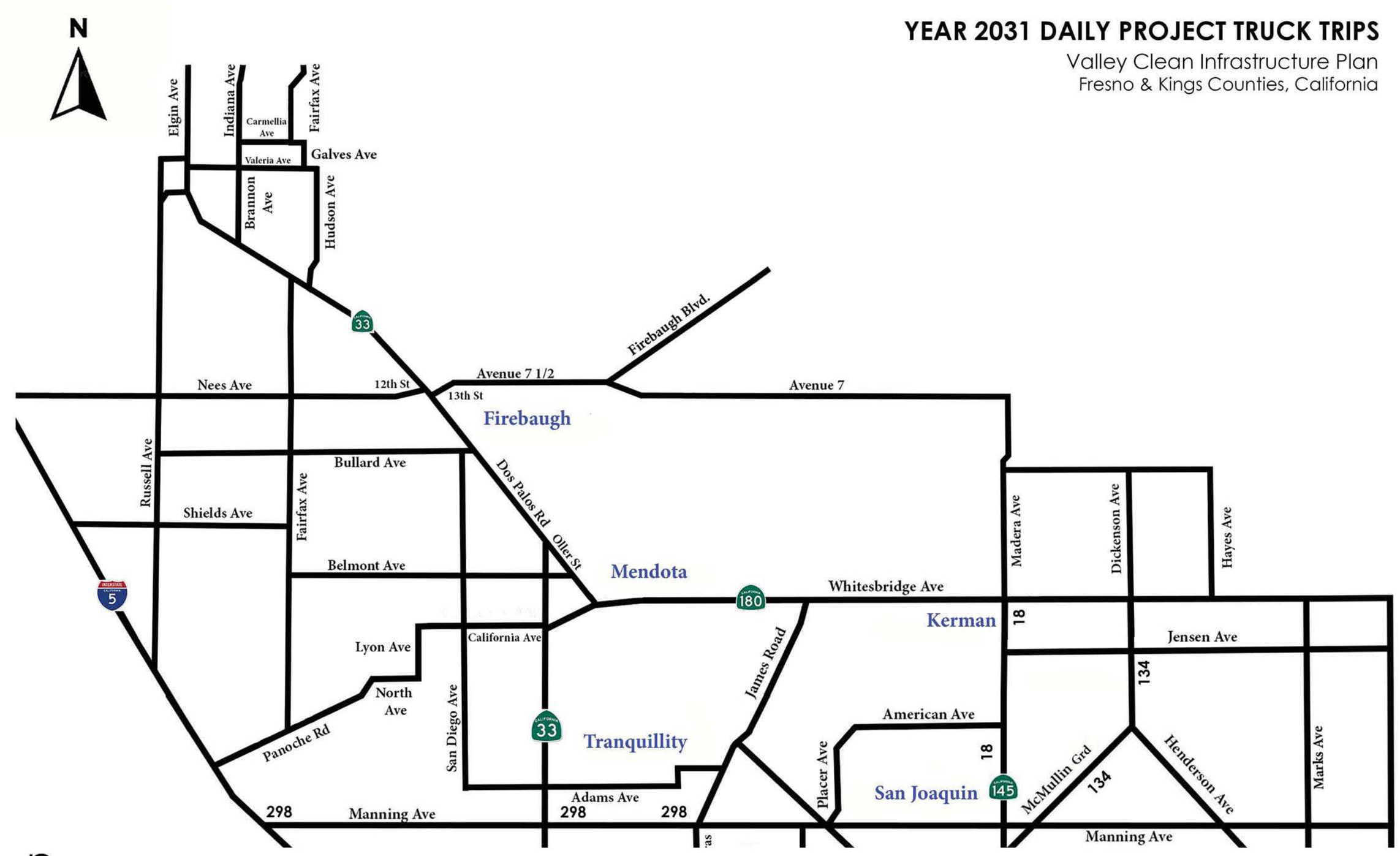


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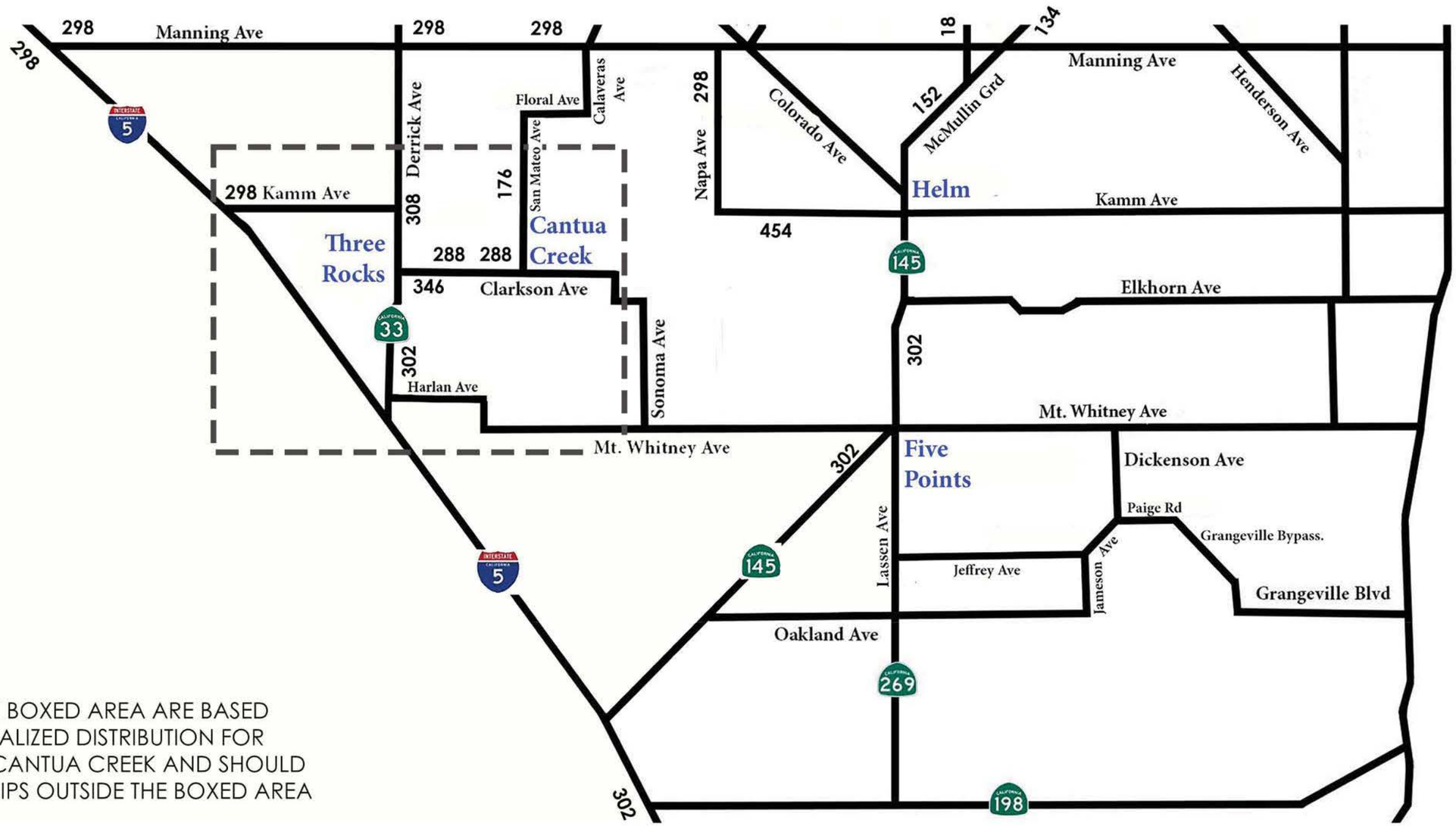
Figure 5A

YEAR 2031 DAILY PROJECT TRUCK TRIPS

Valley Clean Infrastructure Plan
Fresno & Kings Counties, California



NOTE: TRUCK TRIPS IN BOXED AREA ARE BASED ON A SEPARATE LOCALIZED DISTRIBUTION FOR WORK AREAS NEAR CANTUA CREEK AND SHOULD NOT BE ADDED TO TRIPS OUTSIDE THE BOXED AREA

YEAR 2033 DAILY PROJECT WORKER TRIPS

Valley Clean Infrastructure Plan
Fresno & Kings Counties, California

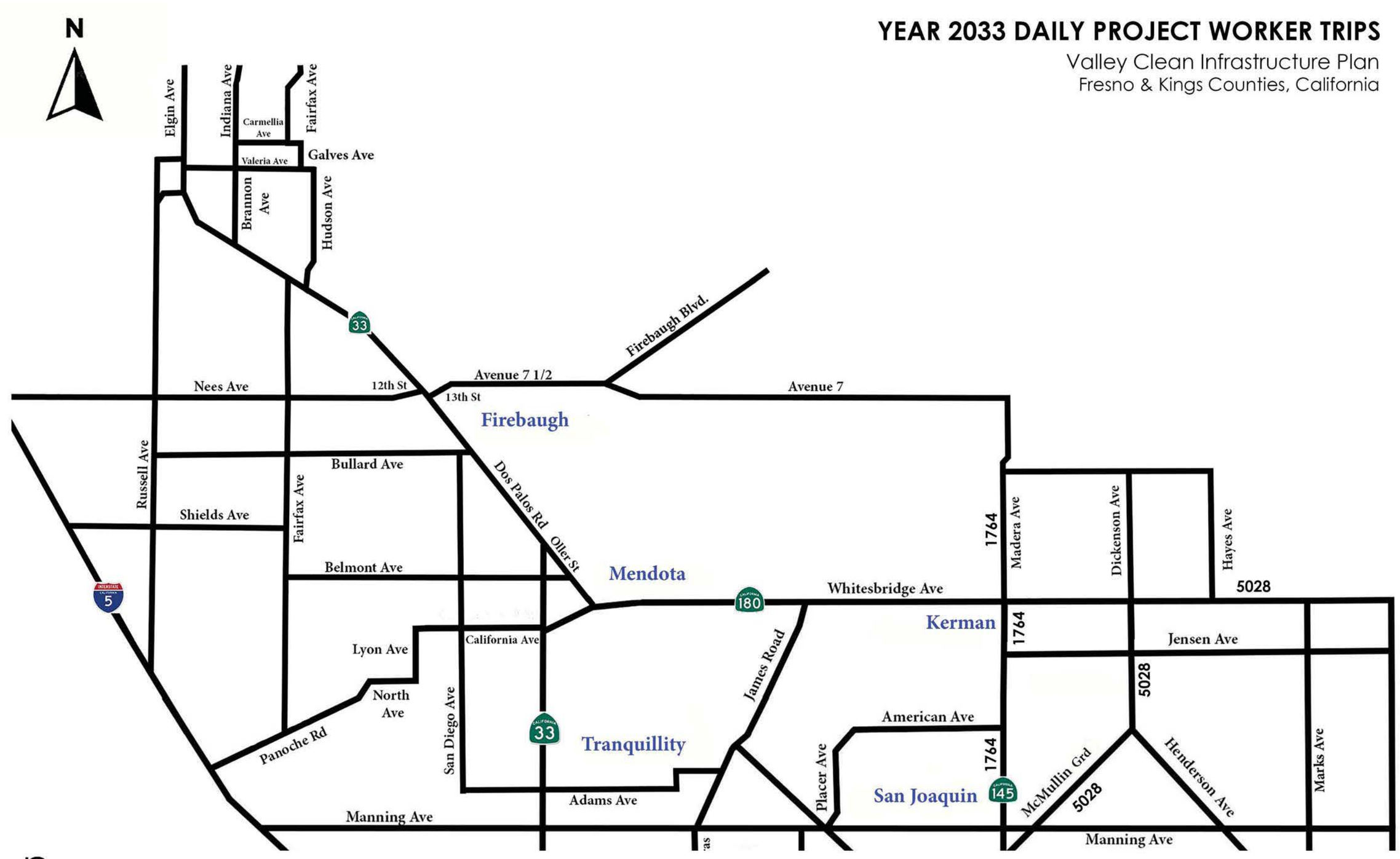


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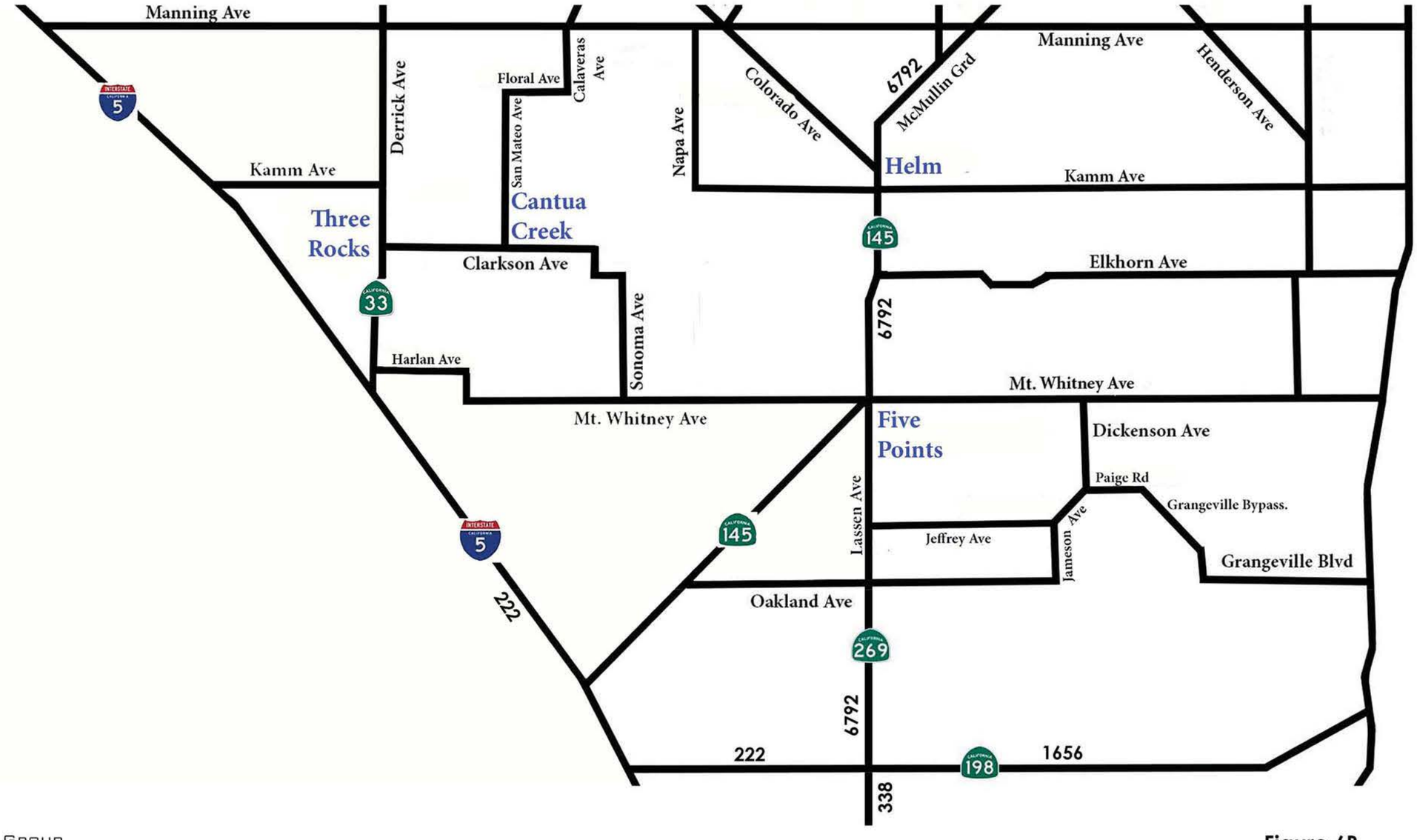
Figure 6A

N

YEAR 2033 DAILY PROJECT WORKER TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California



YEAR 2033 DAILY PROJECT TRUCK TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California

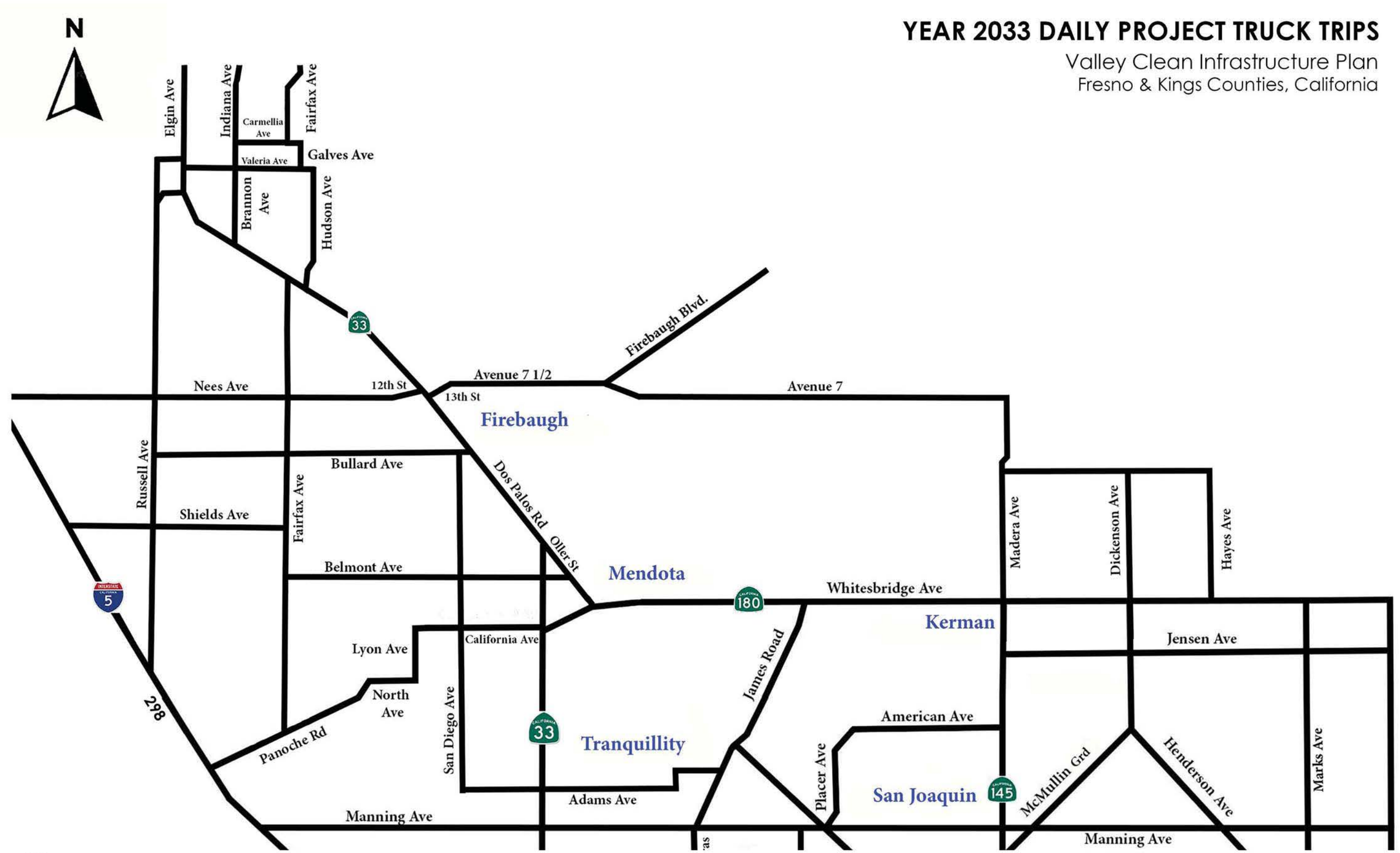


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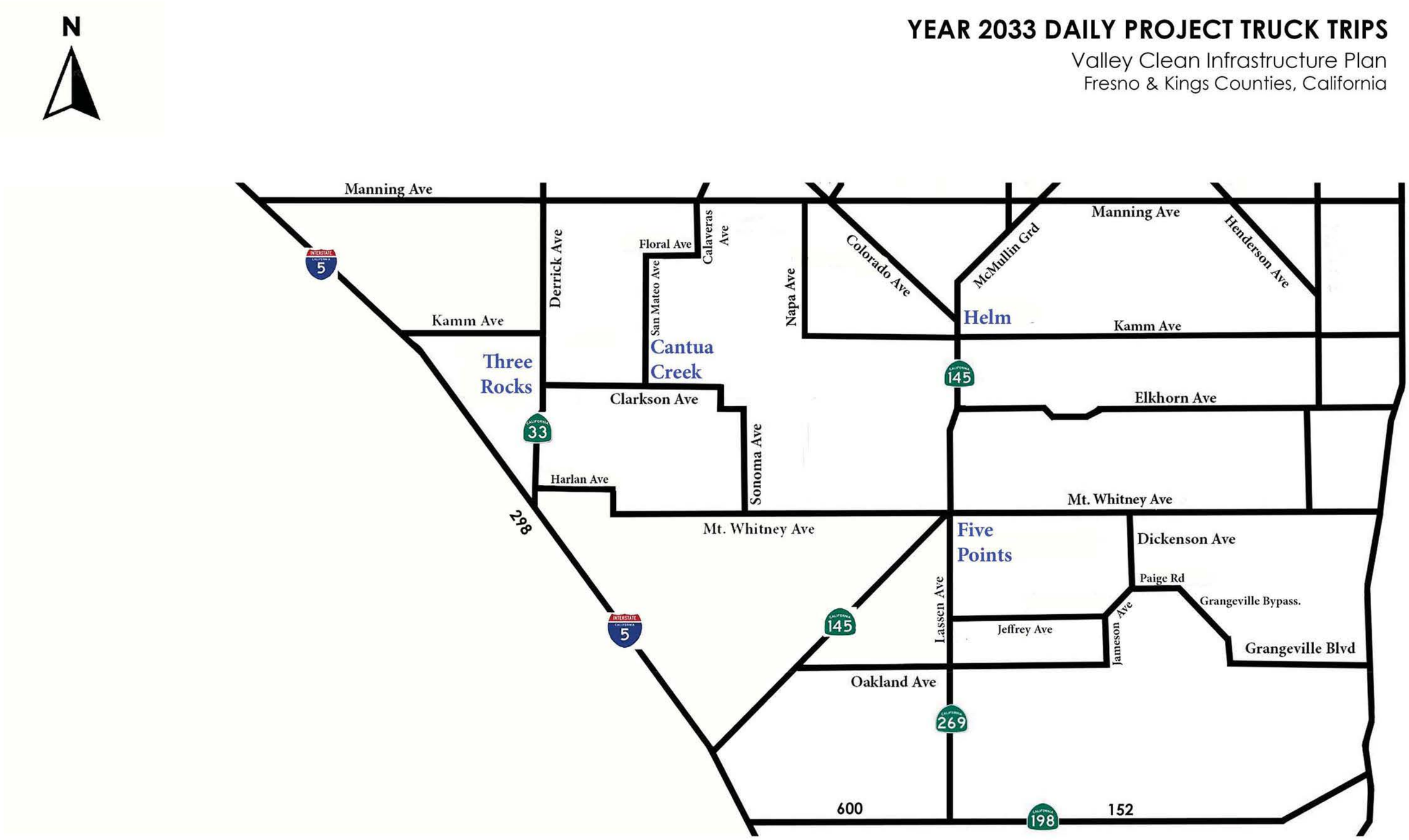
Figure 7A

YEAR 2033 DAILY PROJECT TRUCK TRIPS

Valley Clean Infrastructure Plan

Fresno & Kings Counties, California



APPENDIX A

TRAFFIC COUNT DATA SHEETS

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

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

24 Hour Volume Report

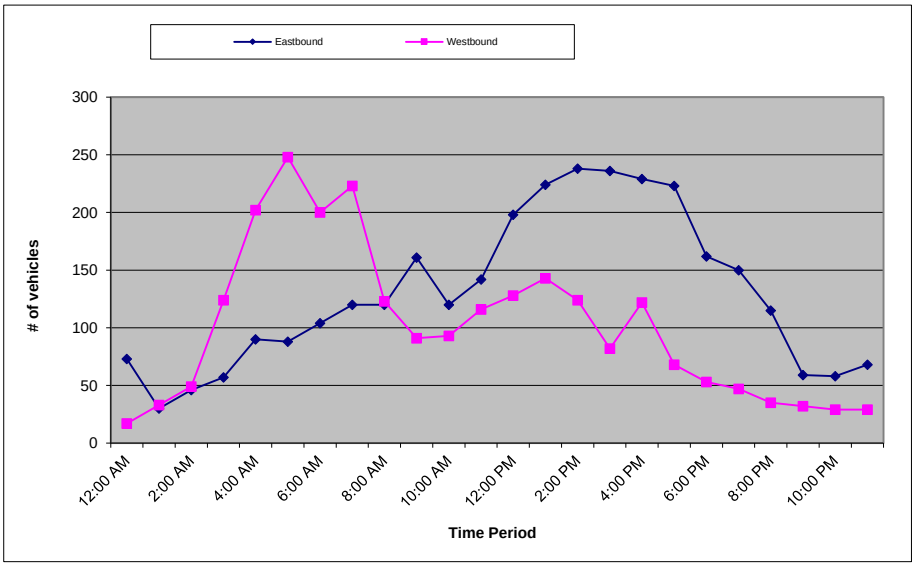
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Nees Ave
SEGMENT w/o Russell Ave
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.8506764
LONGITUDE -120.656854
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	11	27	12	23	**73**	2	6	4	5	**17**	**90**
1:00 AM	5	2	10	13	**30**	3	11	5	14	**33**	**63**
2:00 AM	13	10	7	16	**46**	9	10	5	25	**49**	**95**
3:00 AM	8	13	15	21	**57**	13	20	44	47	**124**	**181**
4:00 AM	24	20	16	30	**90**	28	46	54	74	**202**	**292**
5:00 AM	17	13	25	33	**88**	38	64	85	61	**248**	**336**
6:00 AM	37	20	37	10	**104**	55	37	54	54	**200**	**304**
7:00 AM	28	32	25	35	**120**	63	48	61	51	**223**	**343**
8:00 AM	28	38	30	24	**120**	35	34	24	30	**123**	**243**
9:00 AM	45	37	40	39	**161**	20	22	27	22	**91**	**252**
10:00 AM	24	31	21	44	**120**	11	20	22	40	**93**	**213**
11:00 AM	23	28	34	57	**142**	30	34	28	24	**116**	**258**
12:00 PM	48	31	64	55	**198**	33	19	34	42	**128**	**326**
1:00 PM	61	53	65	45	**224**	28	38	39	38	**143**	**367**
2:00 PM	59	67	55	57	**238**	38	15	33	38	**124**	**362**
3:00 PM	49	44	52	91	**236**	23	13	21	25	**82**	**318**
4:00 PM	58	66	62	43	**229**	29	21	35	37	**122**	**351**
5:00 PM	70	52	54	47	**223**	14	22	19	13	**68**	**291**
6:00 PM	36	47	36	43	**162**	11	20	11	11	**53**	**215**
7:00 PM	41	35	43	31	**150**	17	12	14	4	**47**	**197**
8:00 PM	38	37	23	17	**115**	8	9	9	9	**35**	**150**
9:00 PM	14	26	12	7	**59**	4	12	6	10	**32**	**91**
10:00 PM	13	19	13	13	**58**	8	5	7	9	**29**	**87**
11:00 PM	33	2	18	15	**68**	5	4	9	11	**29**	**97**
Total	**56.3%**				**3111**	**43.7%**				**2411**	
	5522										

AM%	**48.4%**	**AM Peak**	**343**	**7:00 am to 8:00 am**	**AM P.H.F.**	**0.94**
PM%	**51.6%**	**PM Peak**	**381**	**0:45 pm to 1:45 pm**	**PM P.H.F.**	**0.92**



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24 Hour Volume Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Ave 7 1/2 **LATITUDE** 36.8587933

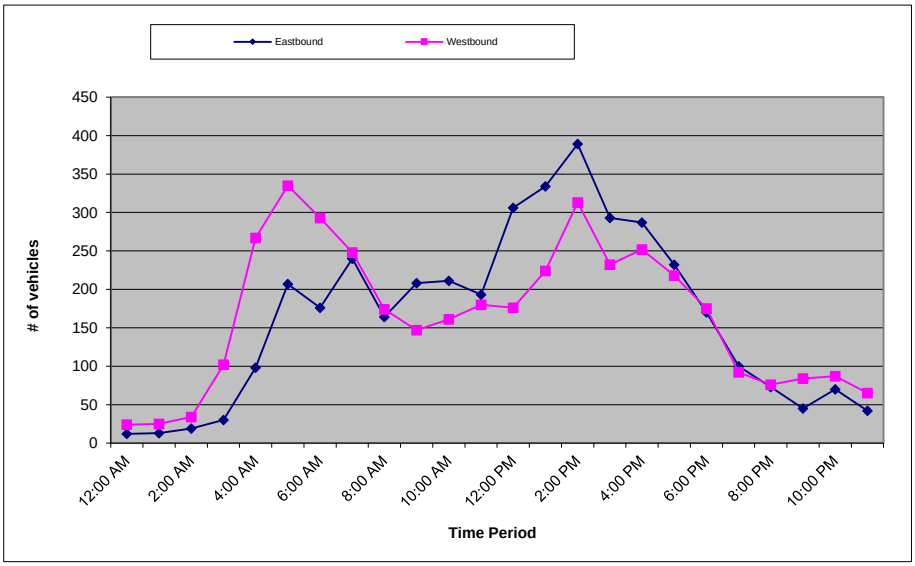
SEGMENT w/o Firebaugh Blvd **LONGITUDE** -120.3452057

COLLECTION DATE Tuesday, July 30, 2024 **WEATHER** Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	5	4	3	0	**12**	8	5	6	5	**24**	**36**
1:00 AM	5	4	2	2	**13**	7	3	4	11	**25**	**38**
2:00 AM	5	3	9	2	**19**	3	6	15	10	**34**	**53**
3:00 AM	4	12	3	11	**30**	7	16	26	53	**102**	**132**
4:00 AM	9	25	30	34	**98**	91	64	58	54	**267**	**365**
5:00 AM	35	43	79	50	**207**	88	103	87	57	**335**	**542**
6:00 AM	36	41	55	44	**176**	58	69	78	88	**293**	**469**
7:00 AM	58	68	60	54	**240**	61	79	57	51	**248**	**488**
8:00 AM	38	48	38	40	**164**	35	46	52	41	**174**	**338**
9:00 AM	47	57	52	52	**208**	46	32	37	32	**147**	**355**
10:00 AM	56	79	25	51	**211**	42	38	44	37	**161**	**372**
11:00 AM	54	46	35	58	**193**	52	46	44	38	**180**	**373**
12:00 PM	72	57	78	99	**306**	44	24	50	58	**176**	**482**
1:00 PM	125	80	52	77	**334**	45	50	57	72	**224**	**558**
2:00 PM	79	92	112	106	**389**	71	68	90	84	**313**	**702**
3:00 PM	89	68	69	67	**293**	47	48	75	62	**232**	**525**
4:00 PM	65	68	76	78	**287**	55	59	76	62	**252**	**539**
5:00 PM	64	60	60	48	**232**	44	51	66	57	**218**	**450**
6:00 PM	46	41	47	36	**170**	51	51	40	33	**175**	**345**
7:00 PM	35	28	16	21	**100**	25	25	21	21	**92**	**192**
8:00 PM	18	19	19	17	**73**	21	22	17	16	**76**	**149**
9:00 PM	13	9	7	16	**45**	20	25	25	14	**84**	**129**
10:00 PM	13	22	16	19	**70**	26	30	16	15	**87**	**157**
11:00 PM	10	13	10	9	**42**	14	12	24	15	**65**	**107**
Total	**49.5%**				**3912**	**50.5%**				**3984**	
	7896										

AM%	**45.1%**	**AM Peak**	**542**	**5:00 am to 6:00 am**	**AM P.H.F.**	**0.82**
PM%	**54.9%**	**PM Peak**	**702**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.87**



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

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

24 Hour Volume Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Ave 7 **LATITUDE** 36.8577367

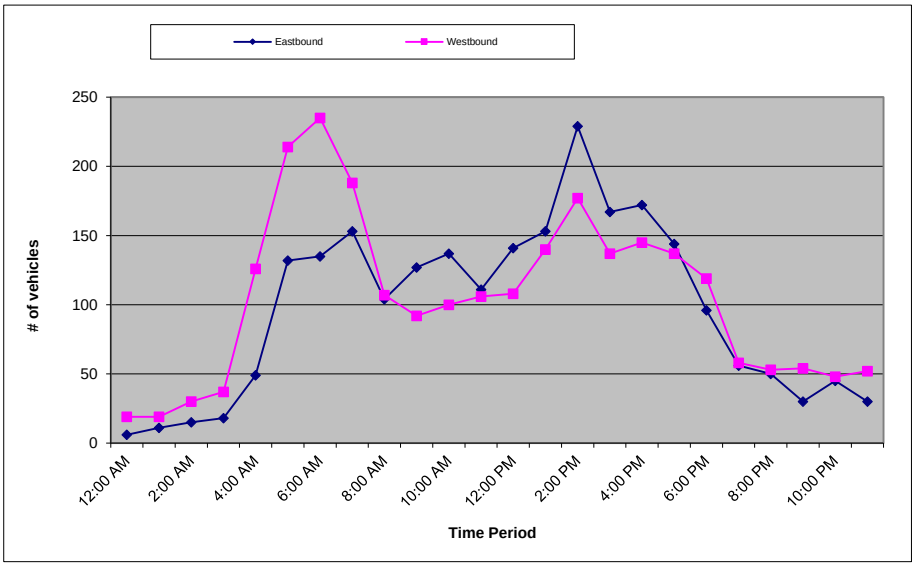
SEGMENT e/o Firebaugh Blvd **LONGITUDE** -120.3371798

COLLECTION DATE Tuesday, July 30, 2024 **WEATHER** Clear

NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	3	1	2	0	**6**	6	5	2	6	**19**	**25**
1:00 AM	4	5	1	1	**11**	3	4	3	9	**19**	**30**
2:00 AM	3	5	6	1	**15**	4	5	14	7	**30**	**45**
3:00 AM	3	4	1	10	**18**	2	10	7	18	**37**	**55**
4:00 AM	6	11	9	23	**49**	28	20	37	41	**126**	**175**
5:00 AM	22	24	53	33	**132**	56	69	52	37	**214**	**346**
6:00 AM	29	25	46	35	**135**	51	53	56	75	**235**	**370**
7:00 AM	36	41	42	34	**153**	51	56	38	43	**188**	**341**
8:00 AM	24	29	23	28	**104**	12	38	30	27	**107**	**211**
9:00 AM	22	33	30	42	**127**	25	21	27	19	**92**	**219**
10:00 AM	42	49	12	34	**137**	23	23	30	24	**100**	**237**
11:00 AM	26	30	22	33	**111**	31	25	21	29	**106**	**217**
12:00 PM	47	35	31	28	**141**	25	14	31	38	**108**	**249**
1:00 PM	30	40	33	50	**153**	34	35	33	38	**140**	**293**
2:00 PM	58	61	60	50	**229**	40	40	47	50	**177**	**406**
3:00 PM	46	32	43	46	**167**	25	23	57	32	**137**	**304**
4:00 PM	32	49	47	44	**172**	28	37	44	36	**145**	**317**
5:00 PM	34	38	44	28	**144**	32	26	42	37	**137**	**281**
6:00 PM	26	25	27	18	**96**	42	32	25	20	**119**	**215**
7:00 PM	20	17	9	10	**56**	20	16	12	10	**58**	**114**
8:00 PM	12	13	15	10	**50**	15	10	17	11	**53**	**103**
9:00 PM	10	6	3	11	**30**	10	18	18	8	**54**	**84**
10:00 PM	9	15	9	12	**45**	14	15	13	6	**48**	**93**
11:00 PM	5	12	7	6	**30**	8	9	21	14	**52**	**82**
Total	**48.0%**				**2311**	**52.0%**				**2501**	
	4812										

AM%	**47.2%**	**AM Peak**	**396**	**6:30 am to 7:30 am**	**AM P.H.F.**	**0.90**
PM%	**52.8%**	**PM Peak**	**406**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.95**



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

800-975-6938 Phone/Fax
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24 Hour Volume Report

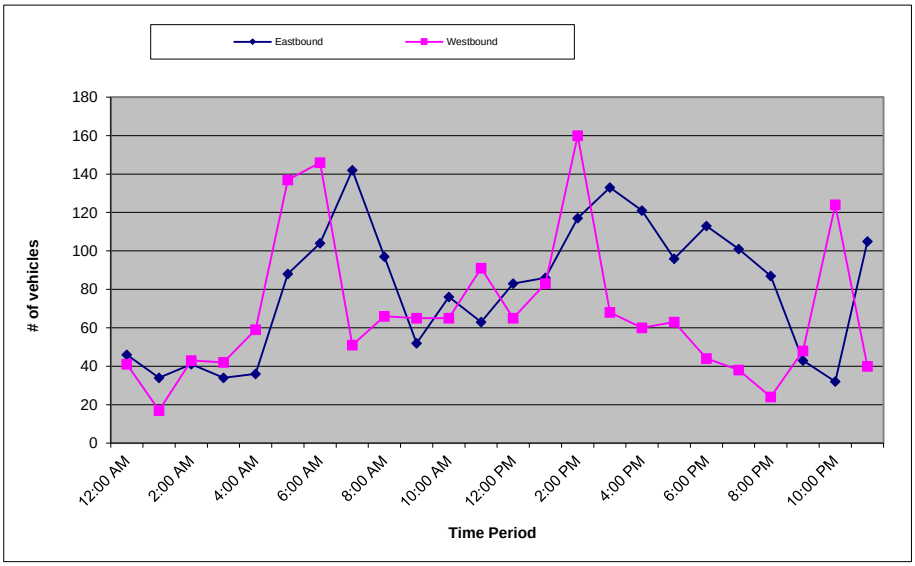
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Bullard Ave
SEGMENT e/o Washoe Ave
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.821549
LONGITUDE -120.4563186
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	14	5	16	11	**46**	3	13	15	10	**41**	**87**
1:00 AM	12	8	6	8	**34**	0	6	8	3	**17**	**51**
2:00 AM	3	15	9	14	**41**	11	7	13	12	**43**	**84**
3:00 AM	6	5	11	12	**34**	15	11	6	10	**42**	**76**
4:00 AM	8	11	16	1	**36**	10	11	14	24	**59**	**95**
5:00 AM	22	17	29	20	**88**	15	35	43	44	**137**	**225**
6:00 AM	34	18	22	30	**104**	11	48	50	37	**146**	**250**
7:00 AM	39	52	20	31	**142**	15	12	12	12	**51**	**193**
8:00 AM	11	40	17	29	**97**	20	15	12	19	**66**	**163**
9:00 AM	10	8	20	14	**52**	16	16	21	12	**65**	**117**
10:00 AM	22	17	21	16	**76**	16	17	20	12	**65**	**141**
11:00 AM	22	14	9	18	**63**	25	13	17	36	**91**	**154**
12:00 PM	21	16	24	22	**83**	11	21	14	19	**65**	**148**
1:00 PM	17	18	28	23	**86**	15	21	24	23	**83**	**169**
2:00 PM	21	18	43	35	**117**	16	44	72	28	**160**	**277**
3:00 PM	37	50	27	19	**133**	6	22	27	13	**68**	**201**
4:00 PM	30	26	27	38	**121**	23	7	20	10	**60**	**181**
5:00 PM	25	20	22	29	**96**	17	13	18	15	**63**	**159**
6:00 PM	23	24	26	40	**113**	9	9	16	10	**44**	**157**
7:00 PM	28	31	18	24	**101**	10	12	5	11	**38**	**139**
8:00 PM	25	16	15	31	**87**	6	6	10	2	**24**	**111**
9:00 PM	8	13	14	8	**43**	6	13	16	13	**48**	**91**
10:00 PM	3	11	12	6	**32**	8	28	55	33	**124**	**156**
11:00 PM	43	31	20	11	**105**	8	22	9	1	**40**	**145**
Total	**54.1%**				**1930**	**45.9%**				**1640**	
	3570										

AM% 45.8% **AM Peak** 259 **6:15 am to 7:15 am** **AM P.H.F.** 0.90
PM% 54.2% **PM Peak** 293 **2:30 pm to 3:30 pm** **PM P.H.F.** 0.64



Metro Traffic Data Inc.
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Hanford, CA 93230

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

24 Hour Volume Report

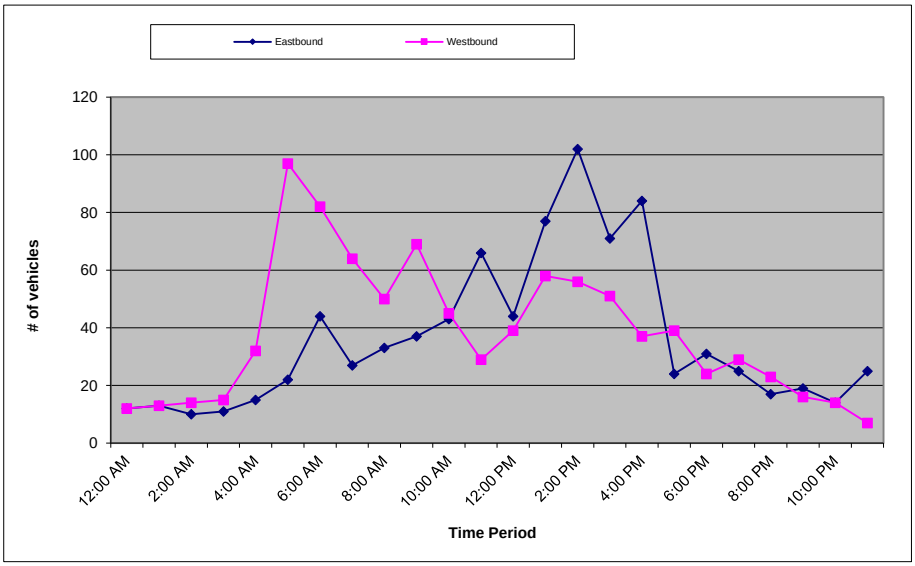
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Shields Ave
SEGMENT w/o Russell Ave
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.7782131
LONGITUDE -120.6602492
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	1	8	2	1	**12**	0	0	5	7	**12**	**24**
1:00 AM	7	3	2	1	**13**	2	2	4	5	**13**	**26**
2:00 AM	0	2	7	1	**10**	1	5	5	3	**14**	**24**
3:00 AM	2	3	2	4	**11**	0	1	3	11	**15**	**26**
4:00 AM	5	3	6	1	**15**	5	10	14	3	**32**	**47**
5:00 AM	4	5	10	3	**22**	8	30	31	28	**97**	**119**
6:00 AM	10	18	8	8	**44**	20	19	19	24	**82**	**126**
7:00 AM	7	8	4	8	**27**	23	12	19	10	**64**	**91**
8:00 AM	7	12	7	7	**33**	4	9	14	23	**50**	**83**
9:00 AM	7	16	8	6	**37**	13	29	16	11	**69**	**106**
10:00 AM	4	10	12	17	**43**	11	10	12	12	**45**	**88**
11:00 AM	17	15	20	14	**66**	8	6	8	7	**29**	**95**
12:00 PM	5	9	12	18	**44**	11	12	6	10	**39**	**83**
1:00 PM	22	14	28	13	**77**	26	14	10	8	**58**	**135**
2:00 PM	18	17	38	29	**102**	12	13	17	14	**56**	**158**
3:00 PM	11	18	24	18	**71**	10	18	12	11	**51**	**122**
4:00 PM	38	13	19	14	**84**	8	11	10	8	**37**	**121**
5:00 PM	6	5	10	3	**24**	3	2	13	21	**39**	**63**
6:00 PM	13	6	11	1	**31**	8	10	6	0	**24**	**55**
7:00 PM	7	3	7	8	**25**	9	8	6	6	**29**	**54**
8:00 PM	10	0	3	4	**17**	5	8	5	5	**23**	**40**
9:00 PM	4	5	2	8	**19**	6	3	5	2	**16**	**35**
10:00 PM	4	4	4	2	**14**	1	5	7	1	**14**	**28**
11:00 PM	4	6	7	8	**25**	2	2	0	3	**7**	**32**
Total	**48.6%**				**866**	**51.4%**				**915**	
	1781										

AM%	**48.0%**	**AM Peak**	**139**	**5:30 am to 6:30 am**	**AM P.H.F.**	**0.85**
PM%	**52.0%**	**PM Peak**	**158**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.72**



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

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

24 Hour Volume Report

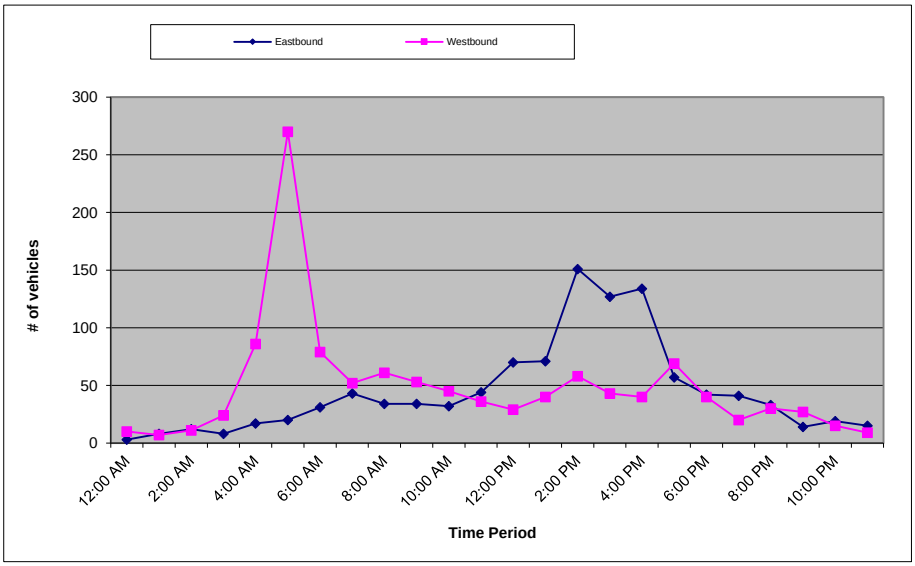
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Belmont Ave
SEGMENT e/o San Diego Ave
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.7490275
LONGITUDE -120.4389074
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	1	2	0	0	**3**	5	4	1	0	**10**	**13**
1:00 AM	1	3	2	2	**8**	2	0	2	3	**7**	**15**
2:00 AM	4	1	3	4	**12**	4	4	2	1	**11**	**23**
3:00 AM	2	3	3	0	**8**	3	6	6	9	**24**	**32**
4:00 AM	3	5	4	5	**17**	17	30	24	15	**86**	**103**
5:00 AM	3	0	10	7	**20**	25	64	123	58	**270**	**290**
6:00 AM	5	4	10	12	**31**	34	14	20	11	**79**	**110**
7:00 AM	12	11	8	12	**43**	17	14	8	13	**52**	**95**
8:00 AM	13	4	9	8	**34**	12	8	18	23	**61**	**95**
9:00 AM	8	7	5	14	**34**	24	9	10	10	**53**	**87**
10:00 AM	6	7	8	11	**32**	14	15	10	6	**45**	**77**
11:00 AM	17	12	11	4	**44**	5	9	14	8	**36**	**80**
12:00 PM	10	8	20	32	**70**	6	5	12	6	**29**	**99**
1:00 PM	15	13	22	21	**71**	9	10	13	8	**40**	**111**
2:00 PM	24	28	60	39	**151**	14	14	22	8	**58**	**209**
3:00 PM	40	27	24	36	**127**	8	11	11	13	**43**	**170**
4:00 PM	31	45	38	20	**134**	6	16	9	9	**40**	**174**
5:00 PM	11	5	4	37	**57**	16	16	25	12	**69**	**126**
6:00 PM	8	12	10	12	**42**	10	7	8	15	**40**	**82**
7:00 PM	11	7	13	10	**41**	2	4	5	9	**20**	**61**
8:00 PM	10	9	8	6	**33**	4	10	8	8	**30**	**63**
9:00 PM	5	4	1	4	**14**	9	11	4	3	**27**	**41**
10:00 PM	5	5	3	6	**19**	9	2	3	1	**15**	**34**
11:00 PM	4	1	9	1	**15**	2	1	4	2	**9**	**24**
Total	**47.9%**				**1060**	**52.1%**				**1154**	
	2214										

AM%	**46.1%**	**AM Peak**	**301**	**5:15 am to 6:15 am**	**AM P.H.F.**	**0.57**
PM%	**53.9%**	**PM Peak**	**219**	**2:15 pm to 3:15 pm**	**PM P.H.F.**	**0.67**



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

800-975-6938 Phone/Fax
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24 Hour Volume Report

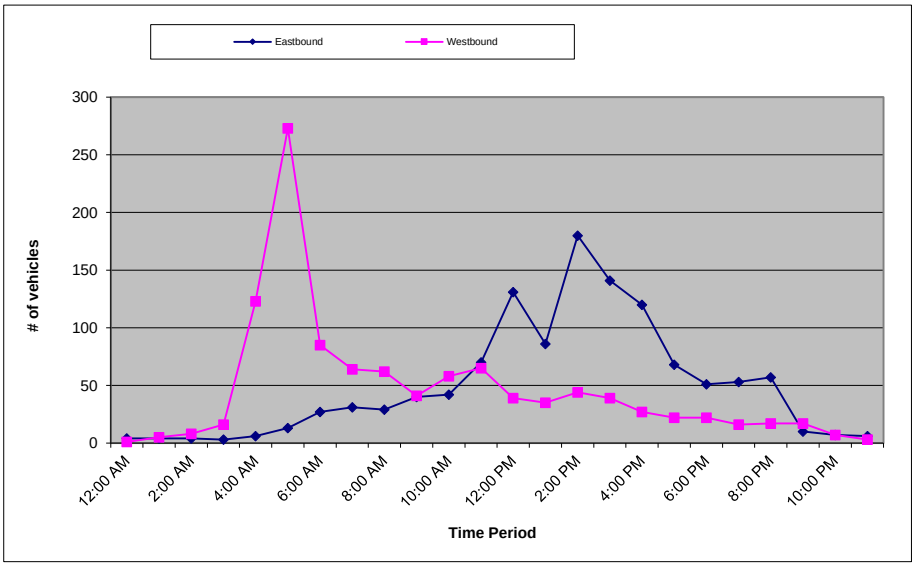
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET California Ave
SEGMENT e/o San Diego Ave
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.7199726
LONGITUDE -120.4350309
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	2	0	2	0	**4**	0	0	0	1	**1**	**5**
1:00 AM	0	0	3	1	**4**	0	1	1	3	**5**	**9**
2:00 AM	1	1	0	2	**4**	2	0	5	1	**8**	**12**
3:00 AM	1	0	2	0	**3**	3	0	1	12	**16**	**19**
4:00 AM	2	0	3	1	**6**	37	43	28	15	**123**	**129**
5:00 AM	3	3	3	4	**13**	20	63	126	64	**273**	**286**
6:00 AM	15	1	8	3	**27**	20	15	19	31	**85**	**112**
7:00 AM	13	5	8	5	**31**	12	12	21	19	**64**	**95**
8:00 AM	3	7	5	14	**29**	18	11	16	17	**62**	**91**
9:00 AM	12	15	10	3	**40**	5	11	12	13	**41**	**81**
10:00 AM	18	5	10	9	**42**	15	8	21	14	**58**	**100**
11:00 AM	12	16	19	23	**70**	10	18	20	17	**65**	**135**
12:00 PM	28	15	38	50	**131**	11	16	10	2	**39**	**170**
1:00 PM	39	25	18	4	**86**	9	4	10	12	**35**	**121**
2:00 PM	13	43	65	59	**180**	14	8	7	15	**44**	**224**
3:00 PM	39	45	32	25	**141**	8	14	8	9	**39**	**180**
4:00 PM	25	25	42	28	**120**	8	6	7	6	**27**	**147**
5:00 PM	21	15	13	19	**68**	6	3	4	9	**22**	**90**
6:00 PM	11	19	10	11	**51**	6	9	3	4	**22**	**73**
7:00 PM	6	21	15	11	**53**	7	2	2	5	**16**	**69**
8:00 PM	7	25	12	13	**57**	7	4	1	5	**17**	**74**
9:00 PM	5	2	1	2	**10**	4	5	4	4	**17**	**27**
10:00 PM	2	3	2	0	**7**	1	2	2	2	**7**	**14**
11:00 PM	2	2	0	2	**6**	1	2	0	0	**3**	**9**
Total	**52.1%**				**1183**	**47.9%**				**1089**	
	2272										

AM%	**47.3%**	**AM Peak**	**298**	**5:15 am to 6:15 am**	**AM P.H.F.**	**0.58**
PM%	**52.7%**	**PM Peak**	**252**	**2:30 pm to 3:30 pm**	**PM P.H.F.**	**0.85**



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

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24 Hour Volume Report

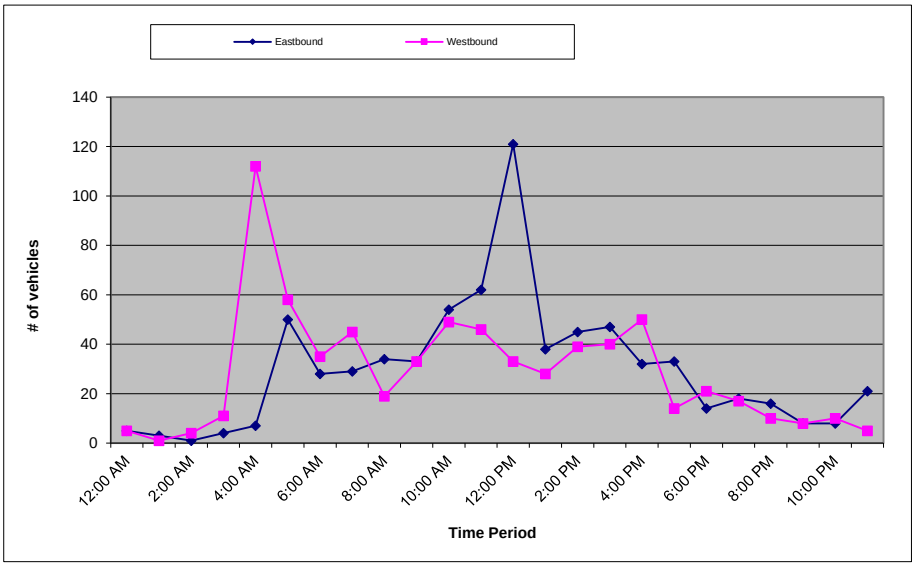
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Panoche Rd
SEGMENT e/o I-5
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.6405727
LONGITUDE -120.6197297
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	0	5	0	0	**5**	5	0	0	0	**5**	**10**
1:00 AM	0	2	1	0	**3**	1	0	0	0	**1**	**4**
2:00 AM	0	0	0	1	**1**	0	0	0	4	**4**	**5**
3:00 AM	0	0	0	4	**4**	5	0	0	6	**11**	**15**
4:00 AM	0	2	2	3	**7**	10	41	37	24	**112**	**119**
5:00 AM	1	11	14	24	**50**	12	12	15	19	**58**	**108**
6:00 AM	7	5	4	12	**28**	5	9	5	16	**35**	**63**
7:00 AM	12	7	4	6	**29**	17	11	7	10	**45**	**74**
8:00 AM	10	10	7	7	**34**	6	2	3	8	**19**	**53**
9:00 AM	6	7	6	14	**33**	3	10	6	14	**33**	**66**
10:00 AM	4	15	16	19	**54**	7	18	16	8	**49**	**103**
11:00 AM	10	15	20	17	**62**	18	12	13	3	**46**	**108**
12:00 PM	12	37	49	23	**121**	8	12	10	3	**33**	**154**
1:00 PM	11	17	5	5	**38**	7	8	6	7	**28**	**66**
2:00 PM	16	6	13	10	**45**	16	9	6	8	**39**	**84**
3:00 PM	12	14	9	12	**47**	11	12	10	7	**40**	**87**
4:00 PM	5	13	12	2	**32**	7	8	28	7	**50**	**82**
5:00 PM	9	15	3	6	**33**	7	5	0	2	**14**	**47**
6:00 PM	4	1	6	3	**14**	9	4	7	1	**21**	**35**
7:00 PM	3	7	6	2	**18**	4	1	10	2	**17**	**35**
8:00 PM	5	8	0	3	**16**	7	0	3	0	**10**	**26**
9:00 PM	1	3	4	0	**8**	3	3	1	1	**8**	**16**
10:00 PM	2	4	1	1	**8**	0	5	1	4	**10**	**18**
11:00 PM	3	3	8	7	**21**	1	0	3	1	**5**	**26**
Total	**50.6%**				**711**	**49.4%**				**693**	
	1404										

AM%	**51.9%**	**AM Peak**	**122**	**4:15 am to 5:15 am**	**AM P.H.F.**	**0.71**
PM%	**48.1%**	**PM Peak**	**154**	**12:00 pm to 1:00 pm**	**PM P.H.F.**	**0.65**



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

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www.metrotrafficdata.com

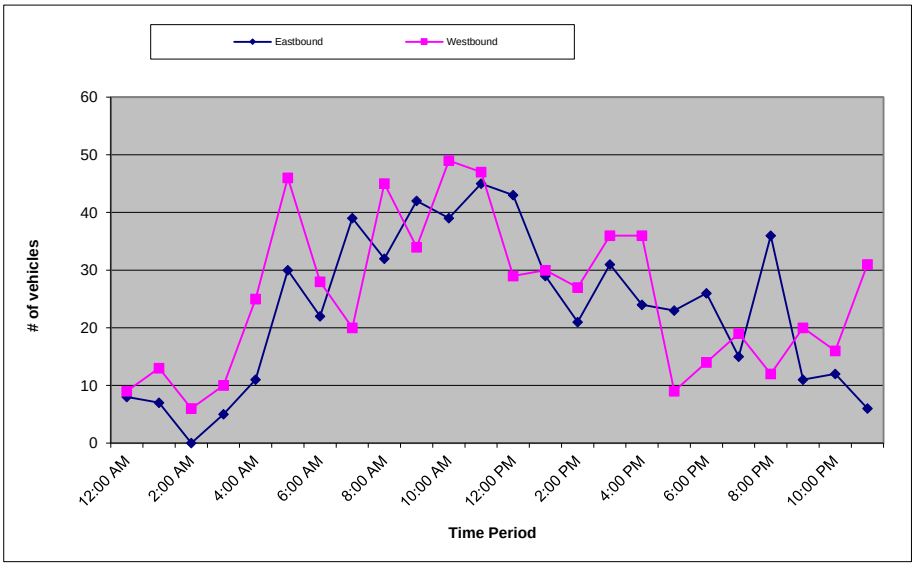
24 Hour Volume Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	Manning Ave	**LATITUDE**	36.6045347
SEGMENT	e/o I-5	**LONGITUDE**	-120.5797712
COLLECTION DATE	Tuesday, July 30, 2024	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	5	2	0	1	**8**	4	2	3	0	**9**	**17**
1:00 AM	3	0	0	4	**7**	4	3	5	1	**13**	**20**
2:00 AM	0	0	0	0	**0**	4	2	0	0	**6**	**6**
3:00 AM	5	0	0	0	**5**	6	0	1	3	**10**	**15**
4:00 AM	4	2	4	1	**11**	3	1	11	10	**25**	**36**
5:00 AM	11	7	3	9	**30**	15	9	12	10	**46**	**76**
6:00 AM	3	3	3	13	**22**	4	4	6	14	**28**	**50**
7:00 AM	13	7	1	18	**39**	9	4	4	3	**20**	**59**
8:00 AM	0	9	12	11	**32**	6	20	9	10	**45**	**77**
9:00 AM	1	10	17	14	**42**	18	1	10	5	**34**	**76**
10:00 AM	4	7	14	14	**39**	12	17	7	13	**49**	**88**
11:00 AM	6	8	18	13	**45**	17	13	9	8	**47**	**92**
12:00 PM	5	5	24	9	**43**	6	6	7	10	**29**	**72**
1:00 PM	0	2	6	21	**29**	6	8	7	9	**30**	**59**
2:00 PM	3	8	5	5	**21**	11	7	5	4	**27**	**48**
3:00 PM	10	5	9	7	**31**	12	6	11	7	**36**	**67**
4:00 PM	8	7	4	5	**24**	13	7	10	6	**36**	**60**
5:00 PM	7	12	2	2	**23**	5	3	1	0	**9**	**32**
6:00 PM	3	14	7	2	**26**	5	2	5	2	**14**	**40**
7:00 PM	4	3	0	8	**15**	2	9	3	5	**19**	**34**
8:00 PM	10	15	5	6	**36**	0	3	5	4	**12**	**48**
9:00 PM	1	3	5	2	**11**	10	5	2	3	**20**	**31**
10:00 PM	2	8	2	0	**12**	8	3	0	5	**16**	**28**
11:00 PM	4	1	0	1	**6**	3	7	12	9	**31**	**37**
Total	**47.7%**				**557**	**52.3%**				**611**	
	1168										

AM%	**52.4%**	**AM Peak**	**98**	**10:45 am to 11:45 am**	**AM P.H.F.**	**0.91**
PM%	**47.6%**	**PM Peak**	**72**	**12:00 pm to 1:00 pm**	**PM P.H.F.**	**0.58**



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

800-975-6938 Phone/Fax
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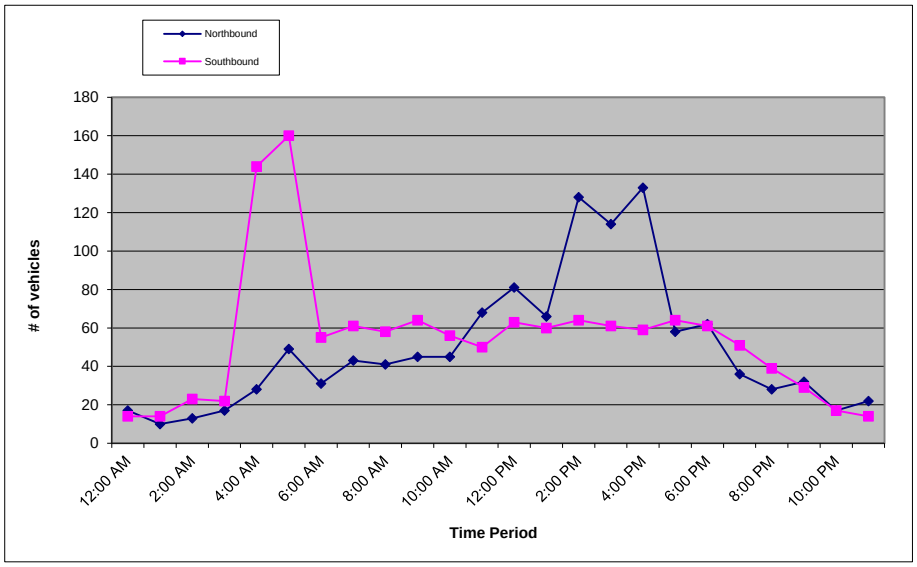
24 Hour Count Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	Derrick Ave	**LATITUDE**	36.633564
SEGMENT	North of Adams Ave	**LONGITUDE**	-120.3882601
COLLECTION DATE	Tuesday, July 30, 2024	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	5	6	3	3	**17**	3	5	2	4	**14**	**31**
1:00 AM	2	5	1	2	**10**	4	4	3	3	**14**	**24**
2:00 AM	4	4	1	4	**13**	6	7	6	4	**23**	**36**
3:00 AM	3	4	5	5	**17**	2	4	4	12	**22**	**39**
4:00 AM	4	9	6	9	**28**	25	30	47	42	**144**	**172**
5:00 AM	8	17	11	13	**49**	43	45	46	26	**160**	**209**
6:00 AM	9	8	10	4	**31**	13	13	12	17	**55**	**86**
7:00 AM	6	15	9	13	**43**	17	10	22	12	**61**	**104**
8:00 AM	11	13	9	8	**41**	15	10	21	12	**58**	**99**
9:00 AM	7	8	14	16	**45**	21	19	15	9	**64**	**109**
10:00 AM	20	7	6	12	**45**	18	9	18	11	**56**	**101**
11:00 AM	24	18	14	12	**68**	11	13	15	11	**50**	**118**
12:00 PM	17	9	24	31	**81**	14	14	19	16	**63**	**144**
1:00 PM	24	10	16	16	**66**	15	13	13	19	**60**	**126**
2:00 PM	25	25	37	41	**128**	15	15	16	18	**64**	**192**
3:00 PM	26	26	33	29	**114**	19	16	10	16	**61**	**175**
4:00 PM	31	41	38	23	**133**	16	11	11	21	**59**	**192**
5:00 PM	14	17	14	13	**58**	19	22	11	12	**64**	**122**
6:00 PM	18	16	19	9	**62**	18	13	18	12	**61**	**123**
7:00 PM	9	7	14	6	**36**	10	14	12	15	**51**	**87**
8:00 PM	10	8	5	5	**28**	11	10	10	8	**39**	**67**
9:00 PM	7	6	7	12	**32**	9	5	7	8	**29**	**61**
10:00 PM	3	6	5	3	**17**	6	2	6	3	**17**	**34**
11:00 PM	6	4	5	7	**22**	4	3	3	4	**14**	**36**
Total	**47.6%**				**1184**	**52.4%**				**1303**	
	2487										

AM%	**45.4%**	**AM Peak**	**221**	**4:45 am to 5:45 am**	**AM P.H.F.**	**0.89**
PM%	**54.6%**	**PM Peak**	**199**	**2:30 pm to 3:30 pm**	**PM P.H.F.**	**0.84**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
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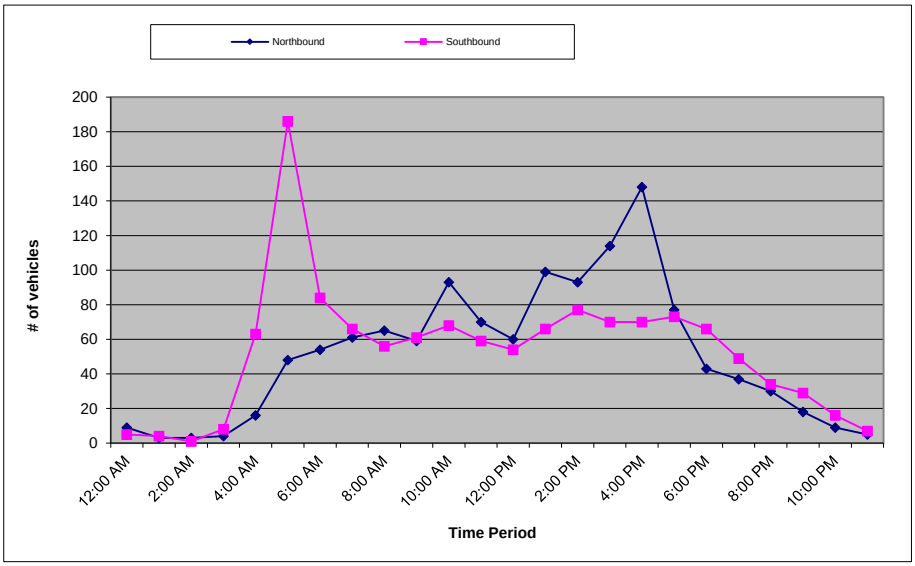
24 Hour Volume Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	James Rd	**LATITUDE**	36.6564727
SEGMENT	n/o Jefferson Ave	**LONGITUDE**	-120.2461531
COLLECTION DATE	Tuesday, July 30, 2024	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	4	0	1	4	**9**	1	1	3	0	**5**	**14**
1:00 AM	0	2	0	1	**3**	1	1	2	0	**4**	**7**
2:00 AM	0	1	0	2	**3**	0	1	0	0	**1**	**4**
3:00 AM	0	1	1	2	**4**	0	1	2	5	**8**	**12**
4:00 AM	1	3	3	9	**16**	7	11	20	25	**63**	**79**
5:00 AM	7	7	17	17	**48**	32	42	64	48	**186**	**234**
6:00 AM	13	15	14	12	**54**	22	16	25	21	**84**	**138**
7:00 AM	14	12	17	18	**61**	26	18	9	13	**66**	**127**
8:00 AM	14	16	21	14	**65**	16	14	11	15	**56**	**121**
9:00 AM	14	11	16	18	**59**	9	24	14	14	**61**	**120**
10:00 AM	27	28	22	16	**93**	19	21	19	9	**68**	**161**
11:00 AM	21	23	12	14	**70**	15	13	14	17	**59**	**129**
12:00 PM	23	14	12	11	**60**	15	9	12	18	**54**	**114**
1:00 PM	22	18	34	25	**99**	14	19	18	15	**66**	**165**
2:00 PM	22	26	26	19	**93**	23	13	18	23	**77**	**170**
3:00 PM	27	18	32	37	**114**	18	23	16	13	**70**	**184**
4:00 PM	32	49	41	26	**148**	9	22	17	22	**70**	**218**
5:00 PM	24	15	20	18	**77**	17	22	17	17	**73**	**150**
6:00 PM	13	12	9	9	**43**	13	20	17	16	**66**	**109**
7:00 PM	15	8	8	6	**37**	8	14	17	10	**49**	**86**
8:00 PM	8	5	9	8	**30**	9	8	9	8	**34**	**64**
9:00 PM	7	4	4	3	**18**	8	6	6	9	**29**	**47**
10:00 PM	0	4	1	4	**9**	6	3	2	5	**16**	**25**
11:00 PM	1	1	2	1	**5**	2	2	0	3	**7**	**12**
Total	**48.9%**				**1218**	**51.1%**				**1272**	
	2490										

AM%	**46.0%**	**AM Peak**	**234**	**5:00 am to 6:00 am**	**AM P.H.F.**	**0.72**
PM%	**54.0%**	**PM Peak**	**220**	**3:45 pm to 4:45 pm**	**PM P.H.F.**	**0.77**



Metro Traffic Data Inc.
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24 Hour Volume Report

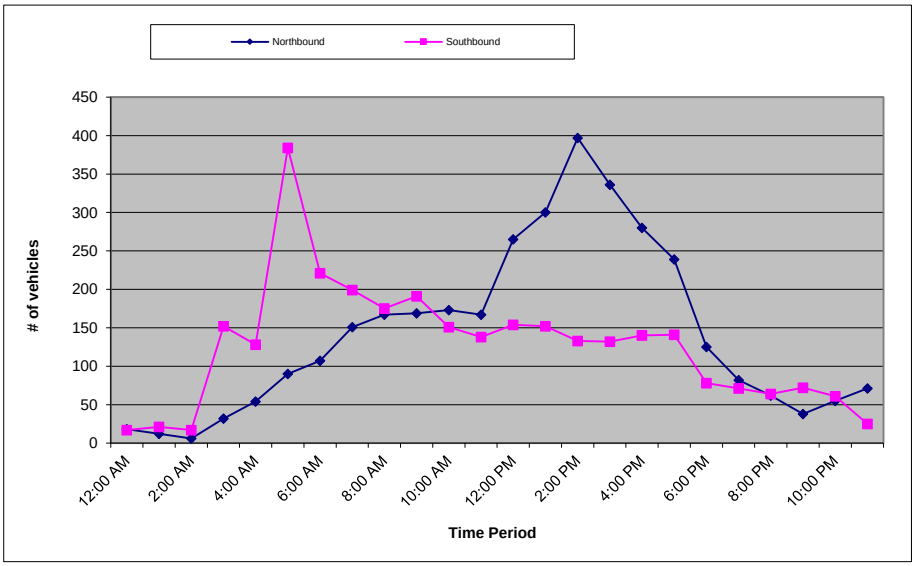
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Dickenson Ave
SEGMENT s/o Jensen Ave
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.7043067
LONGITUDE -119.9700893
WEATHER Clear

	Northbound					Southbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	9	4	3	2	**18**	6	2	5	4	**17**	**35**
1:00 AM	6	5	1	0	**12**	2	4	5	10	**21**	**33**
2:00 AM	1	0	2	3	**6**	9	4	3	1	**17**	**23**
3:00 AM	10	5	10	7	**32**	14	32	63	43	**152**	**184**
4:00 AM	11	8	14	21	**54**	27	23	33	45	**128**	**182**
5:00 AM	21	26	19	24	**90**	72	106	119	87	**384**	**474**
6:00 AM	20	20	29	38	**107**	55	52	62	52	**221**	**328**
7:00 AM	38	33	42	38	**151**	55	37	52	55	**199**	**350**
8:00 AM	48	47	31	41	**167**	48	53	37	37	**175**	**342**
9:00 AM	48	38	40	43	**169**	53	44	50	44	**191**	**360**
10:00 AM	35	49	47	42	**173**	33	42	37	39	**151**	**324**
11:00 AM	43	40	28	56	**167**	40	43	31	24	**138**	**305**
12:00 PM	56	59	58	92	**265**	35	28	48	43	**154**	**419**
1:00 PM	92	84	62	62	**300**	37	26	52	37	**152**	**452**
2:00 PM	98	98	92	109	**397**	33	22	29	49	**133**	**530**
3:00 PM	79	89	84	84	**336**	37	29	34	32	**132**	**468**
4:00 PM	79	78	62	61	**280**	35	24	38	43	**140**	**420**
5:00 PM	75	68	50	46	**239**	34	39	33	35	**141**	**380**
6:00 PM	28	39	26	32	**125**	23	28	19	8	**78**	**203**
7:00 PM	24	19	20	19	**82**	25	15	14	17	**71**	**153**
8:00 PM	20	11	15	16	**62**	10	20	20	14	**64**	**126**
9:00 PM	8	8	14	8	**38**	19	14	14	25	**72**	**110**
10:00 PM	7	10	18	20	**55**	16	13	20	12	**61**	**116**
11:00 PM	24	20	17	10	**71**	3	5	12	5	**25**	**96**
Total	**53.0%**				**3396**	**47.0%**				**3017**	
	6413										

AM%	**45.8%**	**AM Peak**	**474**	**5:00 am to 6:00 am**	**AM P.H.F.**	**0.86**
PM%	**54.2%**	**PM Peak**	**530**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.84**



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

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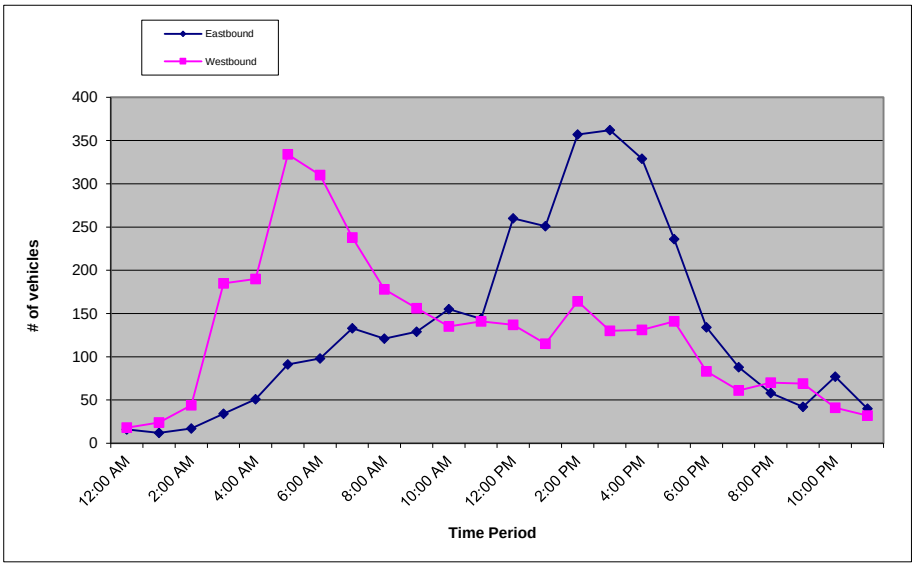
24 Hour Count Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	McMullin Grade	**LATITUDE**	36.5879592
SEGMENT	West of Madera Ave	**LONGITUDE**	-120.0629432
COLLECTION DATE	Tuesday, July 30, 2024	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	3	5	3	5	**16**	6	5	5	2	**18**	**34**
1:00 AM	5	1	2	4	**12**	6	2	5	11	**24**	**36**
2:00 AM	5	2	5	5	**17**	13	9	10	12	**44**	**61**
3:00 AM	9	8	12	5	**34**	11	25	76	73	**185**	**219**
4:00 AM	8	6	17	20	**51**	52	44	42	52	**190**	**241**
5:00 AM	14	21	34	22	**91**	71	78	87	98	**334**	**425**
6:00 AM	23	23	27	25	**98**	72	70	96	72	**310**	**408**
7:00 AM	30	32	28	43	**133**	62	65	58	53	**238**	**371**
8:00 AM	31	31	27	32	**121**	54	52	30	42	**178**	**299**
9:00 AM	32	26	38	33	**129**	41	38	31	46	**156**	**285**
10:00 AM	50	27	36	42	**155**	39	29	32	35	**135**	**290**
11:00 AM	28	33	27	56	**144**	35	35	32	39	**141**	**285**
12:00 PM	40	42	72	106	**260**	26	32	40	39	**137**	**397**
1:00 PM	76	77	52	46	**251**	37	25	25	28	**115**	**366**
2:00 PM	77	77	93	110	**357**	39	44	40	41	**164**	**521**
3:00 PM	104	86	112	60	**362**	26	38	25	41	**130**	**492**
4:00 PM	86	73	93	77	**329**	31	30	32	38	**131**	**460**
5:00 PM	88	47	65	36	**236**	37	32	36	36	**141**	**377**
6:00 PM	35	28	38	33	**134**	22	21	25	15	**83**	**217**
7:00 PM	28	18	23	19	**88**	10	22	15	14	**61**	**149**
8:00 PM	18	13	16	11	**58**	17	17	17	19	**70**	**128**
9:00 PM	13	8	11	10	**42**	15	20	11	23	**69**	**111**
10:00 PM	15	20	26	16	**77**	15	11	8	7	**41**	**118**
11:00 PM	9	9	9	13	**40**	12	6	7	7	**32**	**72**
Total	**50.8%**				**3235**	**49.2%**				**3127**	
	6362										

AM%	**46.4%**	**AM Peak**	**435**	**5:15 am to 6:15 am**	**AM P.H.F.**	**0.90**
PM%	**53.6%**	**PM Peak**	**542**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.90**



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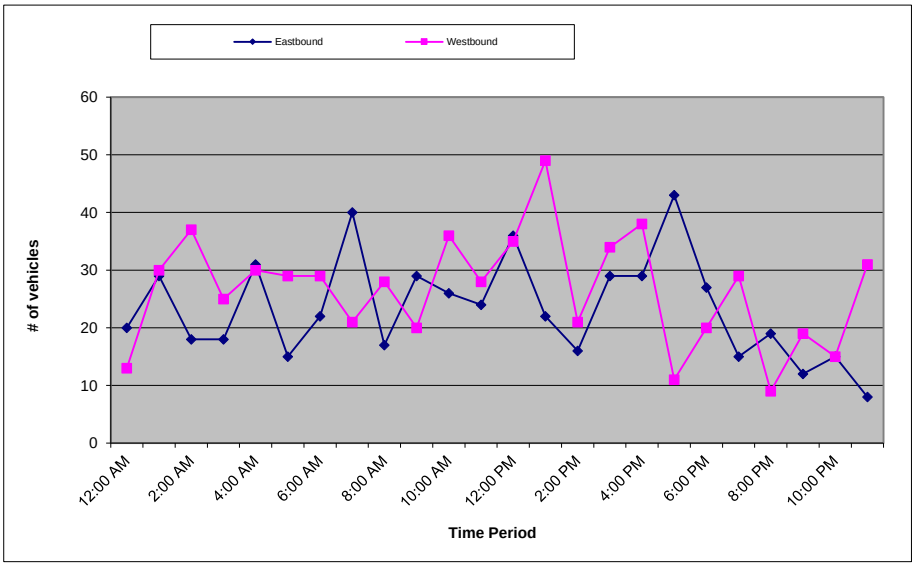
24 Hour Volume Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	Kamm Ave	**LATITUDE**	36.5311223
SEGMENT	e/o I-5	**LONGITUDE**	-120.481683
COLLECTION DATE	Tuesday, July 30, 2024	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	2	3	0	15	**20**	1	3	9	0	**13**	**33**
1:00 AM	4	0	0	25	**29**	5	0	19	6	**30**	**59**
2:00 AM	0	0	6	12	**18**	8	12	4	13	**37**	**55**
3:00 AM	6	12	0	0	**18**	8	5	5	7	**25**	**43**
4:00 AM	17	11	2	1	**31**	12	6	6	6	**30**	**61**
5:00 AM	10	2	3	0	**15**	14	3	11	1	**29**	**44**
6:00 AM	7	6	3	6	**22**	10	8	5	6	**29**	**51**
7:00 AM	6	10	2	22	**40**	4	6	7	4	**21**	**61**
8:00 AM	0	3	6	8	**17**	11	6	4	7	**28**	**45**
9:00 AM	1	12	9	7	**29**	11	1	6	2	**20**	**49**
10:00 AM	3	7	7	9	**26**	8	17	3	8	**36**	**62**
11:00 AM	4	4	7	9	**24**	12	7	4	5	**28**	**52**
12:00 PM	8	11	9	8	**36**	9	14	3	9	**35**	**71**
1:00 PM	0	6	7	9	**22**	13	23	9	4	**49**	**71**
2:00 PM	2	8	4	2	**16**	8	7	5	1	**21**	**37**
3:00 PM	7	5	10	7	**29**	8	7	12	7	**34**	**63**
4:00 PM	6	12	2	9	**29**	10	12	5	11	**38**	**67**
5:00 PM	6	12	5	20	**43**	5	3	3	0	**11**	**54**
6:00 PM	6	11	8	2	**27**	10	2	5	3	**20**	**47**
7:00 PM	5	3	0	7	**15**	3	11	10	5	**29**	**44**
8:00 PM	7	4	4	4	**19**	0	1	5	3	**9**	**28**
9:00 PM	1	0	6	5	**12**	10	0	2	7	**19**	**31**
10:00 PM	1	7	7	0	**15**	5	2	0	8	**15**	**30**
11:00 PM	7	1	0	0	**8**	6	6	14	5	**31**	**39**
Total	**46.8%**				**560**	**53.2%**				**637**	
	1197										

AM%	**51.4%**	**AM Peak**	**67**	**10:15 am to 11:15 am**	**AM P.H.F.**	**0.70**
PM%	**48.6%**	**PM Peak**	**75**	**12:45 pm to 1:45 pm**	**PM P.H.F.**	**0.65**



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24 Hour Volume Report

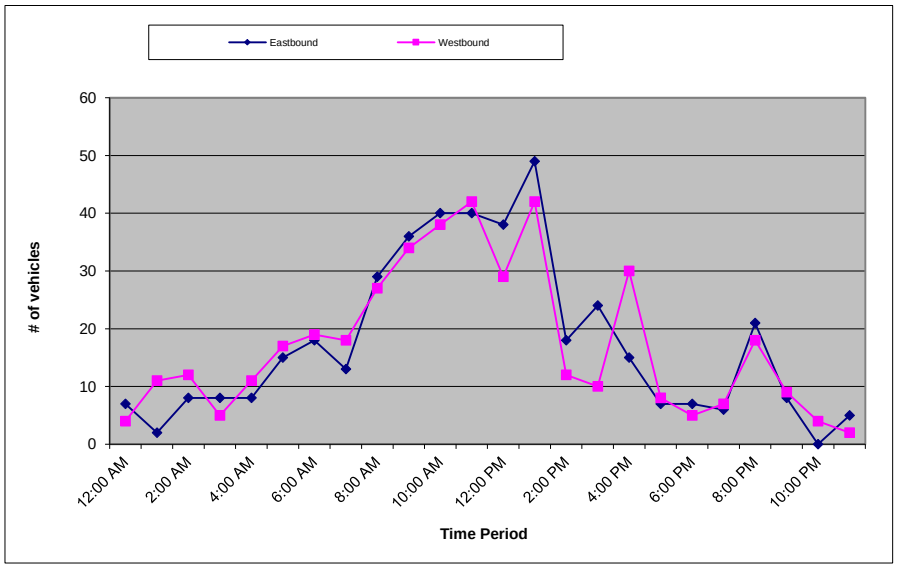
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Kamm Ave
SEGMENT e/o Napa Ave
COLLECTION DATE Thursday, August 15, 2024
NUMBER OF LANES 2

LATITUDE 36.5306562
LONGITUDE -120.2231246
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	0	2	4	1	**7**	1	0	3	0	**4**	**11**
1:00 AM	2	0	0	0	**2**	3	3	3	2	**11**	**13**
2:00 AM	0	3	5	0	**8**	5	1	0	6	**12**	**20**
3:00 AM	2	0	4	2	**8**	1	2	1	1	**5**	**13**
4:00 AM	2	4	0	2	**8**	3	2	3	3	**11**	**19**
5:00 AM	0	5	4	6	**15**	1	5	3	8	**17**	**32**
6:00 AM	2	7	4	5	**18**	1	9	2	7	**19**	**37**
7:00 AM	4	3	2	4	**13**	4	2	6	6	**18**	**31**
8:00 AM	5	4	9	11	**29**	5	7	5	10	**27**	**56**
9:00 AM	5	12	8	11	**36**	0	10	12	12	**34**	**70**
10:00 AM	6	8	11	15	**40**	11	11	16	0	**38**	**78**
11:00 AM	5	6	17	12	**40**	9	2	12	19	**42**	**82**
12:00 PM	2	13	12	11	**38**	10	11	4	4	**29**	**67**
1:00 PM	17	3	11	18	**49**	10	14	11	7	**42**	**91**
2:00 PM	7	1	4	6	**18**	0	3	6	3	**12**	**30**
3:00 PM	7	3	8	6	**24**	5	1	3	1	**10**	**34**
4:00 PM	3	6	6	0	**15**	4	2	19	5	**30**	**45**
5:00 PM	1	3	3	0	**7**	5	1	2	0	**8**	**15**
6:00 PM	1	0	3	3	**7**	2	0	0	3	**5**	**12**
7:00 PM	2	1	2	1	**6**	2	5	0	0	**7**	**13**
8:00 PM	13	1	3	4	**21**	10	0	7	1	**18**	**39**
9:00 PM	0	0	6	2	**8**	2	3	1	3	**9**	**17**
10:00 PM	0	0	0	0	**0**	0	1	0	3	**4**	**4**
11:00 PM	2	0	0	3	**5**	0	1	1	0	**2**	**7**
Total	**50.5%**				**422**	**49.5%**				**414**	
	836										

AM%	**55.3%**	**AM Peak**	**82**	**11:00 am to 12:00 pm**	**AM P.H.F.**	**0.66**
PM%	**44.7%**	**PM Peak**	**91**	**1:00 pm to 2:00 pm**	**PM P.H.F.**	**0.84**



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

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

24 Hour Volume Report

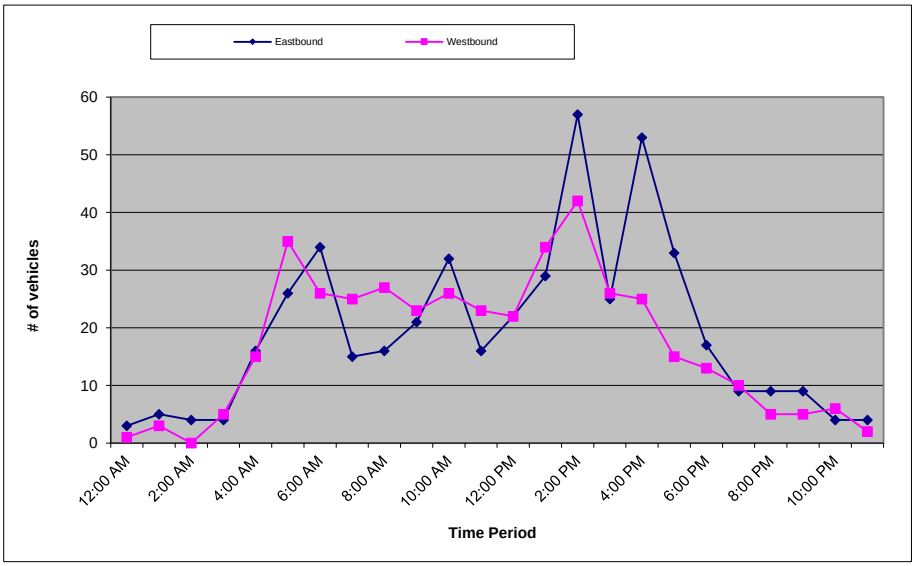
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Kamm Ave
SEGMENT e/o Del Norte Ave
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.5315724
LONGITUDE -120.0826478
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	1	1	1	0	**3**	0	1	0	0	**1**	**4**
1:00 AM	3	0	2	0	**5**	0	1	0	2	**3**	**8**
2:00 AM	0	1	2	1	**4**	0	0	0	0	**0**	**4**
3:00 AM	0	1	1	2	**4**	0	1	3	1	**5**	**9**
4:00 AM	0	4	4	8	**16**	6	0	2	7	**15**	**31**
5:00 AM	1	6	9	10	**26**	7	8	13	7	**35**	**61**
6:00 AM	11	10	7	6	**34**	12	6	5	3	**26**	**60**
7:00 AM	6	3	5	1	**15**	6	9	8	2	**25**	**40**
8:00 AM	6	3	5	2	**16**	5	5	8	9	**27**	**43**
9:00 AM	7	2	4	8	**21**	8	5	5	5	**23**	**44**
10:00 AM	5	5	11	11	**32**	6	4	6	10	**26**	**58**
11:00 AM	8	1	1	6	**16**	4	3	5	11	**23**	**39**
12:00 PM	4	4	7	7	**22**	6	9	5	2	**22**	**44**
1:00 PM	9	9	3	8	**29**	4	14	11	5	**34**	**63**
2:00 PM	10	11	21	15	**57**	2	9	20	11	**42**	**99**
3:00 PM	10	4	3	8	**25**	6	4	8	8	**26**	**51**
4:00 PM	12	15	19	7	**53**	9	3	10	3	**25**	**78**
5:00 PM	4	8	15	6	**33**	6	1	4	4	**15**	**48**
6:00 PM	5	9	3	0	**17**	3	5	3	2	**13**	**30**
7:00 PM	4	2	2	1	**9**	2	3	3	2	**10**	**19**
8:00 PM	1	3	1	4	**9**	2	2	0	1	**5**	**14**
9:00 PM	3	3	0	3	**9**	0	3	1	1	**5**	**14**
10:00 PM	0	1	0	3	**4**	1	0	5	0	**6**	**10**
11:00 PM	0	0	2	2	**4**	0	0	2	0	**2**	**6**
Total	**52.8%**				**463**	**47.2%**				**414**	
	877										

AM%	**45.7%**	**AM Peak**	**78**	**5:30 am to 6:30 am**	**AM P.H.F.**	**0.85**
PM%	**54.3%**	**PM Peak**	**103**	**2:15 pm to 3:15 pm**	**PM P.H.F.**	**0.63**



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

800-975-6938 Phone/Fax
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24 Hour Volume Report

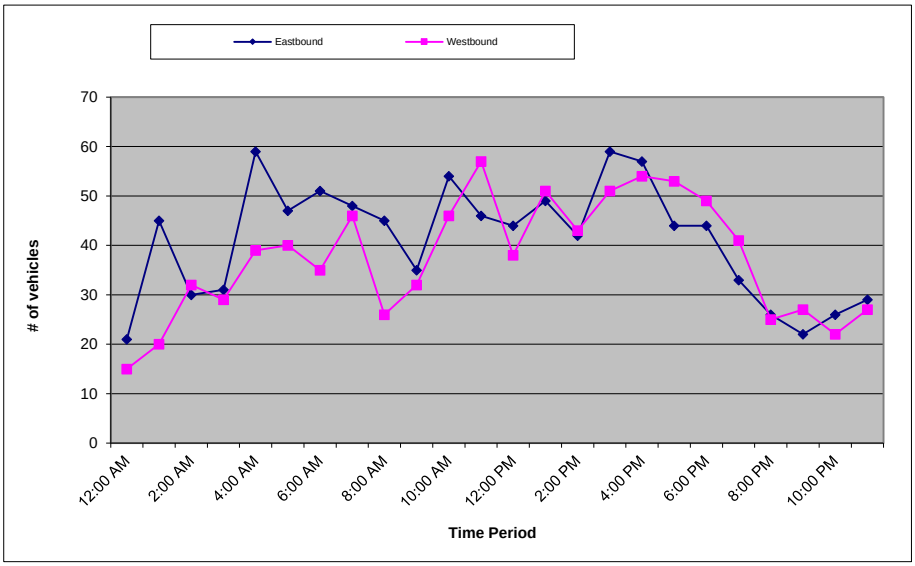
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Clarkson Ave
SEGMENT e/o Santa Clara Ave, w/o Cantua School playground
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.5013188
LONGITUDE -120.3254983
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	7	4	5	5	**21**	3	2	10	0	**15**	**36**
1:00 AM	13	7	4	21	**45**	1	8	6	5	**20**	**65**
2:00 AM	6	7	9	8	**30**	9	7	13	3	**32**	**62**
3:00 AM	7	13	3	8	**31**	11	6	1	11	**29**	**60**
4:00 AM	15	23	14	7	**59**	7	6	12	14	**39**	**98**
5:00 AM	6	19	15	7	**47**	5	17	10	8	**40**	**87**
6:00 AM	6	13	13	19	**51**	6	12	2	15	**35**	**86**
7:00 AM	12	15	7	14	**48**	17	6	20	3	**46**	**94**
8:00 AM	13	12	13	7	**45**	0	3	17	6	**26**	**71**
9:00 AM	1	11	9	14	**35**	4	13	7	8	**32**	**67**
10:00 AM	14	17	14	9	**54**	7	9	10	20	**46**	**100**
11:00 AM	13	16	11	6	**46**	16	9	14	18	**57**	**103**
12:00 PM	8	9	18	9	**44**	12	10	5	11	**38**	**82**
1:00 PM	9	16	15	9	**49**	16	13	15	7	**51**	**100**
2:00 PM	7	16	11	8	**42**	4	13	10	16	**43**	**85**
3:00 PM	9	8	21	21	**59**	8	14	7	22	**51**	**110**
4:00 PM	14	9	17	17	**57**	21	11	15	7	**54**	**111**
5:00 PM	14	7	6	17	**44**	14	6	16	17	**53**	**97**
6:00 PM	12	19	9	4	**44**	16	9	19	5	**49**	**93**
7:00 PM	6	8	7	12	**33**	11	13	9	8	**41**	**74**
8:00 PM	9	8	5	4	**26**	5	9	6	5	**25**	**51**
9:00 PM	6	4	3	9	**22**	4	9	9	5	**27**	**49**
10:00 PM	9	7	4	6	**26**	6	6	6	4	**22**	**48**
11:00 PM	5	8	3	13	**29**	3	8	3	13	**27**	**56**
Total	**52.4%**				**987**	**47.6%**				**898**	
	1885										

AM%	**49.3%**	**AM Peak**	**108**	**10:45 am to 11:45 am**	**AM P.H.F.**	**0.93**
PM%	**50.7%**	**PM Peak**	**130**	**3:45 pm to 4:45 pm**	**PM P.H.F.**	**0.76**



Metro Traffic Data Inc.
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24 Hour Volume Report

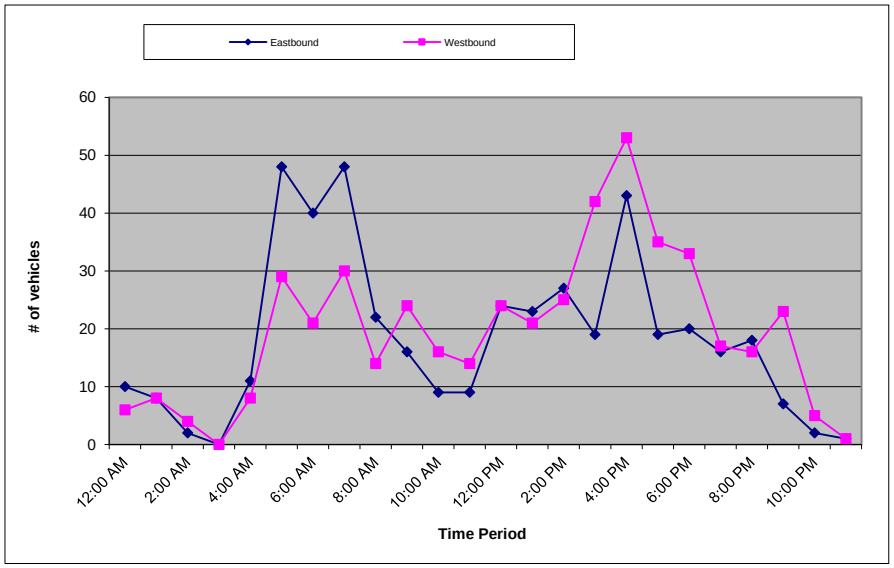
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Clarkson Ave
SEGMENT e/o Santa Clara Ave, w/o Cantua School playground
COLLECTION DATE Wednesday, September 11, 2024
NUMBER OF LANES 2

LATITUDE 36.5013188
LONGITUDE -120.3254983
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	3	4	0	3	**10**	1	2	0	3	**6**	**16**
1:00 AM	0	2	6	0	**8**	0	0	0	8	**8**	**16**
2:00 AM	1	1	0	0	**2**	2	0	2	0	**4**	**6**
3:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
4:00 AM	2	4	2	3	**11**	0	3	2	3	**8**	**19**
5:00 AM	12	9	14	13	**48**	1	11	8	9	**29**	**77**
6:00 AM	10	12	8	10	**40**	3	10	3	5	**21**	**61**
7:00 AM	8	12	6	22	**48**	0	7	5	18	**30**	**78**
8:00 AM	6	9	2	5	**22**	7	3	2	2	**14**	**36**
9:00 AM	3	8	2	3	**16**	6	6	6	6	**24**	**40**
10:00 AM	4	3	1	1	**9**	3	2	8	3	**16**	**25**
11:00 AM	1	1	5	2	**9**	4	1	2	7	**14**	**23**
12:00 PM	7	9	4	4	**24**	5	3	8	8	**24**	**48**
1:00 PM	3	5	6	9	**23**	0	7	9	5	**21**	**44**
2:00 PM	4	5	6	12	**27**	7	6	7	5	**25**	**52**
3:00 PM	3	3	6	7	**19**	9	11	14	8	**42**	**61**
4:00 PM	5	22	10	6	**43**	18	14	9	12	**53**	**96**
5:00 PM	6	6	4	3	**19**	17	8	6	4	**35**	**54**
6:00 PM	3	7	4	6	**20**	4	8	12	9	**33**	**53**
7:00 PM	9	2	4	1	**16**	7	1	7	2	**17**	**33**
8:00 PM	1	8	7	2	**18**	5	2	3	6	**16**	**34**
9:00 PM	1	1	1	4	**7**	5	3	4	11	**23**	**30**
10:00 PM	0	0	0	2	**2**	1	3	1	0	**5**	**7**
11:00 PM	0	0	1	0	**1**	0	1	0	0	**1**	**2**
Total	**48.5%**				**442**	**51.5%**				**469**	
	911										

AM%	**43.6%**	**AM Peak**	**83**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.52**
PM%	**56.4%**	**PM Peak**	**96**	**4:15 pm to 5:15 pm**	**PM P.H.F.**	**0.67**



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

800-975-6938 Phone/Fax
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24 Hour Volume Report

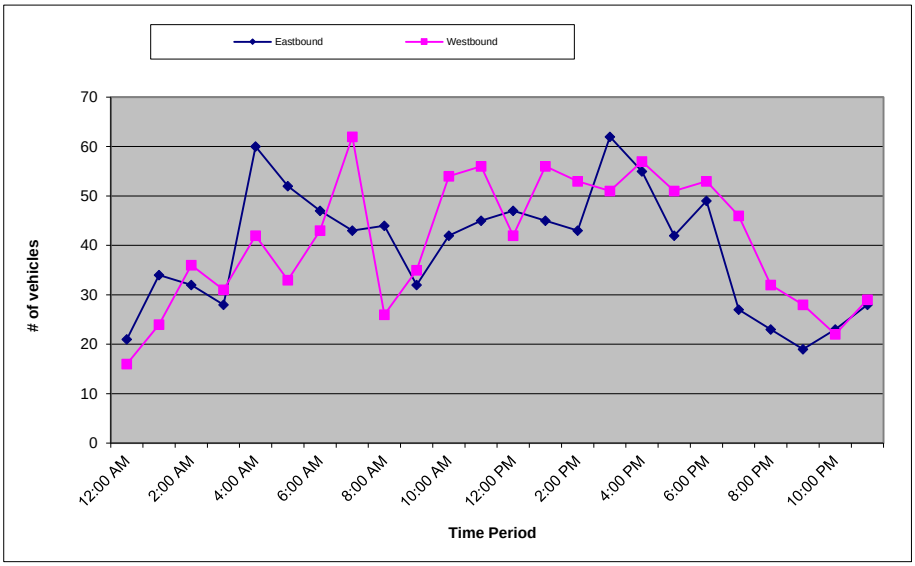
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Clarkson Ave
SEGMENT w/o San Mateo Ave, e/o Cantua School
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.5013208
LONGITUDE -120.3184383
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	8	3	5	5	**21**	3	3	10	0	**16**	**37**
1:00 AM	13	5	3	13	**34**	1	10	10	3	**24**	**58**
2:00 AM	12	6	6	8	**32**	10	11	15	0	**36**	**68**
3:00 AM	6	13	3	6	**28**	15	4	1	11	**31**	**59**
4:00 AM	13	27	14	6	**60**	8	5	13	16	**42**	**102**
5:00 AM	10	20	14	8	**52**	2	14	11	6	**33**	**85**
6:00 AM	6	8	15	18	**47**	7	16	1	19	**43**	**90**
7:00 AM	9	15	5	14	**43**	22	9	24	7	**62**	**105**
8:00 AM	13	12	12	7	**44**	1	6	14	5	**26**	**70**
9:00 AM	1	6	12	13	**32**	5	15	7	8	**35**	**67**
10:00 AM	7	15	14	6	**42**	12	9	11	22	**54**	**96**
11:00 AM	15	16	10	4	**45**	17	10	13	16	**56**	**101**
12:00 PM	9	11	17	10	**47**	13	11	5	13	**42**	**89**
1:00 PM	8	15	15	7	**45**	21	13	14	8	**56**	**101**
2:00 PM	10	13	9	11	**43**	7	17	11	18	**53**	**96**
3:00 PM	9	9	23	21	**62**	5	14	8	24	**51**	**113**
4:00 PM	13	10	15	17	**55**	21	12	15	9	**57**	**112**
5:00 PM	16	7	6	13	**42**	11	6	16	18	**51**	**93**
6:00 PM	12	22	9	6	**49**	16	14	16	7	**53**	**102**
7:00 PM	3	8	7	9	**27**	14	14	8	10	**46**	**73**
8:00 PM	8	8	4	3	**23**	7	12	9	4	**32**	**55**
9:00 PM	6	3	2	8	**19**	4	9	10	5	**28**	**47**
10:00 PM	10	8	3	2	**23**	5	7	4	6	**22**	**45**
11:00 PM	8	8	2	10	**28**	2	11	4	12	**29**	**57**
Total	**49.1%**				**943**	**50.9%**				**978**	
	1921										

AM%	**48.8%**	**AM Peak**	**121**	**6:45 am to 7:45 am**	**AM P.H.F.**	**0.82**
PM%	**51.2%**	**PM Peak**	**133**	**3:15 pm to 4:15 pm**	**PM P.H.F.**	**0.74**



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24 Hour Volume Report

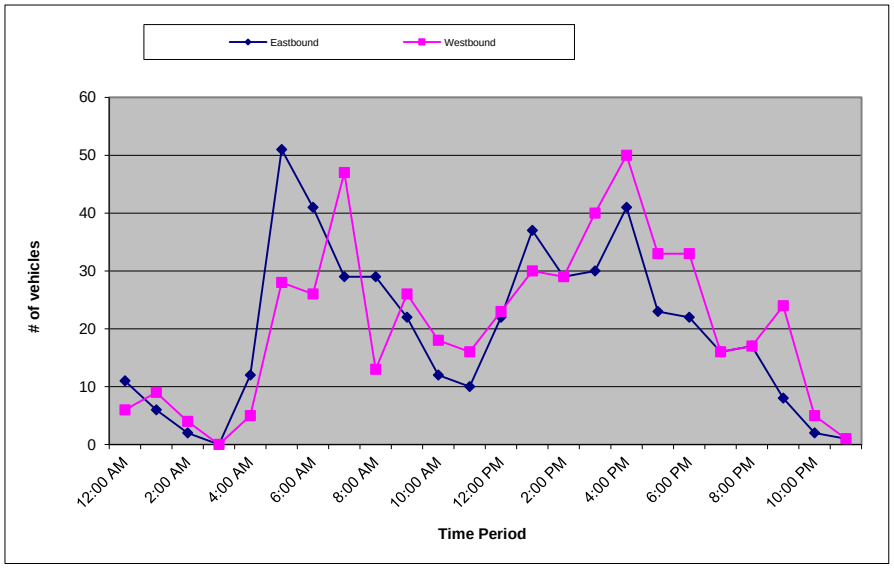
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Clarkson Ave
SEGMENT w/o San Mateo Ave, e/o Cantua School
COLLECTION DATE Wednesday, September 11, 2024
NUMBER OF LANES 2

LATITUDE 36.5013208
LONGITUDE -120.3184383
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	3	4	0	4	**11**	1	2	0	3	**6**	**17**
1:00 AM	0	2	4	0	**6**	0	0	1	8	**9**	**15**
2:00 AM	1	1	0	0	**2**	2	0	2	0	**4**	**6**
3:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
4:00 AM	1	6	2	3	**12**	0	1	1	3	**5**	**17**
5:00 AM	12	12	15	12	**51**	1	11	7	9	**28**	**79**
6:00 AM	12	13	7	9	**41**	5	9	5	7	**26**	**67**
7:00 AM	6	6	9	8	**29**	4	9	15	19	**47**	**76**
8:00 AM	8	11	4	6	**29**	6	4	1	2	**13**	**42**
9:00 AM	4	11	4	3	**22**	6	6	8	6	**26**	**48**
10:00 AM	3	3	5	1	**12**	4	2	9	3	**18**	**30**
11:00 AM	1	3	3	3	**10**	3	3	2	8	**16**	**26**
12:00 PM	7	5	8	2	**22**	4	4	9	6	**23**	**45**
1:00 PM	5	5	7	20	**37**	1	9	15	5	**30**	**67**
2:00 PM	1	9	7	12	**29**	6	7	8	8	**29**	**58**
3:00 PM	10	6	6	8	**30**	9	9	10	12	**40**	**70**
4:00 PM	8	18	11	4	**41**	16	15	8	11	**50**	**91**
5:00 PM	6	7	6	4	**23**	15	9	6	3	**33**	**56**
6:00 PM	3	7	5	7	**22**	6	7	11	9	**33**	**55**
7:00 PM	9	2	4	1	**16**	6	2	6	2	**16**	**32**
8:00 PM	1	7	7	2	**17**	5	3	3	6	**17**	**34**
9:00 PM	3	1	1	3	**8**	7	2	5	10	**24**	**32**
10:00 PM	0	0	0	2	**2**	1	3	1	0	**5**	**7**
11:00 PM	0	0	1	0	**1**	0	1	0	0	**1**	**2**
Total	**48.7%**				**473**	**51.3%**				**499**	
	972										

AM%	**43.5%**	**AM Peak**	**83**	**5:15 am to 6:15 am**	**AM P.H.F.**	**0.90**
PM%	**56.5%**	**PM Peak**	**96**	**3:45 pm to 4:45 pm**	**PM P.H.F.**	**0.73**



Metro Traffic Data Inc.
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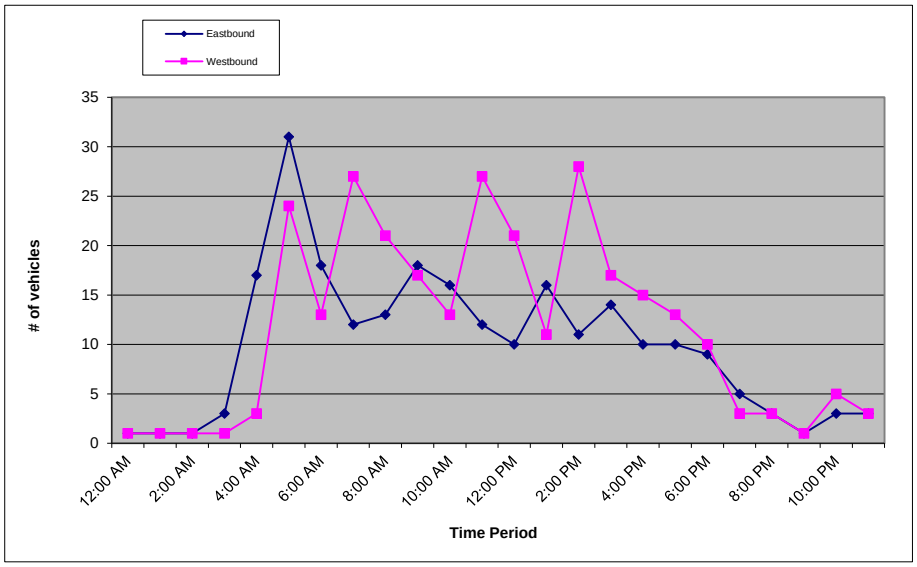
24 Hour Count Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	Elkhorn Ave	**LATITUDE**	36.487829
SEGMENT	East of Lassen Ave	**LONGITUDE**	-120.0973181
COLLECTION DATE	Tuesday, July 30, 2024	**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	0	0	0	**1**	0	1	0	0	**1**	**2**
1:00 AM	0	1	0	0	**1**	0	1	0	0	**1**	**2**
2:00 AM	0	0	1	0	**1**	1	0	0	0	**1**	**2**
3:00 AM	1	0	1	1	**3**	0	0	1	0	**1**	**4**
4:00 AM	2	1	6	8	**17**	0	0	0	3	**3**	**20**
5:00 AM	8	11	11	1	**31**	5	6	8	5	**24**	**55**
6:00 AM	4	6	5	3	**18**	3	5	4	1	**13**	**31**
7:00 AM	2	3	3	4	**12**	7	5	6	9	**27**	**39**
8:00 AM	1	3	3	6	**13**	5	8	5	3	**21**	**34**
9:00 AM	7	6	3	2	**18**	2	5	5	5	**17**	**35**
10:00 AM	2	7	6	1	**16**	4	4	1	4	**13**	**29**
11:00 AM	0	4	6	2	**12**	8	8	7	4	**27**	**39**
12:00 PM	3	3	3	1	**10**	5	4	4	8	**21**	**31**
1:00 PM	4	4	4	4	**16**	2	2	1	6	**11**	**27**
2:00 PM	1	4	2	4	**11**	10	7	4	7	**28**	**39**
3:00 PM	1	6	5	2	**14**	5	3	5	4	**17**	**31**
4:00 PM	3	3	1	3	**10**	8	1	4	2	**15**	**25**
5:00 PM	2	5	0	3	**10**	3	2	6	2	**13**	**23**
6:00 PM	2	3	1	3	**9**	7	2	0	1	**10**	**19**
7:00 PM	1	1	2	1	**5**	1	1	1	0	**3**	**8**
8:00 PM	0	0	2	1	**3**	0	1	2	0	**3**	**6**
9:00 PM	0	0	0	1	**1**	0	0	1	0	**1**	**2**
10:00 PM	1	1	1	0	**3**	0	1	0	4	**5**	**8**
11:00 PM	0	2	1	0	**3**	3	0	0	0	**3**	**6**
Total	**46.0%**				**238**	**54.0%**				**279**	
	517										

AM%	**56.5%**	**AM Peak**	**60**	**4:45 am to 5:45 am**	**AM P.H.F.**	**0.79**
PM%	**43.5%**	**PM Peak**	**39**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.89**



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

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

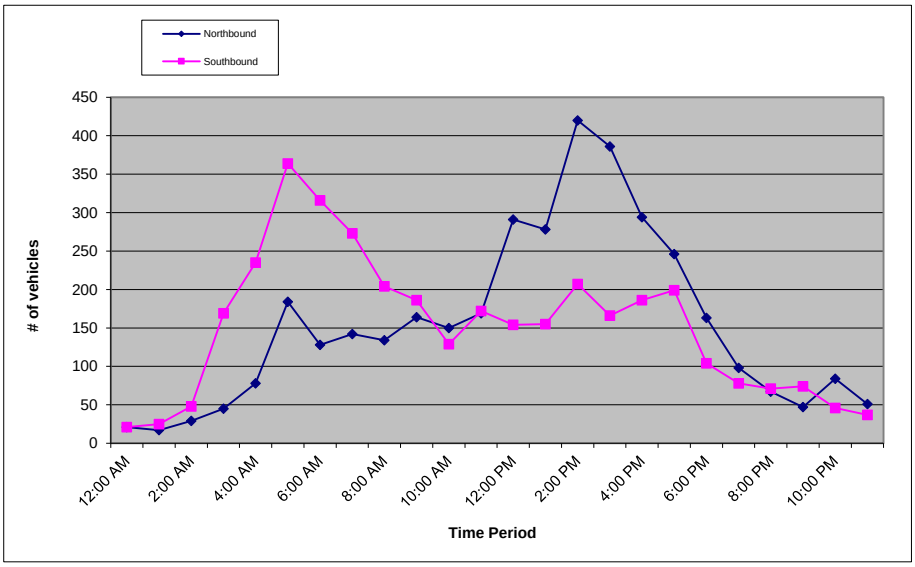
24 Hour Count Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	Lassen Ave	**LATITUDE**	36.4871875
SEGMENT	South of Elkhorn Ave	**LONGITUDE**	-120.0983151
COLLECTION DATE	Tuesday, July 30, 2024	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	6	4	4	7	**21**	4	6	8	3	**21**	**42**
1:00 AM	6	5	2	4	**17**	1	7	6	11	**25**	**42**
2:00 AM	4	4	9	12	**29**	11	15	13	9	**48**	**77**
3:00 AM	12	11	7	15	**45**	10	17	44	98	**169**	**214**
4:00 AM	10	14	26	28	**78**	60	57	51	67	**235**	**313**
5:00 AM	33	51	66	34	**184**	77	99	99	89	**364**	**548**
6:00 AM	32	28	43	25	**128**	69	98	78	71	**316**	**444**
7:00 AM	32	39	39	32	**142**	58	80	74	61	**273**	**415**
8:00 AM	35	26	37	36	**134**	60	51	53	40	**204**	**338**
9:00 AM	31	40	40	53	**164**	43	51	42	50	**186**	**350**
10:00 AM	35	39	42	34	**150**	40	24	30	35	**129**	**279**
11:00 AM	38	32	49	50	**169**	42	47	41	42	**172**	**341**
12:00 PM	45	52	99	95	**291**	38	31	39	46	**154**	**445**
1:00 PM	77	67	64	70	**278**	45	32	41	37	**155**	**433**
2:00 PM	86	98	121	115	**420**	50	42	63	52	**207**	**627**
3:00 PM	102	104	84	96	**386**	46	30	49	41	**166**	**552**
4:00 PM	68	68	73	85	**294**	51	42	55	38	**186**	**480**
5:00 PM	91	69	52	34	**246**	55	48	55	41	**199**	**445**
6:00 PM	43	44	41	35	**163**	36	20	24	24	**104**	**267**
7:00 PM	23	27	22	26	**98**	17	23	19	19	**78**	**176**
8:00 PM	13	18	18	18	**67**	20	14	21	16	**71**	**138**
9:00 PM	12	11	7	17	**47**	17	19	20	18	**74**	**121**
10:00 PM	16	34	24	10	**84**	16	15	10	5	**46**	**130**
11:00 PM	12	8	14	17	**51**	9	12	7	9	**37**	**88**
Total	**50.5%**				**3686**	**49.5%**				**3619**	
	7305										

AM%	**46.6%**	**AM Peak**	**548**	**5:00 am to 6:00 am**	**AM P.H.F.**	**0.83**
PM%	**53.4%**	**PM Peak**	**639**	**2:15 pm to 3:15 pm**	**PM P.H.F.**	**0.87**



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

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

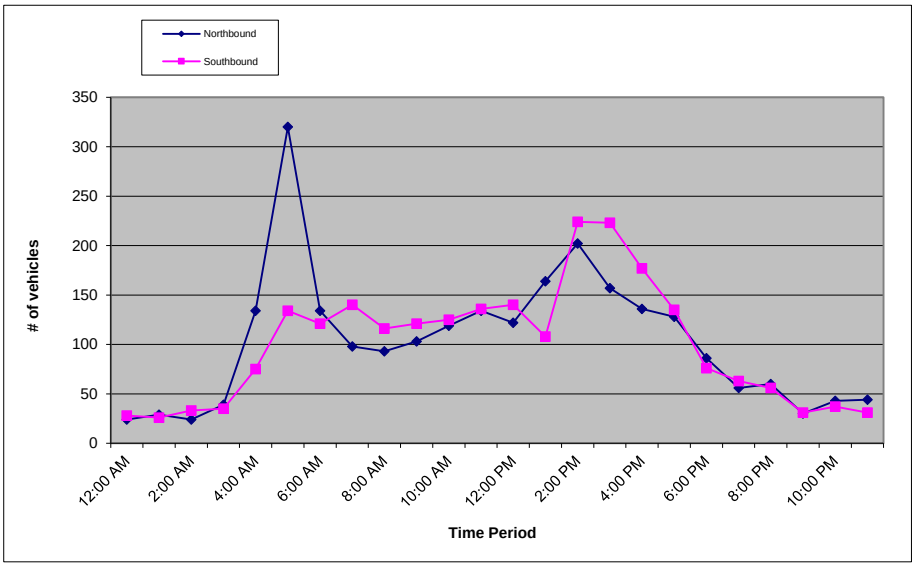
24 Hour Count Report

Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET	Lassen Ave	**LATITUDE**	36.2559068
SEGMENT	North of SR 198	**LONGITUDE**	-120.1035634
COLLECTION DATE	Tuesday, July 30, 2024	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	5	4	9	6	**24**	4	6	9	9	**28**	**52**
1:00 AM	7	8	10	4	**29**	4	4	13	5	**26**	**55**
2:00 AM	7	5	9	3	**24**	6	6	8	13	**33**	**57**
3:00 AM	7	6	12	14	**39**	4	11	13	7	**35**	**74**
4:00 AM	25	30	42	37	**134**	11	18	19	27	**75**	**209**
5:00 AM	66	100	91	63	**320**	43	32	32	27	**134**	**454**
6:00 AM	39	35	33	27	**134**	26	33	34	28	**121**	**255**
7:00 AM	20	24	31	23	**98**	37	41	32	30	**140**	**238**
8:00 AM	27	19	27	20	**93**	33	31	32	20	**116**	**209**
9:00 AM	22	26	30	25	**103**	29	30	31	31	**121**	**224**
10:00 AM	31	29	26	33	**119**	33	36	27	29	**125**	**244**
11:00 AM	21	47	29	37	**134**	39	30	30	37	**136**	**270**
12:00 PM	24	27	32	39	**122**	34	34	38	34	**140**	**262**
1:00 PM	33	40	46	45	**164**	23	26	36	23	**108**	**272**
2:00 PM	50	62	33	57	**202**	37	39	73	75	**224**	**426**
3:00 PM	36	36	50	35	**157**	63	48	47	65	**223**	**380**
4:00 PM	36	25	39	36	**136**	39	45	39	54	**177**	**313**
5:00 PM	33	38	29	28	**128**	40	39	26	30	**135**	**263**
6:00 PM	26	27	19	14	**86**	25	19	21	11	**76**	**162**
7:00 PM	20	15	10	11	**56**	17	13	13	20	**63**	**119**
8:00 PM	25	11	9	15	**60**	12	13	12	19	**56**	**116**
9:00 PM	2	4	14	10	**30**	6	4	12	9	**31**	**61**
10:00 PM	8	14	12	9	**43**	4	15	10	8	**37**	**80**
11:00 PM	12	13	15	4	**44**	9	7	8	7	**31**	**75**
Total	**50.9%**				**2479**	**49.1%**				**2391**	
	4870										

AM%	**48.1%**	**AM Peak**	**454**	**5:00 am to 6:00 am**	**AM P.H.F.**	**0.86**
PM%	**51.9%**	**PM Peak**	**438**	**2:15 pm to 3:15 pm**	**PM P.H.F.**	**0.83**



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

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

24 Hour Volume Report

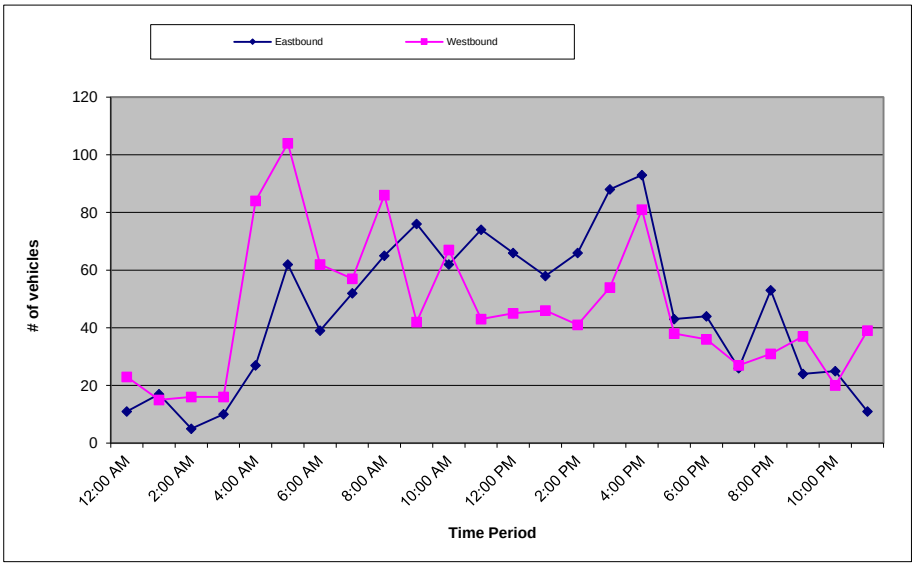
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Manning Ave
SEGMENT e/o Derrick Ave (w/o solar driveways)
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.6033963
LONGITUDE -120.3879536
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	5	2	3	1	**11**	5	8	0	10	**23**	**34**
1:00 AM	3	5	6	3	**17**	6	4	3	2	**15**	**32**
2:00 AM	2	0	1	2	**5**	9	1	3	3	**16**	**21**
3:00 AM	3	5	2	0	**10**	3	1	5	7	**16**	**26**
4:00 AM	1	12	6	8	**27**	1	10	32	41	**84**	**111**
5:00 AM	9	15	20	18	**62**	18	27	36	23	**104**	**166**
6:00 AM	11	11	11	6	**39**	20	8	16	18	**62**	**101**
7:00 AM	22	17	10	3	**52**	20	11	15	11	**57**	**109**
8:00 AM	27	10	7	21	**65**	24	31	16	15	**86**	**151**
9:00 AM	14	10	21	31	**76**	5	14	6	17	**42**	**118**
10:00 AM	16	13	7	26	**62**	17	14	16	20	**67**	**129**
11:00 AM	21	22	12	19	**74**	12	15	7	9	**43**	**117**
12:00 PM	16	11	8	31	**66**	12	17	10	6	**45**	**111**
1:00 PM	21	8	11	18	**58**	13	9	12	12	**46**	**104**
2:00 PM	14	13	25	14	**66**	11	10	6	14	**41**	**107**
3:00 PM	17	19	27	25	**88**	13	16	9	16	**54**	**142**
4:00 PM	20	30	22	21	**93**	22	34	19	6	**81**	**174**
5:00 PM	9	10	17	7	**43**	15	11	3	9	**38**	**81**
6:00 PM	7	10	16	11	**44**	6	8	13	9	**36**	**80**
7:00 PM	10	6	3	7	**26**	9	8	8	2	**27**	**53**
8:00 PM	10	16	17	10	**53**	6	10	9	6	**31**	**84**
9:00 PM	6	8	9	1	**24**	17	4	3	13	**37**	**61**
10:00 PM	6	1	17	1	**25**	3	1	3	13	**20**	**45**
11:00 PM	2	1	5	3	**11**	9	14	15	1	**39**	**50**
Total	**49.7%**				**1097**	**50.3%**				**1110**	
	2207										

AM%	**50.5%**	**AM Peak**	**174**	**4:45 am to 5:45 am**	**AM P.H.F.**	**0.78**
PM%	**49.5%**	**PM Peak**	**188**	**3:45 pm to 4:45 pm**	**PM P.H.F.**	**0.73**



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

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

24 Hour Volume Report

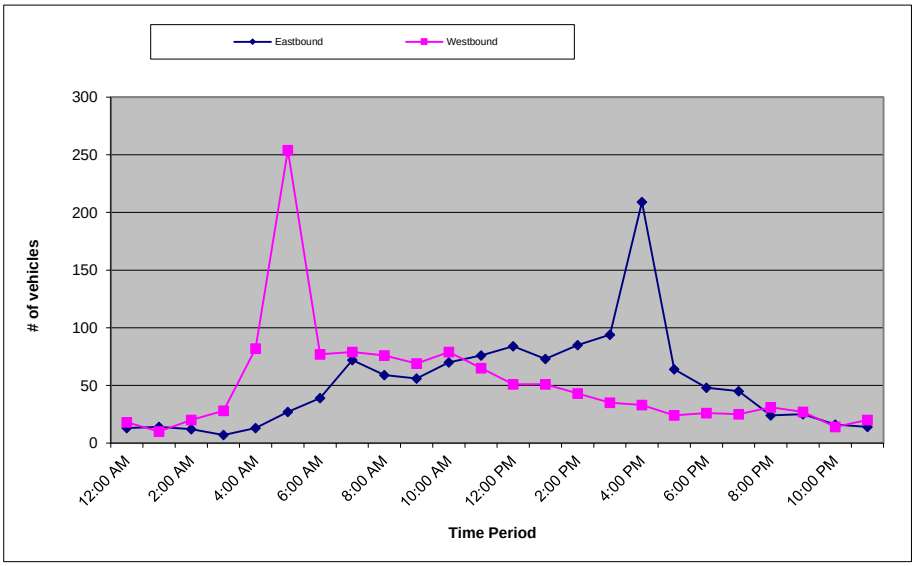
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET Manning Ave
SEGMENT w/o James Ave (e/o solar driveways)
COLLECTION DATE Tuesday, July 30, 2024
NUMBER OF LANES 2

LATITUDE 36.6027865
LONGITUDE -120.2805854
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	1	3	3	6	**13**	7	2	8	1	**18**	**31**
1:00 AM	4	5	0	5	**14**	3	2	0	5	**10**	**24**
2:00 AM	1	2	3	6	**12**	3	8	6	3	**20**	**32**
3:00 AM	7	0	0	0	**7**	5	13	6	4	**28**	**35**
4:00 AM	2	1	2	8	**13**	2	11	38	31	**82**	**95**
5:00 AM	2	7	9	9	**27**	32	58	90	74	**254**	**281**
6:00 AM	10	13	5	11	**39**	21	23	14	19	**77**	**116**
7:00 AM	19	17	24	12	**72**	24	27	13	15	**79**	**151**
8:00 AM	17	19	12	11	**59**	25	20	15	16	**76**	**135**
9:00 AM	13	15	13	15	**56**	18	19	23	9	**69**	**125**
10:00 AM	12	21	9	28	**70**	27	21	11	20	**79**	**149**
11:00 AM	31	20	10	15	**76**	14	28	11	12	**65**	**141**
12:00 PM	31	10	19	24	**84**	6	9	12	24	**51**	**135**
1:00 PM	24	12	16	21	**73**	11	11	16	13	**51**	**124**
2:00 PM	20	21	27	17	**85**	14	6	12	11	**43**	**128**
3:00 PM	17	21	17	39	**94**	4	10	11	10	**35**	**129**
4:00 PM	54	98	34	23	**209**	2	9	14	8	**33**	**242**
5:00 PM	23	15	19	7	**64**	3	4	10	7	**24**	**88**
6:00 PM	13	15	6	14	**48**	4	7	3	12	**26**	**74**
7:00 PM	17	12	15	1	**45**	6	8	5	6	**25**	**70**
8:00 PM	10	3	6	5	**24**	17	4	8	2	**31**	**55**
9:00 PM	8	7	3	7	**25**	11	4	6	6	**27**	**52**
10:00 PM	7	0	3	6	**16**	4	2	5	3	**14**	**30**
11:00 PM	0	8	1	5	**14**	12	1	5	2	**20**	**34**
Total	**50.0%**				**1239**	**50.0%**				**1237**	
	2476										

AM%	**53.1%**	**AM Peak**	**281**	**5:00 am to 6:00 am**	**AM P.H.F.**	**0.71**
PM%	**46.9%**	**PM Peak**	**260**	**3:45 pm to 4:45 pm**	**PM P.H.F.**	**0.61**



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

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

24 Hour Volume Report

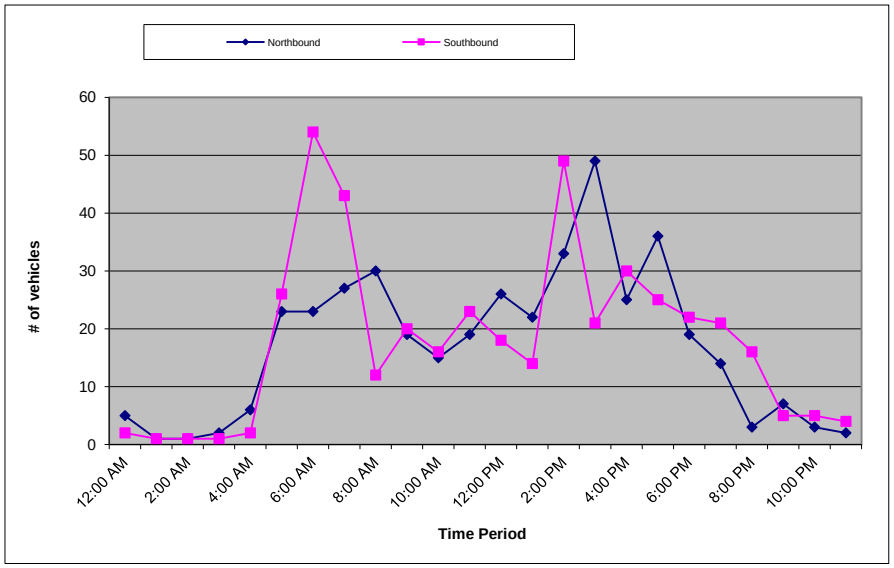
Prepared For: **Peters Engineering Group**
862 Pollasky Ave
Clovis, CA 93612

STREET San Mateo Ave
SEGMENT n/o Clarkson Ave
COLLECTION DATE Tuesday, September 24, 2024
NUMBER OF LANES 2

LATITUDE 36.5029988
LONGITUDE -120.3162709
WEATHER Clear

	Northbound					Southbound					Hourly
Hour	:00	:15	:30	:45	**Total**	:00	:15	:30	:45	**Total**	**Totals**
12:00 AM	0	1	3	1	**5**	0	1	1	0	**2**	**7**
1:00 AM	0	0	0	1	**1**	1	0	0	0	**1**	**2**
2:00 AM	0	0	0	1	**1**	0	0	0	1	**1**	**2**
3:00 AM	0	0	2	0	**2**	0	0	1	0	**1**	**3**
4:00 AM	1	3	0	2	**6**	0	0	0	2	**2**	**8**
5:00 AM	5	5	1	12	**23**	4	7	7	8	**26**	**49**
6:00 AM	5	7	7	4	**23**	15	27	7	5	**54**	**77**
7:00 AM	2	12	7	6	**27**	8	5	20	10	**43**	**70**
8:00 AM	10	8	4	8	**30**	2	4	4	2	**12**	**42**
9:00 AM	6	5	3	5	**19**	4	10	4	2	**20**	**39**
10:00 AM	5	4	5	1	**15**	5	4	2	5	**16**	**31**
11:00 AM	6	6	2	5	**19**	6	0	12	5	**23**	**42**
12:00 PM	10	9	4	3	**26**	7	3	5	3	**18**	**44**
1:00 PM	3	7	8	4	**22**	2	5	2	5	**14**	**36**
2:00 PM	8	5	10	10	**33**	5	12	21	11	**49**	**82**
3:00 PM	22	7	14	6	**49**	8	4	5	4	**21**	**70**
4:00 PM	5	8	9	3	**25**	3	10	12	5	**30**	**55**
5:00 PM	8	9	9	10	**36**	4	9	6	6	**25**	**61**
6:00 PM	6	4	5	4	**19**	7	6	4	5	**22**	**41**
7:00 PM	4	4	1	5	**14**	5	5	10	1	**21**	**35**
8:00 PM	0	1	2	0	**3**	5	6	2	3	**16**	**19**
9:00 PM	2	2	2	1	**7**	0	2	2	1	**5**	**12**
10:00 PM	2	1	0	0	**3**	2	0	2	1	**5**	**8**
11:00 PM	0	0	0	2	**2**	2	0	2	0	**4**	**6**
Total	**48.8%**				**410**	**51.2%**				**431**	
	841										

AM%	**44.2%**	**AM Peak**	**88**	**5:45 am to 6:45 am**	**AM P.H.F.**	**0.65**
PM%	**55.8%**	**PM Peak**	**99**	**2:15 pm to 3:15 pm**	**PM P.H.F.**	**0.80**



Metro Traffic Data Inc.

310 N. Irwin Street - Suite 20
Hanford, CA 93230

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

Turning Movement Report
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION SR 33 / 12th Street (Firebaugh) **LATITUDE** 36.8571847

COUNTY Fresno **LONGITUDE** -120.4564463

COLLECTION DATE Tuesday, July 30, 2024 **WEATHER** Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	3	10	0	3	0	0	5	2	0	1	8	2	5	0	0	1	0	0	0	37	8%
12:15 AM to 12:30 AM	0	2	7	0	3	0	0	7	2	4	0	2	1	5	2	0	0	3	4	0	33	27%
12:30 AM to 12:45 AM	0	2	5	0	2	0	0	1	1	0	0	4	5	5	1	0	0	3	0	0	26	12%
12:45 AM to 1:00 AM	0	3	4	2	3	0	1	1	0	1	0	2	2	7	1	0	1	0	1	0	24	21%
1:00 AM to 1:15 AM	0	1	4	0	1	0	0	7	0	2	0	2	0	3	0	0	0	0	0	0	17	18%
1:15 AM to 1:30 AM	0	3	10	1	2	0	0	4	0	3	0	0	1	4	0	0	0	0	0	0	23	22%
1:30 AM to 1:45 AM	0	0	7	0	5	0	0	9	5	5	0	1	1	2	0	0	0	2	1	0	28	36%
1:45 AM to 2:00 AM	0	5	9	0	7	0	0	4	1	0	0	5	0	4	1	0	0	0	0	0	28	29%
2:00 AM to 2:15 AM	0	3	2	0	1	0	0	5	2	6	0	4	2	10	1	0	0	1	0	0	29	28%
2:15 AM to 2:30 AM	0	2	3	0	2	0	0	4	3	4	0	6	0	4	1	0	0	0	0	0	22	32%
2:30 AM to 2:45 AM	0	11	4	0	7	0	1	7	6	3	0	1	3	2	1	0	0	2	0	0	37	30%
2:45 AM to 3:00 AM	0	5	7	0	3	0	0	2	3	2	0	3	1	0	0	0	1	2	1	0	25	20%
3:00 AM to 3:15 AM	0	10	4	1	6	0	0	4	3	0	0	4	1	3	1	0	0	3	1	1	34	24%
3:15 AM to 3:30 AM	0	23	5	0	7	0	0	10	6	0	0	3	3	4	0	0	0	4	0	0	58	12%
3:30 AM to 3:45 AM	0	20	10	0	7	0	0	2	12	0	0	1	3	0	0	0	1	24	0	0	73	10%
3:45 AM to 4:00 AM	0	18	13	0	6	0	0	20	5	4	0	6	0	4	1	0	1	29	1	0	97	11%
4:00 AM to 4:15 AM	0	28	19	1	9	0	2	20	10	4	0	2	3	3	1	0	2	40	0	0	130	11%
4:15 AM to 4:30 AM	0	39	24	1	14	0	3	24	8	2	0	5	4	5	1	0	0	56	8	0	177	10%
4:30 AM to 4:45 AM	0	34	51	0	22	0	4	25	20	8	0	6	7	10	1	0	3	37	8	2	205	16%
4:45 AM to 5:00 AM	0	27	47	1	8	0	2	29	15	10	0	4	3	3	0	0	3	23	12	2	169	12%
5:00 AM to 5:15 AM	0	28	60	3	14	0	6	40	22	3	0	4	3	4	1	0	7	39	2	2	218	9%
5:15 AM to 5:30 AM	0	52	61	3	15	1	3	45	35	7	0	3	4	6	3	0	2	47	5	3	267	10%
5:30 AM to 5:45 AM	0	33	58	0	11	1	4	42	48	5	0	12	6	2	2	0	5	44	6	2	261	8%
5:45 AM to 6:00 AM	0	49	41	0	21	0	7	41	47	7	0	12	2	4	5	0	4	44	6	1	257	13%
6:00 AM to 6:15 AM	0	24	31	1	8	1	2	30	25	7	0	8	7	5	1	0	1	25	3	1	163	10%
6:15 AM to 6:30 AM	0	29	21	6	13	0	0	32	37	15	0	12	12	11	5	0	2	21	0	0	183	18%
6:30 AM to 6:45 AM	0	34	11	4	11	0	0	32	66	2	0	16	5	9	3	0	2	37	3	0	219	7%
6:45 AM to 7:00 AM	0	42	32	6	18	2	3	34	42	7	0	7	7	9	2	0	1	25	2	1	212	13%
7:00 AM to 7:15 AM	1	30	26	2	13	0	3	33	17	9	0	14	11	14	6	0	1	28	4	4	184	17%
7:15 AM to 7:30 AM	0	29	37	4	9	0	7	59	16	11	0	30	21	28	8	0	6	20	4	0	261	11%
7:30 AM to 7:45 AM	0	24	34	3	9	0	4	51	16	10	0	22	9	17	2	0	4	15	6	0	205	10%
7:45 AM to 8:00 AM	0	38	43	3	10	1	3	45	20	8	0	19	8	17	6	0	4	14	9	0	224	11%
8:00 AM to 8:15 AM	0	28	48	3	17	0	3	42	26	11	0	9	7	14	7	0	4	16	6	0	206	17%
8:15 AM to 8:30 AM	0	16	37	3	8	0	3	45	12	8	0	8	5	11	7	0	6	16	7	2	169	15%
8:30 AM to 8:45 AM	0	18	34	2	11	1	3	53	13	12	0	9	5	11	7	0	9	22	7	2	187	17%
8:45 AM to 9:00 AM	0	18	35	4	6	1	3	37	15	4	0	13	7	17	3	0	7	11	4	1	172	8%
9:00 AM to 9:15 AM	0	17	37	3	15	0	5	43	23	6	0	10	10	15	6	0	7	16	2	3	188	16%
9:15 AM to 9:30 AM	0	24	39	5	10	3	5	35	20	5	0	7	9	22	10	0	4	9	3	1	185	14%
9:30 AM to 9:45 AM	0	12	33	7	7	0	8	44	20	6	0	14	10	16	8	0	1	17	5	0	187	11%
9:45 AM to 10:00 AM	0	9	33	3	13	0	4	38	13	9	0	7	12	18	9	0	3	6	10	1	156	21%
10:00 AM to 10:15 AM	0	11	34	4	7	1	5	33	14	7	0	12	5	19	9	0	3	16	6	1	163	15%
10:15 AM to 10:30 AM	0	12	44	4	14	0	3	29	5	7	0	18	10	20	11	0	3	14	2	0	164	20%
10:30 AM to 10:45 AM	0	16	39	5	6	0	4	43	12	10	0	8	8	18	10	0	2	14	5	2	174	16%
10:45 AM to 11:00 AM	0	14	43	1	15	0	4	35	14	9	0	7	17	11	7	0	3	10	5	1	164	20%
11:00 AM to 11:15 AM	0	15	44	4	12	0	5	38	12	6	0	24	22	41	10	0	5	12	6	1	228	13%
11:15 AM to 11:30 AM	0	23	38	4	20	2	1	36	8	11	0	11	6	23	5	0	6	13	9	3	180	22%
11:30 AM to 11:45 AM	0	13	51	5	7	0	8	47	13	9	0	12	22	22	11	0	4	17	2	3	216	14%
11:45 AM to 12:00 PM	0	24	38	4	10	2	4	42	14	12	0	6	15	25	11	0	6	19	10	2	209	17%
12:00 PM to 12:15 PM	0	14	41	7	13	0	4	30	13	7	0	12	15	29	11	0	4	13	5	1	187	17%
12:15 PM to 12:30 PM	0	16	55	3	7	0	5	34	20	8	0	12	25	28	13	0	2	10	3	0	213	13%
12:30 PM to 12:45 PM	0	10	41	5	7	1	4	52	12	12	0	12	31	28	8	0	4	13	12	3	225	13%
12:45 PM to 1:00 PM	0	28	45	4	14	1	2	36	16	15	0	14	51	54	8	0	7	20	7	4	285	14%
1:00 PM to 1:15 PM	0	19	52	8	10	0	5	48	13	10	1	16	24	30	8	0	7	18	8	2	249	12%
1:15 PM to 1:30 PM	0	18	47	6	13	0	5	43	21	14	0	12	20	24	16	0	5	12	8	0	221	19%
1:30 PM to 1:45 PM	0	21	53	4	15	0	4	46	12	7	0	14	27	38	16	0	6	17	11	3	253	16%
1:45 PM to 2:00 PM	0	24	59	5	19	0	4	48	24	12	0	11	20	29	11	0	8	18	4	1	254	17%
2:00 PM to 2:15 PM	0	18	51	5	12	0	3	40	16	8	0	22	14	25	10	0	5	12	4	2	215	15%
2:15 PM to 2:30 PM	0	24	72	2	17	0	3	66	24	17	0	17	18	25	12	0	5	15	7	2	278	17%
2:30 PM to 2:45 PM	0	27	56	5	8	1	7	89	46	16	0	27	26	42	18	0	4	21	7	1	358	12%
2:45 PM to 3:00 PM	0	37	63	7	15	0	5	80	15	13	0	33	38	47	11	0	6	21	13	0	365	11%
3:00 PM to 3:15 PM	0	17	74	6	8	1	2	76	12	5	0	34	33	64	19	0	5	9	13	1	346	10%
3:15 PM to 3:30 PM	0	15	56	8	6	0	2	62	15	5	0	52	23	36	11	0	5	10	8	0	292	8%
3:30 PM to 3:45 PM	0	17	80	4	9	0	6	71	10	6	0	28	26	41	12	0	3	10	9	0	305	9%
3:45 PM to 4:00 PM	0	17	65	1	10	1	4	70	11	4	0	36	30	45	17	0	6	17	10	0	313	10%
4:00 PM to 4:15 PM	0	11	58	3	9	2	4	46	11	4	0	75	38	57	10	0	4	14	11	1	334	7%
4:15 PM to 4:30 PM	0	24	74	7	12	2	6	54	22	8	0	31	29	42	8	0	3	15	4	0	313	9%
4:30 PM to 4:45 PM	0	24	58	4	9	1	7	60	26	11	0	24	23	28	8	0	4	10	6	0	275	10%
4:45 PM to 5:00 PM	0	18	83	5	5	0	1	75	23	7	0	34	22	36	9	0	1	11	3	0	312	7%
5:00 PM to 5:15 PM	0	20	69	3	11	1	5	57	16	5	0	21	16	42	6	0	3	8	11	0	272	8%
5:15 PM to 5:30 PM	0	13	64	3	5	2	4	71	13	5	0	11	11	33	18	0	4	11	7	2	247	12%
5:30 PM to 5:45 PM	0	8	66	2	5	1	3	54	15	2	0	14	20	37	12	0	10	8	9	0	247	8%
5:45 PM to 6:00 PM	0	13	82	6	4	2	5	79	21	3	0	26	17	32	11	0	4	13	8	0	308	6%
6:00 PM to 6:15 PM	0	16	68	5	3	0	2	55	18	1	0	19	18	20	4	0	5	12	8	0	246	3%
6:15 PM to 6:30 PM	0	9	56	2	7	0	2	46	21	4	0	20	20	30	7	0	3	12	10	0	231	8%
6:30 PM to 6:45 PM	0	17	53	3	3	5	6	48	13	4	0	10	18	24	6	0	6	11	6	0	220	6%
6:45 PM to 7:00 PM	0	9	34	3	3	1	3	46	18	2	0	19	19	21	7	0	1	14	5	0	193	6%
7:00 PM to 7:15 PM	0	10	54	1	1	0	5	38	13	2	0	13	17	21	5	0	3	6	4	0	185	4%
7:15 PM to 7:30 PM	1	8	55	5	6	1	3	47	13	2	0	14	15	17	4	0	3	3	8	0	193	6%
7:30 PM to 7:45 PM	0	12	47	3	2	0	2	43	5	1	0	9	9	14	3	0	4	8	2	0	158	4%
7:45 PM to 8:00 PM	0	13	63	4	5	0	2	43	6	0	0	16	2	28	5	0	1	6	8	0	192	5%
8:00 PM to 8:15 PM	0	9	42	9	3	0	5	30	9	4	0	12	9	19	7	0	4	6	4	0	158	9%
8:15 PM to 8:30 PM	0	5	48	6	1	1	3	31	12	4	0	19	9	21	5	0	8	6	8	0	177	6%
8:30 PM to 8:45 PM	0	6	40	5	6	0	1	36	9	4	0	9	17	20	6	0	7	6	9	0	165	10%
8:45 PM to 9:00 PM	0	8	41	7	5	1	3	28	5	1	0	11	7	7	1	0	4	4	5	0	131	5%
9:00 PM to 9:15 PM	1	8	42	3	4	1	2	37	7	6	0	7	5	14	1	0	2	4	7	0	140	8%
9:15 PM to 9:30 PM	0	4	32	8	3	0	1	26	9	2	0	10	4	7	2	0	4	6	4	0	115	6%
9:30 PM to 9:45 PM	0	9	35	2	8	0	1	19	9	1	0	10	7	15	1	0	1	7	4	0	119	8%
9:45 PM to 10:00 PM	0	7	33	2	4	0	3	25	9	3	0	5	3	11	1	0	0	9	3	0	110	7%
10:00 PM to 10:15 PM	0	11	18	1	2	0	3	14	11	2	0	8	7	14	0	0	1	12	1	0	101	4%
10:15 PM to 10:30 PM	0	11	16	4	6	0	2	18	17	1	0	10	4	13	3	0	5	10	3	0	113	9%
10:30 PM to 10:45 PM	0	25	17	2	6	0	0	20	27	2	0	10	3	21	3	0	1	9	3	0	138	8%
10:45 PM to 11:00 PM	0	8	12	4	1	0	0	5	9	2	0	9	3	15	1	0	1	4	1	0	71	6%
11:00 PM to 11:15 PM	0	4	26	0	6	0	0	11	1	3	0	17	8	12	2	0	0	1	3	0	83	13%
11:15 PM to 11:30 PM	0	3	16	0	3	0	0	9	3	3	0	28	7	20	3	0	0	1	1	0	88	10%
11:30 PM to 11:45 PM	0	1	11	0	4	0	0	17	3	4	0	14	11	16	0	0	1	3	0	0	77	10%
11:45 PM to 12:00 AM	0	4	7	0	2	0	0	9	3	1	0	19	4	16	0	0	0	1	2	1	65	6%
DAILY TOTALS	**3**	**1591**	**3657**	**295**	**785**	**42**	**272**	**3402**	**1406**	**544**	**2**	**1309**	**1130**	**1820**	**548**	**0**	**305**	**1303**	**473**	**66**	**17010**	**11%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
5:00 AM to 6:00 AM	0	162	220	6	61	2	20	168	152	22	0	31	15	16	11	0	18	174	19	8	1003	10%	0.94
2:30 PM to 3:30 PM	0	96	249	26	37	2	16	307	88	39	0	146	120	189	59	0	20	61	41	2	1361	10%	0.93

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION SR 33 / 12th Street (Firebaugh)
LATITUDE 36.8571847
COUNTY Fresno
LONGITUDE -120.4564463
COLLECTION DATE Tuesday, July 30, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**7**	**10**	**16**	**17**	**2**	**50**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
5:00 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Metro Traffic Data Inc.
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Hanford, CA 93230
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Turning Movement Report
(Vehicles)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION SR 33 / 13th Street (Firebaugh)
COUNTY Fresno
COLLECTION DATE Tuesday, July 30, 2024

LATITUDE 36.856181
LONGITUDE -120.4553657
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	9	1	2	0	4	7	0	0	0	0	0	0	0	0	7	0	2	2	30	13%
12:15 AM to 12:30 AM	0	0	9	0	3	0	2	9	0	3	0	0	0	0	0	0	2	0	0	1	22	32%
12:30 AM to 12:45 AM	0	0	6	0	1	0	2	4	0	1	0	0	0	0	0	0	1	0	1	1	14	21%
12:45 AM to 1:00 AM	0	0	6	0	4	0	2	7	0	2	0	0	0	0	0	0	0	0	3	0	18	33%
1:00 AM to 1:15 AM	0	0	5	0	1	0	1	9	0	2	0	0	0	0	0	0	2	0	1	1	18	22%
1:15 AM to 1:30 AM	0	0	10	0	1	0	1	8	0	3	0	0	0	0	0	0	0	0	2	0	21	19%
1:30 AM to 1:45 AM	0	1	7	1	5	0	0	10	0	1	0	0	0	0	0	0	1	0	1	0	21	29%
1:45 AM to 2:00 AM	0	0	11	0	6	0	3	5	0	1	0	1	0	0	0	0	0	0	2	2	22	41%
2:00 AM to 2:15 AM	0	0	5	2	2	0	2	13	0	5	0	0	0	0	0	0	2	0	2	1	26	31%
2:15 AM to 2:30 AM	0	0	0	0	0	0	3	5	0	4	0	0	0	0	0	0	3	0	3	2	14	43%
2:30 AM to 2:45 AM	0	0	10	2	4	0	5	4	0	3	0	0	0	0	0	0	0	0	6	3	27	37%
2:45 AM to 3:00 AM	0	0	5	0	2	0	0	3	0	1	0	0	0	0	0	0	4	0	5	1	17	24%
3:00 AM to 3:15 AM	0	0	11	1	5	0	0	7	0	1	0	0	0	0	0	0	2	0	5	1	26	27%
3:15 AM to 3:30 AM	0	0	26	2	7	0	3	11	0	0	0	0	0	0	0	0	3	0	2	1	47	17%
3:30 AM to 3:45 AM	0	0	25	0	5	0	1	2	0	0	0	0	0	0	0	0	6	0	7	1	41	15%
3:45 AM to 4:00 AM	0	0	22	4	4	0	4	20	0	5	0	0	0	0	0	0	5	0	9	2	64	17%
4:00 AM to 4:15 AM	0	0	41	5	7	0	6	19	0	5	0	0	0	0	0	0	8	0	14	2	93	15%
4:15 AM to 4:30 AM	0	0	45	11	11	0	7	21	0	2	0	0	0	0	0	0	13	0	17	6	114	17%
4:30 AM to 4:45 AM	0	0	85	20	14	1	10	27	0	7	0	0	0	0	0	0	13	0	13	12	169	20%
4:45 AM to 5:00 AM	0	0	73	14	8	0	7	28	0	4	0	0	0	0	0	0	12	0	11	1	145	9%
5:00 AM to 5:15 AM	0	0	76	24	4	0	8	43	0	1	0	0	0	0	0	0	14	0	17	11	182	9%
5:15 AM to 5:30 AM	0	0	102	27	7	0	13	39	0	2	0	0	0	0	0	0	21	0	25	9	227	8%
5:30 AM to 5:45 AM	0	2	75	51	6	0	11	39	0	3	0	1	0	0	0	0	16	0	20	7	215	7%
5:45 AM to 6:00 AM	0	0	72	24	13	0	7	40	1	3	0	0	0	0	0	0	14	0	25	7	183	13%
6:00 AM to 6:15 AM	0	1	40	13	6	0	8	26	1	5	0	1	0	0	0	0	11	0	14	6	115	15%
6:15 AM to 6:30 AM	0	2	39	20	7	0	13	30	3	8	0	0	1	3	0	0	14	0	22	6	147	14%
6:30 AM to 6:45 AM	0	2	30	21	6	0	12	31	0	2	0	0	1	1	0	0	16	2	27	8	143	11%
6:45 AM to 7:00 AM	0	0	43	24	8	0	4	39	1	3	0	1	1	2	0	0	15	3	34	11	167	13%
7:00 AM to 7:15 AM	0	2	32	7	4	0	18	29	2	9	0	2	0	1	0	0	16	1	34	14	144	19%
7:15 AM to 7:30 AM	0	0	47	10	3	1	22	65	4	16	0	2	6	3	0	0	20	2	21	8	203	13%
7:30 AM to 7:45 AM	0	3	49	12	6	0	21	49	0	6	0	1	1	1	0	0	33	0	17	3	187	9%
7:45 AM to 8:00 AM	0	3	70	11	7	1	15	52	3	9	0	2	0	1	0	0	25	0	13	7	196	12%
8:00 AM to 8:15 AM	0	0	57	12	9	0	18	38	2	10	0	3	0	1	0	0	20	1	20	16	172	20%
8:15 AM to 8:30 AM	0	0	41	11	3	0	10	51	1	10	0	0	1	1	0	0	18	0	14	7	148	14%
8:30 AM to 8:45 AM	0	2	48	10	8	0	15	55	3	13	0	3	1	1	0	0	26	1	15	7	180	16%
8:45 AM to 9:00 AM	1	1	38	11	4	1	16	42	1	5	0	0	1	0	0	0	20	0	16	7	148	11%
9:00 AM to 9:15 AM	0	2	48	11	13	0	12	49	2	6	0	1	2	1	0	0	24	0	17	9	169	17%
9:15 AM to 9:30 AM	0	0	54	10	6	1	18	46	1	12	0	0	1	1	0	0	22	1	19	10	174	16%
9:30 AM to 9:45 AM	1	0	41	14	11	0	22	37	1	9	0	2	1	1	0	0	13	1	7	3	141	16%
9:45 AM to 10:00 AM	0	0	36	10	9	1	20	36	0	13	0	0	1	0	0	0	21	2	8	6	135	21%
10:00 AM to 10:15 AM	1	0	43	15	8	0	17	39	2	8	0	0	1	0	0	0	24	0	13	6	155	14%
10:15 AM to 10:30 AM	0	1	50	11	13	0	12	36	5	8	0	2	3	1	0	0	19	2	15	9	157	19%
10:30 AM to 10:45 AM	0	0	42	11	5	0	20	41	0	13	0	2	0	4	0	0	12	0	16	8	148	18%
10:45 AM to 11:00 AM	0	1	53	10	10	0	15	33	3	9	0	0	2	0	0	0	16	0	15	8	148	18%
11:00 AM to 11:15 AM	1	0	39	8	5	0	27	52	6	13	0	2	1	0	0	0	22	1	18	8	177	15%
11:15 AM to 11:30 AM	0	2	41	9	9	1	24	41	1	11	0	2	0	0	0	0	16	0	20	16	157	23%
11:30 AM to 11:45 AM	0	1	60	13	8	0	23	48	2	14	0	1	2	3	0	0	12	0	9	1	174	13%
11:45 AM to 12:00 PM	1	1	53	11	8	0	21	44	2	15	0	1	1	0	0	0	33	1	14	15	183	21%
12:00 PM to 12:15 PM	0	0	54	16	10	1	21	43	2	15	0	2	1	3	1	0	18	1	13	7	175	19%
12:15 PM to 12:30 PM	0	0	59	14	7	0	26	36	5	12	0	1	1	1	0	0	18	0	16	5	177	14%
12:30 PM to 12:45 PM	1	3	45	11	5	0	30	52	3	19	0	0	3	1	0	0	23	2	16	7	190	16%
12:45 PM to 1:00 PM	0	1	55	14	8	0	46	45	1	16	0	1	1	2	0	0	23	0	25	17	214	19%
1:00 PM to 1:15 PM	1	1	58	9	5	1	34	46	1	15	0	1	2	0	1	0	21	1	20	7	196	14%
1:15 PM to 1:30 PM	0	1	55	22	13	0	18	60	0	20	0	3	2	4	1	0	24	0	15	5	204	19%
1:30 PM to 1:45 PM	1	0	51	8	3	0	24	65	1	23	0	0	0	2	0	0	20	0	27	12	199	19%
1:45 PM to 2:00 PM	2	2	64	11	8	1	24	59	2	18	0	1	1	2	0	0	14	0	31	16	214	20%
2:00 PM to 2:15 PM	2	0	61	18	8	0	21	46	3	13	0	0	3	0	0	0	33	2	20	11	209	15%
2:15 PM to 2:30 PM	1	2	62	16	8	0	23	70	1	20	0	1	2	3	0	0	29	1	30	18	241	19%
2:30 PM to 2:45 PM	0	0	79	7	4	0	37	102	0	28	0	0	0	1	1	0	64	1	18	11	309	14%
2:45 PM to 3:00 PM	2	2	90	12	6	0	32	99	1	22	0	0	0	2	0	0	48	2	29	8	319	11%
3:00 PM to 3:15 PM	0	0	64	22	5	1	37	107	1	16	0	3	0	1	0	0	41	0	21	8	298	10%
3:15 PM to 3:30 PM	1	2	74	24	9	0	26	75	2	14	0	3	0	3	0	0	23	1	17	4	251	11%
3:30 PM to 3:45 PM	0	0	79	20	6	0	21	90	2	15	0	2	0	1	1	0	38	3	19	2	275	9%
3:45 PM to 4:00 PM	1	2	69	31	10	1	22	95	1	16	0	0	1	2	0	0	50	1	15	6	291	11%
4:00 PM to 4:15 PM	0	0	65	15	5	0	26	81	0	12	0	0	0	2	0	0	27	0	15	6	231	10%
4:15 PM to 4:30 PM	0	1	84	24	9	0	25	68	2	10	0	1	3	1	0	0	32	1	20	7	262	10%
4:30 PM to 4:45 PM	0	0	69	23	11	0	18	77	1	11	0	0	0	0	0	0	37	1	23	5	249	11%
4:45 PM to 5:00 PM	0	0	92	28	4	0	20	88	1	9	0	1	1	1	0	0	40	0	15	3	287	6%
5:00 PM to 5:15 PM	0	1	64	26	8	0	27	72	0	9	0	1	0	2	0	0	29	1	28	5	251	9%
5:15 PM to 5:30 PM	1	1	73	23	6	1	29	83	0	20	0	0	0	1	0	0	25	1	10	1	248	11%
5:30 PM to 5:45 PM	1	0	59	28	3	0	19	82	0	11	0	0	0	0	0	0	29	0	21	3	239	7%
5:45 PM to 6:00 PM	1	0	88	19	2	0	19	93	4	10	0	1	0	0	0	0	14	1	13	4	253	6%
6:00 PM to 6:15 PM	0	1	67	28	2	0	15	61	1	4	0	1	1	0	0	0	26	0	20	2	221	4%
6:15 PM to 6:30 PM	0	0	52	24	5	0	22	55	1	7	0	2	0	1	0	0	22	0	17	3	196	8%
6:30 PM to 6:45 PM	0	0	61	23	4	1	20	57	1	9	0	1	0	1	0	0	26	0	11	1	202	7%
6:45 PM to 7:00 PM	1	0	34	15	3	0	19	48	1	6	0	2	0	0	0	0	17	0	12	0	149	6%
7:00 PM to 7:15 PM	0	1	59	13	3	0	10	51	0	5	0	0	0	0	0	0	20	0	10	1	164	5%
7:15 PM to 7:30 PM	1	0	62	18	5	0	9	57	3	4	0	0	0	0	0	0	15	0	6	0	171	5%
7:30 PM to 7:45 PM	0	0	47	12	1	0	6	54	2	4	0	0	1	1	0	0	4	0	13	0	140	4%
7:45 PM to 8:00 PM	0	3	72	16	4	0	19	55	0	4	0	3	1	0	0	0	10	0	10	1	189	5%
8:00 PM to 8:15 PM	1	1	52	14	5	0	10	39	1	9	0	2	0	0	0	0	19	0	8	0	147	10%
8:15 PM to 8:30 PM	1	0	49	12	0	0	12	45	1	8	0	1	0	0	0	0	21	0	8	0	150	5%
8:30 PM to 8:45 PM	0	0	38	10	4	0	9	52	0	7	0	1	1	1	0	0	24	2	10	2	148	9%
8:45 PM to 9:00 PM	0	0	49	13	4	1	4	34	0	2	0	1	0	0	0	0	7	0	8	1	117	6%
9:00 PM to 9:15 PM	0	0	48	9	4	1	7	47	0	7	0	0	0	0	0	0	13	0	8	0	133	8%
9:15 PM to 9:30 PM	0	0	35	7	3	0	5	32	0	4	0	0	0	1	0	0	7	0	12	0	99	7%
9:30 PM to 9:45 PM	1	1	43	6	8	0	6	30	0	2	0	0	0	1	0	0	9	0	3	0	100	10%
9:45 PM to 10:00 PM	0	0	34	9	3	0	8	26	0	3	0	0	0	1	0	0	9	0	9	2	96	8%
10:00 PM to 10:15 PM	0	0	17	10	3	0	8	22	0	2	0	0	0	0	0	0	8	0	12	0	77	6%
10:15 PM to 10:30 PM	0	0	18	11	7	1	10	24	0	4	0	0	0	0	0	0	6	0	16	1	86	14%
10:30 PM to 10:45 PM	0	0	30	8	4	0	15	27	0	5	0	0	0	0	0	0	3	0	12	1	95	11%
10:45 PM to 11:00 PM	0	0	22	5	2	0	6	15	0	3	0	0	1	1	0	0	5	0	4	0	59	8%
11:00 PM to 11:15 PM	0	0	27	4	5	0	7	17	0	5	0	0	0	0	0	0	6	0	4	0	65	15%
11:15 PM to 11:30 PM	0	0	11	7	3	2	4	23	0	6	0	0	0	0	0	0	4	0	3	0	54	17%
11:30 PM to 11:45 PM	0	0	12	2	3	0	10	25	0	4	0	0	0	0	0	0	6	0	1	1	56	14%
11:45 PM to 12:00 AM	0	0	9	3	1	0	4	22	0	1	0	0	0	0	0	0	13	0	3	5	54	13%
DAILY TOTALS	**25**	**53**	**4391**	**1204**	**547**	**19**	**1375**	**4041**	**92**	**775**	**0**	**66**	**54**	**69**	**6**	**0**	**1637**	**40**	**1308**	**472**	**14374**	**13%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
5:00 AM to 6:00 AM	0	2	325	126	30	0	39	161	1	9	0	1	0	0	0	0	65	0	87	34	807	9%	0.89
2:30 PM to 3:30 PM	3	4	307	65	24	1	132	383	4	80	0	6	0	7	1	0	176	4	85	31	1177	12%	0.92

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION SR 33 / 13th Street (Firebaugh)
LATITUDE 36.856181
COUNTY Fresno
LONGITUDE -120.4553657
COLLECTION DATE Tuesday, July 30, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	5	0	8
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	8	2	0	14
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	6
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	8
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	1	0	7
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
10:15 AM to 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	6
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	8
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	6	0	13
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
11:45 AM to 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	0	9
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	9
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	5
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2	0	7
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0	6
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM to 8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
8:30 PM to 8:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**4**	**125**	**55**	**1**	**210**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
5:00 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	0	8

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Vehicles)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION SR 33 / 13th Street (Firebaugh)
COUNTY Fresno
COLLECTION DATE Wednesday, September 11, 2024

LATITUDE 36.856181
LONGITUDE -120.4553657
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	5	0	1	0	2	11	0	0	0	0	0	1	0	0	3	0	3	3	25	16%
12:15 AM to 12:30 AM	0	0	6	2	5	0	5	1	0	3	0	0	0	0	0	0	5	0	2	2	21	48%
12:30 AM to 12:45 AM	0	0	7	0	1	0	1	6	0	0	0	0	0	0	0	0	1	0	2	2	17	18%
12:45 AM to 1:00 AM	0	0	2	2	0	0	1	2	1	1	0	2	0	0	0	0	0	0	1	0	11	9%
1:00 AM to 1:15 AM	0	0	3	3	3	0	1	4	0	1	0	0	0	0	0	0	4	0	3	4	18	44%
1:15 AM to 1:30 AM	0	0	3	0	1	0	4	6	0	1	0	0	0	0	0	0	0	0	3	2	16	25%
1:30 AM to 1:45 AM	0	0	4	1	2	0	1	3	0	0	0	0	0	0	0	0	0	0	1	1	10	30%
1:45 AM to 2:00 AM	0	0	2	2	2	0	3	2	0	3	0	0	0	0	0	0	2	0	1	1	12	50%
2:00 AM to 2:15 AM	0	0	2	1	1	0	5	7	0	6	0	0	0	0	0	0	5	0	0	3	20	50%
2:15 AM to 2:30 AM	0	0	3	1	0	0	1	5	0	2	0	0	0	0	0	0	0	0	2	1	12	25%
2:30 AM to 2:45 AM	0	0	4	0	2	0	2	2	0	2	0	0	0	0	0	0	2	0	0	1	10	50%
2:45 AM to 3:00 AM	0	0	7	0	1	0	2	3	0	0	0	0	0	0	0	0	1	0	2	2	15	20%
3:00 AM to 3:15 AM	0	0	14	3	3	0	4	7	0	2	0	0	0	0	0	0	1	0	2	1	31	19%
3:15 AM to 3:30 AM	0	0	15	1	2	0	6	7	0	0	0	0	0	0	0	0	2	0	0	0	31	6%
3:30 AM to 3:45 AM	0	0	13	2	5	0	2	6	0	2	0	0	0	0	0	0	2	0	3	2	28	32%
3:45 AM to 4:00 AM	0	0	16	2	8	0	1	6	0	0	0	0	0	0	0	0	3	0	1	0	29	28%
4:00 AM to 4:15 AM	0	0	19	5	4	0	3	11	0	2	0	0	0	0	0	0	5	0	3	2	46	17%
4:15 AM to 4:30 AM	0	0	15	10	4	0	5	22	0	4	0	0	0	0	0	0	4	0	3	2	59	17%
4:30 AM to 4:45 AM	0	0	37	17	6	1	4	21	0	3	0	0	0	0	0	0	6	0	3	2	89	12%
4:45 AM to 5:00 AM	0	0	41	11	4	0	3	32	0	4	0	0	0	0	0	0	7	1	4	3	99	11%
5:00 AM to 5:15 AM	0	1	62	16	3	0	12	34	0	3	0	1	1	0	0	0	22	1	5	6	155	8%
5:15 AM to 5:30 AM	0	0	101	39	8	0	14	51	0	5	0	0	0	0	0	0	35	0	16	2	256	6%
5:30 AM to 5:45 AM	0	0	122	63	6	0	8	40	0	1	0	0	0	0	0	0	22	0	15	1	270	3%
5:45 AM to 6:00 AM	0	1	52	24	9	0	9	36	1	5	0	0	1	0	0	0	18	2	23	4	167	11%
6:00 AM to 6:15 AM	0	0	79	27	10	0	14	34	0	6	0	0	1	0	0	0	16	0	12	4	183	11%
6:15 AM to 6:30 AM	0	3	62	47	14	0	12	43	2	4	0	0	2	0	0	0	26	3	15	6	215	11%
6:30 AM to 6:45 AM	0	0	71	31	11	0	14	40	0	6	0	0	0	1	0	0	27	1	13	3	198	10%
6:45 AM to 7:00 AM	1	1	27	16	8	0	18	47	2	11	0	1	1	2	0	0	21	0	15	8	152	18%
7:00 AM to 7:15 AM	0	1	42	17	11	0	25	52	3	20	0	1	1	2	0	0	17	2	17	6	180	21%
7:15 AM to 7:30 AM	0	1	26	21	7	0	22	109	1	11	0	1	1	1	0	0	38	1	14	11	236	12%
7:30 AM to 7:45 AM	0	1	72	34	3	0	22	154	2	15	0	3	6	0	0	0	49	0	10	4	353	6%
7:45 AM to 8:00 AM	0	0	92	14	3	0	23	89	3	8	0	0	2	2	0	0	35	0	17	14	277	9%
8:00 AM to 8:15 AM	0	1	76	10	9	0	15	48	3	8	0	1	0	0	0	0	20	0	16	8	190	13%
8:15 AM to 8:30 AM	0	5	56	12	4	0	15	33	0	9	0	1	0	0	0	0	18	1	21	16	162	18%
8:30 AM to 8:45 AM	0	2	44	14	12	0	21	40	2	13	0	2	1	1	0	0	18	0	13	8	158	21%
8:45 AM to 9:00 AM	0	1	34	11	9	0	22	35	4	17	0	1	5	1	0	0	18	1	16	7	149	22%
9:00 AM to 9:15 AM	0	2	36	13	2	0	20	37	4	6	0	2	4	0	0	0	26	1	12	7	157	10%
9:15 AM to 9:30 AM	0	1	35	18	10	1	13	44	0	4	0	1	4	1	1	0	7	1	19	12	145	19%
9:30 AM to 9:45 AM	0	2	38	18	7	0	20	26	1	14	0	2	1	1	0	0	22	1	27	17	159	24%
9:45 AM to 10:00 AM	0	0	33	10	3	0	14	31	3	10	0	0	1	1	0	0	18	1	18	11	130	18%
10:00 AM to 10:15 AM	0	3	46	13	4	2	22	38	2	15	0	3	1	2	1	0	15	0	15	9	162	18%
10:15 AM to 10:30 AM	0	0	32	11	5	0	14	38	1	5	0	1	1	1	1	0	15	1	18	13	133	18%
10:30 AM to 10:45 AM	0	0	14	5	2	1	19	56	2	17	0	1	1	0	0	0	23	0	23	14	145	23%
10:45 AM to 11:00 AM	0	1	44	17	12	0	19	29	3	10	0	0	0	2	0	0	14	0	17	9	146	21%
11:00 AM to 11:15 AM	0	1	48	19	4	1	25	39	2	15	0	2	0	1	0	0	19	1	19	13	177	18%
11:15 AM to 11:30 AM	0	2	39	15	7	0	18	28	1	12	0	0	0	1	0	0	18	0	17	8	139	19%
11:30 AM to 11:45 AM	0	0	52	17	7	0	18	38	2	13	0	0	3	1	1	0	15	1	14	8	161	18%
11:45 AM to 12:00 PM	0	1	40	21	10	1	20	46	3	19	0	2	0	2	0	0	19	1	22	9	178	21%
12:00 PM to 12:15 PM	0	1	43	24	8	1	22	50	2	14	0	1	2	2	1	0	21	2	16	13	187	19%
12:15 PM to 12:30 PM	0	2	54	26	11	0	22	40	3	13	0	0	1	0	0	0	29	0	13	7	190	16%
12:30 PM to 12:45 PM	0	0	31	9	3	0	16	56	0	11	0	3	1	3	0	0	26	2	17	13	164	16%
12:45 PM to 1:00 PM	0	0	47	15	6	1	20	45	1	10	0	0	0	2	0	0	25	1	16	11	173	16%
1:00 PM to 1:15 PM	0	0	45	18	9	1	33	37	3	21	0	1	1	0	0	0	30	0	23	16	192	24%
1:15 PM to 1:30 PM	0	1	42	16	7	0	20	58	1	16	0	0	2	1	2	0	21	0	15	10	177	20%
1:30 PM to 1:45 PM	0	0	59	24	10	0	23	62	1	16	0	1	2	0	0	0	13	0	15	8	200	17%
1:45 PM to 2:00 PM	0	1	27	11	6	0	21	57	3	12	0	2	1	0	0	0	42	1	22	19	188	20%
2:00 PM to 2:15 PM	0	0	52	16	13	0	26	84	0	17	0	0	2	2	0	0	28	2	19	16	231	20%
2:15 PM to 2:30 PM	0	2	77	17	13	0	28	59	1	22	0	0	2	4	0	0	24	3	19	10	236	19%
2:30 PM to 2:45 PM	0	1	56	17	13	0	27	46	3	20	0	0	1	1	0	0	29	0	22	14	203	23%
2:45 PM to 3:00 PM	1	0	39	11	2	0	30	69	2	18	0	1	0	1	0	0	38	1	24	14	217	16%
3:00 PM to 3:15 PM	0	2	44	17	7	0	17	75	0	19	0	2	1	1	0	0	34	0	25	21	218	22%
3:15 PM to 3:30 PM	0	5	60	30	13	1	30	69	2	6	0	3	0	3	1	0	27	1	16	13	247	13%
3:30 PM to 3:45 PM	0	1	56	28	0	0	29	74	1	16	0	1	2	2	0	0	42	0	21	16	257	12%
3:45 PM to 4:00 PM	0	0	77	35	11	0	33	78	2	21	0	0	0	2	0	0	43	1	16	12	287	15%
4:00 PM to 4:15 PM	1	0	84	26	13	0	33	83	4	23	0	3	3	1	0	0	32	0	23	9	293	15%
4:15 PM to 4:30 PM	0	0	42	23	3	1	31	99	1	21	0	0	0	0	0	0	36	0	15	11	248	14%
4:30 PM to 4:45 PM	1	1	92	26	8	0	26	94	1	18	0	1	1	1	0	0	58	1	20	14	323	12%
4:45 PM to 5:00 PM	0	1	82	33	5	1	34	74	1	19	0	0	1	0	0	0	50	1	21	12	299	12%
5:00 PM to 5:15 PM	0	0	64	16	2	0	37	95	1	22	0	2	1	0	0	0	41	2	22	3	281	10%
5:15 PM to 5:30 PM	0	1	105	32	13	1	27	64	0	17	0	2	1	1	0	0	42	0	18	11	294	14%
5:30 PM to 5:45 PM	0	2	113	40	11	0	21	82	1	16	0	1	0	0	0	0	25	0	19	7	304	11%
5:45 PM to 6:00 PM	0	0	64	16	5	0	30	92	1	19	0	0	1	3	0	0	65	3	14	7	289	11%
6:00 PM to 6:15 PM	1	0	80	36	7	1	21	76	0	16	0	1	1	1	0	0	41	1	17	7	277	11%
6:15 PM to 6:30 PM	0	1	101	36	9	0	18	55	4	10	0	2	0	3	0	0	40	0	20	4	280	8%
6:30 PM to 6:45 PM	0	3	71	22	5	0	32	64	2	15	0	1	0	3	0	0	27	1	18	5	244	10%
6:45 PM to 7:00 PM	0	1	65	18	3	0	13	78	1	8	0	1	0	1	0	0	22	0	17	9	217	9%
7:00 PM to 7:15 PM	0	3	72	14	1	0	10	64	1	5	0	1	0	1	0	0	28	1	12	6	207	6%
7:15 PM to 7:30 PM	0	1	55	14	1	0	13	59	0	12	0	0	1	2	0	0	58	0	24	11	227	11%
7:30 PM to 7:45 PM	0	2	72	23	10	0	16	67	2	15	0	0	0	1	0	0	27	2	12	4	224	13%
7:45 PM to 8:00 PM	0	1	71	16	9	0	14	55	0	2	0	3	3	2	0	1	16	1	14	4	197	8%
8:00 PM to 8:15 PM	0	1	61	14	3	0	10	60	2	3	0	0	0	3	0	0	22	0	14	6	187	6%
8:15 PM to 8:30 PM	1	2	65	11	5	0	6	56	2	5	0	1	1	3	0	0	24	0	14	9	186	10%
8:30 PM to 8:45 PM	0	1	60	14	2	0	3	57	0	2	0	0	1	4	0	0	23	0	16	7	179	6%
8:45 PM to 9:00 PM	2	0	67	17	5	2	12	74	2	2	0	2	0	0	0	0	21	0	11	5	210	6%
9:00 PM to 9:15 PM	0	0	81	11	3	0	10	48	1	5	0	0	0	0	0	0	12	0	9	4	172	7%
9:15 PM to 9:30 PM	1	0	37	6	1	0	7	27	3	4	0	1	0	0	0	0	8	0	6	0	96	5%
9:30 PM to 9:45 PM	0	1	31	10	2	0	9	36	0	9	0	2	1	1	0	0	6	0	6	2	103	13%
9:45 PM to 10:00 PM	0	0	24	5	5	0	5	20	0	2	0	0	0	0	0	0	4	0	7	3	65	15%
10:00 PM to 10:15 PM	1	0	20	3	3	0	7	18	0	4	0	0	0	2	0	0	6	0	4	1	61	13%
10:15 PM to 10:30 PM	0	0	25	3	3	0	6	15	0	4	0	0	0	0	0	0	12	0	9	4	70	16%
10:30 PM to 10:45 PM	0	0	31	6	3	0	8	23	0	4	0	0	0	0	0	0	8	0	8	3	84	12%
10:45 PM to 11:00 PM	0	0	15	3	3	0	6	18	0	2	0	2	0	0	0	0	4	0	5	4	53	17%
11:00 PM to 11:15 PM	0	0	6	2	0	0	5	15	0	3	0	0	0	0	0	0	4	0	6	2	38	13%
11:15 PM to 11:30 PM	0	0	13	2	3	0	7	15	0	4	0	0	0	0	0	0	2	0	6	5	45	27%
11:30 PM to 11:45 PM	0	0	6	0	1	0	7	22	0	2	0	0	0	0	0	0	1	0	5	2	41	12%
11:45 PM to 12:00 AM	0	0	7	1	3	0	2	9	0	1	0	0	0	0	0	0	1	0	2	2	22	27%
DAILY TOTALS	**10**	**69**	**4284**	**1449**	**537**	**17**	**1427**	**4172**	**103**	**864**	**0**	**69**	**72**	**81**	**8**	**1**	**1902**	**48**	**1211**	**668**	**14915**	**14%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
7:15 AM to 8:15 AM	0	3	266	79	22	0	82	400	9	42	0	5	9	3	0	0	142	1	57	37	1056	10%	0.75
4:30 PM to 5:30 PM	1	3	343	107	28	2	124	327	3	76	0	5	4	2	0	0	191	4	81	40	1197	12%	0.93

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION SR 33 / 13th Street (Firebaugh) **LATITUDE** 36.856181
COUNTY Fresno **LONGITUDE** -120.4553657
COLLECTION DATE Wednesday, September 11, 2024 **WEATHER** Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7	0	10
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	6
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	6	0	10
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	0	9
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	8	0	10
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	8
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	0	8
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	0	8
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	6
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	0	9
10:15 AM to 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	0	7
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	3	0	9
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	4	0	8
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3	0	6
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	5	0	9
11:45 AM to 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	1	9	5	0	18
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7	0	0	10
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12	1	0	15
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	5
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	7
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	3	0	8
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	12	0	4	0	0	16
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	5
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	4
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	0	0	5
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
6:15 PM to 6:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	1	3
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:45 PM to 8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 PM to 8:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
8:30 PM to 8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**19**	**147**	**102**	**3**	**298**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
7:15 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	10	17	0	31
4:30 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	1	9	0	0	12

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
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Panoche Road (Mendota)
COUNTY Fresno
COLLECTION DATE Tuesday, July 30, 2024

LATITUDE 36.7313258
LONGITUDE -120.3590153
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	0	0	0	0	7	0	0	1	0	0	0	0	0	0	0	0	4	0	11	9%
12:15 AM to 12:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	11	0	14	0%
12:30 AM to 12:45 AM	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	9	1	12	17%
12:45 AM to 1:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	4	1	7	14%
1:00 AM to 1:15 AM	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0	0	4	0	9	11%
1:15 AM to 1:30 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	10	0	16	0%
1:30 AM to 1:45 AM	0	0	0	0	0	0	3	0	0	1	0	0	2	0	1	0	0	2	7	4	14	43%
1:45 AM to 2:00 AM	0	0	0	0	0	0	3	0	0	1	0	0	1	0	1	0	0	4	9	1	17	18%
2:00 AM to 2:15 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	5	1	9	11%
2:15 AM to 2:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	7	2	11	18%
2:30 AM to 2:45 AM	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0	2	4	1	10	20%
2:45 AM to 3:00 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	10	3	15	20%
3:00 AM to 3:15 AM	0	0	0	0	0	0	6	0	0	1	0	0	0	0	0	0	0	2	9	5	17	35%
3:15 AM to 3:30 AM	0	0	0	0	0	0	6	0	0	1	0	0	1	0	0	0	0	0	13	5	20	30%
3:30 AM to 3:45 AM	0	0	0	0	0	0	13	0	0	0	0	1	1	0	0	0	0	3	8	2	26	8%
3:45 AM to 4:00 AM	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	11	25	5	49	10%
4:00 AM to 4:15 AM	0	0	0	0	0	0	14	0	0	1	0	0	3	0	1	0	0	46	40	6	103	8%
4:15 AM to 4:30 AM	0	0	0	0	0	0	24	0	0	1	0	0	0	0	0	0	0	34	35	7	93	9%
4:30 AM to 4:45 AM	0	0	0	0	0	0	22	0	0	1	0	0	1	0	0	0	0	16	30	8	69	13%
4:45 AM to 5:00 AM	0	0	0	0	0	0	30	0	0	1	0	0	0	0	0	0	0	6	39	3	75	5%
5:00 AM to 5:15 AM	0	0	0	0	0	0	48	0	0	2	0	0	2	0	0	0	0	12	42	4	104	6%
5:15 AM to 5:30 AM	0	0	0	0	0	0	26	0	1	0	0	0	3	0	0	0	0	28	43	4	101	4%
5:30 AM to 5:45 AM	0	0	0	0	0	0	41	0	0	3	0	0	4	0	0	0	0	34	53	11	132	11%
5:45 AM to 6:00 AM	0	0	0	0	0	0	37	0	0	2	0	0	5	0	0	0	0	33	54	8	129	8%
6:00 AM to 6:15 AM	0	0	0	0	0	0	37	0	0	5	0	0	4	0	1	0	0	21	46	7	108	12%
6:15 AM to 6:30 AM	0	0	0	0	0	0	38	0	0	4	0	0	7	0	1	0	0	11	51	5	107	9%
6:30 AM to 6:45 AM	0	0	0	0	0	0	55	0	0	5	0	0	3	0	1	0	0	18	54	10	130	12%
6:45 AM to 7:00 AM	0	0	0	0	0	0	46	0	0	6	0	0	1	0	0	0	0	16	41	7	104	13%
7:00 AM to 7:15 AM	0	0	0	0	0	0	56	0	0	2	0	0	5	0	2	0	0	15	41	6	117	9%
7:15 AM to 7:30 AM	0	0	0	0	0	0	58	0	0	3	0	0	4	0	1	0	0	5	32	6	99	10%
7:30 AM to 7:45 AM	0	0	0	0	0	0	68	0	0	6	0	0	2	0	0	0	0	15	44	2	129	6%
7:45 AM to 8:00 AM	0	0	0	0	0	0	55	0	0	3	0	0	1	0	0	0	0	14	46	6	116	8%
8:00 AM to 8:15 AM	0	0	0	0	0	0	56	0	0	4	0	0	3	0	0	0	0	19	54	6	132	8%
8:15 AM to 8:30 AM	0	0	0	0	0	0	50	0	0	6	0	0	4	0	0	0	0	9	31	7	94	14%
8:30 AM to 8:45 AM	0	0	0	0	0	0	51	0	0	6	0	0	7	0	4	0	0	6	62	10	126	16%
8:45 AM to 9:00 AM	0	0	0	0	0	0	39	0	0	5	0	0	2	0	1	0	0	8	64	12	113	16%
9:00 AM to 9:15 AM	0	0	0	0	0	0	48	0	0	4	0	0	8	0	3	0	0	6	47	13	109	18%
9:15 AM to 9:30 AM	0	0	0	0	0	0	61	0	0	8	0	0	9	0	3	0	0	11	32	9	113	18%
9:30 AM to 9:45 AM	0	0	0	0	0	0	54	0	0	5	0	0	2	0	1	0	0	16	37	8	109	13%
9:45 AM to 10:00 AM	0	0	0	0	0	0	43	0	0	2	0	0	6	0	1	0	0	8	35	10	92	14%
10:00 AM to 10:15 AM	0	0	0	0	0	0	45	0	0	1	0	0	10	0	2	0	0	5	32	7	92	11%
10:15 AM to 10:30 AM	0	0	0	0	0	0	56	0	0	9	0	0	6	0	0	0	0	5	38	5	105	13%
10:30 AM to 10:45 AM	0	0	0	0	0	0	54	0	0	3	0	0	3	0	1	0	0	11	31	8	99	12%
10:45 AM to 11:00 AM	0	0	0	0	0	0	42	0	0	11	0	0	10	0	1	0	0	5	45	4	102	16%
11:00 AM to 11:15 AM	0	0	0	0	0	0	37	0	0	3	0	0	6	0	1	0	0	4	53	9	100	13%
11:15 AM to 11:30 AM	0	0	0	0	0	0	69	0	0	10	0	0	7	0	0	0	0	11	40	8	127	14%
11:30 AM to 11:45 AM	0	0	0	0	0	0	33	0	0	1	1	0	11	0	5	0	0	6	41	9	92	16%
11:45 AM to 12:00 PM	0	0	0	0	0	0	34	0	0	3	0	0	5	0	2	0	0	8	43	8	90	14%
12:00 PM to 12:15 PM	0	0	0	0	0	0	41	0	0	6	0	0	13	0	6	0	0	6	45	7	105	18%
12:15 PM to 12:30 PM	0	0	0	0	0	0	57	0	0	7	0	0	9	0	3	0	0	6	37	9	109	17%
12:30 PM to 12:45 PM	0	0	0	0	0	0	58	0	0	6	0	1	28	0	4	0	0	3	46	8	136	13%
12:45 PM to 1:00 PM	0	0	0	0	0	0	68	0	0	7	0	0	52	0	2	0	0	5	44	6	169	9%
1:00 PM to 1:15 PM	0	0	0	0	0	0	65	0	0	8	0	0	43	0	2	0	0	5	38	6	151	11%
1:15 PM to 1:30 PM	0	0	0	0	0	0	56	0	0	6	0	0	12	0	1	0	0	6	53	6	127	10%
1:30 PM to 1:45 PM	0	0	0	0	0	0	58	0	0	8	0	0	20	0	2	0	0	9	49	12	136	16%
1:45 PM to 2:00 PM	0	0	0	0	0	0	53	0	0	10	0	0	11	0	2	0	0	6	52	8	122	16%
2:00 PM to 2:15 PM	0	0	0	0	0	0	74	0	0	6	0	0	17	0	0	0	0	7	54	9	152	10%
2:15 PM to 2:30 PM	0	0	0	0	0	0	78	0	0	7	0	0	19	0	3	0	0	2	61	6	160	10%
2:30 PM to 2:45 PM	0	0	0	0	0	0	69	0	0	8	0	1	12	0	4	0	0	4	61	3	147	10%
2:45 PM to 3:00 PM	0	0	0	0	0	0	79	0	0	4	0	0	18	0	0	0	0	9	69	8	175	7%
3:00 PM to 3:15 PM	0	0	0	0	0	0	95	0	0	11	0	0	20	0	3	0	0	6	63	3	184	9%
3:15 PM to 3:30 PM	0	0	0	0	0	0	92	0	0	6	0	0	26	0	3	0	0	6	70	5	194	7%
3:30 PM to 3:45 PM	0	0	0	0	0	0	56	0	0	4	0	1	29	0	2	0	0	2	62	4	150	7%
3:45 PM to 4:00 PM	0	0	0	0	0	0	46	0	1	4	0	0	17	0	2	0	0	2	67	4	133	8%
4:00 PM to 4:15 PM	0	0	0	0	0	0	92	0	0	10	0	0	16	0	0	0	0	4	63	9	175	11%
4:15 PM to 4:30 PM	0	0	0	0	0	0	63	0	0	4	0	0	13	0	0	0	0	2	70	6	148	7%
4:30 PM to 4:45 PM	0	0	0	0	0	0	61	0	0	9	0	0	27	0	1	0	0	1	73	5	162	9%
4:45 PM to 5:00 PM	0	0	0	0	0	0	78	0	0	7	0	0	17	0	1	0	0	2	68	4	165	7%
5:00 PM to 5:15 PM	0	0	0	0	0	0	71	0	0	6	0	0	8	0	3	0	0	3	84	8	166	10%
5:15 PM to 5:30 PM	0	0	0	0	0	0	58	0	0	1	0	0	8	0	3	0	0	0	76	5	142	6%
5:30 PM to 5:45 PM	0	0	0	0	0	0	59	0	0	3	0	0	5	0	1	0	0	3	88	6	155	6%
5:45 PM to 6:00 PM	0	0	0	0	0	0	63	0	0	8	0	0	6	0	2	0	0	5	56	3	130	10%
6:00 PM to 6:15 PM	0	0	0	0	0	0	57	0	0	3	0	0	6	0	2	0	0	3	65	3	131	6%
6:15 PM to 6:30 PM	0	0	0	0	0	0	48	0	0	2	0	0	8	0	0	0	0	4	59	1	119	3%
6:30 PM to 6:45 PM	0	0	0	0	0	0	46	0	0	4	0	0	6	0	1	0	0	0	53	2	105	7%
6:45 PM to 7:00 PM	0	0	0	0	0	0	32	0	0	2	0	0	5	0	2	0	0	1	48	1	86	6%
7:00 PM to 7:15 PM	0	0	0	0	0	0	25	0	0	2	0	0	4	0	1	0	0	3	42	2	74	7%
7:15 PM to 7:30 PM	0	0	0	0	0	0	50	0	0	2	0	0	6	0	2	0	0	3	36	0	95	4%
7:30 PM to 7:45 PM	0	0	0	0	0	0	21	0	0	3	0	0	3	0	2	0	0	3	37	2	64	11%
7:45 PM to 8:00 PM	0	0	0	0	0	0	23	0	0	3	0	0	5	0	2	0	0	3	39	1	70	9%
8:00 PM to 8:15 PM	0	0	0	0	0	0	33	0	0	4	0	0	1	0	0	0	0	2	42	1	78	6%
8:15 PM to 8:30 PM	0	0	0	0	0	0	17	0	0	1	0	0	1	0	1	0	0	0	37	1	55	5%
8:30 PM to 8:45 PM	0	0	0	0	0	0	29	0	0	4	0	0	5	0	1	0	0	1	48	4	83	11%
8:45 PM to 9:00 PM	0	0	0	0	0	0	34	0	0	1	0	0	2	0	0	0	0	4	36	0	76	1%
9:00 PM to 9:15 PM	0	0	0	0	0	0	25	0	0	0	0	0	1	0	0	0	0	4	37	4	67	6%
9:15 PM to 9:30 PM	0	0	0	0	0	0	22	0	0	2	0	0	1	0	0	0	0	1	30	1	54	6%
9:30 PM to 9:45 PM	0	0	0	0	0	0	14	0	0	1	0	0	2	0	0	0	0	4	32	1	52	4%
9:45 PM to 10:00 PM	0	0	0	0	0	0	14	0	0	0	0	0	5	0	1	0	0	3	22	0	44	2%
10:00 PM to 10:15 PM	0	0	0	0	0	0	16	0	0	1	0	0	11	0	1	0	0	0	33	1	60	5%
10:15 PM to 10:30 PM	0	0	0	0	0	0	17	0	0	0	0	0	3	0	0	0	0	1	27	2	48	4%
10:30 PM to 10:45 PM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	1	23	0	31	0%
10:45 PM to 11:00 PM	0	0	0	0	0	0	12	0	0	2	0	0	1	0	0	0	0	1	11	1	25	12%
11:00 PM to 11:15 PM	0	0	0	0	0	0	15	0	0	1	0	0	0	0	0	0	0	0	17	0	32	3%
11:15 PM to 11:30 PM	0	0	0	0	0	0	15	0	0	2	0	0	0	0	0	0	0	2	34	1	51	6%
11:30 PM to 11:45 PM	0	0	0	0	0	0	15	0	0	2	0	0	0	0	0	0	0	1	23	1	39	8%
11:45 PM to 12:00 AM	0	0	0	0	0	0	10	0	0	1	0	0	1	0	1	0	0	0	16	1	27	11%
DAILY TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**3699**	**0**	**2**	**333**	**1**	**4**	**673**	**0**	**101**	**0**	**0**	**637**	**3811**	**445**	**8827**	**10%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
5:30 AM to 6:30 AM	0	0	0	0	0	0	153	0	0	14	0	0	20	0	2	0	0	99	204	31	476	10%	0.90
2:45 PM to 3:45 PM	0	0	0	0	0	0	322	0	0	25	0	1	93	0	8	0	0	23	264	20	703	8%	0.91

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Panoche Road (Mendota)
LATITUDE 36.7313258
COUNTY Fresno
LONGITUDE -120.3590153
COLLECTION DATE Tuesday, July 30, 2024
WEATHER Clear

Time			Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM	to	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	to	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	to	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	to	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	to	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	to	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	to	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	to	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	to	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	to	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	to	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	to	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	to	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	to	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	to	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	to	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	to	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	to	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	to	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	to	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	to	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	to	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	to	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	to	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	to	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	to	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	to	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	to	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	to	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	to	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	to	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	to	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	to	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	to	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	to	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	to	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	to	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	to	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	to	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	to	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	to	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	to	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	to	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	to	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	to	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	to	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	to	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	to	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	to	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	to	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	to	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	to	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	to	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	to	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	to	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	to	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	to	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	to	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	to	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	to	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	to	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	to	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	to	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	to	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	to	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	to	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	to	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	to	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	to	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	to	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	to	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	to	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	to	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	to	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	to	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	to	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	to	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	to	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	to	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	to	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	to	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	to	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	to	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	to	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	to	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	to	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	to	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	to	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	to	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	to	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEAK HOUR			Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
5:30 AM	to	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	to	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Panoche Road (Mendota)
COUNTY Fresno
COLLECTION DATE Wednesday, September 11, 2024

LATITUDE 36.7313258
LONGITUDE -120.3590153
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	0	0	0	0	4	0	0	1	0	0	2	0	0	0	0	1	7	2	14	21%
12:15 AM to 12:30 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	1	6	0	12	0%
12:30 AM to 12:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	5	0%
12:45 AM to 1:00 AM	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	1	4	1	9	11%
1:00 AM to 1:15 AM	0	0	0	0	0	0	4	0	0	0	0	0	1	0	1	0	0	0	6	1	11	18%
1:15 AM to 1:30 AM	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0	0	4	1	8	25%
1:30 AM to 1:45 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	2	4	1	11	9%
1:45 AM to 2:00 AM	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0	0	8	0	13	8%
2:00 AM to 2:15 AM	0	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0	0	7	0	13	0%
2:15 AM to 2:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	2	0	5	0%
2:30 AM to 2:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	8	1	11	9%
2:45 AM to 3:00 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	9	0	13	0%
3:00 AM to 3:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	2	0	0	1	3	0	7	29%
3:15 AM to 3:30 AM	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	3	10	2	25	8%
3:30 AM to 3:45 AM	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	4	8	5	27	19%
3:45 AM to 4:00 AM	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0	2	14	4	20	25%
4:00 AM to 4:15 AM	0	0	0	0	0	0	8	0	0	0	0	0	1	0	0	0	0	7	16	7	32	22%
4:15 AM to 4:30 AM	0	0	0	0	0	0	24	0	0	1	0	0	0	0	0	0	0	4	17	3	45	9%
4:30 AM to 4:45 AM	0	0	0	0	0	0	27	0	0	5	0	0	1	0	0	0	0	4	13	1	45	13%
4:45 AM to 5:00 AM	0	0	0	0	0	0	24	0	0	1	0	0	2	0	0	0	0	5	26	2	57	5%
5:00 AM to 5:15 AM	0	0	0	0	0	0	48	0	0	8	0	0	0	0	0	0	0	11	45	13	104	20%
5:15 AM to 5:30 AM	0	0	0	0	0	0	41	0	0	1	0	0	6	0	0	0	0	25	43	5	115	5%
5:30 AM to 5:45 AM	0	0	0	0	0	0	89	0	0	7	0	0	3	0	2	0	0	43	44	7	179	9%
5:45 AM to 6:00 AM	0	0	0	0	0	0	42	0	0	3	0	0	6	0	0	0	0	31	55	14	134	13%
6:00 AM to 6:15 AM	0	0	0	0	0	0	53	0	0	4	0	0	6	0	3	0	0	20	38	9	117	14%
6:15 AM to 6:30 AM	0	0	0	0	0	0	54	0	0	5	0	0	13	0	1	0	0	24	50	5	141	8%
6:30 AM to 6:45 AM	0	0	0	0	0	0	55	0	0	4	0	0	5	0	1	0	0	13	59	7	132	9%
6:45 AM to 7:00 AM	0	0	0	0	0	0	57	0	0	5	0	0	3	0	1	0	0	15	67	10	142	11%
7:00 AM to 7:15 AM	0	0	0	0	0	0	49	0	0	3	0	0	6	0	3	0	0	14	51	6	120	10%
7:15 AM to 7:30 AM	0	0	0	0	0	0	54	0	0	8	0	0	4	0	1	0	0	14	82	10	154	12%
7:30 AM to 7:45 AM	0	0	0	0	0	0	74	0	0	8	0	0	4	0	1	0	0	6	110	9	194	9%
7:45 AM to 8:00 AM	0	0	0	0	0	0	61	0	0	2	0	0	5	0	2	0	0	21	100	13	187	9%
8:00 AM to 8:15 AM	0	0	0	0	0	0	72	0	0	6	0	0	7	0	4	0	0	12	35	5	126	12%
8:15 AM to 8:30 AM	0	0	0	0	0	0	59	0	0	3	0	0	7	0	3	0	0	11	50	15	127	17%
8:30 AM to 8:45 AM	0	0	0	0	0	0	47	0	0	3	0	0	4	0	3	0	0	11	45	9	107	14%
8:45 AM to 9:00 AM	0	0	0	0	0	0	58	0	0	7	0	0	6	0	2	0	0	8	42	6	114	13%
9:00 AM to 9:15 AM	0	0	0	0	0	0	57	0	0	6	0	0	9	0	5	0	0	10	42	11	118	19%
9:15 AM to 9:30 AM	0	0	0	0	0	0	48	0	0	4	0	0	0	0	0	0	0	14	34	7	96	11%
9:30 AM to 9:45 AM	0	0	0	0	0	0	45	0	0	4	0	0	4	0	2	0	0	11	55	13	115	17%
9:45 AM to 10:00 AM	0	0	0	0	0	0	48	0	0	6	0	0	5	0	2	0	0	10	41	12	104	19%
10:00 AM to 10:15 AM	0	0	0	0	0	0	28	0	0	2	0	0	5	0	2	0	0	7	34	10	74	19%
10:15 AM to 10:30 AM	0	0	0	0	0	0	46	0	0	4	0	0	5	0	3	0	0	7	39	7	97	14%
10:30 AM to 10:45 AM	0	0	0	0	0	0	46	0	0	9	0	0	7	0	3	0	0	5	39	5	97	18%
10:45 AM to 11:00 AM	0	0	0	0	0	0	37	0	0	5	0	0	3	0	2	0	0	11	44	13	95	21%
11:00 AM to 11:15 AM	0	0	0	0	0	0	48	0	0	4	0	0	12	0	3	0	0	9	52	13	121	17%
11:15 AM to 11:30 AM	0	0	0	0	0	0	45	0	0	6	0	0	10	0	4	0	0	10	39	15	104	24%
11:30 AM to 11:45 AM	0	0	0	0	0	0	49	0	0	6	0	0	13	0	7	0	0	3	33	9	98	22%
11:45 AM to 12:00 PM	0	0	0	0	0	0	53	0	0	14	0	0	4	0	1	0	0	14	52	13	123	23%
12:00 PM to 12:15 PM	0	0	0	0	0	0	47	0	0	3	0	0	11	0	4	0	0	5	42	7	105	13%
12:15 PM to 12:30 PM	0	0	0	0	0	0	44	0	0	6	0	0	4	0	1	0	0	5	50	5	103	12%
12:30 PM to 12:45 PM	0	0	0	0	0	0	37	0	0	7	0	0	8	0	1	0	0	5	36	6	86	16%
12:45 PM to 1:00 PM	0	0	0	0	0	0	39	0	0	8	0	0	5	0	4	0	0	7	48	7	99	19%
1:00 PM to 1:15 PM	0	0	0	0	0	0	49	0	0	7	0	0	11	0	1	0	0	5	54	9	119	14%
1:15 PM to 1:30 PM	0	0	0	0	0	0	50	0	0	6	0	0	10	0	3	0	0	10	52	7	122	13%
1:30 PM to 1:45 PM	0	0	0	0	0	0	60	0	0	9	0	0	8	0	2	0	0	13	60	15	141	18%
1:45 PM to 2:00 PM	0	0	0	0	0	0	51	0	0	8	0	0	13	0	2	0	0	9	48	13	121	19%
2:00 PM to 2:15 PM	0	0	0	0	0	0	81	0	0	10	0	0	35	0	8	0	0	5	52	9	173	16%
2:15 PM to 2:30 PM	0	0	0	0	0	0	76	0	0	12	0	0	18	0	4	0	0	6	54	7	154	15%
2:30 PM to 2:45 PM	0	0	0	0	0	0	88	0	2	15	0	1	18	0	2	0	0	15	11	4	135	16%
2:45 PM to 3:00 PM	0	0	0	0	0	0	50	0	2	5	0	0	9	0	4	0	0	21	48	13	130	17%
3:00 PM to 3:15 PM	0	0	0	0	0	2	55	0	4	5	0	0	18	0	5	0	0	18	58	10	155	13%
3:15 PM to 3:30 PM	0	0	0	0	0	0	72	0	1	0	0	1	24	0	7	0	0	13	94	13	205	10%
3:30 PM to 3:45 PM	0	0	0	0	0	0	106	0	0	8	0	0	28	0	2	0	0	7	110	14	251	10%
3:45 PM to 4:00 PM	0	0	0	0	0	0	70	0	0	5	0	0	13	0	1	0	0	4	72	12	159	11%
4:00 PM to 4:15 PM	0	0	0	0	0	0	93	0	0	11	0	0	26	0	2	0	0	5	74	10	198	12%
4:15 PM to 4:30 PM	0	0	0	0	0	0	91	0	0	16	0	0	17	0	2	0	0	4	74	6	186	13%
4:30 PM to 4:45 PM	0	0	0	0	0	0	70	0	0	6	0	1	16	0	3	0	0	4	58	5	149	9%
4:45 PM to 5:00 PM	0	0	0	0	0	0	85	0	0	9	0	0	12	0	3	0	0	3	77	6	177	10%
5:00 PM to 5:15 PM	0	0	0	0	0	0	80	0	0	10	0	0	9	0	2	0	0	4	66	4	159	10%
5:15 PM to 5:30 PM	0	0	0	0	0	0	82	0	0	6	0	0	13	0	7	0	0	2	90	2	187	8%
5:30 PM to 5:45 PM	0	0	0	0	0	0	87	0	0	9	0	0	15	0	3	0	0	10	78	5	190	9%
5:45 PM to 6:00 PM	0	0	0	0	0	0	70	0	0	2	0	0	16	0	2	0	0	4	68	9	158	8%
6:00 PM to 6:15 PM	0	0	0	0	0	0	74	0	0	7	0	0	13	0	1	0	0	0	102	6	189	7%
6:15 PM to 6:30 PM	0	0	0	0	0	0	64	0	0	8	0	0	14	0	4	0	0	5	56	1	139	9%
6:30 PM to 6:45 PM	0	0	0	0	0	0	43	0	0	2	0	0	7	0	0	0	0	6	81	3	137	4%
6:45 PM to 7:00 PM	0	0	0	0	0	0	29	0	0	4	0	0	10	0	2	0	0	5	68	6	112	11%
7:00 PM to 7:15 PM	0	0	0	0	0	0	39	0	0	1	0	0	6	0	1	0	0	2	61	1	108	3%
7:15 PM to 7:30 PM	0	0	0	0	0	0	51	0	0	5	0	0	6	0	2	0	0	3	64	7	124	11%
7:30 PM to 7:45 PM	0	0	0	0	0	0	39	0	0	1	0	0	3	0	0	0	0	3	52	3	97	4%
7:45 PM to 8:00 PM	0	0	0	0	0	0	32	0	0	2	0	0	6	0	1	0	0	5	51	3	94	6%
8:00 PM to 8:15 PM	0	0	0	0	0	0	42	0	0	2	0	0	5	0	2	0	0	1	59	3	107	7%
8:15 PM to 8:30 PM	0	0	0	0	0	0	35	0	0	1	0	0	4	0	1	0	0	2	47	3	88	6%
8:30 PM to 8:45 PM	0	0	0	0	0	0	31	0	0	4	0	0	7	0	4	0	0	1	44	7	83	18%
8:45 PM to 9:00 PM	0	0	0	0	0	0	23	0	0	0	0	0	2	0	0	0	0	1	35	0	61	0%
9:00 PM to 9:15 PM	0	0	0	0	0	0	29	0	0	1	0	0	1	0	0	0	0	5	66	3	101	4%
9:15 PM to 9:30 PM	0	0	0	0	0	0	28	0	0	0	0	0	1	0	1	0	0	3	34	2	66	5%
9:30 PM to 9:45 PM	0	0	0	0	0	0	19	0	0	1	0	0	1	0	1	0	0	2	32	1	54	6%
9:45 PM to 10:00 PM	0	0	0	0	0	0	28	0	0	2	0	0	7	0	0	0	0	3	21	2	59	7%
10:00 PM to 10:15 PM	0	0	0	0	0	0	15	0	0	1	0	0	12	0	2	0	0	2	30	2	59	8%
10:15 PM to 10:30 PM	0	0	0	0	0	0	19	0	0	2	0	0	4	0	1	0	0	0	27	0	50	6%
10:30 PM to 10:45 PM	0	0	0	0	0	0	5	0	0	0	0	0	3	0	2	0	0	0	16	0	24	8%
10:45 PM to 11:00 PM	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	11	0	24	0%
11:00 PM to 11:15 PM	0	0	0	0	0	0	6	0	0	1	0	0	2	0	0	0	0	1	11	0	20	5%
11:15 PM to 11:30 PM	0	0	0	0	0	0	13	0	0	1	0	0	0	0	0	0	0	0	7	0	20	5%
11:30 PM to 11:45 PM	0	0	0	0	0	0	7	0	0	1	0	0	2	0	0	0	0	0	9	1	18	11%
11:45 PM to 12:00 AM	0	0	0	0	0	0	9	0	0	0	0	0	1	0	1	0	0	2	9	1	21	10%
DAILY TOTALS	**0**	**0**	**0**	**0**	**0**	**2**	**3945**	**0**	**9**	**388**	**0**	**3**	**649**	**0**	**165**	**0**	**0**	**664**	**4063**	**555**	**9335**	**12%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
7:15 AM to 8:15 AM	0	0	0	0	0	0	261	0	0	24	0	0	20	0	8	0	0	53	327	37	661	10%	0.85
3:15 PM to 4:15 PM	0	0	0	0	0	0	341	0	1	24	0	1	91	0	12	0	0	29	350	49	813	10%	0.81

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Panoche Road (Mendota)
LATITUDE 36.7313258
COUNTY Fresno
LONGITUDE -120.3590153
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM to 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM to 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM to 8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM to 8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
7:15 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Madera Avenue (SR 145)
LATITUDE 36.734939
COUNTY Fresno
LONGITUDE -120.0601715
COLLECTION DATE Tuesday, July 30, 2024
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	1	6	5	2	0	4	4	3	3	0	1	10	6	3	0	1	11	2	0	54	15%
12:15 AM to 12:30 AM	0	0	1	2	0	0	6	9	4	3	0	1	11	6	3	0	1	14	0	4	55	18%
12:30 AM to 12:45 AM	0	3	6	1	1	0	1	3	0	1	0	0	9	0	2	0	1	16	2	1	42	12%
12:45 AM to 1:00 AM	0	0	4	1	2	0	2	5	2	0	0	1	4	1	2	0	3	7	0	0	30	13%
1:00 AM to 1:15 AM	0	0	4	2	0	0	0	2	0	2	0	1	7	2	0	0	1	15	0	2	34	12%
1:15 AM to 1:30 AM	0	0	5	0	1	0	1	0	1	0	0	1	7	1	3	0	3	6	1	1	26	19%
1:30 AM to 1:45 AM	0	4	5	3	0	0	0	5	0	0	0	0	6	0	1	0	1	5	0	1	29	7%
1:45 AM to 2:00 AM	0	2	8	3	1	0	0	1	0	0	0	3	5	2	1	0	0	4	1	1	29	10%
2:00 AM to 2:15 AM	0	1	2	0	0	0	2	3	0	1	0	0	8	1	2	0	0	9	0	2	26	19%
2:15 AM to 2:30 AM	0	0	3	2	1	0	1	5	0	3	0	0	3	1	0	0	2	8	0	2	25	24%
2:30 AM to 2:45 AM	0	4	6	0	2	0	0	11	1	3	0	0	9	1	1	0	1	5	5	0	43	14%
2:45 AM to 3:00 AM	0	3	2	2	3	0	1	9	0	4	0	1	8	0	2	0	1	6	2	3	35	34%
3:00 AM to 3:15 AM	0	1	4	2	3	0	0	7	1	3	0	2	12	0	1	0	1	8	1	6	39	33%
3:15 AM to 3:30 AM	0	3	2	2	0	0	1	19	4	2	0	1	13	5	2	0	1	12	1	3	64	11%
3:30 AM to 3:45 AM	0	7	3	2	3	0	2	31	5	1	0	5	16	2	2	0	2	25	3	4	103	10%
3:45 AM to 4:00 AM	0	12	7	3	6	0	1	33	4	1	0	1	11	6	2	0	3	53	4	5	138	10%
4:00 AM to 4:15 AM	0	8	9	6	5	0	5	17	2	1	0	7	15	2	0	0	1	60	4	4	136	7%
4:15 AM to 4:30 AM	0	5	18	4	12	0	2	25	4	2	0	9	31	3	2	0	5	37	4	5	147	14%
4:30 AM to 4:45 AM	0	9	13	8	3	0	6	41	3	0	0	6	31	3	3	0	4	33	6	9	163	9%
4:45 AM to 5:00 AM	0	5	15	8	4	0	5	57	4	2	0	13	30	5	2	0	4	49	5	5	200	7%
5:00 AM to 5:15 AM	0	15	26	11	7	0	1	55	3	5	0	10	25	2	2	0	6	57	7	5	218	9%
5:15 AM to 5:30 AM	0	15	30	9	2	0	7	65	8	5	0	11	47	13	3	0	5	98	6	7	314	5%
5:30 AM to 5:45 AM	0	8	30	5	4	0	7	60	6	7	0	9	45	5	2	0	21	81	7	6	284	7%
5:45 AM to 6:00 AM	0	13	23	12	4	0	4	28	10	10	0	7	53	4	1	0	5	65	4	3	228	8%
6:00 AM to 6:15 AM	0	13	19	8	5	0	4	21	4	1	0	2	60	3	1	0	5	51	12	10	202	8%
6:15 AM to 6:30 AM	0	8	23	15	3	0	4	40	3	8	0	11	64	6	5	0	7	56	11	11	248	11%
6:30 AM to 6:45 AM	0	7	16	4	2	0	11	41	4	7	0	9	69	10	6	0	9	61	8	9	249	10%
6:45 AM to 7:00 AM	0	11	24	9	1	0	15	46	10	11	0	13	91	10	7	0	10	68	11	8	318	8%
7:00 AM to 7:15 AM	0	6	24	15	5	0	18	34	7	8	1	12	81	9	6	0	14	66	5	12	292	11%
7:15 AM to 7:30 AM	0	15	26	16	2	0	11	31	10	8	0	16	102	14	3	0	6	52	9	7	308	6%
7:30 AM to 7:45 AM	0	10	29	9	6	0	17	37	11	9	0	19	96	10	2	0	14	61	8	12	321	9%
7:45 AM to 8:00 AM	0	21	27	18	4	0	23	45	12	10	0	24	92	13	6	0	23	75	6	10	379	8%
8:00 AM to 8:15 AM	0	15	29	18	9	0	19	49	6	5	0	15	78	13	5	0	21	45	8	10	316	9%
8:15 AM to 8:30 AM	1	10	41	13	10	0	15	52	8	7	0	14	89	15	4	0	25	70	14	5	367	7%
8:30 AM to 8:45 AM	0	23	32	32	10	0	9	39	11	6	0	22	76	13	5	0	25	59	9	7	350	8%
8:45 AM to 9:00 AM	1	13	34	18	7	0	26	42	11	8	0	17	74	22	9	0	22	68	13	10	361	9%
9:00 AM to 9:15 AM	1	20	27	27	7	0	21	40	8	9	0	18	75	17	7	0	16	53	8	11	331	10%
9:15 AM to 9:30 AM	0	10	46	27	4	0	17	39	12	7	0	15	71	14	10	1	15	52	9	7	328	9%
9:30 AM to 9:45 AM	2	18	30	22	5	0	18	61	11	10	0	17	84	19	5	0	20	62	11	11	375	8%
9:45 AM to 10:00 AM	2	22	45	30	4	0	14	43	12	8	0	11	94	18	10	0	17	51	20	4	379	7%
10:00 AM to 10:15 AM	3	35	79	67	10	0	27	35	13	7	0	10	86	11	6	0	29	59	11	6	465	6%
10:15 AM to 10:30 AM	0	24	37	38	7	0	19	48	10	5	0	14	77	14	3	0	18	64	11	7	374	6%
10:30 AM to 10:45 AM	1	25	38	21	6	0	22	45	7	6	0	10	71	18	10	0	18	54	17	6	347	8%
10:45 AM to 11:00 AM	0	21	57	23	12	0	28	51	12	6	0	18	78	25	4	0	21	76	11	7	421	7%
11:00 AM to 11:15 AM	1	22	46	37	4	0	24	51	19	10	0	14	81	16	10	0	28	76	14	12	429	8%
11:15 AM to 11:30 AM	2	25	43	35	7	0	25	42	15	14	0	14	68	9	8	0	18	66	15	9	377	10%
11:30 AM to 11:45 AM	0	24	54	34	8	0	27	52	17	11	0	18	96	22	6	0	37	77	18	5	476	6%
11:45 AM to 12:00 PM	1	20	51	38	6	0	26	43	18	7	0	14	75	21	8	0	22	60	13	5	402	6%
12:00 PM to 12:15 PM	1	32	54	44	11	0	27	42	16	12	0	24	68	14	9	1	21	59	15	6	418	9%
12:15 PM to 12:30 PM	0	32	37	37	8	0	25	54	18	5	0	10	99	14	10	0	20	86	11	5	443	6%
12:30 PM to 12:45 PM	0	24	42	25	9	0	31	58	20	8	0	14	86	16	7	0	25	75	18	6	434	7%
12:45 PM to 1:00 PM	2	24	50	35	5	0	23	43	17	3	0	20	87	15	8	0	32	75	13	8	436	6%
1:00 PM to 1:15 PM	1	30	50	19	6	0	23	41	14	6	0	17	108	15	7	0	20	61	22	10	421	7%
1:15 PM to 1:30 PM	3	26	43	29	5	0	33	42	11	4	0	17	130	19	9	0	31	75	9	11	468	6%
1:30 PM to 1:45 PM	2	24	57	20	3	0	35	66	14	13	0	22	90	21	5	1	29	70	7	6	458	6%
1:45 PM to 2:00 PM	0	28	41	38	1	0	36	55	16	5	0	13	87	23	9	1	30	103	16	15	487	6%
2:00 PM to 2:15 PM	0	23	71	34	3	0	21	57	15	6	0	23	94	16	5	0	23	86	19	9	482	5%
2:15 PM to 2:30 PM	0	27	88	31	7	0	23	67	18	11	0	27	101	18	11	0	27	68	22	5	517	7%
2:30 PM to 2:45 PM	1	39	92	24	10	0	26	62	21	7	0	23	96	23	14	0	29	64	11	5	511	7%
2:45 PM to 3:00 PM	2	33	81	39	5	0	36	62	18	5	0	17	112	12	8	0	21	92	17	2	542	4%
3:00 PM to 3:15 PM	5	21	56	25	5	0	40	46	20	6	0	16	96	17	9	0	29	101	21	6	493	5%
3:15 PM to 3:30 PM	2	34	73	31	5	0	27	65	21	8	0	19	86	18	9	0	23	93	14	2	506	5%
3:30 PM to 3:45 PM	1	23	87	38	7	0	29	58	15	5	0	8	124	23	10	0	34	85	15	6	540	5%
3:45 PM to 4:00 PM	0	28	65	25	3	0	32	56	20	6	0	18	108	24	4	0	27	94	15	8	512	4%
4:00 PM to 4:15 PM	0	27	51	30	3	0	32	49	26	7	0	21	98	18	3	0	24	93	16	3	485	3%
4:15 PM to 4:30 PM	3	26	59	31	5	0	32	60	26	3	0	8	102	14	5	0	32	107	14	4	514	3%
4:30 PM to 4:45 PM	2	23	65	25	2	0	23	50	22	1	0	29	111	21	3	0	22	120	11	5	524	2%
4:45 PM to 5:00 PM	1	32	60	25	5	0	38	44	23	2	0	18	109	8	7	0	13	98	20	3	489	3%
5:00 PM to 5:15 PM	1	34	71	30	2	0	35	51	33	3	0	27	96	16	5	0	26	131	13	0	564	2%
5:15 PM to 5:30 PM	0	21	47	22	2	0	29	50	29	4	0	19	100	13	5	0	23	139	20	4	512	3%
5:30 PM to 5:45 PM	1	31	38	26	4	0	36	55	29	4	0	15	83	7	5	0	20	111	12	2	464	3%
5:45 PM to 6:00 PM	2	19	39	21	0	0	31	42	24	2	0	23	112	18	3	0	20	101	11	3	463	2%
6:00 PM to 6:15 PM	0	15	27	16	1	0	21	42	16	0	0	5	95	8	5	0	27	119	13	3	404	2%
6:15 PM to 6:30 PM	0	23	39	22	2	0	34	28	23	0	0	18	86	15	9	0	26	99	13	1	426	3%
6:30 PM to 6:45 PM	4	20	42	20	5	0	24	42	19	5	0	13	77	11	2	0	25	100	8	2	405	3%
6:45 PM to 7:00 PM	0	21	40	17	3	0	24	29	25	1	0	18	79	13	4	0	20	91	18	1	395	2%
7:00 PM to 7:15 PM	2	18	22	21	0	0	14	32	9	4	0	19	53	17	1	0	18	70	12	4	307	3%
7:15 PM to 7:30 PM	2	14	20	13	0	0	29	28	15	1	0	13	65	13	3	0	18	70	9	2	309	2%
7:30 PM to 7:45 PM	0	21	33	22	0	0	19	34	11	2	0	8	60	16	0	0	14	90	14	3	342	1%
7:45 PM to 8:00 PM	1	15	26	15	0	0	18	35	16	2	0	10	53	11	7	0	17	65	7	0	289	3%
8:00 PM to 8:15 PM	0	17	11	15	2	0	25	39	19	7	0	15	68	11	5	0	15	79	11	3	325	5%
8:15 PM to 8:30 PM	0	14	24	17	0	0	20	40	25	6	0	11	57	12	1	0	19	68	12	1	319	3%
8:30 PM to 8:45 PM	0	23	17	12	2	0	28	31	20	1	0	11	56	13	0	0	22	70	10	2	313	2%
8:45 PM to 9:00 PM	0	22	20	18	3	0	14	23	19	0	0	7	51	12	4	0	19	71	13	0	289	2%
9:00 PM to 9:15 PM	3	8	13	19	2	0	11	21	14	4	0	14	52	11	0	0	11	59	1	2	237	3%
9:15 PM to 9:30 PM	0	17	21	15	0	0	13	16	13	1	0	6	64	13	1	0	11	59	9	2	257	2%
9:30 PM to 9:45 PM	0	21	19	9	1	0	14	11	14	4	0	8	47	12	1	0	5	51	6	3	217	4%
9:45 PM to 10:00 PM	0	22	7	6	1	0	11	13	12	0	0	6	32	2	3	0	6	54	7	0	178	2%
10:00 PM to 10:15 PM	0	11	9	5	1	0	9	13	6	0	0	3	37	9	1	0	5	41	5	1	153	2%
10:15 PM to 10:30 PM	0	10	11	8	1	0	9	15	10	1	0	1	41	4	1	0	9	41	1	0	160	2%
10:30 PM to 10:45 PM	0	13	17	4	3	0	4	8	7	0	0	3	34	5	1	0	7	40	6	1	148	3%
10:45 PM to 11:00 PM	0	9	7	2	2	0	8	7	7	0	0	5	16	6	0	0	17	36	1	2	121	3%
11:00 PM to 11:15 PM	0	7	19	4	2	0	6	8	9	3	0	3	19	6	1	0	8	32	0	4	121	8%
11:15 PM to 11:30 PM	0	5	19	6	2	0	4	13	7	7	0	5	16	4	2	0	4	21	0	1	104	12%
11:30 PM to 11:45 PM	0	6	14	2	0	0	2	10	3	0	0	0	18	3	1	0	2	24	0	2	84	4%
11:45 PM to 12:00 AM	0	4	11	4	1	0	3	5	3	0	0	3	11	4	1	0	5	17	1	0	71	3%
DAILY TOTALS	**57**	**1554**	**3014**	**1663**	**360**	**0**	**1586**	**3340**	**1124**	**432**	**1**	**1090**	**5914**	**1047**	**412**	**4**	**1444**	**5820**	**876**	**454**	**28534**	**6%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
11:30 AM to 12:30 PM	2	108	196	153	33	0	105	191	69	35	0	66	338	71	33	1	100	282	57	21	1739	7%	0.91
4:15 PM to 5:15 PM	7	115	255	111	14	0	128	205	104	9	0	82	418	59	20	0	93	456	58	12	2091	3%	0.93

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

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

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Madera Avenue (SR 145)
LATITUDE 36.734939

COUNTY Fresno
LONGITUDE -120.0601715

COLLECTION DATE Tuesday, July 30, 2024
WEATHER Clear

Time			Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM	to	12:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
12:15 AM	to	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	to	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	to	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	to	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	to	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	to	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	to	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	to	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	to	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	to	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	to	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	to	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	to	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	to	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	to	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	to	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	to	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	to	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 AM	to	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 AM	to	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	to	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	to	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	to	6:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
6:00 AM	to	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	to	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	to	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6:45 AM	to	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:15 AM	to	7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	to	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	to	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	to	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	to	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
8:45 AM	to	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	3
9:00 AM	to	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	0	7
9:15 AM	to	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
9:30 AM	to	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	2	0	6
9:45 AM	to	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	4
10:00 AM	to	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
10:15 AM	to	10:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1
10:30 AM	to	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	to	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11:00 AM	to	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11:15 AM	to	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2	0	5
11:30 AM	to	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
11:45 AM	to	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	to	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
12:15 PM	to	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	to	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
12:45 PM	to	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1:00 PM	to	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1:15 PM	to	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1:30 PM	to	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1:45 PM	to	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2:00 PM	to	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	to	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2:30 PM	to	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2	0	5
2:45 PM	to	3:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1	2
3:00 PM	to	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3:15 PM	to	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3:30 PM	to	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	to	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	to	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	1	0	6
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	to	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3
5:15 PM	to	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
5:30 PM	to	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	to	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
6:00 PM	to	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	to	6:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
6:30 PM	to	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	5
6:45 PM	to	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	to	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	to	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	to	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
7:45 PM	to	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 PM	to	8:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2
8:15 PM	to	8:30 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0
8:30 PM	to	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	3	0	7
8:45 PM	to	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
9:00 PM	to	9:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	2
9:15 PM	to	9:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	2
9:30 PM	to	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	to	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	to	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10:15 PM	to	10:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1
10:30 PM	to	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10:45 PM	to	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:00 PM	to	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	to	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	to	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	to	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS			0	2	0	1	6	1	0	1	1	0	0	0	17	19	37	34	12	107

PEAK HOUR			Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
11:30 AM	to	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	6
4:15 PM	to	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	1	0	7

Metro Traffic Data Inc.
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Turning Movement Report
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Madera Avenue (SR 145)
LATITUDE 36.734939
COUNTY Fresno
LONGITUDE -120.0601715
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	2	4	1	0	0	0	6	2	1	0	0	11	1	0	0	4	10	2	0	43	2%
12:15 AM to 12:30 AM	0	2	8	0	3	0	3	4	3	0	0	1	10	4	3	0	5	14	0	4	54	19%
12:30 AM to 12:45 AM	0	2	3	4	1	0	0	9	1	0	0	1	9	1	2	0	2	6	0	0	38	8%
12:45 AM to 1:00 AM	0	1	2	4	2	0	0	2	2	0	0	2	5	1	1	0	2	9	0	0	30	10%
1:00 AM to 1:15 AM	0	1	6	0	0	0	1	1	1	1	0	2	3	2	0	0	4	4	0	0	25	4%
1:15 AM to 1:30 AM	0	2	0	3	0	0	1	2	2	1	0	2	4	0	0	0	8	7	2	2	33	9%
1:30 AM to 1:45 AM	0	6	4	2	1	0	0	0	0	0	0	0	4	3	1	0	2	5	0	0	26	8%
1:45 AM to 2:00 AM	0	4	6	4	1	0	0	1	1	0	0	0	8	2	1	0	1	3	2	3	32	16%
2:00 AM to 2:15 AM	0	1	6	1	1	0	1	1	1	0	0	1	3	0	2	0	2	3	0	1	20	20%
2:15 AM to 2:30 AM	0	0	4	0	0	0	0	5	0	3	0	2	3	0	2	0	1	7	0	0	22	23%
2:30 AM to 2:45 AM	0	1	5	1	0	0	1	6	0	4	0	1	5	1	3	0	1	4	0	0	26	27%
2:45 AM to 3:00 AM	0	2	2	3	1	0	1	2	2	1	0	0	4	0	0	0	1	5	0	4	22	27%
3:00 AM to 3:15 AM	0	2	1	2	0	0	1	4	0	1	0	3	8	1	2	0	1	12	0	6	35	26%
3:15 AM to 3:30 AM	0	6	2	2	2	0	2	4	0	1	0	1	10	3	2	0	1	16	0	5	47	21%
3:30 AM to 3:45 AM	0	2	6	1	3	0	4	12	0	3	0	4	11	4	0	0	3	10	0	5	57	19%
3:45 AM to 4:00 AM	0	10	10	2	6	0	2	24	2	2	0	0	11	5	1	0	4	4	3	1	77	13%
4:00 AM to 4:15 AM	0	1	12	3	1	0	2	18	2	4	0	5	13	0	1	0	4	10	2	5	72	15%
4:15 AM to 4:30 AM	0	6	9	6	3	0	3	23	2	13	0	4	25	0	0	0	3	16	0	2	97	19%
4:30 AM to 4:45 AM	0	7	8	8	1	0	4	36	2	9	0	6	21	2	4	0	6	24	5	6	129	16%
4:45 AM to 5:00 AM	0	4	13	5	3	0	3	49	3	11	0	4	21	7	4	0	11	28	4	4	152	14%
5:00 AM to 5:15 AM	0	19	30	8	12	0	1	43	9	9	0	7	24	8	5	0	7	45	6	6	207	15%
5:15 AM to 5:30 AM	0	16	30	7	5	0	7	45	5	9	0	12	43	10	9	0	11	67	5	8	258	12%
5:30 AM to 5:45 AM	0	9	36	8	6	0	8	64	3	4	0	6	59	6	4	0	13	70	1	9	283	8%
5:45 AM to 6:00 AM	0	17	35	9	4	0	5	56	6	9	0	11	64	11	4	0	12	63	3	7	292	8%
6:00 AM to 6:15 AM	0	11	36	10	7	0	8	57	8	6	0	14	50	8	5	0	9	38	5	4	254	9%
6:15 AM to 6:30 AM	0	13	41	19	7	0	13	30	5	4	0	16	78	8	5	0	10	65	8	10	306	8%
6:30 AM to 6:45 AM	0	12	32	12	5	0	14	34	8	8	0	15	83	2	9	0	8	60	4	6	284	10%
6:45 AM to 7:00 AM	1	16	32	10	5	0	11	44	15	6	0	18	77	4	6	0	22	62	8	6	320	7%
7:00 AM to 7:15 AM	0	26	38	12	12	0	14	48	16	10	0	20	119	13	8	0	7	81	7	11	401	10%
7:15 AM to 7:30 AM	0	15	40	14	10	0	10	46	33	8	0	20	128	12	5	0	14	103	6	9	441	7%
7:30 AM to 7:45 AM	0	39	31	19	9	0	18	40	22	10	0	16	97	21	10	0	19	117	6	8	445	8%
7:45 AM to 8:00 AM	0	39	33	13	7	0	16	40	24	4	0	19	118	28	8	0	23	105	9	5	467	5%
8:00 AM to 8:15 AM	0	32	43	34	9	0	21	57	36	10	0	27	117	30	5	0	26	90	7	7	520	6%
8:15 AM to 8:30 AM	0	23	43	34	15	0	31	70	22	19	0	36	128	14	7	0	23	73	12	9	509	10%
8:30 AM to 8:45 AM	1	23	28	30	8	0	18	51	7	10	0	17	96	16	14	0	28	57	4	6	376	10%
8:45 AM to 9:00 AM	0	20	44	19	13	0	11	51	10	8	0	11	87	14	11	0	33	63	9	10	372	11%
9:00 AM to 9:15 AM	0	19	26	18	6	0	15	36	8	9	0	9	82	18	7	0	16	71	11	9	329	9%
9:15 AM to 9:30 AM	1	19	49	26	12	0	21	38	5	9	0	5	93	21	3	0	24	60	12	8	374	9%
9:30 AM to 9:45 AM	1	21	41	28	6	0	30	41	13	8	0	11	72	12	7	0	27	60	16	14	373	9%
9:45 AM to 10:00 AM	1	17	41	27	5	0	23	47	12	11	0	17	75	17	8	0	21	58	16	6	372	8%
10:00 AM to 10:15 AM	1	34	49	43	14	0	23	48	7	8	0	10	88	16	4	0	27	67	14	6	427	7%
10:15 AM to 10:30 AM	1	23	35	33	7	0	22	58	6	10	0	10	101	23	5	0	29	61	13	6	415	7%
10:30 AM to 10:45 AM	0	24	37	32	7	0	29	46	8	10	0	16	66	14	5	0	20	57	8	14	357	10%
10:45 AM to 11:00 AM	1	28	46	14	6	0	26	57	6	9	0	15	70	24	5	0	30	77	14	13	408	8%
11:00 AM to 11:15 AM	0	14	55	30	6	0	21	52	11	12	0	20	71	11	3	0	24	78	7	8	394	7%
11:15 AM to 11:30 AM	0	26	33	37	1	0	25	61	11	14	0	18	77	16	6	0	32	71	17	5	424	6%
11:30 AM to 11:45 AM	1	36	46	17	11	0	29	37	14	4	0	13	76	22	9	0	30	73	10	8	404	8%
11:45 AM to 12:00 PM	0	21	54	38	7	0	25	42	6	4	0	20	77	16	11	0	18	60	13	3	390	6%
12:00 PM to 12:15 PM	1	27	48	42	6	0	29	47	20	8	0	16	99	24	7	0	23	65	14	6	455	6%
12:15 PM to 12:30 PM	1	25	33	40	7	0	24	45	17	8	0	18	85	13	5	0	30	72	10	7	413	7%
12:30 PM to 12:45 PM	1	19	71	22	11	0	18	53	17	10	0	12	73	18	9	0	31	97	17	11	449	9%
12:45 PM to 1:00 PM	1	23	41	31	3	0	26	64	17	15	0	18	93	17	7	0	28	95	14	7	468	7%
1:00 PM to 1:15 PM	1	14	40	27	9	0	23	56	19	6	0	15	71	17	6	0	30	80	11	3	404	6%
1:15 PM to 1:30 PM	1	24	30	22	5	0	23	48	18	7	0	19	89	29	18	1	21	91	14	12	430	10%
1:30 PM to 1:45 PM	2	21	47	29	5	0	26	45	12	4	0	15	77	16	8	0	25	70	15	6	400	6%
1:45 PM to 2:00 PM	1	29	47	23	14	0	23	45	22	4	0	8	75	10	11	0	31	83	15	8	412	9%
2:00 PM to 2:15 PM	0	27	62	25	7	0	31	55	16	8	0	10	101	9	10	0	22	105	13	11	476	8%
2:15 PM to 2:30 PM	0	32	78	32	17	0	21	53	18	9	0	9	105	19	11	0	22	85	19	9	493	9%
2:30 PM to 2:45 PM	2	32	82	31	11	0	31	78	23	10	0	19	93	27	13	0	29	93	14	9	554	8%
2:45 PM to 3:00 PM	1	37	58	39	7	0	32	77	15	10	0	28	110	22	11	0	27	111	9	7	566	6%
3:00 PM to 3:15 PM	1	28	58	33	10	0	27	71	22	10	0	18	102	18	16	1	35	94	14	7	522	8%
3:15 PM to 3:30 PM	2	29	55	19	5	0	28	44	24	11	0	27	97	21	20	0	24	111	18	11	499	9%
3:30 PM to 3:45 PM	0	25	76	42	7	0	24	69	25	14	0	32	144	31	9	0	28	123	14	5	633	6%
3:45 PM to 4:00 PM	5	30	81	30	14	0	29	59	18	12	0	30	121	27	16	0	25	104	12	3	571	8%
4:00 PM to 4:15 PM	1	30	75	31	4	0	29	52	28	9	0	28	128	7	6	0	32	101	16	3	558	4%
4:15 PM to 4:30 PM	1	28	72	29	8	0	32	62	29	9	0	38	128	15	19	0	18	99	18	2	569	7%
4:30 PM to 4:45 PM	0	30	71	38	6	0	33	45	23	7	0	19	116	17	7	0	19	98	15	5	524	5%
4:45 PM to 5:00 PM	0	37	77	15	8	0	38	53	26	4	0	31	116	15	13	0	23	104	14	3	549	5%
5:00 PM to 5:15 PM	3	36	74	28	4	0	39	66	19	2	0	27	116	12	5	0	22	96	16	7	554	3%
5:15 PM to 5:30 PM	0	29	44	23	4	0	32	63	26	8	0	29	95	18	4	0	19	121	24	3	523	4%
5:30 PM to 5:45 PM	0	23	49	28	7	0	31	51	32	4	0	22	84	16	6	0	26	99	17	3	478	4%
5:45 PM to 6:00 PM	1	22	37	21	4	0	32	46	30	4	0	18	120	12	8	0	23	124	14	3	500	4%
6:00 PM to 6:15 PM	2	24	43	16	6	0	26	50	19	1	0	21	105	15	8	0	23	109	24	8	477	5%
6:15 PM to 6:30 PM	0	20	48	11	5	0	34	47	28	3	0	16	90	21	5	1	26	90	23	5	455	4%
6:30 PM to 6:45 PM	2	24	36	24	5	0	27	43	12	5	0	24	87	15	6	0	18	93	11	1	416	4%
6:45 PM to 7:00 PM	0	18	32	16	2	0	24	37	20	3	0	16	86	17	2	0	26	104	18	4	414	3%
7:00 PM to 7:15 PM	0	18	34	23	4	0	34	42	6	2	0	12	73	11	6	0	14	88	17	4	372	4%
7:15 PM to 7:30 PM	4	29	20	15	2	0	30	28	9	3	0	13	80	10	4	0	24	89	3	5	354	4%
7:30 PM to 7:45 PM	0	20	43	19	1	0	19	41	19	3	0	17	74	14	4	0	17	90	10	2	383	3%
7:45 PM to 8:00 PM	0	18	30	19	1	0	28	30	13	4	0	19	63	11	8	0	16	68	11	4	326	5%
8:00 PM to 8:15 PM	0	21	27	22	4	0	23	29	14	0	0	13	73	16	5	0	20	73	8	2	339	3%
8:15 PM to 8:30 PM	1	14	19	13	2	0	31	26	22	5	0	10	52	12	2	0	15	90	16	3	321	4%
8:30 PM to 8:45 PM	0	10	17	9	1	0	17	27	15	1	0	13	44	7	4	0	13	75	16	3	263	3%
8:45 PM to 9:00 PM	0	18	21	19	1	0	15	29	10	3	0	11	60	15	6	0	19	72	11	4	300	5%
9:00 PM to 9:15 PM	0	21	15	10	5	0	14	26	14	1	0	4	55	9	3	0	12	59	5	4	244	5%
9:15 PM to 9:30 PM	0	9	18	11	3	0	14	21	7	3	0	3	40	7	4	0	7	56	4	1	197	6%
9:30 PM to 9:45 PM	0	14	10	9	2	0	11	20	8	2	0	6	22	7	3	0	10	54	5	5	176	7%
9:45 PM to 10:00 PM	0	6	5	4	0	0	7	19	5	4	0	6	29	5	3	0	6	47	3	0	142	5%
10:00 PM to 10:15 PM	0	13	5	5	3	0	7	13	11	2	0	3	28	5	3	0	9	45	3	1	147	6%
10:15 PM to 10:30 PM	0	6	7	5	1	0	7	6	9	1	0	4	36	5	2	0	6	35	2	1	128	4%
10:30 PM to 10:45 PM	0	2	9	3	1	0	5	9	6	1	0	5	16	4	2	0	4	41	5	1	109	5%
10:45 PM to 11:00 PM	0	4	7	2	2	0	4	7	5	1	0	1	19	0	1	0	8	23	4	2	84	7%
11:00 PM to 11:15 PM	0	7	11	4	2	0	4	7	2	2	0	1	15	3	1	0	3	19	2	0	78	6%
11:15 PM to 11:30 PM	0	4	5	0	0	0	2	4	6	2	0	3	11	6	2	0	3	17	4	2	65	9%
11:30 PM to 11:45 PM	1	5	7	3	0	0	2	2	0	0	0	2	12	4	4	0	2	9	1	1	50	10%
11:45 PM to 12:00 AM	0	3	1	1	1	0	3	2	1	0	0	1	9	3	0	0	2	9	0	2	35	9%
DAILY TOTALS	**45**	**1659**	**3071**	**1616**	**488**	**0**	**1593**	**3460**	**1139**	**542**	**0**	**1198**	**6122**	**1104**	**550**	**3**	**1545**	**5925**	**834**	**485**	**29314**	**7%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
7:30 AM to 8:30 AM	**0**	**133**	**150**	**100**	**40**	**0**	**86**	**207**	**104**	**43**	**0**	**98**	**460**	**93**	**30**	**0**	**91**	**385**	**34**	**29**	**1941**	**7%**	**0.93**
3:30 PM to 4:30 PM	**7**	**113**	**304**	**132**	**33**	**0**	**114**	**242**	**100**	**44**	**0**	**128**	**521**	**80**	**50**	**0**	**103**	**427**	**60**	**13**	**2331**	**6%**	**0.92**

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Whitesbridge Road (SR 180) / Madera Avenue (SR 145)
LATITUDE 36.734939
COUNTY Fresno
LONGITUDE -120.0601715
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM to 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
11:45 AM to 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	3	0	0
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM to 3:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	12
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
4:15 PM to 4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:30 PM to 4:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2	0	1	3
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	2	0	7
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
6:30 PM to 6:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	3	2	6
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	4	0	7
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM to 8:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	1	3
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0	0	8
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:30 PM to 8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	1	1	4
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	5
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**0**	**0**	**1**	**4**	**0**	**1**	**2**	**2**	**0**	**1**	**0**	**27**	**25**	**53**	**30**	**11**	**135**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
7:30 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	4	1	0	0	8
3:30 PM to 4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	4	11	0	1	16

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Derrick Avenue (SR 33) / Clarkson Avenue
LATITUDE 36.501477
COUNTY Fresno
LONGITUDE -120.3890854
COLLECTION DATE Tuesday, July 30, 2024
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	6	0	5	0	3	2	0	4	0	0	0	0	0	0	0	0	1	1	12	83%
12:15 AM to 12:30 AM	0	0	3	0	1	0	1	2	0	2	0	0	0	0	0	0	0	0	1	1	7	57%
12:30 AM to 12:45 AM	0	0	3	0	1	0	4	6	0	7	0	0	0	0	0	0	0	0	4	3	17	65%
12:45 AM to 1:00 AM	0	0	0	0	0	0	2	3	0	3	0	0	0	0	0	0	0	0	1	1	6	67%
1:00 AM to 1:15 AM	0	0	3	0	1	0	4	3	0	6	0	0	0	0	0	0	0	0	1	0	11	64%
1:15 AM to 1:30 AM	0	0	3	0	2	0	2	3	0	3	0	0	0	0	0	0	0	0	2	2	10	70%
1:30 AM to 1:45 AM	0	0	3	0	2	0	3	3	0	6	0	0	0	0	0	0	0	0	4	4	13	92%
1:45 AM to 2:00 AM	0	0	1	0	1	0	7	3	0	8	0	0	0	0	0	0	0	0	4	4	15	87%
2:00 AM to 2:15 AM	0	0	3	0	2	0	3	3	0	5	0	0	0	0	0	0	1	0	2	3	12	83%
2:15 AM to 2:30 AM	0	0	4	0	1	0	0	8	0	6	0	0	0	0	0	0	0	0	2	2	14	64%
2:30 AM to 2:45 AM	0	0	3	0	2	0	2	7	0	7	0	0	0	0	0	0	0	0	6	6	18	83%
2:45 AM to 3:00 AM	0	0	7	0	4	0	3	9	0	11	0	0	0	0	0	0	0	0	3	3	22	82%
3:00 AM to 3:15 AM	0	0	2	0	0	0	2	3	0	5	0	0	0	0	0	0	0	0	4	4	11	82%
3:15 AM to 3:30 AM	0	0	3	0	0	0	6	6	0	9	0	0	0	0	0	0	0	0	4	2	19	58%
3:30 AM to 3:45 AM	0	0	3	0	0	0	1	3	0	2	0	0	0	0	0	0	0	0	4	0	11	18%
3:45 AM to 4:00 AM	0	0	4	2	2	0	4	4	0	5	0	0	0	0	0	0	1	0	4	3	19	53%
4:00 AM to 4:15 AM	0	0	7	0	3	0	4	16	0	9	0	0	0	0	0	0	1	0	3	3	31	48%
4:15 AM to 4:30 AM	0	0	7	0	0	0	14	25	0	7	0	0	0	0	0	0	2	0	3	2	51	18%
4:30 AM to 4:45 AM	0	0	7	2	1	0	6	25	0	8	0	0	0	0	0	0	2	0	5	4	47	28%
4:45 AM to 5:00 AM	0	0	7	0	1	0	0	50	0	3	0	0	0	0	0	0	1	0	7	3	65	11%
5:00 AM to 5:15 AM	0	0	23	2	4	0	3	52	0	11	0	0	0	0	0	0	0	0	3	2	83	20%
5:15 AM to 5:30 AM	0	0	31	1	1	0	10	36	0	6	0	0	0	0	0	0	2	0	7	4	87	13%
5:30 AM to 5:45 AM	0	0	27	1	2	0	6	52	0	6	0	0	0	0	0	0	6	0	3	0	95	8%
5:45 AM to 6:00 AM	0	0	18	3	6	0	5	21	0	5	0	0	0	0	0	0	4	0	5	1	56	21%
6:00 AM to 6:15 AM	0	0	9	0	4	0	4	16	0	13	0	0	0	0	0	0	1	0	2	2	32	59%
6:15 AM to 6:30 AM	0	0	8	2	4	0	3	9	0	6	0	0	0	0	0	0	0	0	3	0	25	40%
6:30 AM to 6:45 AM	0	0	12	1	2	0	7	12	0	14	0	0	0	0	0	0	0	0	2	0	34	47%
6:45 AM to 7:00 AM	0	0	7	1	3	0	6	11	0	11	0	0	0	0	0	0	1	0	4	3	30	57%
7:00 AM to 7:15 AM	0	0	7	1	4	0	5	11	0	7	0	0	0	0	1	0	1	0	4	3	29	52%
7:15 AM to 7:30 AM	0	0	15	2	10	0	6	13	0	9	0	0	0	0	0	0	2	0	5	4	43	53%
7:30 AM to 7:45 AM	0	0	13	1	5	0	2	21	0	7	0	0	0	0	0	0	5	0	5	5	47	36%
7:45 AM to 8:00 AM	0	0	8	1	6	0	3	22	0	8	0	0	0	0	0	0	2	0	7	5	43	44%
8:00 AM to 8:15 AM	0	0	15	5	6	0	10	10	0	8	0	0	0	0	0	0	1	0	2	0	43	33%
8:15 AM to 8:30 AM	0	0	15	0	9	0	6	13	0	13	0	0	0	0	0	0	0	0	1	0	35	63%
8:30 AM to 8:45 AM	0	0	10	0	5	0	3	17	0	11	0	0	0	0	0	0	1	0	8	6	39	56%
8:45 AM to 9:00 AM	0	0	18	2	10	0	2	15	0	14	0	0	0	0	0	0	1	0	5	3	43	63%
9:00 AM to 9:15 AM	0	0	13	1	8	0	0	10	0	5	0	0	0	0	0	0	2	0	1	1	27	52%
9:15 AM to 9:30 AM	0	0	12	1	5	0	6	18	0	17	0	0	0	0	0	0	3	0	2	2	42	57%
9:30 AM to 9:45 AM	0	0	16	1	5	0	6	17	0	11	0	0	0	0	0	0	2	0	3	1	45	38%
9:45 AM to 10:00 AM	0	0	13	0	3	0	2	16	0	7	0	0	0	0	0	0	2	0	6	3	39	33%
10:00 AM to 10:15 AM	0	0	12	3	7	0	4	11	0	8	0	0	0	0	0	0	1	0	6	5	37	54%
10:15 AM to 10:30 AM	0	0	9	2	4	0	6	18	0	12	0	0	0	0	0	0	0	0	3	2	38	47%
10:30 AM to 10:45 AM	0	0	13	0	5	0	1	10	0	7	0	0	0	0	0	0	2	0	3	3	29	52%
10:45 AM to 11:00 AM	0	0	12	2	5	0	5	17	0	12	0	0	0	0	0	0	5	0	4	4	45	47%
11:00 AM to 11:15 AM	0	0	21	3	8	0	3	20	0	7	0	0	0	0	0	0	3	0	13	3	63	29%
11:15 AM to 11:30 AM	0	0	20	0	14	0	5	10	0	7	0	0	0	0	0	0	1	0	4	2	40	58%
11:30 AM to 11:45 AM	0	0	14	2	8	0	3	18	0	10	0	0	0	0	0	0	3	0	3	4	43	51%
11:45 AM to 12:00 PM	0	0	15	4	10	0	2	9	0	3	0	0	0	0	0	0	3	0	5	2	38	39%
12:00 PM to 12:15 PM	0	0	13	2	1	0	4	12	0	4	0	0	0	0	0	0	2	0	8	5	41	24%
12:15 PM to 12:30 PM	0	0	17	3	8	0	6	11	0	10	0	0	0	0	0	0	3	0	4	1	44	43%
12:30 PM to 12:45 PM	0	0	21	4	5	0	6	17	0	14	0	0	0	0	0	0	0	0	3	2	51	41%
12:45 PM to 1:00 PM	0	0	25	2	8	0	3	20	0	12	0	0	0	0	0	0	1	0	3	1	54	39%
1:00 PM to 1:15 PM	0	0	18	2	6	0	5	23	0	15	0	0	0	0	0	0	3	0	4	3	55	44%
1:15 PM to 1:30 PM	0	0	13	3	5	0	5	10	0	6	0	0	0	0	0	0	0	0	10	7	41	44%
1:30 PM to 1:45 PM	0	0	14	1	5	0	5	15	0	11	0	0	0	0	0	0	2	0	8	4	45	44%
1:45 PM to 2:00 PM	0	0	23	2	8	0	4	18	0	12	0	0	0	0	0	0	2	0	2	1	51	41%
2:00 PM to 2:15 PM	0	0	25	2	6	0	1	19	0	10	0	0	0	0	0	0	1	0	4	2	52	35%
2:15 PM to 2:30 PM	0	0	31	3	11	0	5	17	0	11	0	0	0	0	0	0	2	0	8	3	66	38%
2:30 PM to 2:45 PM	0	0	38	3	12	0	4	15	0	3	0	0	0	0	0	0	5	0	5	1	70	23%
2:45 PM to 3:00 PM	0	0	31	1	10	0	5	19	0	7	0	0	0	0	0	0	5	0	6	3	67	30%
3:00 PM to 3:15 PM	0	0	28	2	8	0	4	14	0	8	0	0	0	0	0	0	5	0	4	0	57	28%
3:15 PM to 3:30 PM	0	0	21	1	8	0	3	18	0	12	0	0	0	0	0	0	5	0	4	4	52	46%
3:30 PM to 3:45 PM	0	0	23	6	10	0	11	19	0	18	0	0	0	0	0	0	2	0	0	0	61	46%
3:45 PM to 4:00 PM	0	0	18	4	6	0	6	13	0	8	0	0	0	0	0	0	6	0	9	2	56	29%
4:00 PM to 4:15 PM	0	0	32	2	10	0	4	17	0	10	0	0	0	0	0	0	3	0	7	5	65	38%
4:15 PM to 4:30 PM	0	0	26	1	9	0	7	23	0	7	0	0	0	0	0	0	3	0	4	2	64	28%
4:30 PM to 4:45 PM	0	0	35	5	12	0	5	17	0	5	0	0	0	0	0	0	1	0	6	3	69	29%
4:45 PM to 5:00 PM	0	0	9	1	4	0	7	16	0	8	0	0	0	0	0	0	0	0	4	4	37	43%
5:00 PM to 5:15 PM	0	0	16	6	6	0	4	20	0	8	0	0	0	0	0	0	1	0	4	3	51	33%
5:15 PM to 5:30 PM	0	0	23	0	10	0	5	19	0	13	0	0	0	0	0	0	2	0	4	3	53	49%
5:30 PM to 5:45 PM	0	0	13	2	4	0	4	17	0	11	0	0	0	0	0	0	0	0	3	2	39	44%
5:45 PM to 6:00 PM	0	0	13	1	2	0	7	12	0	8	0	0	0	0	0	0	8	0	6	4	47	30%
6:00 PM to 6:15 PM	0	0	18	3	8	0	3	11	0	9	0	0	0	0	0	0	2	0	6	3	43	47%
6:15 PM to 6:30 PM	0	0	19	4	8	0	6	15	0	14	0	0	0	0	0	0	2	0	3	4	49	53%
6:30 PM to 6:45 PM	0	0	13	1	5	0	5	16	0	9	0	0	0	0	0	0	4	0	5	2	44	36%
6:45 PM to 7:00 PM	0	0	11	1	8	0	1	12	0	6	0	0	0	0	0	0	1	0	3	2	29	55%
7:00 PM to 7:15 PM	0	0	13	1	4	0	1	14	0	9	0	0	0	0	0	0	2	0	2	2	33	45%
7:15 PM to 7:30 PM	0	0	13	1	6	0	3	13	0	6	0	0	0	0	0	0	3	0	3	3	36	42%
7:30 PM to 7:45 PM	0	0	11	2	8	0	3	10	0	6	0	0	0	0	0	0	4	0	3	3	33	52%
7:45 PM to 8:00 PM	0	0	5	1	3	0	6	10	0	8	0	0	0	0	0	1	2	0	4	2	29	45%
8:00 PM to 8:15 PM	0	0	8	3	5	0	3	18	0	12	0	0	0	0	0	0	5	0	3	2	40	48%
8:15 PM to 8:30 PM	0	0	10	1	3	0	2	10	0	7	0	0	0	0	0	0	1	0	4	2	28	43%
8:30 PM to 8:45 PM	0	0	8	1	1	0	0	6	0	2	0	0	0	0	0	0	2	0	2	2	19	26%
8:45 PM to 9:00 PM	0	0	2	0	1	0	1	13	0	6	0	0	0	0	0	0	1	0	1	0	18	39%
9:00 PM to 9:15 PM	0	0	3	3	1	0	3	6	0	4	0	0	0	0	0	0	0	0	2	2	17	41%
9:15 PM to 9:30 PM	0	0	7	0	8	0	1	4	0	2	0	0	0	0	0	0	1	0	2	2	15	80%
9:30 PM to 9:45 PM	0	0	5	1	4	0	1	5	0	1	0	0	0	0	0	0	1	0	4	1	17	35%
9:45 PM to 10:00 PM	0	0	8	2	4	0	3	2	0	2	0	0	0	0	0	0	1	0	3	3	19	47%
10:00 PM to 10:15 PM	0	0	3	0	1	0	4	6	0	3	0	0	0	0	0	0	0	0	3	0	16	25%
10:15 PM to 10:30 PM	0	0	3	0	2	0	5	2	0	4	0	0	0	0	0	0	1	0	3	3	14	64%
10:30 PM to 10:45 PM	0	0	4	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	2	1	9	22%
10:45 PM to 11:00 PM	0	0	5	1	5	0	2	4	0	3	0	0	0	0	0	0	0	0	0	0	12	67%
11:00 PM to 11:15 PM	0	0	2	1	2	0	6	4	0	5	0	0	0	0	0	0	0	0	3	3	16	63%
11:15 PM to 11:30 PM	0	0	1	0	1	0	1	1	0	1	0	0	0	0	0	0	1	0	1	1	5	60%
11:30 PM to 11:45 PM	0	0	7	0	4	0	2	0	0	1	0	0	0	0	0	0	0	0	1	1	10	60%
11:45 PM to 12:00 AM	0	0	3	0	0	0	4	4	0	3	0	0	0	0	0	0	0	0	6	3	17	35%
DAILY TOTALS	**0**	**0**	**1193**	**132**	**459**	**0**	**381**	**1279**	**0**	**725**	**0**	**0**	**0**	**0**	**1**	**1**	**158**	**0**	**373**	**233**	**3517**	**40%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
4:45 AM to 5:45 AM	0	0	88	4	8	0	19	190	0	26	0	0	0	0	0	0	9	0	20	9	330	13%	0.87
2:15 PM to 3:15 PM	0	0	128	9	41	0	18	65	0	29	0	0	0	0	0	0	17	0	23	7	260	30%	0.93

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Derrick Avenue (SR 33) / Clarkson Avenue
LATITUDE 36.501477
COUNTY Fresno
LONGITUDE -120.3890854
COLLECTION DATE Tuesday, July 30, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45 AM to 8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	6	0	2	6
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM to 8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	1
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM to 10:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM to 11:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM to 11:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM to 11:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM to 12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	4
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM to 2:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
5:15 PM to 5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM to 7:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30 PM to 7:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	6	0	2	6
7:45 PM to 8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 PM to 8:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	1
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM to 8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**7**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**1**	**26**	**3**	**14**	**40**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
4:45 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM to 3:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1

Metro Traffic Data Inc.

310 N. Irwin Street - Suite 20
Hanford, CA 93230

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

Turning Movement Report
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Derrick Avenue (SR 33) / Clarkson Avenue
LATITUDE 36.501477
COUNTY Fresno
LONGITUDE -120.3890854
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	4	0	2	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	7	71%
12:15 AM to 12:30 AM	0	0	9	1	1	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	13	15%
12:30 AM to 12:45 AM	0	0	4	0	3	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	6	83%
12:45 AM to 1:00 AM	0	0	2	0	1	0	2	6	0	1	0	0	0	0	0	0	0	0	1	1	11	27%
1:00 AM to 1:15 AM	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	50%
1:15 AM to 1:30 AM	0	0	2	0	1	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	5	60%
1:30 AM to 1:45 AM	0	0	2	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	7	0%
1:45 AM to 2:00 AM	0	0	4	0	1	0	0	6	0	3	0	0	0	0	0	0	0	0	3	1	13	38%
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	1	4	25%
2:15 AM to 2:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0%
2:30 AM to 2:45 AM	0	0	6	0	2	0	0	11	0	2	0	0	0	0	0	0	0	0	0	0	17	24%
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	5	20%
3:00 AM to 3:15 AM	0	1	2	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	9	0%
3:15 AM to 3:30 AM	0	0	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7	0%
3:30 AM to 3:45 AM	0	1	4	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	10	0%
3:45 AM to 4:00 AM	0	0	1	0	0	0	0	7	0	1	0	0	0	0	0	0	0	0	0	0	8	13%
4:00 AM to 4:15 AM	0	0	4	1	1	0	0	10	0	2	0	1	0	0	0	0	0	0	0	0	16	19%
4:15 AM to 4:30 AM	0	0	2	0	2	0	1	10	1	4	0	0	1	0	0	0	2	0	1	0	18	33%
4:30 AM to 4:45 AM	0	0	10	0	0	0	2	13	0	2	0	0	0	0	0	0	1	0	2	0	28	7%
4:45 AM to 5:00 AM	0	2	9	0	2	0	2	18	0	3	0	1	0	0	0	0	1	0	0	0	33	15%
5:00 AM to 5:15 AM	0	0	21	0	0	0	4	24	2	5	0	0	0	0	0	0	4	0	4	0	59	8%
5:15 AM to 5:30 AM	0	1	23	2	1	0	8	31	2	2	0	1	0	0	0	0	3	0	3	0	74	4%
5:30 AM to 5:45 AM	0	0	28	7	1	0	7	59	2	5	0	1	0	0	0	0	4	0	4	1	112	6%
5:45 AM to 6:00 AM	0	2	16	1	0	0	2	52	5	6	0	1	1	0	0	0	6	0	5	0	91	7%
6:00 AM to 6:15 AM	0	2	21	0	4	0	3	18	2	2	0	1	0	0	0	0	2	0	3	0	52	12%
6:15 AM to 6:30 AM	0	0	8	0	1	0	1	13	1	6	0	0	0	1	0	0	2	0	5	2	31	29%
6:30 AM to 6:45 AM	0	0	10	0	3	0	2	9	1	4	0	0	1	0	0	0	1	0	3	1	27	30%
6:45 AM to 7:00 AM	0	0	10	0	2	0	9	10	0	3	0	0	0	0	0	0	4	0	3	2	36	19%
7:00 AM to 7:15 AM	0	0	10	1	6	0	4	17	0	6	0	1	0	0	0	0	0	0	1	0	34	35%
7:15 AM to 7:30 AM	0	0	16	3	14	0	5	5	0	3	0	0	0	0	0	0	2	0	1	0	32	53%
7:30 AM to 7:45 AM	0	0	12	1	6	0	3	19	2	12	0	0	0	0	0	0	2	0	1	1	40	48%
7:45 AM to 8:00 AM	0	0	9	3	6	0	5	22	0	15	0	0	0	0	0	0	4	0	3	2	46	50%
8:00 AM to 8:15 AM	0	0	13	0	8	0	4	14	0	11	0	1	1	0	0	0	3	1	2	1	39	51%
8:15 AM to 8:30 AM	0	0	14	1	9	0	3	11	0	6	0	0	0	0	0	0	0	0	1	0	30	50%
8:30 AM to 8:45 AM	0	1	10	1	6	0	1	13	0	10	0	1	0	0	0	0	1	0	1	2	29	62%
8:45 AM to 9:00 AM	0	0	16	4	11	0	0	8	0	6	0	0	0	0	0	0	1	0	0	1	29	62%
9:00 AM to 9:15 AM	0	1	23	0	18	0	0	19	0	13	0	0	0	0	0	0	2	0	2	0	47	66%
9:15 AM to 9:30 AM	0	0	20	0	12	0	1	22	0	15	0	0	0	0	0	0	1	1	1	1	46	61%
9:30 AM to 9:45 AM	0	0	15	0	8	0	0	22	1	16	0	0	0	0	0	0	2	0	1	1	41	61%
9:45 AM to 10:00 AM	0	1	7	0	4	0	3	21	2	18	0	0	0	0	0	0	1	0	5	2	40	60%
10:00 AM to 10:15 AM	0	0	10	0	7	0	4	14	0	11	0	0	1	0	0	0	1	1	0	0	31	58%
10:15 AM to 10:30 AM	0	1	14	1	10	0	0	12	3	9	0	0	0	0	0	0	0	1	0	0	32	59%
10:30 AM to 10:45 AM	0	0	9	0	6	0	0	14	1	13	0	1	0	0	0	0	2	0	2	0	29	66%
10:45 AM to 11:00 AM	0	1	15	0	11	0	0	11	0	6	0	0	0	0	0	0	7	2	3	1	39	46%
11:00 AM to 11:15 AM	0	1	11	1	8	0	2	13	0	10	0	1	0	0	0	0	2	0	0	0	31	58%
11:15 AM to 11:30 AM	0	0	17	1	13	0	0	11	2	7	0	0	0	0	0	0	1	1	0	0	33	61%
11:30 AM to 11:45 AM	0	1	18	1	10	0	0	19	1	18	0	2	1	0	0	0	1	0	1	0	45	62%
11:45 AM to 12:00 PM	0	0	14	0	11	0	3	19	2	16	0	1	0	0	0	0	2	2	2	1	45	62%
12:00 PM to 12:15 PM	0	1	11	1	8	0	1	14	2	12	0	0	4	0	0	0	3	1	0	0	38	53%
12:15 PM to 12:30 PM	0	0	25	1	18	0	2	13	3	10	0	0	0	0	0	0	3	0	2	0	49	57%
12:30 PM to 12:45 PM	0	1	13	1	8	0	0	12	0	9	0	1	1	0	0	0	3	0	3	1	35	51%
12:45 PM to 1:00 PM	0	1	18	0	11	0	0	14	0	7	0	1	0	0	0	0	2	1	0	0	37	49%
1:00 PM to 1:15 PM	0	2	20	2	20	0	1	16	2	12	0	0	1	0	0	0	0	0	0	0	44	73%
1:15 PM to 1:30 PM	0	0	21	0	17	0	1	16	1	11	0	0	0	0	0	0	1	0	1	1	41	71%
1:30 PM to 1:45 PM	0	0	25	2	16	0	3	18	0	11	0	1	0	0	0	0	3	0	1	0	53	51%
1:45 PM to 2:00 PM	0	2	31	1	26	0	5	18	0	9	0	1	0	0	0	0	2	1	5	1	66	55%
2:00 PM to 2:15 PM	0	2	17	2	9	0	2	21	0	13	0	1	1	0	0	0	2	1	2	1	51	45%
2:15 PM to 2:30 PM	0	3	16	2	12	0	1	20	0	8	0	0	0	0	0	0	2	0	3	1	47	45%
2:30 PM to 2:45 PM	0	5	26	0	12	0	5	8	0	3	0	2	1	0	0	0	1	0	4	0	52	29%
2:45 PM to 3:00 PM	0	3	22	0	12	0	4	13	0	10	0	2	1	0	0	0	1	0	4	1	50	46%
3:00 PM to 3:15 PM	0	4	12	1	8	0	2	14	1	7	0	3	1	0	0	0	1	1	3	1	43	37%
3:15 PM to 3:30 PM	0	2	20	1	8	0	1	21	3	10	0	4	2	0	0	0	2	1	3	2	60	33%
3:30 PM to 3:45 PM	0	5	26	1	9	0	3	23	3	15	0	7	2	0	1	0	3	1	3	1	77	34%
3:45 PM to 4:00 PM	0	4	21	0	6	0	2	16	3	9	0	5	1	0	0	0	1	1	6	0	60	25%
4:00 PM to 4:15 PM	0	3	16	0	4	0	4	17	1	7	0	1	0	0	0	0	2	0	3	1	47	26%
4:15 PM to 4:30 PM	0	4	20	0	9	0	3	35	9	8	0	6	1	0	0	0	3	1	5	0	87	20%
4:30 PM to 4:45 PM	0	4	34	4	12	0	5	23	3	10	0	8	2	0	0	0	2	1	3	1	89	26%
4:45 PM to 5:00 PM	0	3	24	1	8	0	2	25	1	9	0	1	1	0	0	0	3	1	0	1	62	29%
5:00 PM to 5:15 PM	0	3	19	2	10	0	2	25	4	15	0	7	3	2	0	0	3	1	7	0	78	32%
5:15 PM to 5:30 PM	0	1	15	2	9	0	1	8	3	2	0	5	1	0	0	0	0	0	3	0	39	28%
5:30 PM to 5:45 PM	0	3	21	1	16	0	3	10	2	7	0	6	1	2	0	0	1	1	3	2	54	46%
5:45 PM to 6:00 PM	0	3	17	1	8	0	2	27	0	10	0	0	1	0	0	0	4	0	0	1	55	35%
6:00 PM to 6:15 PM	0	10	24	4	10	0	1	10	2	4	0	6	0	0	0	0	1	0	4	0	62	23%
6:15 PM to 6:30 PM	0	1	6	1	2	0	2	9	2	3	0	6	2	0	0	0	1	1	5	0	36	14%
6:30 PM to 6:45 PM	0	0	17	1	8	0	0	17	3	8	0	2	0	1	0	0	2	4	4	0	51	31%
6:45 PM to 7:00 PM	0	2	18	5	7	0	2	19	4	2	0	0	4	0	0	0	3	1	1	0	59	15%
7:00 PM to 7:15 PM	0	0	11	1	9	0	1	13	1	5	0	2	0	3	0	0	1	0	2	0	35	40%
7:15 PM to 7:30 PM	0	1	10	0	7	0	2	11	0	6	0	3	0	1	0	0	4	0	1	0	33	39%
7:30 PM to 7:45 PM	0	1	8	0	3	0	1	7	3	3	0	0	1	0	0	0	4	0	2	0	27	22%
7:45 PM to 8:00 PM	0	1	10	0	8	0	1	11	0	4	0	4	0	0	0	0	4	0	0	0	31	39%
8:00 PM to 8:15 PM	0	0	11	1	3	0	2	8	1	4	0	0	2	0	0	0	0	0	1	0	26	27%
8:15 PM to 8:30 PM	0	0	10	0	5	0	3	8	0	3	0	2	2	0	0	0	2	0	1	0	28	29%
8:30 PM to 8:45 PM	0	0	9	0	4	0	2	8	0	6	0	3	1	0	0	0	0	0	0	0	23	43%
8:45 PM to 9:00 PM	0	1	7	1	5	0	1	7	0	1	0	0	1	0	0	0	1	0	2	1	21	33%
9:00 PM to 9:15 PM	0	0	4	1	2	0	2	4	0	4	0	1	0	0	0	0	2	0	1	0	15	40%
9:15 PM to 9:30 PM	0	0	9	1	7	0	1	4	1	2	0	0	0	0	0	0	0	0	1	0	17	53%
9:30 PM to 9:45 PM	0	0	10	1	7	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	13	54%
9:45 PM to 10:00 PM	0	0	3	1	3	0	1	0	0	1	0	0	0	0	0	0	0	0	3	1	8	63%
10:00 PM to 10:15 PM	0	0	4	0	3	0	0	6	0	2	0	0	0	0	0	0	1	0	1	0	12	42%
10:15 PM to 10:30 PM	0	0	9	0	4	0	0	3	0	1	0	0	0	0	0	0	0	0	2	0	14	36%
10:30 PM to 10:45 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	100%
10:45 PM to 11:00 PM	0	0	5	0	5	0	0	3	0	3	0	0	1	0	0	0	0	0	0	0	9	89%
11:00 PM to 11:15 PM	0	0	3	1	1	0	0	5	0	2	0	0	0	0	0	0	0	0	0	0	9	33%
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	2	50%
11:30 PM to 11:45 PM	0	0	5	0	3	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	8	63%
11:45 PM to 12:00 AM	0	0	1	0	1	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	4	100%
DAILY TOTALS	**0**	**92**	**1166**	**75**	**597**	**0**	**163**	**1224**	**88**	**575**	**0**	**105**	**45**	**10**	**1**	**0**	**140**	**28**	**163**	**41**	**3299**	**37%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
5:00 AM to 6:00 AM	0	3	88	10	2	0	21	166	11	18	0	3	1	0	0	0	17	0	16	1	336	6%	0.75
4:15 PM to 5:15 PM	0	14	97	7	39	0	12	108	17	42	0	22	7	2	0	0	11	4	15	2	316	26%	0.89

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Derrick Avenue (SR 33) / Clarkson Avenue
LATITUDE 36.501477
COUNTY Fresno
LONGITUDE -120.3890854
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM to 7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM to 10:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM to 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM to 8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM to 8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**18**	**0**	**2**	**19**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
5:00 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	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
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Mt Whitney Ave @ Fresno Coalinga Rd
COUNTY Fresno
COLLECTION DATE Tuesday, September 24, 2024

LATITUDE 36.4293754
LONGITUDE -120.1056401
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	3	0	1	0	0	2	1	1	7	29%
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	6	0	3	9	44%
12:30 AM to 12:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	3	0	1	0	0	1	0	0	5	20%
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	8	0	0	3	0	2	7	143%
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	8	0	2	12	25%
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	1	4	25%
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	3	0	0	3	1	3	8	75%
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	2	0	1	4	50%
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	4	0	0	5	1	3	13	54%
2:15 AM to 2:30 AM	0	0	0	0	0	0	4	0	0	0	0	0	1	0	1	0	0	0	1	0	6	17%
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	1	0	0	3	1	2	9	33%
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0	2	1	2	7	57%
3:00 AM to 3:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	3	0	1	0	0	0	2	2	6	50%
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	1	2	4	75%
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	9	0	1	0	0	5	1	2	15	20%
3:45 AM to 4:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	3	0	1	0	0	5	1	2	10	30%
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	3	0	0	6	3	3	14	43%
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	12	0	7	0	0	21	2	2	35	26%
4:30 AM to 4:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	7	0	2	0	0	35	6	4	49	12%
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	13	0	4	0	0	25	1	1	40	13%
5:00 AM to 5:15 AM	0	0	0	0	0	0	4	0	0	1	0	0	11	0	1	0	0	35	8	3	58	9%
5:15 AM to 5:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	16	0	4	0	0	65	15	8	99	12%
5:30 AM to 5:45 AM	0	0	0	0	0	0	10	0	0	0	0	0	17	0	1	0	0	38	28	6	93	8%
5:45 AM to 6:00 AM	0	0	0	0	0	0	8	0	0	1	0	0	25	0	5	0	0	59	26	7	118	11%
6:00 AM to 6:15 AM	0	0	0	0	0	0	4	0	0	0	0	0	34	0	6	0	0	53	18	5	109	10%
6:15 AM to 6:30 AM	0	0	0	0	0	0	6	0	1	2	0	0	35	0	4	0	0	94	17	17	153	15%
6:30 AM to 6:45 AM	0	0	0	0	0	0	8	0	0	2	0	0	26	0	3	0	0	61	19	12	114	15%
6:45 AM to 7:00 AM	0	0	0	0	0	0	3	0	0	0	0	1	32	0	5	0	0	52	20	15	108	19%
7:00 AM to 7:15 AM	0	0	0	0	0	0	6	0	0	1	0	1	28	0	5	0	0	43	17	6	95	13%
7:15 AM to 7:30 AM	0	0	0	0	0	0	4	0	0	0	0	0	32	0	7	0	0	62	9	12	107	18%
7:30 AM to 7:45 AM	0	0	0	0	0	0	10	0	0	1	0	0	44	0	8	0	0	53	8	10	115	17%
7:45 AM to 8:00 AM	0	0	0	0	0	0	11	0	1	4	0	0	27	0	4	0	0	43	7	4	89	13%
8:00 AM to 8:15 AM	0	0	0	0	0	0	5	0	0	0	0	0	30	0	7	0	0	33	9	2	77	12%
8:15 AM to 8:30 AM	0	0	0	0	0	0	5	0	1	0	0	0	18	0	6	0	0	30	11	9	65	23%
8:30 AM to 8:45 AM	0	0	0	0	0	0	7	0	0	3	0	0	37	0	4	0	0	18	5	5	67	18%
8:45 AM to 9:00 AM	0	0	0	0	0	0	8	0	0	2	0	2	32	0	8	0	0	25	12	7	79	22%
9:00 AM to 9:15 AM	0	0	0	0	0	0	5	0	0	2	0	1	18	0	3	0	0	25	15	6	64	17%
9:15 AM to 9:30 AM	0	0	0	0	0	0	6	0	0	1	0	0	19	0	7	0	0	22	9	9	56	30%
9:30 AM to 9:45 AM	0	0	0	0	0	0	6	0	1	2	0	0	26	0	4	0	0	31	10	8	74	19%
9:45 AM to 10:00 AM	0	0	0	0	0	0	9	0	2	1	0	0	24	0	3	0	0	27	13	10	75	19%
10:00 AM to 10:15 AM	0	0	0	0	0	0	13	0	0	7	0	0	38	0	8	0	0	30	1	6	82	26%
10:15 AM to 10:30 AM	0	0	0	0	0	0	8	0	0	2	0	0	21	0	2	0	0	24	8	5	61	15%
10:30 AM to 10:45 AM	0	0	0	0	0	0	12	0	0	1	0	0	24	0	4	0	0	22	6	4	64	14%
10:45 AM to 11:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	32	0	4	0	0	25	11	15	73	26%
11:00 AM to 11:15 AM	0	0	0	0	0	0	10	0	0	2	0	0	18	0	4	0	0	26	5	8	59	24%
11:15 AM to 11:30 AM	0	0	0	0	0	0	8	0	0	3	0	1	19	0	4	0	0	21	9	8	58	26%
11:30 AM to 11:45 AM	0	0	0	0	0	0	6	0	1	1	0	0	25	0	4	0	0	22	8	12	62	27%
11:45 AM to 12:00 PM	0	0	0	0	0	0	7	0	0	2	0	0	24	0	6	0	0	20	6	7	57	26%
12:00 PM to 12:15 PM	0	0	0	0	0	0	4	0	0	2	0	0	36	0	6	0	0	26	11	6	77	18%
12:15 PM to 12:30 PM	0	0	0	0	0	0	6	0	0	3	0	0	30	0	7	0	0	26	6	8	68	26%
12:30 PM to 12:45 PM	0	0	0	0	0	0	3	0	1	5	0	0	28	0	9	0	0	32	5	11	69	36%
12:45 PM to 1:00 PM	0	0	0	0	0	0	5	0	0	1	0	1	30	0	9	0	0	34	9	8	79	23%
1:00 PM to 1:15 PM	0	0	0	0	0	0	3	0	1	2	0	0	33	0	8	0	0	42	8	5	87	17%
1:15 PM to 1:30 PM	0	0	0	0	0	0	6	0	1	3	0	0	28	0	7	0	0	35	6	9	76	25%
1:30 PM to 1:45 PM	0	0	0	0	0	0	4	0	0	6	0	0	58	0	8	0	0	26	3	8	91	24%
1:45 PM to 2:00 PM	0	0	0	0	0	0	4	0	0	2	0	0	41	0	6	0	0	38	10	9	93	18%
2:00 PM to 2:15 PM	0	0	0	0	0	0	8	0	0	0	0	0	48	0	6	0	0	24	8	3	88	10%
2:15 PM to 2:30 PM	0	0	0	0	0	0	6	0	0	3	0	0	51	0	8	0	0	19	8	9	84	24%
2:30 PM to 2:45 PM	0	0	0	0	0	0	9	0	0	0	0	0	64	0	3	0	0	22	8	7	103	10%
2:45 PM to 3:00 PM	0	0	0	0	0	0	10	0	0	4	0	0	64	0	6	0	0	31	11	7	116	15%
3:00 PM to 3:15 PM	0	0	0	0	0	0	25	0	1	5	0	0	62	0	3	0	0	37	7	17	132	19%
3:15 PM to 3:30 PM	0	0	0	0	0	0	9	0	0	2	0	2	52	0	10	0	0	31	4	7	98	19%
3:30 PM to 3:45 PM	0	0	0	0	0	0	28	0	0	2	0	0	60	0	3	0	0	26	4	5	118	8%
3:45 PM to 4:00 PM	0	0	0	0	0	0	17	0	0	4	0	0	59	0	6	0	0	37	3	10	116	17%
4:00 PM to 4:15 PM	0	0	0	0	0	0	7	0	0	3	0	1	47	0	2	0	0	36	7	7	98	12%
4:15 PM to 4:30 PM	0	0	0	0	0	0	9	0	0	1	0	0	59	0	6	0	0	28	7	4	103	11%
4:30 PM to 4:45 PM	0	0	0	0	0	0	17	0	0	2	0	0	62	0	1	0	0	31	13	5	123	7%
4:45 PM to 5:00 PM	0	0	0	0	0	0	8	0	0	2	0	0	43	0	4	0	0	29	4	5	84	13%
5:00 PM to 5:15 PM	0	0	0	0	0	0	18	0	0	0	0	2	50	0	5	0	0	16	5	0	91	5%
5:15 PM to 5:30 PM	0	0	0	0	0	0	7	0	0	1	0	0	40	0	3	0	0	28	7	5	82	11%
5:30 PM to 5:45 PM	0	0	0	0	0	0	11	0	0	2	0	0	28	0	3	0	0	24	7	4	70	13%
5:45 PM to 6:00 PM	0	0	0	0	0	0	6	0	0	1	0	0	16	0	3	0	0	20	3	0	45	9%
6:00 PM to 6:15 PM	0	0	0	0	0	0	10	0	0	2	0	0	18	0	1	0	0	24	4	3	56	11%
6:15 PM to 6:30 PM	0	0	0	0	0	0	8	0	1	0	0	0	26	0	4	0	0	34	4	4	73	11%
6:30 PM to 6:45 PM	0	0	0	0	0	0	5	0	0	1	0	0	23	0	2	0	0	23	3	1	54	7%
6:45 PM to 7:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	18	0	2	0	0	18	0	2	38	11%
7:00 PM to 7:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	19	0	5	0	0	12	3	3	36	22%
7:15 PM to 7:30 PM	0	0	0	0	0	0	4	0	0	0	0	0	14	0	3	0	0	19	2	2	39	13%
7:30 PM to 7:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	16	0	0	0	0	11	2	0	32	0%
7:45 PM to 8:00 PM	0	0	0	0	0	0	4	0	0	0	0	1	14	0	1	0	0	12	3	2	34	9%
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	2	0	0	8	1	1	15	20%
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	1	0	0	10	1	1	19	11%
8:30 PM to 8:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	13	0	1	0	0	14	4	2	32	9%
8:45 PM to 9:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	14	0	1	0	0	11	3	4	29	17%
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	9	0	1	0	0	15	0	1	24	8%
9:15 PM to 9:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	7	0	2	0	0	9	1	0	18	11%
9:30 PM to 9:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	9	0	1	0	0	12	1	2	24	13%
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	9	0	2	0	0	10	0	2	19	21%
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	17	0	1	0	0	11	0	1	28	7%
10:15 PM to 10:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	22	0	2	0	0	12	1	1	36	8%
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	13	0	3	0	0	6	1	2	20	25%
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	7	0	2	10	20%
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	6	1	3	8	38%
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	3	1	1	10	10%
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	5	0	2	8	25%
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3	0%
DAILY TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**480**	**0**	**12**	**100**	**0**	**14**	**2204**	**0**	**342**	**0**	**0**	**2187**	**554**	**465**	**5451**	**17%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
5:45 AM to 6:45 AM	0	0	0	0	0	0	26	0	1	5	0	0	120	0	18	0	0	267	80	41	494	13%	0.81
2:45 PM to 3:45 PM	0	0	0	0	0	0	72	0	1	13	0	2	238	0	22	0	0	125	26	36	464	15%	0.88

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Mt Whitney Ave @ Fresno Coalinga Rd
LATITUDE 36.4293754
COUNTY Fresno
LONGITUDE -120.1056401
COLLECTION DATE Tuesday, September 24, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM to 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM to 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM to 8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM to 8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
5:45 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Mt Whitney Ave @ Lassen Ave
LATITUDE 36.4296236
COUNTY Fresno
LONGITUDE -120.1030732
COLLECTION DATE Tuesday, September 24, 2024
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	1	0	1	0	1	1	2	0	0	3	1	0	1	0	0	1	3	1	13	23%
12:15 AM to 12:30 AM	0	0	3	0	3	0	0	2	5	5	0	1	1	0	0	0	1	0	0	0	13	62%
12:30 AM to 12:45 AM	0	0	1	0	0	0	0	1	1	0	0	4	2	0	1	0	0	0	0	0	9	11%
12:45 AM to 1:00 AM	0	0	1	0	0	0	0	4	2	5	0	9	2	0	8	0	0	0	0	0	18	72%
1:00 AM to 1:15 AM	0	0	5	1	4	0	0	2	6	4	0	3	1	0	1	0	0	1	0	0	19	47%
1:15 AM to 1:30 AM	0	1	0	0	0	0	0	2	3	3	0	1	0	0	0	0	0	0	2	2	9	56%
1:30 AM to 1:45 AM	0	1	1	1	0	0	0	0	2	2	0	4	0	0	3	0	0	0	0	0	9	56%
1:45 AM to 2:00 AM	0	0	6	0	3	0	0	0	1	0	0	1	1	0	1	0	0	1	0	1	10	50%
2:00 AM to 2:15 AM	0	1	2	0	2	0	0	1	4	3	0	5	2	0	4	0	0	1	0	1	16	63%
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	3	0	3	0	2	1	2	1	0	0	1	0	0	9	44%
2:30 AM to 2:45 AM	0	0	4	1	2	0	0	2	3	4	0	3	1	0	1	0	0	1	1	0	16	44%
2:45 AM to 3:00 AM	0	0	1	1	1	0	1	3	2	2	0	5	1	0	1	0	0	1	0	1	15	33%
3:00 AM to 3:15 AM	0	0	5	0	3	0	0	3	0	2	0	3	2	0	1	0	0	2	0	2	15	53%
3:15 AM to 3:30 AM	0	0	1	0	0	0	0	2	2	2	0	1	0	0	1	0	1	1	0	1	8	50%
3:30 AM to 3:45 AM	0	0	4	0	3	0	0	8	3	7	0	4	3	0	1	0	0	4	2	1	28	43%
3:45 AM to 4:00 AM	0	0	3	1	1	0	0	7	4	6	0	3	2	0	1	0	0	2	1	1	23	39%
4:00 AM to 4:15 AM	0	0	2	0	1	0	0	2	6	4	0	4	1	0	3	0	0	3	0	0	18	44%
4:15 AM to 4:30 AM	0	1	6	2	2	0	4	7	14	6	0	7	5	0	7	0	1	9	0	1	56	29%
4:30 AM to 4:45 AM	0	0	12	3	2	0	1	12	20	5	0	5	3	0	2	0	0	19	1	0	76	12%
4:45 AM to 5:00 AM	0	0	8	1	1	0	5	13	19	10	0	8	4	1	4	0	0	6	3	1	68	24%
5:00 AM to 5:15 AM	0	2	10	1	3	0	1	14	30	5	0	9	5	1	2	0	2	15	4	2	94	13%
5:15 AM to 5:30 AM	0	4	10	7	1	0	6	29	47	10	0	10	8	2	4	0	6	23	9	5	161	12%
5:30 AM to 5:45 AM	0	7	20	5	3	0	7	39	38	8	0	13	8	3	1	0	11	24	10	3	185	8%
5:45 AM to 6:00 AM	0	7	16	4	4	0	7	43	56	15	0	19	6	8	5	0	17	21	10	0	214	11%
6:00 AM to 6:15 AM	0	5	14	2	2	0	4	32	46	8	0	23	11	6	7	0	10	20	6	1	179	10%
6:15 AM to 6:30 AM	0	0	20	5	6	0	5	31	81	18	0	29	8	2	5	0	11	33	2	5	227	15%
6:30 AM to 6:45 AM	0	1	11	0	2	0	6	38	54	16	0	24	10	4	6	0	11	19	7	7	185	17%
6:45 AM to 7:00 AM	0	2	20	1	4	0	1	41	53	21	0	23	7	4	6	0	12	20	5	8	189	21%
7:00 AM to 7:15 AM	0	1	19	2	8	0	0	24	43	9	0	21	11	4	7	0	5	10	6	2	146	18%
7:15 AM to 7:30 AM	0	5	16	2	7	0	4	27	55	16	0	21	12	1	7	0	9	10	5	5	167	21%
7:30 AM to 7:45 AM	0	3	19	2	8	0	2	32	42	20	0	44	5	5	8	0	6	17	1	5	178	23%
7:45 AM to 8:00 AM	0	4	7	8	3	0	8	23	27	16	0	25	8	6	9	0	4	13	7	8	140	26%
8:00 AM to 8:15 AM	0	6	27	7	13	0	4	24	28	23	0	27	3	5	7	0	8	8	3	1	150	29%
8:15 AM to 8:30 AM	0	4	17	2	9	0	5	18	25	16	0	15	5	4	6	0	5	10	2	4	112	31%
8:30 AM to 8:45 AM	0	3	20	8	8	0	3	14	15	12	0	26	13	4	6	0	3	5	7	2	121	23%
8:45 AM to 9:00 AM	0	3	18	3	5	0	5	27	24	16	0	23	14	4	11	0	10	10	4	5	145	26%
9:00 AM to 9:15 AM	0	4	11	3	6	0	6	20	25	15	0	14	8	1	5	0	5	10	4	4	111	27%
9:15 AM to 9:30 AM	0	2	24	3	6	0	3	23	16	15	0	19	3	3	8	0	2	12	9	7	119	30%
9:30 AM to 9:45 AM	0	3	21	8	9	0	6	19	21	13	0	21	1	3	6	0	5	16	6	6	130	26%
9:45 AM to 10:00 AM	0	10	17	7	11	0	5	20	27	17	0	23	8	3	4	0	5	6	4	6	135	28%
10:00 AM to 10:15 AM	0	1	18	3	10	0	5	20	22	21	0	26	17	7	15	0	5	6	5	5	135	38%
10:15 AM to 10:30 AM	0	3	19	3	6	0	10	11	21	14	0	20	5	4	4	0	4	8	1	2	109	24%
10:30 AM to 10:45 AM	0	4	20	6	6	0	6	25	17	19	0	21	11	5	5	0	4	8	6	5	133	26%
10:45 AM to 11:00 AM	0	2	17	8	8	0	8	14	29	27	0	21	11	3	3	0	1	5	7	6	126	35%
11:00 AM to 11:15 AM	0	3	25	4	10	0	2	16	16	6	0	16	10	4	6	0	5	12	6	5	119	23%
11:15 AM to 11:30 AM	0	4	18	5	10	0	3	16	18	16	0	21	3	4	7	0	6	10	5	3	113	32%
11:30 AM to 11:45 AM	0	0	18	6	7	0	6	14	21	19	0	18	11	2	6	0	2	7	10	9	115	36%
11:45 AM to 12:00 PM	0	2	19	8	6	0	8	15	16	13	0	20	7	4	8	0	8	9	8	8	124	28%
12:00 PM to 12:15 PM	0	7	20	6	8	0	5	23	19	8	0	32	8	1	8	0	9	11	2	4	143	20%
12:15 PM to 12:30 PM	0	3	24	5	9	0	3	17	21	16	0	29	6	2	10	0	3	7	6	4	126	31%
12:30 PM to 12:45 PM	0	4	19	11	9	0	2	16	25	18	0	25	8	3	13	0	6	10	5	4	134	33%
12:45 PM to 1:00 PM	0	4	17	4	1	0	3	29	25	12	0	18	15	3	12	0	8	13	7	8	146	23%
1:00 PM to 1:15 PM	0	5	22	7	8	0	2	15	37	9	0	24	9	5	10	0	3	8	2	1	139	20%
1:15 PM to 1:30 PM	0	5	22	4	7	0	8	20	25	14	0	25	11	3	12	0	2	12	4	4	141	26%
1:30 PM to 1:45 PM	0	1	17	7	10	0	4	7	21	13	0	43	20	6	14	0	5	7	2	4	140	29%
1:45 PM to 2:00 PM	0	9	19	7	2	0	4	13	25	11	0	33	7	5	8	0	5	13	9	7	149	19%
2:00 PM to 2:15 PM	1	3	43	21	7	0	3	20	22	7	0	35	14	8	6	0	6	8	6	6	190	14%
2:15 PM to 2:30 PM	0	5	25	5	10	0	6	12	11	12	0	43	14	3	10	0	8	10	8	8	150	27%
2:30 PM to 2:45 PM	0	2	41	5	4	0	7	15	23	16	0	46	22	2	3	0	6	5	8	5	182	15%
2:45 PM to 3:00 PM	0	5	31	4	8	0	8	19	30	12	0	39	30	10	10	0	3	8	12	7	199	19%
3:00 PM to 3:15 PM	0	5	16	8	5	0	8	22	23	17	0	45	28	17	7	0	3	8	5	5	188	18%
3:15 PM to 3:30 PM	0	6	34	7	7	0	9	14	17	17	0	50	10	7	13	0	9	5	9	5	177	24%
3:30 PM to 3:45 PM	0	3	47	16	7	0	8	14	26	6	0	48	23	0	5	0	3	12	6	4	206	11%
3:45 PM to 4:00 PM	0	2	28	13	6	0	10	15	28	16	0	63	30	5	10	0	9	12	6	7	221	18%
4:00 PM to 4:15 PM	0	4	48	24	15	0	10	21	20	14	0	33	22	2	4	0	5	10	4	5	203	19%
4:15 PM to 4:30 PM	0	6	38	20	7	0	13	16	25	8	0	51	16	2	8	0	3	9	5	3	204	13%
4:30 PM to 4:45 PM	0	6	34	8	9	0	9	14	21	10	0	57	20	4	3	0	7	16	8	2	204	12%
4:45 PM to 5:00 PM	0	1	25	7	6	0	16	19	15	8	0	37	11	3	6	0	10	11	7	4	162	15%
5:00 PM to 5:15 PM	0	2	24	4	1	0	21	18	21	19	0	45	22	3	5	0	5	5	4	4	174	17%
5:15 PM to 5:30 PM	0	3	20	9	3	0	11	14	22	8	0	35	10	1	3	0	7	9	3	2	144	11%
5:30 PM to 5:45 PM	0	0	18	6	8	0	4	17	11	9	0	26	16	1	6	0	4	9	12	9	124	26%
5:45 PM to 6:00 PM	0	0	18	1	2	0	8	11	19	5	0	13	7	4	3	0	2	13	6	4	102	14%
6:00 PM to 6:15 PM	0	0	17	4	6	0	3	13	30	4	0	17	10	4	3	0	6	8	4	3	116	14%
6:15 PM to 6:30 PM	0	2	17	3	7	0	6	18	13	9	0	22	11	0	4	0	6	10	2	1	110	19%
6:30 PM to 6:45 PM	0	2	20	4	7	0	6	13	13	7	0	18	11	1	3	0	4	11	5	3	108	19%
6:45 PM to 7:00 PM	0	0	9	1	5	0	5	13	9	6	0	12	9	0	0	0	4	5	1	1	68	18%
7:00 PM to 7:15 PM	0	1	8	2	2	0	0	5	9	0	0	17	3	0	4	0	2	5	0	3	52	17%
7:15 PM to 7:30 PM	0	1	6	1	3	0	1	18	12	3	0	12	7	0	3	0	5	9	2	1	74	14%
7:30 PM to 7:45 PM	0	1	7	0	2	0	4	8	6	4	0	14	6	0	0	0	0	6	3	1	55	13%
7:45 PM to 8:00 PM	0	1	6	2	1	0	3	5	9	3	0	13	5	0	2	1	2	4	3	0	54	11%
8:00 PM to 8:15 PM	0	0	5	0	1	0	0	6	7	4	0	8	3	0	4	0	2	2	1	0	34	26%
8:15 PM to 8:30 PM	0	0	7	0	3	0	0	4	10	1	0	5	3	0	1	0	0	1	4	1	34	18%
8:30 PM to 8:45 PM	0	1	12	1	2	0	2	4	11	3	0	8	6	1	1	0	0	6	1	1	53	13%
8:45 PM to 9:00 PM	0	1	9	0	3	0	3	6	10	6	0	12	3	0	1	0	1	3	0	0	48	21%
9:00 PM to 9:15 PM	0	1	1	0	1	0	0	1	10	1	0	9	0	0	1	0	1	4	2	0	29	10%
9:15 PM to 9:30 PM	0	0	8	1	2	0	0	4	8	0	0	8	1	0	2	0	0	2	0	0	32	13%
9:30 PM to 9:45 PM	0	0	3	0	1	0	2	6	11	3	0	9	2	0	1	0	0	2	0	0	35	14%
9:45 PM to 10:00 PM	0	1	4	3	2	0	1	3	9	3	0	3	0	0	2	0	0	1	2	0	27	26%
10:00 PM to 10:15 PM	0	0	7	0	3	0	0	5	10	4	0	19	1	0	1	0	0	1	1	1	44	20%
10:15 PM to 10:30 PM	0	0	10	2	1	0	0	3	11	0	0	20	2	1	2	0	0	3	0	1	52	8%
10:30 PM to 10:45 PM	0	0	7	1	2	0	1	2	5	3	0	10	3	0	3	0	0	1	2	0	32	25%
10:45 PM to 11:00 PM	0	0	8	0	5	0	0	0	5	1	0	2	1	0	0	0	0	2	1	1	19	37%
11:00 PM to 11:15 PM	0	0	5	0	2	0	0	1	4	1	0	1	0	0	1	0	0	4	0	2	15	40%
11:15 PM to 11:30 PM	0	0	3	0	2	0	0	5	3	4	0	5	1	0	1	0	0	1	2	1	20	40%
11:30 PM to 11:45 PM	0	0	2	0	1	0	0	1	3	3	0	3	0	0	0	0	0	1	0	0	10	40%
11:45 PM to 12:00 AM	0	0	4	0	2	0	0	1	1	0	0	1	0	0	1	0	0	1	1	0	9	33%
DAILY TOTALS	**1**	**202**	**1392**	**368**	**435**	**0**	**367**	**1290**	**1763**	**855**	**0**	**1811**	**729**	**216**	**446**	**1**	**349**	**744**	**355**	**279**	**9588**	**21%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
5:30 AM to 6:30 AM	**0**	**19**	**70**	**16**	**15**	**0**	**23**	**145**	**221**	**49**	**0**	**84**	**33**	**19**	**18**	**0**	**49**	**98**	**28**	**9**	**805**	**11%**	**0.89**
3:30 PM to 4:30 PM	**0**	**15**	**161**	**73**	**35**	**0**	**41**	**66**	**99**	**44**	**0**	**195**	**91**	**9**	**27**	**0**	**20**	**43**	**21**	**19**	**834**	**15%**	**0.94**

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Mt Whitney Ave @ Lassen Ave
LATITUDE 36.4296236
COUNTY Fresno
LONGITUDE -120.1030732
COLLECTION DATE Tuesday, September 24, 2024
WEATHER Clear

Time			Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM	to	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	to	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	to	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	to	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	to	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	to	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	to	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	to	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	to	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	to	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	to	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	to	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	to	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	to	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	to	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	to	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	to	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	to	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	to	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	to	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	to	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	to	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	to	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	to	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	to	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	to	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	to	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	to	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	to	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	to	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	to	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	to	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	to	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	to	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	to	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	to	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	to	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	to	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
10:15 AM	to	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	to	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	to	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	to	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	to	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	to	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	to	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
12:00 PM	to	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	to	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	to	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	to	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	to	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	to	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	to	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	to	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
2:00 PM	to	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	to	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	to	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	to	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	to	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	to	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	to	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	to	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	to	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	to	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	to	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	to	5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
5:30 PM	to	5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
5:45 PM	to	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	to	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	to	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	to	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	to	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	to	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	to	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM	to	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	to	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	to	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	to	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM	to	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	to	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	to	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	to	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	to	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	to	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	to	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	to	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	to	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	to	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	to	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	to	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	to	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	to	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS			0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	7	2	7

PEAK HOUR			Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
5:30 AM	to	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Metro Traffic Data Inc.

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Hanford, CA 93230

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Turning Movement Report
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Oller St /San Benito Ave (SR 180) @ Belmont Ave
LATITUDE 36.749319
COUNTY Fresno
LONGITUDE -120.3733112
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	1	6	0	1	0	0	3	1	0	0	1	0	1	2	0	0	0	0	0	13	23%
12:15 AM to 12:30 AM	0	1	6	0	0	0	0	5	1	0	0	1	0	1	1	0	0	0	0	0	15	7%
12:30 AM to 12:45 AM	0	2	4	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	8	0%
12:45 AM to 1:00 AM	0	0	5	0	0	0	0	3	2	1	0	0	0	1	0	0	0	0	0	0	11	9%
1:00 AM to 1:15 AM	0	2	7	0	3	0	0	3	1	0	0	0	0	2	0	0	0	0	0	0	15	20%
1:15 AM to 1:30 AM	0	0	5	0	2	0	0	5	4	3	0	0	0	0	0	0	0	0	0	0	14	36%
1:30 AM to 1:45 AM	0	0	5	0	1	0	0	4	0	0	0	0	0	2	0	0	0	0	0	0	11	9%
1:45 AM to 2:00 AM	0	2	5	0	0	0	0	4	1	1	0	0	0	1	1	0	0	0	0	0	13	15%
2:00 AM to 2:15 AM	0	1	8	0	0	0	0	7	0	1	0	1	0	0	0	0	0	0	0	0	17	6%
2:15 AM to 2:30 AM	0	0	1	0	1	0	0	3	2	1	0	0	0	0	0	0	0	0	0	0	6	33%
2:30 AM to 2:45 AM	0	2	5	0	2	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	10	30%
2:45 AM to 3:00 AM	0	1	9	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	14	0%
3:00 AM to 3:15 AM	0	2	3	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9	0%
3:15 AM to 3:30 AM	0	2	6	0	1	0	0	6	1	0	0	1	0	4	0	0	0	0	0	0	20	5%
3:30 AM to 3:45 AM	0	0	9	0	5	0	0	14	6	2	0	2	0	2	0	0	0	0	0	0	33	21%
3:45 AM to 4:00 AM	0	1	9	0	4	0	0	5	4	3	0	2	0	0	0	0	0	0	0	0	21	33%
4:00 AM to 4:15 AM	0	1	16	0	5	0	0	12	1	0	0	1	0	1	0	0	0	0	0	0	32	16%
4:15 AM to 4:30 AM	0	3	14	0	2	0	0	22	2	2	0	1	0	5	0	0	0	0	0	0	47	9%
4:30 AM to 4:45 AM	0	3	19	0	0	0	0	31	3	5	0	4	0	3	1	0	0	0	0	0	63	10%
4:45 AM to 5:00 AM	0	5	22	0	1	0	0	38	6	1	0	2	0	6	1	0	0	0	0	0	79	4%
5:00 AM to 5:15 AM	0	7	40	0	10	0	0	64	8	7	0	4	0	13	4	0	0	0	0	0	136	15%
5:15 AM to 5:30 AM	0	22	23	0	5	0	0	67	16	3	0	8	0	8	2	0	0	0	0	0	144	7%
5:30 AM to 5:45 AM	0	13	35	0	3	0	0	103	14	9	0	3	0	17	2	0	0	0	0	0	185	8%
5:45 AM to 6:00 AM	0	20	51	0	9	0	0	48	17	5	0	0	0	7	1	0	0	0	0	0	143	10%
6:00 AM to 6:15 AM	0	9	24	0	8	0	0	65	10	5	0	3	0	8	0	0	0	0	0	0	119	11%
6:15 AM to 6:30 AM	0	15	37	0	2	0	0	55	5	8	0	1	0	11	1	0	0	0	0	0	124	9%
6:30 AM to 6:45 AM	0	9	44	0	3	0	0	61	5	4	0	2	0	15	1	0	0	1	0	1	137	7%
6:45 AM to 7:00 AM	0	14	43	0	12	0	0	72	5	7	0	4	0	9	1	0	0	0	0	0	147	14%
7:00 AM to 7:15 AM	0	15	39	0	10	0	1	56	2	2	0	3	0	12	2	0	0	0	0	0	128	11%
7:15 AM to 7:30 AM	0	28	51	0	5	0	0	57	7	8	0	2	0	7	3	0	0	0	0	0	152	11%
7:30 AM to 7:45 AM	0	33	66	0	8	0	0	59	18	8	0	21	0	26	1	0	0	0	0	0	223	8%
7:45 AM to 8:00 AM	0	49	56	3	6	0	0	55	48	7	0	35	0	12	0	0	1	0	0	1	259	5%
8:00 AM to 8:15 AM	0	14	21	0	5	0	2	66	11	8	0	34	0	15	3	0	0	0	0	0	163	10%
8:15 AM to 8:30 AM	0	12	33	0	11	0	1	52	7	4	0	1	0	13	1	0	0	0	0	0	119	13%
8:30 AM to 8:45 AM	0	7	31	0	8	0	0	43	5	5	0	2	0	17	1	0	1	0	0	0	106	13%
8:45 AM to 9:00 AM	0	13	28	0	3	0	0	44	6	5	0	2	0	13	4	0	0	0	0	0	106	11%
9:00 AM to 9:15 AM	0	14	31	0	8	0	1	41	2	3	0	1	1	14	1	0	1	0	0	0	106	11%
9:15 AM to 9:30 AM	0	8	27	0	5	0	0	34	5	3	0	3	1	14	2	0	0	0	0	0	92	11%
9:30 AM to 9:45 AM	0	11	41	0	8	0	1	44	7	4	0	4	0	12	2	0	1	0	0	0	121	12%
9:45 AM to 10:00 AM	0	5	37	0	6	0	0	27	8	4	0	4	1	11	0	0	0	0	0	0	93	11%
10:00 AM to 10:15 AM	0	12	24	0	6	0	0	27	7	3	0	5	2	8	1	0	0	0	0	0	85	12%
10:15 AM to 10:30 AM	0	15	25	0	8	0	0	36	6	6	0	4	0	15	2	0	0	0	0	0	101	16%
10:30 AM to 10:45 AM	0	11	32	0	7	0	1	38	4	7	0	8	0	16	5	0	0	0	0	0	110	17%
10:45 AM to 11:00 AM	0	16	29	0	11	0	1	34	3	4	0	6	1	11	5	0	0	0	0	0	101	20%
11:00 AM to 11:15 AM	0	10	25	0	9	0	0	49	7	4	0	6	0	10	0	0	0	1	0	0	108	12%
11:15 AM to 11:30 AM	0	9	29	0	13	0	0	38	3	5	0	8	1	16	6	0	1	0	0	0	105	23%
11:30 AM to 11:45 AM	0	11	31	0	11	0	0	48	8	5	0	5	0	10	1	0	0	0	0	0	113	15%
11:45 AM to 12:00 PM	0	15	36	0	7	0	0	40	3	11	0	3	0	14	3	0	0	0	1	0	112	19%
12:00 PM to 12:15 PM	0	18	32	0	5	0	1	43	9	6	0	12	0	14	6	0	1	1	0	0	131	13%
12:15 PM to 12:30 PM	0	22	33	1	3	0	1	35	2	5	0	5	0	13	2	0	0	0	0	0	112	9%
12:30 PM to 12:45 PM	0	13	30	0	6	0	1	31	2	2	0	5	0	12	6	0	0	0	1	0	95	15%
12:45 PM to 1:00 PM	0	19	35	0	9	0	0	34	8	8	0	5	0	12	3	0	0	0	0	0	113	18%
1:00 PM to 1:15 PM	0	7	52	0	6	0	0	47	3	6	0	9	0	10	4	0	0	0	0	0	128	13%
1:15 PM to 1:30 PM	0	19	41	1	5	0	0	43	4	6	0	4	0	16	5	0	0	0	0	0	128	13%
1:30 PM to 1:45 PM	0	24	46	0	11	0	1	50	6	3	0	6	0	18	4	0	0	0	0	0	151	12%
1:45 PM to 2:00 PM	0	11	41	0	10	0	0	43	20	6	0	34	0	22	8	0	0	0	0	0	171	14%
2:00 PM to 2:15 PM	1	19	42	0	9	0	3	59	10	11	0	40	1	29	10	0	0	1	0	0	205	15%
2:15 PM to 2:30 PM	0	16	47	0	9	0	2	53	8	9	0	16	1	33	5	0	1	0	0	1	177	14%
2:30 PM to 2:45 PM	0	12	24	0	3	0	0	62	14	8	0	13	0	24	7	0	1	1	2	1	153	12%
2:45 PM to 3:00 PM	0	11	47	0	11	0	1	40	8	2	0	9	0	33	2	0	0	0	0	0	149	10%
3:00 PM to 3:15 PM	0	20	57	0	11	0	0	53	5	4	0	19	0	22	3	0	0	2	0	0	178	10%
3:15 PM to 3:30 PM	0	26	77	0	12	0	0	38	13	4	0	20	0	43	2	0	1	0	0	0	218	8%
3:30 PM to 3:45 PM	0	27	101	0	12	0	0	73	10	7	0	19	0	47	4	0	0	0	0	0	277	8%
3:45 PM to 4:00 PM	0	22	68	0	11	0	1	55	5	5	0	14	0	30	5	0	0	0	0	0	195	11%
4:00 PM to 4:15 PM	0	11	72	0	7	0	1	52	6	1	0	13	0	38	10	0	0	0	0	0	193	9%
4:15 PM to 4:30 PM	0	22	58	0	7	0	0	71	6	13	0	7	0	36	6	0	0	0	0	0	200	13%
4:30 PM to 4:45 PM	0	11	57	0	3	0	0	59	5	8	0	18	0	29	6	0	0	0	1	0	180	9%
4:45 PM to 5:00 PM	0	22	70	0	5	0	1	75	3	6	0	8	0	22	4	0	0	0	0	0	201	7%
5:00 PM to 5:15 PM	0	27	61	0	6	0	0	72	10	9	0	7	0	29	3	0	1	0	1	0	208	9%
5:15 PM to 5:30 PM	0	32	83	1	5	0	1	78	12	7	0	10	0	27	3	0	2	0	0	0	246	6%
5:30 PM to 5:45 PM	0	24	63	0	5	0	2	62	9	7	0	15	0	22	3	0	0	2	0	2	199	9%
5:45 PM to 6:00 PM	0	23	65	0	6	0	0	60	10	3	0	12	0	23	3	0	0	0	0	0	193	6%
6:00 PM to 6:15 PM	0	29	78	0	8	0	0	59	9	3	0	14	1	27	5	0	0	0	0	0	217	7%
6:15 PM to 6:30 PM	0	17	58	0	1	0	0	54	6	7	0	6	0	14	1	0	0	0	0	0	155	6%
6:30 PM to 6:45 PM	0	19	85	0	4	0	1	40	4	2	0	9	0	13	1	0	0	0	2	0	173	4%
6:45 PM to 7:00 PM	0	12	68	0	4	0	1	29	6	3	0	6	0	9	0	0	0	1	0	0	132	5%
7:00 PM to 7:15 PM	0	15	61	0	4	1	0	35	6	3	0	15	0	9	0	0	0	0	0	0	142	5%
7:15 PM to 7:30 PM	0	17	70	0	6	0	0	34	8	3	0	11	0	28	2	0	0	0	0	0	168	7%
7:30 PM to 7:45 PM	0	16	51	0	2	0	0	30	6	2	0	11	0	14	1	0	0	0	0	0	128	4%
7:45 PM to 8:00 PM	0	15	48	0	4	0	0	31	8	3	0	8	0	5	0	0	0	0	0	0	115	6%
8:00 PM to 8:15 PM	0	12	67	0	5	0	0	30	10	3	0	19	0	15	1	0	0	0	0	0	153	6%
8:15 PM to 8:30 PM	0	14	39	0	1	0	0	30	6	0	0	13	0	12	3	0	0	0	0	0	114	4%
8:30 PM to 8:45 PM	0	18	30	0	7	0	0	25	13	1	0	10	0	12	3	0	0	0	0	0	108	10%
8:45 PM to 9:00 PM	0	9	37	0	0	0	0	16	15	0	0	44	0	18	0	0	0	0	0	0	139	0%
9:00 PM to 9:15 PM	0	5	27	0	1	0	0	14	5	1	0	5	0	12	0	0	1	0	0	0	69	3%
9:15 PM to 9:30 PM	0	7	27	0	3	0	0	15	4	0	0	6	0	14	0	0	0	0	0	0	73	4%
9:30 PM to 9:45 PM	0	7	32	0	2	0	0	19	2	2	0	3	0	7	0	0	0	1	0	0	71	6%
9:45 PM to 10:00 PM	0	2	23	0	2	0	0	21	5	3	0	5	0	7	0	0	0	0	0	0	63	8%
10:00 PM to 10:15 PM	0	9	22	0	1	0	0	14	2	2	0	2	0	4	1	0	0	0	0	0	53	8%
10:15 PM to 10:30 PM	0	7	24	0	0	0	0	15	3	2	0	2	0	7	2	0	0	0	0	0	58	7%
10:30 PM to 10:45 PM	0	1	19	0	0	0	0	4	2	0	0	2	0	1	0	0	0	0	1	0	30	0%
10:45 PM to 11:00 PM	0	6	9	1	1	0	0	8	0	0	0	0	0	6	0	0	0	0	0	0	30	3%
11:00 PM to 11:15 PM	0	3	10	0	0	0	0	6	1	1	0	0	0	2	1	0	0	0	0	0	22	9%
11:15 PM to 11:30 PM	0	1	4	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	20	0%
11:30 PM to 11:45 PM	0	4	6	0	1	0	0	8	2	1	0	0	0	1	0	0	0	0	0	0	21	10%
11:45 PM to 12:00 AM	0	1	10	0	1	0	0	10	1	0	0	0	0	2	0	0	0	0	0	0	24	4%
DAILY TOTALS	**1**	**1150**	**3360**	**7**	**470**	**1**	**26**	**3448**	**596**	**363**	**0**	**709**	**10**	**1227**	**196**	**0**	**13**	**11**	**9**	**6**	**10568**	**10%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
7:15 AM to 8:15 AM	**0**	**124**	**194**	**3**	**24**	**0**	**2**	**237**	**84**	**31**	**0**	**92**	**0**	**60**	**7**	**0**	**1**	**0**	**0**	**1**	**797**	**8%**	**0.77**
3:15 PM to 4:15 PM	**0**	**86**	**318**	**0**	**42**	**0**	**2**	**218**	**34**	**17**	**0**	**66**	**0**	**158**	**21**	**0**	**1**	**0**	**0**	**0**	**883**	**9%**	**0.80**

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Oller St /San Benito Ave (SR 180) @ Belmont Ave
LATITUDE 36.749319
COUNTY Fresno
LONGITUDE -120.3733112
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM to 10:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
10:15 AM to 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM to 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM to 12:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM to 2:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM to 3:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM to 5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM to 8:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 PM to 8:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30 PM to 8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**5**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**3**	**1**	**0**	**13**	**10**	**17**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
7:15 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
3:15 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
(Vehicles)

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Derrick Ave (SR 33) @ Belmont Ave
COUNTY Fresno
COLLECTION DATE Wednesday, September 11, 2024

LATITUDE 36.7492712
LONGITUDE -120.3868013
WEATHER Clear

Time	Northbound					Southbound					Eastbound					Westbound					TOTALS	Truck
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	%
12:00 AM to 12:15 AM	0	0	5	0	3	0	0	3	2	0	0	0	3	0	2	0	1	1	0	0	15	33%
12:15 AM to 12:30 AM	0	0	4	0	2	0	4	3	1	1	0	2	2	0	1	0	0	1	0	0	17	24%
12:30 AM to 12:45 AM	0	0	2	0	0	0	0	1	0	1	0	0	2	0	0	0	3	1	0	1	9	22%
12:45 AM to 1:00 AM	0	0	5	0	3	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1	9	44%
1:00 AM to 1:15 AM	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	1	0	3	1	8	13%
1:15 AM to 1:30 AM	0	0	2	0	1	0	0	4	0	2	0	2	0	0	0	0	4	2	0	3	14	43%
1:30 AM to 1:45 AM	0	0	1	0	1	0	1	1	0	0	0	0	1	0	0	0	3	1	0	1	8	25%
1:45 AM to 2:00 AM	0	0	2	0	1	0	0	1	0	0	0	0	1	0	1	0	1	0	1	1	6	50%
2:00 AM to 2:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0%
2:15 AM to 2:30 AM	0	0	2	0	1	0	0	8	0	7	0	0	2	0	0	0	3	1	3	2	19	53%
2:30 AM to 2:45 AM	0	0	1	0	0	0	0	3	1	1	0	1	0	0	0	0	1	0	1	1	8	25%
2:45 AM to 3:00 AM	0	0	2	1	0	0	1	4	0	3	0	0	1	1	0	0	1	0	2	1	13	31%
3:00 AM to 3:15 AM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	8	0%
3:15 AM to 3:30 AM	0	0	0	0	0	0	2	3	1	1	0	1	3	0	0	0	5	1	0	0	16	6%
3:30 AM to 3:45 AM	0	0	2	0	0	0	0	7	1	1	0	1	1	0	0	0	9	0	0	2	21	14%
3:45 AM to 4:00 AM	0	0	4	0	0	0	1	5	1	2	0	0	0	1	0	0	1	4	0	1	17	18%
4:00 AM to 4:15 AM	0	0	1	1	0	0	1	10	0	1	0	3	2	0	0	0	2	1	0	3	21	19%
4:15 AM to 4:30 AM	0	0	7	0	1	1	2	10	2	1	0	1	1	0	0	0	5	3	1	1	33	9%
4:30 AM to 4:45 AM	0	0	3	0	2	0	1	14	8	1	0	4	5	0	1	0	3	3	7	1	48	10%
4:45 AM to 5:00 AM	0	0	6	1	0	0	3	27	9	2	0	8	5	0	2	0	7	5	2	0	73	5%
5:00 AM to 5:15 AM	0	0	5	1	0	0	6	43	12	5	0	7	9	2	2	0	8	11	5	2	109	8%
5:15 AM to 5:30 AM	0	2	14	3	4	0	6	68	29	3	0	5	4	1	0	0	27	30	4	2	193	5%
5:30 AM to 5:45 AM	0	1	8	3	1	0	11	66	39	0	0	3	9	2	2	0	34	35	3	2	214	2%
5:45 AM to 6:00 AM	0	1	15	2	4	0	3	75	38	1	0	3	5	2	1	0	21	29	7	1	201	3%
6:00 AM to 6:15 AM	0	1	16	2	1	0	4	65	26	5	0	3	5	1	0	0	34	22	6	3	185	5%
6:15 AM to 6:30 AM	0	4	24	3	3	0	12	40	22	0	0	8	5	2	0	0	10	12	9	7	151	7%
6:30 AM to 6:45 AM	0	1	9	1	3	0	5	21	12	0	0	0	10	1	1	0	4	6	5	3	75	9%
6:45 AM to 7:00 AM	0	0	8	2	2	0	11	21	24	3	0	3	4	2	1	0	4	10	10	2	99	8%
7:00 AM to 7:15 AM	0	0	2	0	0	0	11	15	2	7	0	2	7	1	2	0	0	8	8	4	56	23%
7:15 AM to 7:30 AM	0	2	15	5	1	0	21	8	10	6	0	6	7	0	1	0	4	9	19	3	106	10%
7:30 AM to 7:45 AM	0	2	5	4	0	0	77	7	11	4	0	4	21	4	1	0	6	12	17	3	170	5%
7:45 AM to 8:00 AM	0	1	12	6	2	0	105	15	13	5	0	14	47	2	1	0	5	22	46	2	288	3%
8:00 AM to 8:15 AM	0	1	7	1	1	0	26	17	11	5	0	2	12	0	3	0	7	22	23	3	129	9%
8:15 AM to 8:30 AM	0	1	13	1	6	0	17	10	10	4	0	6	7	3	2	0	4	8	14	6	94	19%
8:30 AM to 8:45 AM	0	2	10	2	6	0	12	13	4	4	0	4	6	4	4	0	1	12	10	8	80	28%
8:45 AM to 9:00 AM	0	1	15	3	6	0	9	21	4	13	0	2	12	2	5	0	3	3	16	1	91	27%
9:00 AM to 9:15 AM	0	0	8	0	2	0	10	19	8	12	0	1	9	2	4	0	4	13	13	6	87	28%
9:15 AM to 9:30 AM	0	1	17	1	11	0	10	17	6	10	0	4	8	1	1	0	2	5	7	2	79	30%
9:30 AM to 9:45 AM	0	0	13	1	4	0	11	9	12	6	0	3	5	0	1	0	3	8	10	3	75	19%
9:45 AM to 10:00 AM	0	0	13	2	3	0	14	11	9	4	0	10	5	2	1	0	5	10	7	5	88	15%
10:00 AM to 10:15 AM	0	2	11	4	3	0	12	11	9	4	0	8	5	0	1	0	3	10	11	4	86	14%
10:15 AM to 10:30 AM	0	3	10	1	3	0	10	12	11	8	0	10	10	3	5	0	3	11	19	2	103	17%
10:30 AM to 10:45 AM	0	2	13	2	9	0	7	12	14	2	0	4	14	1	3	0	2	10	14	3	95	18%
10:45 AM to 11:00 AM	0	3	14	3	8	0	21	15	4	10	0	3	11	1	7	0	5	17	9	8	106	31%
11:00 AM to 11:15 AM	0	2	16	3	6	0	10	11	4	5	0	7	18	2	2	0	3	14	17	3	107	15%
11:15 AM to 11:30 AM	0	3	17	4	6	0	7	16	14	8	0	9	15	0	5	0	4	11	12	9	112	25%
11:30 AM to 11:45 AM	0	1	13	5	4	0	13	15	6	7	0	5	9	3	4	0	3	12	16	5	101	20%
11:45 AM to 12:00 PM	0	2	14	3	4	0	13	14	8	5	0	9	12	2	6	0	4	11	14	4	106	18%
12:00 PM to 12:15 PM	0	0	12	2	5	0	13	7	8	4	0	10	10	1	4	0	5	10	19	3	97	16%
12:15 PM to 12:30 PM	0	3	16	6	4	0	11	12	10	5	0	8	12	3	5	0	3	13	17	4	114	16%
12:30 PM to 12:45 PM	0	4	18	6	13	0	15	10	11	3	0	11	17	1	9	0	3	7	18	5	121	25%
12:45 PM to 1:00 PM	0	1	18	2	6	0	8	22	6	10	0	9	6	2	1	0	2	15	15	9	106	25%
1:00 PM to 1:15 PM	0	0	14	13	9	0	15	16	10	9	0	13	13	4	8	0	6	7	22	6	133	24%
1:15 PM to 1:30 PM	0	0	26	2	10	0	18	14	9	8	0	10	8	4	4	0	5	7	16	4	119	22%
1:30 PM to 1:45 PM	0	2	15	5	8	0	47	20	19	3	0	11	21	1	10	0	0	12	11	3	164	15%
1:45 PM to 2:00 PM	0	4	19	8	12	0	77	20	19	11	0	15	21	5	8	0	6	23	48	3	265	13%
2:00 PM to 2:15 PM	0	5	28	9	16	0	29	15	9	9	0	7	17	1	5	0	8	25	39	7	192	19%
2:15 PM to 2:30 PM	0	2	32	14	6	0	28	12	11	13	0	10	29	0	5	0	7	18	27	5	190	15%
2:30 PM to 2:45 PM	0	4	21	4	5	0	19	14	10	3	0	8	15	5	4	0	2	23	18	3	143	10%
2:45 PM to 3:00 PM	0	3	28	11	5	0	27	12	12	5	0	14	24	5	2	0	2	8	26	4	172	9%
3:00 PM to 3:15 PM	0	2	44	14	8	0	30	17	8	8	0	32	24	1	3	0	2	17	33	4	224	10%
3:15 PM to 3:30 PM	0	1	28	17	8	0	52	14	13	3	0	23	24	2	3	0	1	20	17	6	212	9%
3:30 PM to 3:45 PM	0	3	27	21	3	0	20	23	11	10	0	18	22	5	2	0	5	19	27	5	201	10%
3:45 PM to 4:00 PM	0	0	45	18	9	0	17	10	11	3	0	21	30	4	6	0	2	12	20	3	190	11%
4:00 PM to 4:15 PM	0	5	28	12	9	0	18	22	7	11	0	23	23	2	7	0	5	14	22	2	181	16%
4:15 PM to 4:30 PM	0	2	32	12	4	0	19	18	10	10	0	29	38	2	6	0	5	13	15	2	195	11%
4:30 PM to 4:45 PM	0	6	25	11	4	0	25	13	14	5	0	32	27	7	5	0	3	13	20	0	196	7%
4:45 PM to 5:00 PM	0	0	36	13	5	0	19	23	16	2	0	32	27	4	3	0	4	17	24	7	215	8%
5:00 PM to 5:15 PM	0	2	23	10	5	0	27	19	11	6	0	11	32	3	3	0	4	17	17	2	176	9%
5:15 PM to 5:30 PM	0	1	29	7	5	0	18	14	14	3	0	21	24	1	1	0	1	22	30	3	182	7%
5:30 PM to 5:45 PM	0	3	23	7	4	0	24	30	17	8	0	16	19	6	2	0	5	16	25	2	191	8%
5:45 PM to 6:00 PM	0	2	36	6	9	0	23	9	14	1	0	18	25	4	1	0	7	19	28	5	191	8%
6:00 PM to 6:15 PM	0	3	27	4	4	0	34	10	12	5	0	12	24	1	2	0	1	21	24	1	173	7%
6:15 PM to 6:30 PM	0	2	27	11	7	0	18	18	16	8	0	24	14	1	2	0	3	15	18	1	167	11%
6:30 PM to 6:45 PM	0	1	18	4	2	0	12	20	8	2	0	18	16	2	1	0	3	5	12	1	119	5%
6:45 PM to 7:00 PM	0	3	25	1	4	0	13	11	14	3	0	16	8	2	0	0	7	9	18	1	127	6%
7:00 PM to 7:15 PM	0	4	17	4	3	0	20	13	10	4	0	10	12	2	1	0	6	15	23	1	136	7%
7:15 PM to 7:30 PM	0	1	22	5	5	0	14	13	8	2	0	12	16	0	2	0	5	16	26	1	138	7%
7:30 PM to 7:45 PM	0	1	20	4	6	0	26	7	10	2	0	14	9	5	1	0	3	12	21	1	132	8%
7:45 PM to 8:00 PM	0	1	21	5	4	0	11	18	14	6	0	4	9	0	0	0	1	8	22	0	114	9%
8:00 PM to 8:15 PM	0	1	12	1	2	0	25	9	6	1	0	11	7	1	0	0	0	4	24	0	101	3%
8:15 PM to 8:30 PM	0	0	5	6	2	0	17	13	9	4	0	10	11	3	2	0	2	5	15	0	96	8%
8:30 PM to 8:45 PM	0	2	18	7	5	0	32	9	10	1	0	9	11	0	2	0	1	9	25	0	133	6%
8:45 PM to 9:00 PM	0	2	19	4	7	0	38	9	16	4	0	4	10	1	0	0	2	12	34	0	151	7%
9:00 PM to 9:15 PM	0	0	9	5	4	0	12	7	6	2	0	9	9	1	1	0	3	7	16	1	84	10%
9:15 PM to 9:30 PM	0	1	13	1	3	0	9	7	6	1	0	7	4	2	1	0	2	3	10	0	65	8%
9:30 PM to 9:45 PM	0	3	11	2	5	0	7	5	5	1	0	6	3	1	0	0	0	7	5	0	55	11%
9:45 PM to 10:00 PM	0	0	12	2	3	0	5	7	4	1	0	4	5	1	0	0	4	1	6	1	51	10%
10:00 PM to 10:15 PM	0	0	9	1	3	0	6	4	2	0	0	1	1	0	0	0	0	7	0	0	31	10%
10:15 PM to 10:30 PM	0	0	8	1	4	0	6	7	1	4	0	1	1	0	0	0	1	5	6	0	37	22%
10:30 PM to 10:45 PM	0	1	8	2	3	0	2	3	2	1	0	4	2	0	0	0	1	2	3	0	30	13%
10:45 PM to 11:00 PM	0	0	4	1	2	0	5	4	1	3	0	1	0	0	0	0	0	2	3	0	21	24%
11:00 PM to 11:15 PM	0	0	3	0	3	0	1	2	2	1	0	2	3	0	1	0	0	1	1	0	15	33%
11:15 PM to 11:30 PM	0	0	1	1	1	0	0	1	0	1	0	1	0	0	0	0	0	1	1	0	6	33%
11:30 PM to 11:45 PM	0	0	3	0	0	0	0	3	1	2	0	0	2	0	0	0	2	4	2	0	17	12%
11:45 PM to 12:00 AM	0	0	6	0	2	0	1	1	1	1	0	1	0	0	0	0	0	3	9	0	22	14%
DAILY TOTALS	**0**	**120**	**1329**	**375**	**374**	**1**	**1405**	**1360**	**842**	**383**	**0**	**752**	**1006**	**144**	**196**	**0**	**407**	**951**	**1250**	**232**	**9942**	**12%**

PEAK HOUR	Northbound					Southbound					Eastbound					Westbound					TOTALS		
	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	Vehicles	Truck %	PHF
5:15 AM to 6:15 AM	0	5	53	10	10	0	24	274	132	9	0	14	23	6	3	0	116	116	20	8	793	4%	0.93
3:00 PM to 4:00 PM	0	6	144	70	28	0	119	64	43	24	0	94	100	12	14	0	10	68	97	18	827	10%	0.92

Metro Traffic Data Inc.
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Hanford, CA 93230
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Turning Movement Report
(Bicycles & Pedestrians)

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Derrick Ave (SR 33) @ Belmont Ave
LATITUDE 36.7492712
COUNTY Fresno
LONGITUDE -120.3868013
COLLECTION DATE Wednesday, September 11, 2024
WEATHER Clear

Time	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
12:00 AM to 12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM to 12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM to 12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM to 1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM to 1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM to 1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM to 2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM to 2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM to 2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM to 3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM to 3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM to 3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM to 4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM to 4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM to 4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM to 5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM to 5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM to 5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM to 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM to 6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM to 7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:00 AM to 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM to 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM to 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM to 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM to 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM to 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM to 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM to 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM to 9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM to 10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM to 10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM to 10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM to 10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM to 11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM to 11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM to 11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM to 11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM to 12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM to 12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM to 12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM to 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM to 1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1:15 PM to 1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM to 1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1:45 PM to 2:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	24	0	4	1	28
2:00 PM to 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	2	0	24
2:15 PM to 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	3
2:30 PM to 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
2:45 PM to 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	5	0	12
3:00 PM to 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
3:15 PM to 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	6
3:30 PM to 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
3:45 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3
4:00 PM to 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM to 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4:30 PM to 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
4:45 PM to 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
5:00 PM to 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
5:15 PM to 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
5:30 PM to 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:45 PM to 6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1
6:00 PM to 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
6:15 PM to 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
6:30 PM to 6:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	2	4	4	2	1	12
6:45 PM to 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:00 PM to 7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:15 PM to 7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
7:30 PM to 7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM to 8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:00 PM to 8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM to 8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 PM to 8:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
8:45 PM to 9:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	2	2
9:00 PM to 9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM to 9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM to 9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM to 10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM to 10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM to 10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM to 10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM to 11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM to 11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM to 11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY TOTALS	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**4**	**0**	**0**	**2**	**1**	**12**	**125**	**13**	**20**	**10**	**170**

PEAK HOUR	Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles			Pedestrians in each Crosswalk				TOTALS	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	North CW	South CW	East CW	West CW	Bicycles	Pedestrians
5:15 AM to 6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM to 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	3	0	11

APPENDIX B

SEASONAL ADJUSTMENT FACTORS

LOCATION	DAILY FACTORS							MONTHLY SEASONAL FACTOR											
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	January	February	March	April	May	June	July	August	September	October	November	December
Academy S/O Central	0.98	0.98	0.98	0.99	0.89	1.05	1.17	1.10	1.07	1.03	0.98	0.93	0.97	0.97	0.95	0.96	1.01	1.07	0.99
Auberry N/O Lodge	1.01	0.94	0.93	0.95	0.91	1.08	1.25	0.99	1.25	1.10	1.10	1.01	0.94	0.89	0.96	0.91	0.91	1.10	0.96
Belmont E/O Peach	0.99	0.99	0.96	0.96	0.91	1.05	1.18	1.10	1.00	1.00	0.98	0.94	1.00	1.02	1.01	0.95	0.95	1.03	1.06
Belmont E/O Cornelia	0.97	0.93	0.95	0.94	0.89	1.20	1.48	1.07	0.94	0.97	1.02	0.91	0.89	0.98	0.98	1.27	1.30	1.04	0.82
Belmont E/O Madera	0.94	0.93	0.99	0.93	0.86	1.12	1.39	1.06	1.08	1.04	0.99	0.95	0.98	1.15	1.02	0.82	0.78	1.17	1.12
Belmont E/O San Diego	0.96	0.97	0.97	0.98	0.93	1.01	1.23	1.43	1.30	1.11	1.03	1.02	1.06	0.86	0.72	0.71	0.95	1.05	1.31
Church E/O Cedar	0.99	0.96	0.96	0.95	0.91	1.08	1.17	1.14	1.00	0.95	0.96	1.09	1.04	1.05	1.04	1.01	0.82	0.96	1.02
Clinton E/O First	0.97	0.92	0.90	0.92	0.88	1.18	1.44	1.07	1.04	1.01	1.02	0.96	0.95	0.98	1.02	0.95	0.92	1.06	1.05
Colorado E/O El Dorado	0.92	0.92	0.90	0.94	0.94	1.11	1.46	1.20	1.38	0.98	1.07	0.96	0.96	0.95	0.86	0.87	0.92	0.98	1.09
Adams E/O Alta	0.96	0.99	0.94	0.95	0.92	1.05	1.28	1.09	1.08	1.03	0.94	0.90	0.97	0.97	0.97	0.89	0.94	1.07	1.24
Friant N/O Willow	1.04	1.10	1.08	1.03	0.97	0.91	0.90	1.10	1.04	1.03	1.04	0.87	0.84	0.94	0.90	1.08	1.01	1.10	1.18
Herndon W/O Locan	1.00	0.94	0.92	0.91	0.90	1.09	1.32	1.05	1.00	1.03	1.05	0.91	0.91	1.00	1.01	1.02	1.00	1.02	1.04
Jayne E/O Alpine	0.95	0.89	0.90	0.90	0.88	1.27	1.44	1.15	1.10	1.01	0.90	0.97	0.99	0.96	0.95	0.95	1.02	1.01	1.05
Crawford N/O Manning	0.96	0.92	0.94	0.95	0.88	1.12	1.40	1.10	1.12	0.95	0.89	0.89	0.95	0.94	0.98	0.98	1.03	1.13	1.14
Manning W/O Academy	0.96	0.95	0.95	0.95	0.90	1.09	1.32	1.09	1.03	1.01	0.98	0.98	1.00	0.99	0.92	0.98	0.99	1.02	1.03
Manning E/O Alta	0.98	0.98	0.94	0.94	0.89	1.08	1.28	1.07	1.03	1.01	0.98	0.98	0.97	1.03	1.02	0.93	0.97	1.00	1.03
Manning E/O Marks	0.98	0.96	0.94	0.93	0.89	1.04	1.41	1.16	1.17	1.13	1.01	0.93	0.91	0.97	0.89	0.78	1.03	1.10	1.09
Mt Whitney E/O Elm	0.99	0.97	0.97	0.97	0.91	1.03	1.21	1.16	1.17	1.02	0.95	0.91	0.97	0.98	0.93	0.89	0.95	1.06	1.12
Nebraska E/O Fowler	0.98	0.95	0.93	0.94	0.90	1.08	1.30	1.09	1.06	1.02	1.03	0.96	0.96	0.98	0.94	0.88	0.96	1.09	1.09
Nees W/O Washoe	0.95	0.93	0.92	0.94	0.89	1.13	1.41	1.41	1.32	1.19	0.97	0.93	1.00	0.85	0.73	0.81	0.90	1.23	1.13
Palm N/O Ashlan	0.96	0.89	0.88	0.94	0.90	1.17	1.52	1.08	0.97	1.00	0.88	0.95	0.94	0.97	1.00	0.94	1.20	1.07	1.07
Trimmer Springs N/O Belmont	1.06	1.04	1.01	0.98	0.95	0.91	1.08	1.31	1.03	0.84	0.85	0.99	0.88	0.89	0.95	1.14	1.10	1.10	1.15
Temperance N/O Jensen	0.91	0.86	0.86	0.86	0.86	1.41	1.88	1.08	1.09	1.09	1.00	1.01	0.81	0.89	0.97	0.96	1.04	1.02	1.14
Cornelia N/O North	0.97	0.97	0.96	0.93	0.88	1.07	1.39	1.03	1.11	1.13	1.03	0.88	0.98	1.03	0.97	0.90	0.94	1.06	1.00
Manning W/O Clovis	0.94	0.92	0.93	0.93	0.87	1.08	1.61	1.19	1.20	1.10	1.06	0.99	0.96	1.03	0.90	0.80	0.85	0.99	1.12
Mc Call N/O Mc Kinley	0.97	0.95	0.95	0.93	0.88	1.09	1.33	1.09	1.01	1.01	1.01	0.95	0.94	1.02	0.98	0.98	0.98	1.05	1.01
Mt Whitney W/O Lassen (SH 145)	0.91	0.91	0.88	0.91	0.90	1.11	1.77	1.44	1.44	1.30	0.94	1.25	0.98	0.81	0.59	1.01	0.95	0.81	1.33
Bethel N/O Manning	0.96	0.95	0.95	0.93	0.92	1.12	1.22	1.16	1.07	1.09	0.97	1.03	0.92	0.98	0.91	0.89	0.95	1.06	1.03
West N/O Manning	0.95	0.95	0.95	0.94	0.90	1.05	1.50	1.16	1.07	1.05	1.05	1.03	0.92	1.07	1.09	0.87	0.85	1.01	0.92
El Dorado S/O Dorris	0.95	0.90	0.92	0.87	0.88	1.14	1.69	1.27	1.27	1.02	1.00	1.07	0.88	0.75	0.92	0.96	0.95	1.06	1.10
Fowler S/O Behymer	1.03	0.95	0.93	0.95	0.91	1.07	1.24	1.07	1.08	1.11	1.19	0.87	0.90	0.94	0.89	0.92	0.97	1.10	1.08
Grantland N/O Shields	0.96	0.99	0.94	0.94	0.88	1.08	1.31	1.18	0.98	0.97	0.93	0.99	0.86	1.16	1.08	1.02	1.00	0.93	1.00
Howard S/O Ashlan	0.95	0.94	0.90	0.95	0.90	1.08	1.27	1.15	1.14	0.97	1.00	0.98	1.01	1.01	0.99	0.89	0.87	0.96	1.12
Sierra W/O Fruit	0.95	0.90	0.90	0.90	0.88	1.19	1.60	1.05	1.00	0.95	1.01	0.95	0.95	1.08	1.02	0.98	1.01	1.02	0.99
Lincoln E/O Hayes	0.96	0.90	0.90	0.91	0.90	1.06	1.70	1.23	1.18	1.01	1.02	1.03	0.95	0.87	0.88	0.83	0.85	1.19	1.20
Mc Call N/O Jensen	0.96	0.90	0.93	0.91	0.87	1.17	1.50	1.00	0.97	0.94	0.90	0.90	0.99	1.02	1.12	1.04	1.10	1.03	1.02
Reed S/O American	0.94	0.89	0.92	0.91	0.88	1.19	1.53	1.09	0.99	1.05	0.98	0.96	0.98	1.03	0.99	0.90	0.95	1.01	1.10
Ruth Hill E/O Ennis	0.96	0.97	0.93	0.96	0.93	1.06	1.27	0.85	0.99	0.94	0.95	0.95	1.15	1.18	1.18	0.96	1.01	1.10	0.88
San Diego N/o Adams	0.96	0.91	0.82	0.82	0.91	1.27	1.86	1.75	1.63	1.21	1.12	1.18	0.91	0.46	0.64	1.03	1.11	1.24	1.33
Shepherd E/O Fowler	1.02	1.03	0.98	0.94	0.90	1.01	1.15	0.99	1.98	1.04	0.97	0.90	0.93	0.99	0.97	0.89	0.91	0.88	1.12
Shields E/O Dickenson	0.94	0.99	0.93	0.89	0.82	1.19	1.49	0.97	1.25	0.95	0.92	0.90	1.19	1.21	1.18	0.84	0.87	0.92	1.04
Fowler N/O Conejo	0.95	0.91	0.93	0.91	0.89	1.13	1.38	1.17	1.06	1.10	1.08	0.89	0.96	0.96	0.92	0.90	0.95	1.00	1.09
Floral E/O Cedar	1.03	1.02	1.00	0.99	0.91	0.99	1.07	1.11	1.24	1.02	0.96	0.78	0.99	1.01	0.89	0.84	1.08	1.20	1.10
Auberry N/O Copper	1.02	1.02	1.00	0.97	0.92	1.02	1.09	1.09	1.09	1.23	1.01	1.00	0.95	0.98	0.94	0.95	0.96	0.91	0.98
Marks S/O Kamm	0.98	0.96	0.95	0.95	0.93	1.00	1.28	1.06	0.99	1.03	1.04	0.93	0.98	1.06	1.01	0.90	0.98	1.02	1.03

NOTE: The application of the factors in this file, the data utilized to be adjusted and the outcome are the sole responsibility of the user.

Average values:	**0.97**	**0.95**	**0.94**	**0.93**	**0.90**	**1.10**	**1.37**	**1.14**	**1.13**	**1.04**	**0.99**	**0.96**	**0.96**	**0.97**	**0.95**	**0.93**	**0.97**	**1.04**	**1.08**

APPENDIX C

FLORIDA TABLES C1, C2T, AND C3C

C1 & C2

Motor Vehicle Highway Generalized Service Volume Tables

(C1-Natural & C2-Rural)

Peak Hour Directional

	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,910	3,340
3 Lane	2,510	3,570	4,370	5,010

Peak Hour Two-Way

	B	C	D	E
2 Lane	440	780	1,330	2,710
4 Lane	3,040	4,350	5,290	6,070
6 Lane	4,560	6,490	7,950	9,110

AADT

	B	C	D	E
2 Lane	4,600	8,200	14,000	28,500
4 Lane	32,000	45,800	55,700	63,900
6 Lane	48,000	68,300	83,700	95,900

Adjustment Factors

2 Lane Divided Roadway with Exclusive Left Turn Adjustment: Multiply by 1.05
Multilane Undivided Highway with Exclusive Left Turn Adjustment: Multiply by 0.95
Multilane Undivided Highway without Exclusive Left Turn Adjustment:: Multiply by 0.75

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.

C1 & C2

Motor Vehicle Highway Generalized Service Volume Tables

Input Parameters

Roadway Characteristics

	C1	C2
Number of Lanes (one direction)	1	2-3
Posted Speed (mph)	55	55
Base Free Flow Speed (mph)	60	60
Median Type	Undivided	Divided
Shoulder Width (feet)	3	6
Lane Width (feet)	12	12
% No Passing Zone	20%	
Access-Point Density (access/mile)	2	2
Terrain	Level	Level

Traffic Characteristics

	C1	C2
Planning Analysis Hour Factor (K)	0.095	0.095
Directional Distribution Factor (D)	0.55	0.55
Peak Hour Factor (PHF)	0.88	0.88
Heavy Vehicle Percent (%)	5%	10%
Speed Adjustment Factor (SAF)	0.975	0.975
Capacity Adjustment Factor (CAF)	0.968	0.968

C3C & C3R

Motor Vehicle Arterial Generalized Service Volume Tables

(C3C-Suburban Commercial)

Peak Hour Directional

	B	C	D	E
1 Lane	*	760	1,070	**
2 Lane	*	1,520	1,810	**
3 Lane	*	2,360	2,680	**
4 Lane	*	3,170	3,180	**

Peak Hour Two-Way

	B	C	D	E
2 Lane	*	1,380	1,950	**
4 Lane	*	2,760	3,290	**
6 Lane	*	4,290	4,870	**
8 Lane	*	5,760	5,780	**

AADT

	B	C	D	E
2 Lane	*	15,300	21,700	**
4 Lane	*	30,700	36,600	**
6 Lane	*	47,700	54,100	**
8 Lane	*	64,000	64,200	**

(C3R-Suburban Residential)

	B	C	D	E
1 Lane	*	970	1,110	**
2 Lane	*	1,700	1,850	**
3 Lane	*	2,620	2,730	**

	B	C	D	E
2 Lane	*	1,760	2,020	**
4 Lane	*	3,090	3,360	**
6 Lane	*	4,760	4,960	**

	B	C	D	E
2 Lane	*	19,600	22,400	**
4 Lane	*	34,300	37,300	**
6 Lane	*	52,900	55,100	**

Adjustment Factors

The peak hour directional service volumes should be adjust by multiplying by 1.2 for one-way facilities
The AADT service volumes should be adjusted by multiplying 0.6 for one way facilities 2 Lane Divided Roadway with an Exclusive Left Turn Lane(s): Multiply by 1.05
2 lane Undivided Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.80
Exclusive right turn lane(s): Multiply by 1.05
Multilane Undivided Roadway with an Exclusive Left Turn Lane(s): Multiply by 0.95
Multilane Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.75
Non-State Signalized Roadway: Multiply by 0.90

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.
* Cannot be achieved using table input value defaults.
** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.

C3C & C3R

Motor Vehicle Arterial Generalized Service Volume Tables

Input Parameters

Roadway Characteristics

	C3C	C3R
Number of Lanes (one direction)	1-4	1-3
Posted Speed (mph)	45	45
Facility Length (miles)	3.98	2.57

Traffic Characteristics

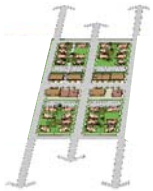
	C3C		C3R	
Planning Analysis Hour Factor (K)	0.09		0.09	
Directional Distribution Factor (D)	0.55		0.55	
Peak Hour Factor (PHF)	0.95		0.92	
Base Saturation Flow Rate	1,950		1,950	
Heavy Vehicle Percent (%)	4		4	
Lane Width	12		12	
Median Type	Non Restrictive (1 lane)	Restrictive (2,3,4 lanes)	Non Restrictive (1 lane)	Restrictive (2,3 lanes)
Roadway Edge Type	Curbed		Flush	
On-Street Parking	None		None	

Control Characteristics

	C3C		C3R
Cycle Length	160		190
Major Street Through g/c	0.5 (1,2,3 lanes)	0.45 (4 lanes)	0.5
Yellow Change Interval	5.1		5.1
Red Change Interval	2		2
Number of Signals	10		5

C2T, C4, C5, & C6

Motor Vehicle Arterial Generalized Service Volume Tables



(C2T-Rural Town)

Peak Hour Directional

	B	C	D	E
1 Lane	*	720	940	**
2 Lane	*	1,140	1,640	**
3 Lane	*	2,120	2,510	**

Peak Hour Two-Way

	B	C	D	E
2 Lane	*	1,310	1,710	**
4 Lane	*	2,070	2,980	**
6 Lane	*	3,850	4,560	**

AADT

	B	C	D	E
2 Lane	*	13,800	18,000	**
4 Lane	*	21,800	31,400	**
6 Lane	*	40,500	48,000	**

(C4-Urban General)

	B	C	D	E
1 Lane	*	*	870	1,190
2 Lane	*	1,210	1,790	2,020
3 Lane	*	2,210	2,810	2,990
4 Lane	*	2,590	3,310	3,510

	B	C	D	E
2 Lane	*	*	1,580	2,160
4 Lane	*	2,200	3,250	3,670
6 Lane	*	4,020	5,110	5,440
8 Lane	*	4,710	6,020	6,380

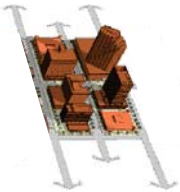
	B	C	D	E
2 Lane	*	*	17,600	24,000
4 Lane	*	24,400	36,100	40,800
6 Lane	*	44,700	56,800	60,400
8 Lane	*	52,300	66,900	70,900

(C5-Urban Center)

	B	C	D	E
1 Lane	*	*	690	1,080
2 Lane	*	1,290	1,900	2,130
3 Lane	*	1,410	2,670	3,110
4 Lane	*	2,910	3,560	3,640

	B	C	D	E
2 Lane	*	*	1,250	1,960
4 Lane	*	2,350	3,450	3,870
6 Lane	*	2,560	4,850	5,650
8 Lane	*	5,290	6,470	6,620

	B	C	D	E
2 Lane	*	*	13,900	21,800
4 Lane	*	26,100	38,300	43,000
6 Lane	*	28,400	53,900	62,800
8 Lane	*	58,800	71,900	73,600



(C6-Urban Core)

	B	C	D	E
1 Lane	*	***	790	1,030
2 Lane	*	***	1,490	1,920
3 Lane	*	***	2,730	2,940
4 Lane	*	***	3,250	3,490

	B	C	D	E
2 Lane	*	***	1,440	1,870
4 Lane	*	***	2,710	3,490
6 Lane	*	***	4,960	5,350
8 Lane	*	***	5,910	6,350

	B	C	D	E
2 Lane	*	***	16,000	20,800
4 Lane	*	***	30,100	38,800
6 Lane	*	***	55,100	59,400
8 Lane	*	***	65,700	70,600

Adjustment Factors

The peak hour directional service volumes should be adjust by multiplying by 1.2 for one-way facilities
The AADT service volumes should be adjusted by multiplying 0.6 for one way facilities 2 Lane Divided Roadway with an Exclusive Left Turn Lane(s): Multiply by 1.05
2 lane Undivided Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.80
Exclusive right turn lane(s): Multiply by 1.05
Multilane Undivided Roadway with an Exclusive Left Turn Lane(s): Multiply by 0.95
Multilane Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.75
Non-State Signalized Roadway: Multiply by 0.90

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.
* Cannot be achieved using table input value defaults.
** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.

C2T, C4, C5, & C6

Motor Vehicle Arterial Generalized Service Volume Tables

Input Parameters

Roadway Characteristics

	C2T	C4	C5	C6
Number of Lanes (one direction)	1-3	1-4	1-4	1-4
Posted Speed (mph)	40	45	35	30
Facility Length (miles)	0.78	1.83	1.18	0.74
Number of Signals	4	9	9	7

Traffic Characteristics

	C2T	C4	C5	C6
Planning Analysis Hour Factor (K)	0.095	0.09	0.09	0.09
Directional Distribution Factor (D)	0.55	0.55	0.55	0.55
Peak Hour Factor (PHF)	0.92	0.95	0.95	0.95
Base Saturation Flow Rate	1,700	1,950	1,950	1,950
Heavy Vehicle Percent (%)	5	3	2	2
Lane Width	11	11	10	10
Median Type	Non Restrictive	Non Restrictive	Non Restrictive	Non Restrictive
Roadway Edge Type	Curb	Curb	Curb	Curb
On-Street Parking	50%	100%	100%	100%

Signal Characteristics

	C2T	C4		C5		C6	
Cycle Length	90	170		150		120	
Major Street Through g/c	0.47	0.52 (1,2,3 lanes)	0.47 (4 lanes)	0.55 (1,2,3 lanes)	0.48 (4 lanes)	0.52 (1,2,3 lanes)	0.46 (4 lanes)
Yellow Change Interval	4.4	4.8		4		3.7	
Red Change Interval	2	2		2		2	

APPENDIX D

ROAD SEGMENT ANALYSES – YEAR 2029

Road Segment Analyses
Year 2029

Road: **SR 145 (Fresno Coalinga Rd)**
Segment: **West of Mt. Whitney Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	4,417	11	35	46	16	65	81	17	38	55	25	59	84	34	53	87	35	95	130	26	61	87	33	52	85
LOS		B	B		B	B		B	B		B	B		B	B		B	C		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	4,642	12	37	48	17	68	85	18	40	58	26	62	88	36	56	91	37	100	137	27	64	91	35	55	89
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	4,642	12	37	48	17	68	85	18	40	58	26	62	88	36	56	91	37	100	137	27	64	91	35	55	89
LOS (Baseline)		B	B		B	C		B	B		B	B		B	B		B	C		B	B		B	B	
LOS (With Project)		B	B		B	C		B	B		B	B		B	B		B	C		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	60	26	86	59	37	96	48	36	84	59	28	87	62	31	93	43	29	72	52	16	68	40	28	68	28	24	52	16	20	36
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	63	27	90	62	39	101	50	38	88	62	29	91	65	33	98	45	30	76	55	17	71	42	29	71	29	25	55	17	21	38
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	63	27	90	62	39	101	50	38	88	62	29	91	65	33	98	45	30	76	55	17	71	42	29	71	29	25	55	17	21	38
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Mt. Whitney Ave**
Segment: **East of Lassen**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,914	7	21	28	21	38	59	20	45	65	17	48	65	17	36	53	18	46	64	16	37	53	9	37	46
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	3,063	7	22	29	22	40	62	21	47	68	18	50	68	18	38	56	19	48	67	17	39	56	9	39	48
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	3,063	7	22	29	22	40	62	21	47	68	18	50	68	18	38	56	19	48	67	17	39	56	9	39	48
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	47	21	68	53	27	80	56	19	75	49	17	66	37	31	68	34	28	62	47	14	61	30	19	49	26	25	51	16	21	37
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	49	22	71	56	28	84	59	20	79	51	18	69	39	33	71	36	29	65	49	15	64	32	20	51	27	26	54	17	22	39
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	49	22	71	56	28	84	59	20	79	51	18	69	39	33	71	36	29	65	49	15	64	32	20	51	27	26	54	17	22	39
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Oller St (SR 180)**
Segment: **North of Belmont Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	8,150	44	72	116	31	83	114	38	117	155	51	65	116	27	75	102	38	60	98	46	66	112	47	77	124
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																									
Baseline Volume	8,566	46	76	122	33	87	120	40	123	163	54	68	122	28	79	107	40	63	103	48	69	118	49	81	130
Project Worker Vehicles	1,430	0	0	0	0	0	0	49	0	49	27	0	27	431	0	431	10	0	10	59	0	59	0	0	0
Project Trucks	66	0	0	0	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	4	2	2	4
Project Total	1,496	0	0	0	2	0	2	51	0	51	29	0	29	433	0	433	12	0	12	61	2	63	2	2	4
2029 With Project	10,062	46	76	122	35	87	122	91	123	214	83	68	151	461	79	540	52	63	115	109	71	181	51	83	134
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		E or F	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	120	83	203	82	61	143	85	59	144	65	77	142	76	64	140	78	79	157	69	82	151	93	91	184	78	73	151	77	70	147
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																														
Baseline Volume	126	87	213	86	64	150	89	62	151	68	81	149	80	67	147	82	83	165	73	86	159	98	96	193	82	77	159	81	74	154
Project Worker Vehicles	0	0	0	0	104	104	0	35	35	0	0	0	0	0	0	0	380	380	0	127	127	0	0	0	0	0	0	0	0	0
Project Trucks	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	2	2	0	104	104	0	35	35	0	0	0	0	0	0	0	380	380	0	127	127	0	0	0	0	0	0	0	0	0
2029 With Project	126	89	215	86	168	255	89	97	186	68	81	149	80	67	147	82	463	545	73	213	285	98	96	193	82	77	159	81	74	154
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	E or F		C	D		C	C		C	C		C	C	

Road Segment Analyses
Year 2029

Road: **Belmont Ave**
Segment: **West of Oller (SR 180)**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3,703	17	15	32	16	38	54	20	27	47	7	37	44	11	19	30	12	20	32	17	15	32	13	19	32
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																									
Baseline Volume	3,892	18	16	34	17	40	57	21	28	49	7	39	46	12	20	32	13	21	34	18	16	34	14	20	34
Project Worker Vehicles	1,430	0	0	0	0	0	0	0	49	49	0	27	27	0	431	431	0	10	10	0	59	59	0	0	0
Project Trucks	68	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	1,498	0	0	0	0	2	2	0	51	51	0	29	29	0	433	433	0	12	12	0	61	61	2	2	4
2029 With Project	5,390	18	16	34	17	42	59	21	79	100	7	68	76	12	453	464	13	33	46	18	77	95	16	22	38
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	E or F		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	66	37	103	44	27	71	51	17	68	43	28	71	47	16	63	30	25	55	36	37	73	37	44	81	37	35	72	35	33	68
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																														
Baseline Volume	69	39	108	46	28	75	54	18	71	45	29	75	49	17	66	32	26	58	38	39	77	39	46	85	39	37	76	37	35	71
Project Worker Vehicles	0	0	0	104	0	104	35	0	35	0	0	0	0	0	0	380	0	380	127	0	127	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	106	0	106	35	0	35	0	0	0	0	0	0	380	0	380	127	0	127	0	0	0	0	0	0	0	0	0
2029 With Project	71	39	110	152	28	181	88	18	106	45	29	75	49	17	66	411	26	438	164	39	203	39	46	85	39	37	76	37	35	71
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		E or F	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2029

Road: **Clarkson Avenue**
Segment: **East of Derrick Avenue (SR 33)**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,046	5	3	8	11	9	20	7	9	16	8	9	17	4	3	7	5	3	8	8	2	10	7	5	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	1,099	5	3	8	12	9	21	7	9	17	8	9	18	4	3	7	5	3	8	8	2	11	7	5	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	1,099	5	3	8	12	9	21	7	9	17	8	9	18	4	3	7	5	3	8	8	2	11	7	5	13
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17	2	19	10	15	25	6	10	16	8	7	15	10	7	17	8	4	12	10	5	15	5	6	11	6	3	9	8	14	22
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	18	2	20	11	16	26	6	11	17	8	7	16	11	7	18	8	4	13	11	5	16	5	6	12	6	3	9	8	15	23
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	18	2	20	11	16	26	6	11	17	8	7	16	11	7	18	8	4	13	11	5	16	5	6	12	6	3	9	8	15	23
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Derrick Ave (SR 33)**
Segment: **North of Clarkson Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	3,226	26	55	81	38	46	84	30	58	88	23	26	49	11	20	31	11	12	23	14	19	33	11	17	28
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	3,391	27	58	85	40	48	88	32	61	92	24	27	51	12	21	33	12	13	24	15	20	35	12	18	29
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	3,391	27	58	85	40	48	88	32	61	92	24	27	51	12	21	33	12	13	24	15	20	35	12	18	29
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	23	30	53	27	19	46	39	21	60	30	30	60	41	22	63	13	23	36	20	24	44	27	24	51	16	21	37	19	19	38
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	24	32	56	28	20	48	41	22	63	32	32	63	43	23	66	14	24	38	21	25	46	28	25	54	17	22	39	20	20	40
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	24	32	56	28	20	48	41	22	63	32	32	63	43	23	66	14	24	38	21	25	46	28	25	54	17	22	39	20	20	40
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Derrick Avenue (SR 33)**
Segment: **South of Clarkson Avenue**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,762	25	52	77	32	38	70	28	58	86	21	25	46	9	17	26	10	9	19	13	12	25	8	12	20
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	2,903	26	55	81	34	40	74	29	61	90	22	26	48	9	18	27	11	9	20	14	13	26	8	13	21
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	2,903	26	55	81	34	40	74	29	61	90	22	26	48	9	18	27	11	9	20	14	13	26	8	13	21
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	29	21	50	22	19	41	34	20	54	27	26	53	40	18	58	10	16	26	22	21	43	23	21	44	15	17	32	14	20	34
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	30	22	53	23	20	43	36	21	57	28	27	56	42	19	61	11	17	27	23	22	45	24	22	46	16	18	34	15	21	36
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	30	22	53	23	20	43	36	21	57	28	27	56	42	19	61	11	17	27	23	22	45	24	22	46	16	18	34	15	21	36
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Madera Avenue (SR 145)**
Segment: **South of SR 180**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	12,545	57	58	115	53	66	119	53	83	136	61	79	140	57	74	131	73	48	121	56	44	100	59	71	130
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																									
Baseline Volume	13,185	60	61	121	56	69	125	56	87	143	64	83	147	60	78	138	77	50	127	59	46	105	62	75	137
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
2029 With Project	13,185	60	61	121	56	69	125	56	87	143	64	83	147	60	78	138	77	50	127	59	48	107	62	75	137
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	143	128	271	146	116	262	137	92	229	130	96	226	139	81	220	129	91	220	141	103	244	96	100	196	100	93	193	81	82	163
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																														
Baseline Volume	150	135	285	153	122	275	144	97	241	137	101	238	146	85	231	136	96	231	148	108	256	101	105	206	105	98	203	85	86	171
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	150	135	285	153	122	275	144	97	241	137	101	238	146	85	231	136	96	231	148	108	256	101	105	206	105	98	203	85	86	171
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2029

Road: **Whitesbridge Road (SR 180)**
Segment: **East of Madera Avenue (SR 145)**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17,311	37	70	107	63	109	172	57	109	166	69	74	143	72	68	140	83	74	157	84	78	162	115	89	204
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																									
Baseline Volume	18,194	39	74	112	66	115	181	60	115	174	73	78	150	76	71	147	87	78	165	88	82	170	121	94	214
Project Worker Vehicles	2,860	0	0	0	0	0	0	0	97	97	0	55	55	0	861	861	0	21	21	0	118	118	0	0	0
Project Trucks	134	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	2,994	0	2	2	0	2	2	0	99	99	0	57	57	0	863	863	0	23	23	0	120	120	2	2	4
2029 With Project	21,188	39	76	114	66	117	183	60	214	274	73	134	207	76	935	1,010	87	101	188	88	202	290	123	96	218
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	E or F		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	191	134	325	165	136	301	160	133	293	165	153	318	159	153	312	172	131	303	161	170	331	151	182	333	145	143	288	164	132	296
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																														
Baseline Volume	201	141	342	173	143	316	168	140	308	173	161	334	167	161	328	181	138	318	169	179	348	159	191	350	152	150	303	172	139	311
Project Worker Vehicles	0	0	0	208	0	208	69	0	69	0	0	0	0	0	0	760	0	760	253	0	253	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	210	0	210	71	0	71	0	0	0	0	0	0	760	0	760	253	0	253	0	0	0	0	0	0	0	0	0
2029 With Project	203	141	344	384	143	527	240	140	379	173	161	334	167	161	328	941	138	1,078	422	179	601	159	191	350	152	150	303	172	139	311
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		E or F	C		D	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2029

Road: **Whitesbridge Road (SR 180)**
Segment: **West of Madera Avenue (SR 145)**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	16,551	37	75	112	71	121	192	59	95	154	64	88	152	65	68	133	81	67	148	88	72	160	114	89	203
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																									
Baseline Volume	17,395	39	79	118	75	127	202	62	100	162	67	92	160	68	71	140	85	70	156	92	76	168	120	94	213
Project Worker Vehicles	2,860	0	0	0	0	0	0	0	97	97	0	55	55	0	861	861	0	21	21	0	118	118	0	0	0
Project Trucks	134	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	2,994	0	2	2	0	2	2	0	99	99	0	57	57	0	863	863	0	23	23	0	120	120	2	2	4
2029 With Project	20,389	39	81	120	75	129	204	62	199	261	67	149	216	68	935	1,003	85	93	178	92	196	288	122	96	217
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	E or F		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	155	123	278	150	142	292	137	146	283	124	159	283	161	165	326	135	153	288	139	198	337	132	189	321	105	171	276	153	144	297
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																														
Baseline Volume	163	129	292	158	149	307	144	153	297	130	167	297	169	173	343	142	161	303	146	208	354	139	199	337	110	180	290	161	151	312
Project Worker Vehicles	0	0	0	208	0	208	69	0	69	0	0	0	0	0	0	760	0	760	253	0	253	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	210	0	210	71	0	71	0	0	0	0	0	0	760	0	760	253	0	253	0	0	0	0	0	0	0	0	0
2029 With Project	165	129	294	368	149	517	215	153	369	130	167	297	169	173	343	902	161	1,062	399	208	607	139	199	337	110	180	290	161	151	312
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		E or F	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2029

Road: **13th Street**
Segment: **East of SR 33**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6,111	29	28	57	53	51	104	71	37	108	34	43	77	42	28	70	61	44	105	45	41	86	35	36	71
LOS		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	6,423	30	29	60	56	54	109	75	39	114	36	45	81	44	29	74	64	46	110	47	43	90	37	38	75
Project Worker Vehicles	3,370	0	328	328	0	0	0	0	0	0	0	115	115	0	64	64	0	1,015	1,015	0	25	25	0	139	139
Project Trucks	18	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
Project Total	3,388	0	329	329	0	1	1	0	1	1	0	116	116	0	65	65	0	1,016	1,016	1	26	27	1	140	141
2029 With Project	9,811	30	358	388	56	55	110	75	40	115	36	161	197	44	95	139	64	1,062	1,126	48	69	117	38	178	216
LOS (Baseline)		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	E		B	B		C	B		B	D		B	C		B	F		B	C		B	D	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	59	63	122	68	60	128	62	55	117	54	51	105	53	79	132	68	72	140	54	65	119	60	60	120	61	44	105	47	82	129
LOS	B	B		B	B		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	C	
Analysis Year 2029																														
Baseline Volume	62	66	128	71	63	135	65	58	123	57	54	110	56	83	139	71	76	147	57	68	125	63	63	126	64	46	110	49	86	136
Project Worker Vehicles	246	0	246	82	0	82	0	0	0	0	0	0	895	0	895	298	0	298	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	247	0	247	83	0	83	1	0	1	0	0	0	895	0	895	298	0	298	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	309	66	375	154	63	217	66	58	124	57	54	110	951	83	1,034	370	76	446	57	68	125	63	63	126	64	46	110	49	86	136
LOS (Baseline)	B	B		C	B		B	B		B	B		B	C		C	C		B	C		B	B		B	B		B	C	
LOS (With Project)	E	B		D	B		B	B		B	B		F	C		E	C		B	C		B	B		B	B		B	C	

Road Segment Analyses
Year 2029

Road: **SR 33**
Segment: **North of 13th Street**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	11,311	93	51	144	127	52	179	96	50	146	97	48	145	55	35	90	61	46	107	57	43	100	78	44	122
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																									
Baseline Volume	11,888	98	54	151	133	55	188	101	53	153	102	50	152	58	37	95	64	48	112	60	45	105	82	46	128
Project Worker Vehicles	3,370	328	0	328	0	0	0	0	0	0	115	0	115	64	0	64	1,015	0	1,015	25	0	25	139	0	139
Project Trucks	32	0	0	0	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	4	2	2	4
Project Total	3,402	328	0	328	2	0	2	2	0	2	117	0	117	66	0	66	1,017	0	1,017	27	2	29	141	2	143
2029 With Project	15,290	425	54	479	135	55	190	103	53	155	219	50	269	124	37	161	1,081	48	1,129	86	47	134	223	48	271
LOS (Baseline)		B			B	B		B	B		B	B		B	B		B			B	B		B	B	
LOS (With Project)		D	C		C	C		C	C		C	C		C	C		E or F	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	100	113	213	85	119	204	80	107	187	105	95	200	92	96	188	108	109	217	93	99	192	84	113	197	80	101	181	102	116	218
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2029																														
Baseline Volume	105	119	224	89	125	214	84	112	197	110	100	210	97	101	198	114	115	228	98	104	202	88	119	207	84	106	190	107	122	229
Project Worker Vehicles	0	246	246	0	82	82	0	0	0	0	0	0	0	895	895	0	298	298	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	248	248	0	82	82	0	0	0	0	0	0	0	895	895	0	298	298	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	105	366	472	89	207	296	84	112	197	110	100	210	97	996	1,093	114	413	526	98	104	202	88	119	207	84	106	190	107	122	229
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	C	C		C	C		C	C		C	C		C	E or F		C	D		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2029

Road: **12th Street**
Segment: **West of SR 33**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	8,563	11	89	100	13	134	147	20	125	145	18	140	158	20	74	94	35	87	122	30	137	167	23	109	132
LOS		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	
Analysis Year 2029																									
Baseline Volume	9,000	12	94	105	14	141	154	21	131	152	19	147	166	21	78	99	37	91	128	32	144	176	24	115	139
Project Worker Vehicles	3,370	0	328	328	0	0	0	0	0	0	0	115	115	0	64	64	0	1,015	1,015	0	25	25	0	139	139
Project Trucks	32	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4	2	2	4
Project Total	3,402	0	328	328	0	2	2	0	2	2	0	117	117	0	66	66	0	1,017	1,017	2	27	29	2	141	143
2029 With Project	12,402	12	421	433	14	143	156	21	133	154	19	264	283	21	144	165	37	1,108	1,145	34	171	204	26	256	282
LOS (Baseline)		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	
LOS (With Project)		B	E		B	D		B	D		B	E		B	D		B	F		B	D		B	E	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	95	37	132	111	45	156	170	36	206	102	61	163	75	60	135	92	52	144	79	44	123	55	37	92	71	31	102	75	47	122
LOS	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	
Analysis Year 2029																														
Baseline Volume	100	39	139	117	47	164	179	38	217	107	64	171	79	63	142	97	55	151	83	46	129	58	39	97	75	33	107	79	49	128
Project Worker Vehicles	246	0	246	82	0	82	0	0	0	0	0	0	895	0	895	298	0	298	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	248	0	248	82	0	82	0	0	0	0	0	0	895	0	895	298	0	298	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	347	39	386	199	47	246	179	38	217	107	64	171	974	63	1,037	395	55	450	83	46	129	58	39	97	75	33	107	79	49	128
LOS (Baseline)	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	
LOS (With Project)	E	B		D	B		D	B		C	B		F	B		E	B		C	B		B	B		C	B		C	B	

Road Segment Analyses
Year 2029

Road: **San Mateo Ave**
Segment: **n/o Clarkson Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	841	5	4	9	5	7	12	1	7	8	12	8	20	5	15	20	7	27	34	7	7	14	4	5	9
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	884	5	4	9	5	7	13	1	7	8	13	8	21	5	16	21	7	28	36	7	7	15	4	5	9
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	884	5	4	9	5	7	13	1	7	8	13	8	21	5	16	21	7	28	36	7	7	15	4	5	9
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	14	5	19	6	4	10	5	3	8	8	10	18	9	12	21	3	5	8	8	4	12	9	9	18	9	6	15	10	6	16
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	15	5	20	6	4	11	5	3	8	8	11	19	9	13	22	3	5	8	8	4	13	9	9	19	9	6	16	11	6	17
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	15	5	20	6	4	11	5	3	8	8	11	19	9	13	22	3	5	8	8	4	13	9	9	19	9	6	16	11	6	17
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Manning Ave**
Segment: **w/o James Ave (e/o solar driveways)**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,476	2	32	34	7	58	65	9	90	99	9	74	83	10	21	31	13	23	36	5	14	19	11	19	30
LOS		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	2,602	2	34	36	7	61	68	9	95	104	9	78	87	11	22	33	14	24	38	5	15	20	12	20	32
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	2,602	2	34	36	7	61	68	9	95	104	9	78	87	11	22	33	14	24	38	5	15	20	12	20	32
LOS (Baseline)		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17	11	28	39	10	49	54	2	56	98	9	107	34	14	48	23	8	31	23	3	26	15	4	19	19	10	29	7	7	14
LOS	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	18	12	29	41	11	51	57	2	59	103	9	112	36	15	50	24	8	33	24	3	27	16	4	20	20	11	30	7	7	15
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	18	12	29	41	11	51	57	2	59	103	9	112	36	15	50	24	8	33	24	3	27	16	4	20	20	11	30	7	7	15
LOS (Baseline)	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Manning Ave**
Segment: **e/o Derrick Ave (w/o solar driveways)**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,207	9	18	27	15	27	42	20	36	56	18	23	41	11	20	31	11	8	19	11	16	27	6	18	24
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	2,320	9	19	28	16	28	44	21	38	59	19	24	43	12	21	33	12	8	20	12	17	28	6	19	25
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	2,320	9	19	28	16	28	44	21	38	59	19	24	43	12	21	33	12	8	20	12	17	28	6	19	25
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	27	9	36	25	16	41	20	22	42	30	34	64	22	19	41	21	6	27	9	15	24	10	11	21	17	3	20	7	9	16
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	28	9	38	26	17	43	21	23	44	32	36	67	23	20	43	22	6	28	9	16	25	11	12	22	18	3	21	7	9	17
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	28	9	38	26	17	43	21	23	44	32	36	67	23	20	43	22	6	28	9	16	25	11	12	22	18	3	21	7	9	17
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Lassen Ave**
Segment: **North of SR 198**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	4,870	66	43	109	100	32	132	91	32	123	63	27	90	39	26	65	35	33	68	33	34	67	27	28	55
LOS		B	B		C	B		C	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	5,118	69	45	115	105	34	139	96	34	129	66	28	95	41	27	68	37	35	71	35	36	70	28	29	58
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	5,118	69	45	115	105	34	139	96	34	129	66	28	95	41	27	68	37	35	71	35	36	70	28	29	58
LOS (Baseline)		C	B		C	B		C	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		C	B		C	B		C	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	50	47	97	35	65	100	36	39	75	25	45	70	39	39	78	36	54	90	33	40	73	38	39	77	29	26	55	28	30	58
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	53	49	102	37	68	105	38	41	79	26	47	74	41	41	82	38	57	95	35	42	77	40	41	81	30	27	58	29	32	61
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	53	49	102	37	68	105	38	41	79	26	47	74	41	41	82	38	57	95	35	42	77	40	41	81	30	27	58	29	32	61
LOS (Baseline)	B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Lassen Ave**
Segment: **South of Elkhorn Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	7,305	33	77	110	51	99	150	66	99	165	34	89	123	32	69	101	28	98	126	43	78	121	25	71	96
LOS		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
Analysis Year 2029																									
Baseline Volume	7,678	35	81	116	54	104	158	69	104	173	36	94	129	34	73	106	29	103	132	45	82	127	26	75	101
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	7,678	35	81	116	54	104	158	69	104	173	36	94	129	34	73	106	29	103	132	45	82	127	26	75	101
LOS (Baseline)		B	C		B	C		C	C		B	C		B	C		B	C		B	C		B	C	
LOS (With Project)		B	C		B	C		C	C		B	C		B	C		B	C		B	C		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	84	49	133	96	41	137	68	51	119	68	42	110	73	55	128	85	38	123	91	55	146	69	48	117	52	55	107	34	41	75
LOS	C	B		C	B		B	B		B	B		C	B		C	B		C	B		C	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	88	51	140	101	43	144	71	54	125	71	44	116	77	58	135	89	40	129	96	58	153	73	50	123	55	58	112	36	43	79
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	88	51	140	101	43	144	71	54	125	71	44	116	77	58	135	89	40	129	96	58	153	73	50	123	55	58	112	36	43	79
LOS (Baseline)	C	B		C	B		C	B		C	B		C	B		C	B		C	B		C	B		B	B		B	B	
LOS (With Project)	C	B		C	B		C	B		C	B		C	B		C	B		C	B		C	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Elkhorn Ave**
Segment: **East of Lassen Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	517	8	5	13	11	6	17	11	8	19	1	5	6	4	3	7	6	5	11	5	4	9	3	1	4
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	543	8	5	14	12	6	18	12	8	20	1	5	6	4	3	7	6	5	12	5	4	9	3	1	4
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	543	8	5	14	12	6	18	12	8	20	1	5	6	4	3	7	6	5	12	5	4	9	3	1	4
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	5	5	10	2	4	6	3	8	11	3	1	4	1	4	5	3	2	5	2	3	5	5	2	7	0	6	6	3	2	5
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	5	5	11	2	4	6	3	8	12	3	1	4	1	4	5	3	2	5	2	3	5	5	2	7	0	6	6	3	2	5
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	5	5	11	2	4	6	3	8	12	3	1	4	1	4	5	3	2	5	2	3	5	5	2	7	0	6	6	3	2	5
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Clarkson Ave**
Segment: **w/o San Mateo Ave, e/o Cantua School**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	972	12	1	13	12	11	23	15	7	22	12	9	21	12	5	17	13	9	22	7	5	12	9	7	16
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	1,022	13	1	14	13	12	24	16	7	23	13	9	22	13	5	18	14	9	23	7	5	13	9	7	17
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	1,022	13	1	14	13	12	24	16	7	23	13	9	22	13	5	18	14	9	23	7	5	13	9	7	17
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6	10	16	8	12	20	8	16	24	18	15	33	11	8	19	4	11	15	6	15	21	7	9	16	6	6	12	4	3	7
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	6	11	17	8	13	21	8	17	25	19	16	35	12	8	20	4	12	16	6	16	22	7	9	17	6	6	13	4	3	7
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	6	11	17	8	13	21	8	17	25	19	16	35	12	8	20	4	12	16	6	16	22	7	9	17	6	6	13	4	3	7
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Clarkson Ave**
Segment: **e/o Santa Clara Ave, w/o Cantua School playground**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,885	6	5	11	19	17	36	15	10	25	7	8	15	6	6	12	13	12	25	13	2	15	19	15	34
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	1,981	6	5	12	20	18	38	16	11	26	7	8	16	6	6	13	14	13	26	14	2	16	20	16	36
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	1,981	6	5	12	20	18	38	16	11	26	7	8	16	6	6	13	14	13	26	14	2	16	20	16	36
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	21	7	28	21	22	43	14	21	35	9	11	20	17	15	32	17	7	24	14	14	28	7	6	13	6	16	22	17	17	34
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	22	7	29	22	23	45	15	22	37	9	12	21	18	16	34	18	7	25	15	15	29	7	6	14	6	17	23	18	18	36
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	22	7	29	22	23	45	15	22	37	9	12	21	18	16	34	18	7	25	15	15	29	7	6	14	6	17	23	18	18	36
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Kamm Ave**
Segment: **e/o Del Norte Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	877	1	7	8	6	8	14	9	13	22	10	7	17	11	12	23	10	6	16	7	5	12	6	3	9
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	922	1	7	8	6	8	15	9	14	23	11	7	18	12	13	24	11	6	17	7	5	13	6	3	9
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	922	1	7	8	6	8	15	9	14	23	11	7	18	12	13	24	11	6	17	7	5	13	6	3	9
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3	8	11	8	8	16	12	9	21	15	3	18	19	10	29	7	3	10	4	6	10	8	1	9	15	4	19	6	4	10
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	3	8	12	8	8	17	13	9	22	16	3	19	20	11	30	7	3	11	4	6	11	8	1	9	16	4	20	6	4	11
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	3	8	12	8	8	17	13	9	22	16	3	19	20	11	30	7	3	11	4	6	11	8	1	9	16	4	20	6	4	11
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Kamm Ave**
Segment: **e/o Napa Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	836	0	1	1	5	5	10	4	3	7	6	8	14	2	1	3	7	9	16	4	2	6	5	7	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	879	0	1	1	5	5	11	4	3	7	6	8	15	2	1	3	7	9	17	4	2	6	5	7	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	879	0	1	1	5	5	11	4	3	7	6	8	15	2	1	3	7	9	17	4	2	6	5	7	13
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	8	3	11	6	1	7	3	4	7	6	2	8	6	19	25	0	5	5	1	5	6	3	1	4	3	2	5	0	0	0
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	8	3	12	6	1	7	3	4	7	6	2	8	6	20	26	0	5	5	1	5	6	3	1	4	3	2	5	0	0	0
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	8	3	12	6	1	7	3	4	7	6	2	8	6	20	26	0	5	5	1	5	6	3	1	4	3	2	5	0	0	0
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Kamm Ave**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,197	10	14	24	2	3	5	3	11	14	0	1	1	7	10	17	6	8	14	3	5	8	6	6	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	1,258	11	15	25	2	3	5	3	12	15	0	1	1	7	11	18	6	8	15	3	5	8	6	6	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	1,258	11	15	25	2	3	5	3	12	15	0	1	1	7	11	18	6	8	15	3	5	8	6	6	13
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	10	12	22	7	7	14	6	10	16	12	12	24	2	5	7	9	11	20	6	5	11	12	3	15	5	3	8	20	0	20
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	11	13	23	7	7	15	6	11	17	13	13	25	2	5	7	9	12	21	6	5	12	13	3	16	5	3	8	21	0	21
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	11	13	23	7	7	15	6	11	17	13	13	25	2	5	7	9	12	21	6	5	12	13	3	16	5	3	8	21	0	21
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **McMullin Grade**
Segment: **West of Madera Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6,362	14	71	85	21	78	99	34	87	121	22	98	120	23	72	95	23	70	93	27	96	123	25	72	97
LOS		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
Analysis Year 2029																									
Baseline Volume	6,687	15	75	89	22	82	104	36	91	127	23	103	126	24	76	100	24	74	98	28	101	129	26	76	102
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	6,687	15	75	89	22	82	104	36	91	127	23	103	126	24	76	100	24	74	98	28	101	129	26	76	102
LOS (Baseline)		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
LOS (With Project)		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	112	25	137	60	41	101	86	31	117	73	30	103	93	32	125	77	38	115	88	37	125	47	32	79	65	36	101	36	36	72
LOS	C	B		B	B		C	B		C	B		C	B		C	B		C	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	118	26	144	63	43	106	90	33	123	77	32	108	98	34	131	81	40	121	92	39	131	49	34	83	68	38	106	38	38	76
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	118	26	144	63	43	106	90	33	123	77	32	108	98	34	131	81	40	121	92	39	131	49	34	83	68	38	106	38	38	76
LOS (Baseline)	C	B		B	B		C	B		C	B		C	B		C	B		C	B		B	B		C	B		B	B	
LOS (With Project)	C	B		B	B		C	B		C	B		C	B		C	B		C	B		B	B		C	B		B	B	

Road Segment Analyses
Year 2029

Road: **Dickenson Ave**
Segment: **s/o Jensen Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	6,413	21	72	93	26	106	132	19	119	138	24	87	111	20	55	75	20	52	72	29	62	91	38	52	90
LOS		B	C		B	C		B	C		B	C		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	6,740	22	76	98	27	111	139	20	125	145	25	91	117	21	58	79	21	55	76	30	65	96	40	55	95
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	6,740	22	76	98	27	111	139	20	125	145	25	91	117	21	58	79	21	55	76	30	65	96	40	55	95
LOS (Baseline)		B	C		B	C		B	D		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)		B	C		B	C		B	D		B	C		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	84	34	118	84	32	116	79	35	114	78	24	102	62	38	100	61	43	104	75	34	109	68	39	107	50	33	83	46	35	81
LOS	C	B		C	B		C	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	88	36	124	88	34	122	83	37	120	82	25	107	65	40	105	64	45	109	79	36	115	71	41	112	53	35	87	48	37	85
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	88	36	124	88	34	122	83	37	120	82	25	107	65	40	105	64	45	109	79	36	115	71	41	112	53	35	87	48	37	85
LOS (Baseline)	C	B		C	B		C	B		C	B		B	B		B	B		C	B		C	B		B	B		B	B	
LOS (With Project)	C	B		C	B		C	B		C	B		B	B		B	B		C	B		C	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **James Rd**
Segment: **n/o Jefferson Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,490	7	32	39	7	42	49	17	64	81	17	48	65	13	22	35	15	16	31	14	25	39	12	21	33
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	2,617	7	34	41	7	44	51	18	67	85	18	50	68	14	23	37	16	17	33	15	26	41	13	22	35
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	2,617	7	34	41	7	44	51	18	67	85	18	50	68	14	23	37	16	17	33	15	26	41	13	22	35
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	32	16	48	37	13	50	32	9	41	49	22	71	41	17	58	26	22	48	24	17	41	15	22	37	20	17	37	18	17	35
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	34	17	50	39	14	53	34	9	43	51	23	75	43	18	61	27	23	50	25	18	43	16	23	39	21	18	39	19	18	37
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	34	17	50	39	14	53	34	9	43	51	23	75	43	18	61	27	23	50	25	18	43	16	23	39	21	18	39	19	18	37
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Derrick Ave**
Segment: **North of Adams Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,487	8	43	51	17	45	62	11	46	57	13	26	39	9	13	22	8	13	21	10	12	22	4	17	21
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	2,614	8	45	54	18	47	65	12	48	60	14	27	41	9	14	23	8	14	22	11	13	23	4	18	22
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	2,614	8	45	54	18	47	65	12	48	60	14	27	41	9	14	23	8	14	22	11	13	23	4	18	22
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	33	10	43	29	16	45	31	16	47	41	11	52	38	11	49	23	21	44	14	19	33	17	22	39	14	11	25	13	12	25
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	35	11	45	30	17	47	33	17	49	43	12	55	40	12	51	24	22	46	15	20	35	18	23	41	15	12	26	14	13	26
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	35	11	45	30	17	47	33	17	49	43	12	55	40	12	51	24	22	46	15	20	35	18	23	41	15	12	26	14	13	26
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Manning Ave**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,168	11	15	26	7	9	16	3	12	15	9	10	19	3	4	7	3	4	7	3	6	9	13	14	27
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	1,228	12	16	27	7	9	17	3	13	16	9	11	20	3	4	7	3	4	7	3	6	9	14	15	28
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	1,228	12	16	27	7	9	17	3	13	16	9	11	20	3	4	7	3	4	7	3	6	9	14	15	28
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	9	11	20	7	7	14	8	13	21	7	7	14	4	10	14	5	6	11	7	5	12	12	3	15	2	1	3	2	0	2
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	9	12	21	7	7	15	8	14	22	7	7	15	4	11	15	5	6	12	7	5	13	13	3	16	2	1	3	2	0	2
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	9	12	21	7	7	15	8	14	22	7	7	15	4	11	15	5	6	12	7	5	13	13	3	16	2	1	3	2	0	2
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Panoche Rd**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,404	1	12	13	11	12	23	14	15	29	24	19	43	7	5	12	5	9	14	4	5	9	12	16	28
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	1,476	1	13	14	12	13	24	15	16	30	25	20	45	7	5	13	5	9	15	4	5	9	13	17	29
Project Worker Vehicles	1,356	0	0	0	0	0	0	46	0	46	26	0	26	408	0	408	10	0	10	56	0	56	0	0	0
Project Trucks	302	0	0	0	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	5	10
Project Total	1,658	0	0	0	5	0	5	51	0	51	31	0	31	413	0	413	15	0	15	61	0	61	5	5	10
2029 With Project	3,134	1	13	14	17	13	29	66	16	82	56	20	76	421	5	426	20	9	30	65	5	70	18	22	39
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		E	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	9	10	19	12	7	19	5	7	12	13	8	21	12	28	40	2	7	9	9	7	16	15	5	20	3	0	3	6	2	8
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	9	11	20	13	7	20	5	7	13	14	8	22	13	29	42	2	7	9	9	7	17	16	5	21	3	0	3	6	2	8
Project Worker Vehicles	0	0	0	0	99	99	0	33	33	0	0	0	0	0	0	0	360	360	0	120	120	0	0	0	0	0	0	0	0	0
Project Trucks	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	5	5	0	104	104	0	33	33	0	0	0	0	0	0	0	360	360	0	120	120	0	0	0	0	0	0	0	0	0
2029 With Project	9	16	25	13	111	124	5	40	46	14	8	22	13	29	42	2	368	370	9	127	137	16	5	21	3	0	3	6	2	8
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	C		B	B		B	B		B	B		B	E		B	D		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **California Ave**
Segment: **e/o San Diego Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,272	3	20	23	3	63	66	3	126	129	4	64	68	15	20	35	1	15	16	8	19	27	3	31	34
LOS		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	2,388	3	21	24	3	66	69	3	132	136	4	67	71	16	21	37	1	16	17	8	20	28	3	33	36
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	2,388	3	21	24	3	66	69	3	132	136	4	67	71	16	21	37	1	16	17	8	20	28	3	33	36
LOS (Baseline)		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	32	8	40	25	9	34	25	8	33	25	6	31	42	7	49	28	6	34	21	6	27	15	3	18	13	4	17	19	9	28
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	34	8	42	26	9	36	26	8	35	26	6	33	44	7	51	29	6	36	22	6	28	16	3	19	14	4	18	20	9	29
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	34	8	42	26	9	36	26	8	35	26	6	33	44	7	51	29	6	36	22	6	28	16	3	19	14	4	18	20	9	29
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Belmont Ave**
Segment: **e/o San Diego Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,214	3	25	28	0	64	64	10	123	133	7	58	65	5	34	39	4	14	18	10	20	30	12	11	23
LOS		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	2,327	3	26	29	0	67	67	11	129	140	7	61	68	5	36	41	4	15	19	11	21	32	13	12	24
Project Worker Vehicles	1,430	0	0	0	0	0	0	0	49	49	0	27	27	0	431	431	0	10	10	0	59	59	0	0	0
Project Trucks	68	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	1,498	0	0	0	0	2	2	0	51	51	0	29	29	0	433	433	0	12	12	0	61	61	2	2	4
2029 With Project	3,825	3	26	29	0	69	69	11	180	190	7	90	98	5	468	474	4	27	31	11	82	93	15	14	28
LOS (Baseline)		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	C		B	D		B	C		B	F		B	B		B	C		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	24	11	35	36	13	49	31	6	37	45	16	61	38	9	47	20	9	29	11	16	27	5	16	21	4	25	29	37	12	49
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	25	12	37	38	14	51	33	6	39	47	17	64	40	9	49	21	9	30	12	17	28	5	17	22	4	26	30	39	13	51
Project Worker Vehicles	0	0	0	104	0	104	35	0	35	0	0	0	0	0	0	380	0	380	127	0	127	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	106	0	106	35	0	35	0	0	0	0	0	0	380	0	380	127	0	127	0	0	0	0	0	0	0	0	0
2029 With Project	27	12	39	144	14	158	67	6	74	47	17	64	40	9	49	401	9	410	138	17	155	5	17	22	4	26	30	39	13	51
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		D	B		B	B		B	B		B	B		E	B		D	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Shields Ave**
Segment: **w/o Russell Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,781	4	8	12	5	30	35	10	31	41	3	28	31	10	20	30	18	19	37	8	19	27	8	24	32
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	1,872	4	8	13	5	32	37	11	33	43	3	29	33	11	21	32	19	20	39	8	20	28	8	25	34
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	1,872	4	8	13	5	32	37	11	33	43	3	29	33	11	21	32	19	20	39	8	20	28	8	25	34
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	24	12	36	18	11	29	38	8	46	13	11	24	19	10	29	14	8	22	6	3	9	5	2	7	10	13	23	3	21	24
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	25	13	38	19	12	30	40	8	48	14	12	25	20	11	30	15	8	23	6	3	9	5	2	7	11	14	24	3	22	25
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	25	13	38	19	12	30	40	8	48	14	12	25	20	11	30	15	8	23	6	3	9	5	2	7	11	14	24	3	22	25
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Bullard Ave**
Segment: **e/o Washoe Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3,570	22	15	37	17	35	52	29	43	72	20	44	64	34	11	45	18	48	66	22	50	72	30	37	67
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	3,752	23	16	39	18	37	55	30	45	76	21	46	67	36	12	47	19	50	69	23	53	76	32	39	70
Project Worker Vehicles	1,430	0	139	139	0	0	0	0	0	0	0	49	49	0	27	27	0	431	431	0	10	10	0	59	59
Project Trucks	34	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	1,464	0	139	139	0	2	2	0	2	2	0	51	51	0	29	29	0	433	433	0	12	12	2	61	63
2029 With Project	5,216	23	155	178	18	39	57	30	47	78	21	97	118	36	41	77	19	483	502	23	65	88	34	100	133
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	D		B	B		B	B		B	C		B	B		B	F		B	B		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	27	27	54	19	13	32	30	23	53	26	7	33	27	20	47	38	10	48	25	17	42	20	13	33	22	18	40	29	15	44
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	28	28	57	20	14	34	32	24	56	27	7	35	28	21	49	40	11	50	26	18	44	21	14	35	23	19	42	30	16	46
Project Worker Vehicles	104	0	104	35	0	35	0	0	0	0	0	0	380	0	380	127	0	127	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	106	0	106	37	0	37	0	0	0	0	0	0	380	0	380	127	0	127	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	135	28	163	57	14	70	32	24	56	27	7	35	408	21	429	167	11	177	26	18	44	21	14	35	23	19	42	30	16	46
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	D	B		B	B		B	B		B	B		E	B		D	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Ave 7**
Segment: **e/o Firebaugh Blvd**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	4,812	22	56	78	24	69	93	53	52	105	33	37	70	29	51	80	25	53	78	46	56	102	35	75	110
LOS		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	
Analysis Year 2029																									
Baseline Volume	5,057	23	59	82	25	73	98	56	55	110	35	39	74	30	54	84	26	56	82	48	59	107	37	79	116
Project Worker Vehicles	2,496	0	243	243	0	0	0	0	0	0	0	85	85	0	48	48	0	752	752	0	18	18	0	103	103
Project Trucks	18	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
Project Total	2,514	0	244	244	0	1	1	0	1	1	0	86	86	0	49	49	0	753	753	1	19	20	1	104	105
2029 With Project	7,571	23	302	326	25	74	99	56	56	111	35	125	159	30	102	133	26	808	834	49	78	127	38	183	221
LOS (Baseline)		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	
LOS (With Project)		B	E		B	C		B	B		B	D		B	C		B	F		B	C		B	D	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	43	57	100	46	32	78	32	28	60	49	37	86	47	44	91	44	36	80	34	32	66	38	26	64	44	42	86	28	37	65
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	45	60	105	48	34	82	34	29	63	51	39	90	49	46	96	46	38	84	36	34	69	40	27	67	46	44	90	29	39	68
Project Worker Vehicles	182	0	182	61	0	61	0	0	0	0	0	0	663	0	663	221	0	221	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	183	0	183	62	0	62	1	0	1	0	0	0	663	0	663	221	0	221	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	228	60	288	110	34	144	35	29	64	51	39	90	712	46	759	267	38	305	36	34	69	40	27	67	46	44	90	29	39	68
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	E	B		C	B		B	B		B	B		F	B		E	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2029

Road: **Ave 7 1/2**
Segment: **w/o Firebaugh Blvd**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	7,896	35	88	123	43	103	146	79	87	166	50	57	107	36	58	94	41	69	110	55	78	133	44	88	132
LOS		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	
Analysis Year 2029																									
Baseline Volume	8,299	37	92	129	45	108	153	83	91	174	53	60	112	38	61	99	43	73	116	58	82	140	46	92	139
Project Worker Vehicles	3,370	0	328	328	0	0	0	0	0	0	0	115	115	0	64	64	0	1,015	1,015	0	25	25	0	139	139
Project Trucks	18	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
Project Total	3,388	0	329	329	0	1	1	0	1	1	0	116	116	0	65	65	0	1,016	1,016	1	26	27	1	140	141
2029 With Project	11,687	37	421	458	45	109	154	83	92	175	53	176	228	38	126	164	43	1,088	1,131	59	108	166	47	233	280
LOS (Baseline)		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	
LOS (With Project)		B	E		B	C		C	C		B	D		B	D		B	F		B	C		B	E	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	69	75	144	67	62	129	65	55	120	68	59	127	76	76	152	78	62	140	64	44	108	60	51	111	60	66	126	48	57	105
LOS	C	C		B	B		B	B		B	B		C	C		C	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	73	79	151	70	65	136	68	58	126	71	62	133	80	80	160	82	65	147	67	46	114	63	54	117	63	69	132	50	60	110
Project Worker Vehicles	246	0	246	82	0	82	0	0	0	0	0	0	895	0	895	298	0	298	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	247	0	247	83	0	83	1	0	1	0	0	0	895	0	895	298	0	298	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	319	79	398	153	65	218	69	58	127	71	62	133	975	80	1,055	380	65	446	67	46	114	63	54	117	63	69	132	50	60	110
LOS (Baseline)	C	C		C	B		C	B		C	B		C	C		C	B		B	B		B	B		B	C		B	B	
LOS (With Project)	E	C		D	B		C	B		C	B		F	C		E	B		B	B		B	B		B	C		B	B	

Road Segment Analyses
Year 2029

Road: **Nees Ave**
Segment: **w/o Russell Ave**

Count Year 2024
Analysis Year 2029
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	5,522	17	38	55	13	64	77	25	85	110	33	61	94	37	55	92	20	37	57	37	54	91	10	54	64
LOS		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2029																									
Baseline Volume	5,804	18	40	58	14	67	81	26	89	116	35	64	99	39	58	97	21	39	60	39	57	96	11	57	67
Project Worker Vehicles	544	53	0	53	0	0	0	0	0	0	19	0	19	10	0	10	164	0	164	4	0	4	22	0	22
Project Trucks	298	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	842	53	0	53	9	0	9	9	0	9	28	0	28	19	0	19	173	0	173	13	9	22	31	9	40
2029 With Project	6,646	71	40	111	23	67	90	35	89	125	62	64	126	58	58	116	194	39	233	52	66	118	42	66	108
LOS (Baseline)		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		C	B		B	B		B	C		B	B		B	B		D	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	52	21	73	91	25	116	58	29	87	66	21	87	62	35	97	43	37	80	70	14	84	52	22	74	54	19	73	47	13	60
LOS	B	B		C	B		B	B		B	B		B	B		B	B		C	B		B	B		B	B		B	B	
Analysis Year 2029																														
Baseline Volume	55	22	77	96	26	122	61	30	91	69	22	91	65	37	102	45	39	84	74	15	88	55	23	78	57	20	77	49	14	63
Project Worker Vehicles	0	40	40	0	13	13	0	0	0	0	0	0	0	145	145	0	48	48	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	49	49	0	22	22	0	0	0	0	0	0	0	145	145	0	48	48	0	0	0	0	0	0	0	0	0	0	0	0
2029 With Project	55	71	125	96	48	144	61	30	91	69	22	91	65	181	246	45	87	132	74	15	88	55	23	78	57	20	77	49	14	63
LOS (Baseline)	B	B		C	B		B	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	
LOS (With Project)	B	C		C	B		B	B		C	B		B	D		B	C		C	B		B	B		B	B		B	B	

APPENDIX E

ROAD SEGMENT ANALYSES – YEAR 2031

Road Segment Analyses
Year 2031

Road: **SR 145 (Fresno Coalinga Rd)**
Segment: **West of Mt. Whitney Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	4,417	11	35	46	16	65	81	17	38	55	25	59	84	34	53	87	35	95	130	26	61	87	33	52	85
LOS		B	B		B	B		B	B		B	B		B	B		B	C		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	4,736	12	38	49	17	70	87	18	41	59	27	63	90	36	57	93	38	102	139	28	65	93	35	56	91
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	302	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	302	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
2031 With Project	5,038	12	38	49	26	70	96	27	41	68	36	63	99	45	57	102	47	102	148	37	74	111	44	65	109
LOS (Baseline)		B	B		B	C		B	B		B	B		B	B		B	C		B	B		B	B	
LOS (With Project)		B	B		B	C		B	B		B	B		B	B		B	C		B	C		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	60	26	86	59	37	96	48	36	84	59	28	87	62	31	93	43	29	72	52	16	68	40	28	68	28	24	52	16	20	36
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	64	28	92	63	40	103	51	39	90	63	30	93	66	33	100	46	31	77	56	17	73	43	30	73	30	26	56	17	21	39
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	64	37	101	63	49	112	51	39	90	63	30	93	66	33	100	46	31	77	56	17	73	43	30	73	30	26	56	17	21	39
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Mt. Whitney Ave**
Segment: **East of Lassen**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,914	7	21	28	21	38	59	20	45	65	17	48	65	17	36	53	18	46	64	16	37	53	9	37	46
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	3,124	8	23	30	23	41	63	21	48	70	18	51	70	18	39	57	19	49	69	17	40	57	10	40	49
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	3,124	8	23	30	23	41	63	21	48	70	18	51	70	18	39	57	19	49	69	17	40	57	10	40	49
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	47	21	68	53	27	80	56	19	75	49	17	66	37	31	68	34	28	62	47	14	61	30	19	49	26	25	51	16	21	37
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	50	23	73	57	29	86	60	20	80	53	18	71	40	33	73	36	30	66	50	15	65	32	20	53	28	27	55	17	23	40
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	50	23	73	57	29	86	60	20	80	53	18	71	40	33	73	36	30	66	50	15	65	32	20	53	28	27	55	17	23	40
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Oller St (SR 180)**
Segment: **North of Belmont Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	8,150	44	72	116	31	83	114	38	117	155	51	65	116	27	75	102	38	60	98	46	66	112	47	77	124
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																									
Baseline Volume	8,738	47	77	124	33	89	122	41	125	166	55	70	124	29	80	109	41	64	105	49	71	120	50	83	133
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	4	2	2	4
Project Total	0	0	0	0	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	4	2	2	4
2031 With Project	8,738	47	77	124	35	89	124	43	125	168	57	70	126	31	80	111	43	64	107	51	73	124	52	85	137
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	120	83	203	82	61	143	85	59	144	65	77	142	76	64	140	78	79	157	69	82	151	93	91	184	78	73	151	77	70	147
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																														
Baseline Volume	129	89	218	88	65	153	91	63	154	70	83	152	81	69	150	84	85	168	74	88	162	100	98	197	84	78	162	83	75	158
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	129	91	220	88	65	153	91	63	154	70	83	152	81	69	150	84	85	168	74	88	162	100	98	197	84	78	162	83	75	158
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2031

Road: **Belmont Ave**
Segment: **West of Oller (SR 180)**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3,703	17	15	32	16	38	54	20	27	47	7	37	44	11	19	30	12	20	32	17	15	32	13	19	32
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																									
Baseline Volume	3,970	18	16	34	17	41	58	21	29	50	8	40	47	12	20	32	13	21	34	18	16	34	14	20	34
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
2031 With Project	3,970	18	16	34	17	43	60	21	31	52	8	42	49	12	22	34	13	23	36	18	18	36	16	22	38
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	66	37	103	44	27	71	51	17	68	43	28	71	47	16	63	30	25	55	36	37	73	37	44	81	37	35	72	35	33	68
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																														
Baseline Volume	71	40	110	47	29	76	55	18	73	46	30	76	50	17	68	32	27	59	39	40	78	40	47	87	40	38	77	38	35	73
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	73	40	112	49	29	78	55	18	73	46	30	76	50	17	68	32	27	59	39	40	78	40	47	87	40	38	77	38	35	73
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2031

Road: **Clarkson Avenue**
Segment: **East of Derrick Avenue (SR 33)**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,046	5	3	8	11	9	20	7	9	16	8	9	17	4	3	7	5	3	8	8	2	10	7	5	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	1,121	5	3	9	12	10	21	8	10	17	9	10	18	4	3	8	5	3	9	9	2	11	8	5	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	346	0	0	0	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	5	10	5	5	10
Project Total	346	0	0	0	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	5	10	5	5	10
2031 With Project	1,467	5	3	9	17	10	26	13	10	22	14	10	23	9	3	13	10	3	14	14	7	21	13	10	23
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17	2	19	10	15	25	6	10	16	8	7	15	10	7	17	8	4	12	10	5	15	5	6	11	6	3	9	8	14	22
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	18	2	20	11	16	27	6	11	17	9	8	16	11	8	18	9	4	13	11	5	16	5	6	12	6	3	10	9	15	24
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	18	7	25	11	21	32	6	11	17	9	8	16	11	8	18	9	4	13	11	5	16	5	6	12	6	3	10	9	15	24
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Derrick Ave (SR 33)**
Segment: **North of Clarkson Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	3,226	26	55	81	38	46	84	30	58	88	23	26	49	11	20	31	11	12	23	14	19	33	11	17	28
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	3,459	28	59	87	41	49	90	32	62	94	25	28	53	12	21	33	12	13	25	15	20	35	12	18	30
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	308	0	0	0	2	2	4	2	2	4	2	2	4	2	2	4	2	2	4	2	4	6	4	4	8
Project Total	308	0	0	0	2	2	4	2	2	4	2	2	4	2	2	4	2	2	4	2	4	6	4	4	8
2031 With Project	3,767	28	59	87	43	51	94	34	64	98	27	30	57	14	23	37	14	15	29	17	24	41	16	22	38
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	23	30	53	27	19	46	39	21	60	30	30	60	41	22	63	13	23	36	20	24	44	27	24	51	16	21	37	19	19	38
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	25	32	57	29	20	49	42	23	64	32	32	64	44	24	68	14	25	39	21	26	47	29	26	55	17	23	40	20	20	41
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	4	4	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	4	4	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	25	36	61	29	24	53	42	23	64	32	32	64	44	24	68	14	25	39	21	26	47	29	26	55	17	23	40	20	20	41
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Derrick Avenue (SR 33)**
Segment: **South of Clarkson Avenue**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,762	25	52	77	32	38	70	28	58	86	21	25	46	9	17	26	10	9	19	13	12	25	8	12	20
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,961	27	56	83	34	41	75	30	62	92	23	27	49	10	18	28	11	10	20	14	13	27	9	13	21
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	302	0	0	0	7	0	7	7	0	7	7	0	7	7	0	7	7	0	7	7	7	14	7	7	14
Project Total	302	0	0	0	7	0	7	7	0	7	7	0	7	7	0	7	7	0	7	7	7	14	7	7	14
2031 With Project	3,263	27	56	83	41	41	82	37	62	99	30	27	56	17	18	35	18	10	27	21	20	41	16	20	35
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	29	21	50	22	19	41	34	20	54	27	26	53	40	18	58	10	16	26	22	21	43	23	21	44	15	17	32	14	20	34
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	31	23	54	24	20	44	36	21	58	29	28	57	43	19	62	11	17	28	24	23	46	25	23	47	16	18	34	15	21	36
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	7	7	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	7	7	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	31	30	61	24	27	51	36	21	58	29	28	57	43	19	62	11	17	28	24	23	46	25	23	47	16	18	34	15	21	36
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Madera Avenue (SR 145)**
Segment: **South of SR 180**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	12,545	57	58	115	53	66	119	53	83	136	61	79	140	57	74	131	73	48	121	56	44	100	59	71	130
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																									
Baseline Volume	13,450	61	62	123	57	71	128	57	89	146	65	85	150	61	79	140	78	51	130	60	47	107	63	76	139
Project Worker Vehicles	874	0	0	0	0	0	0	0	30	30	0	17	17	0	263	263	0	6	6	0	36	36	0	0	0
Project Trucks	18	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
Project Total	892	0	1	1	0	1	1	0	31	31	0	18	18	0	264	264	0	7	7	1	37	38	1	1	2
2031 With Project	14,342	61	63	124	57	72	129	57	120	177	65	102	168	61	343	405	78	59	137	61	84	145	64	77	141
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	143	128	271	146	116	262	137	92	229	130	96	226	139	81	220	129	91	220	141	103	244	96	100	196	100	93	193	81	82	163
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																														
Baseline Volume	153	137	291	157	124	281	147	99	246	139	103	242	149	87	236	138	98	236	151	110	262	103	107	210	107	100	207	87	88	175
Project Worker Vehicles	0	0	0	64	0	64	21	0	21	0	0	0	0	0	0	232	0	232	77	0	77	0	0	0	0	0	0	0	0	0
Project Trucks	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	1	0	1	65	0	65	22	0	22	0	0	0	0	0	0	232	0	232	77	0	77	0	0	0	0	0	0	0	0	0
2031 With Project	154	137	292	221	124	346	169	99	268	139	103	242	149	87	236	370	98	468	229	110	339	103	107	210	107	100	207	87	88	175
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2031

Road: **Whitesbridge Road (SR 180)**
Segment: **East of Madera Avenue (SR 145)**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17,311	37	70	107	63	109	172	57	109	166	69	74	143	72	68	140	83	74	157	84	78	162	115	89	204
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																									
Baseline Volume	18,560	40	75	115	68	117	184	61	117	178	74	79	153	77	73	150	89	79	168	90	84	174	123	95	219
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
2031 With Project	18,560	40	77	117	68	119	186	61	119	180	74	81	155	77	75	152	89	81	170	90	86	176	125	97	223
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	191	134	325	165	136	301	160	133	293	165	153	318	159	153	312	172	131	303	161	170	331	151	182	333	145	143	288	164	132	296
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																														
Baseline Volume	205	144	348	177	146	323	172	143	314	177	164	341	170	164	335	184	140	325	173	182	355	162	195	357	155	153	309	176	142	317
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	207	144	350	179	146	325	174	143	316	177	164	341	170	164	335	184	140	325	173	182	355	162	195	357	155	153	309	176	142	317
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2031

Road: **Whitesbridge Road (SR 180)**
Segment: **West of Madera Avenue (SR 145)**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	16,551	37	75	112	71	121	192	59	95	154	64	88	152	65	68	133	81	67	148	88	72	160	114	89	203
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																									
Baseline Volume	17,745	40	80	120	76	130	206	63	102	165	69	94	163	70	73	143	87	72	159	94	77	172	122	95	218
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
2031 With Project	17,745	40	82	122	76	132	208	63	104	167	69	96	165	70	75	145	87	74	161	94	79	174	124	97	222
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	155	123	278	150	142	292	137	146	283	124	159	283	161	165	326	135	153	288	139	198	337	132	189	321	105	171	276	153	144	297
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																														
Baseline Volume	166	132	298	161	152	313	147	157	303	133	170	303	173	177	350	145	164	309	149	212	361	142	203	344	113	183	296	164	154	318
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	168	132	300	163	152	315	149	157	305	133	170	303	173	177	350	145	164	309	149	212	361	142	203	344	113	183	296	164	154	318
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2031

Road: **13th Street**
Segment: **East of SR 33**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6,111	29	28	57	53	51	104	71	37	108	34	43	77	42	28	70	61	44	105	45	41	86	35	36	71
LOS		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	6,552	31	30	61	57	55	112	76	40	116	36	46	83	45	30	75	65	47	113	48	44	92	38	39	76
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
Project Total	0	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
2031 With Project	6,552	31	31	62	57	56	113	76	41	117	36	47	84	45	31	76	65	48	114	49	45	94	39	40	78
LOS (Baseline)		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	59	63	122	68	60	128	62	55	117	54	51	105	53	79	132	68	72	140	54	65	119	60	60	120	61	44	105	47	82	129
LOS	B	B		B	B		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	C	
Analysis Year 2031																														
Baseline Volume	63	68	131	73	64	137	66	59	125	58	55	113	57	85	142	73	77	150	58	70	128	64	64	129	65	47	113	50	88	138
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	64	68	132	74	64	138	67	59	126	58	55	113	57	85	142	73	77	150	58	70	128	64	64	129	65	47	113	50	88	138
LOS (Baseline)	B	B		C	B		B	B		B	B		B	C		C	C		B	C		B	B		B	B		B	C	
LOS (With Project)	B	B		C	B		B	B		B	B		B	C		C	C		B	C		B	B		B	B		B	C	

Road Segment Analyses
Year 2031

Road: **SR 33**
Segment: **North of 13th Street**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	11,311	93	51	144	127	52	179	96	50	146	97	48	145	55	35	90	61	46	107	57	43	100	78	44	122
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																									
Baseline Volume	12,127	100	55	154	136	56	192	103	54	157	104	51	155	59	38	96	65	49	115	61	46	107	84	47	131
Project Worker Vehicles	874	0	0	0	0	0	0	0	30	30	0	17	17	0	263	263	0	6	6	0	36	36	0	0	0
Project Trucks	0	0	0	0	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	4	2	2	4
Project Total	874	0	0	0	2	0	2	2	30	32	2	17	19	2	263	265	2	6	8	2	38	40	2	2	4
2031 With Project	13,001	100	55	154	138	56	194	105	83	188	106	68	174	61	301	362	67	56	123	63	84	147	86	49	135
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	100	113	213	85	119	204	80	107	187	105	95	200	92	96	188	108	109	217	93	99	192	84	113	197	80	101	181	102	116	218
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2031																														
Baseline Volume	107	121	228	91	128	219	86	115	200	113	102	214	99	103	202	116	117	233	100	106	206	90	121	211	86	108	194	109	124	234
Project Worker Vehicles	0	0	0	64	0	64	21	0	21	0	0	0	0	0	0	232	0	232	77	0	77	0	0	0	0	0	0	0	0	0
Project Trucks	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	2	2	64	0	64	21	0	21	0	0	0	0	0	0	232	0	232	77	0	77	0	0	0	0	0	0	0	0	0
2031 With Project	107	123	230	155	128	282	107	115	222	113	102	214	99	103	202	348	117	465	177	106	283	90	121	211	86	108	194	109	124	234
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2031

Road: **12th Street**
Segment: **West of SR 33**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	8,563	11	89	100	13	134	147	20	125	145	18	140	158	20	74	94	35	87	122	30	137	167	23	109	132
LOS		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	
Analysis Year 2031																									
Baseline Volume	9,181	12	95	107	14	144	158	21	134	155	19	150	169	21	79	101	38	93	131	32	147	179	25	117	142
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4	2	2	4
Project Total	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4	2	2	4
2031 With Project	9,181	12	95	107	14	146	160	21	136	157	19	152	171	21	81	103	38	95	133	34	149	183	27	119	146
LOS (Baseline)		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	
LOS (With Project)		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	95	37	132	111	45	156	170	36	206	102	61	163	75	60	135	92	52	144	79	44	123	55	37	92	71	31	102	75	47	122
LOS	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	
Analysis Year 2031																														
Baseline Volume	102	40	142	119	48	167	182	39	221	109	65	175	80	64	145	99	56	154	85	47	132	59	40	99	76	33	109	80	50	131
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	104	40	144	119	48	167	182	39	221	109	65	175	80	64	145	99	56	154	85	47	132	59	40	99	76	33	109	80	50	131
LOS (Baseline)	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	
LOS (With Project)	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	

Road Segment Analyses
Year 2031

Road: **San Mateo Ave**
Segment: **n/o Clarkson Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	841	5	4	9	5	7	12	1	7	8	12	8	20	5	15	20	7	27	34	7	7	14	4	5	9
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	902	5	4	10	5	8	13	1	8	9	13	9	21	5	16	21	8	29	36	8	8	15	4	5	10
Project Worker Vehicles	3,602	153	197	350	0	0	0	0	0	0	54	69	123	30	39	69	475	610	1,085	11	15	26	65	84	149
Project Trucks	176	0	0	0	2	0	2	2	0	2	2	0	2	3	0	3	3	0	3	2	2	4	2	2	4
Project Total	3,778	153	197	350	2	0	2	2	0	2	56	69	125	33	39	72	478	610	1,088	13	17	30	67	86	153
2031 With Project	4,680	158	201	360	7	8	15	3	8	11	69	78	146	38	55	93	486	639	1,124	21	25	45	71	91	163
LOS (Baseline)	B	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	D	D		B	B		B	B		C	C		B	B		F	F		B	B		C	C		

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	14	5	19	6	4	10	5	3	8	8	10	18	9	12	21	3	5	8	8	4	12	9	9	18	9	6	15	10	6	16
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	15	5	20	6	4	11	5	3	9	9	11	19	10	13	23	3	5	9	9	4	13	10	10	19	10	6	16	11	6	17
Project Worker Vehicles	148	115	263	49	38	87	0	0	0	0	0	0	538	419	957	179	140	319	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	3	3	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	148	118	266	49	41	90	0	0	0	0	0	0	538	419	957	179	140	319	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	163	123	286	55	45	101	5	3	9	9	11	19	548	432	980	182	145	328	9	4	13	10	10	19	10	6	16	11	6	17
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	D	D		B	B		B	B		B	B		F	F		D	D		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Manning Ave**
Segment: **w/o James Ave (e/o solar driveways)**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,476	2	32	34	7	58	65	9	90	99	9	74	83	10	21	31	13	23	36	5	14	19	11	19	30
LOS		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,655	2	34	36	8	62	70	10	96	106	10	79	89	11	23	33	14	25	39	5	15	20	12	20	32
Project Worker Vehicles	1,418	138	0	138	0	0	0	0	0	0	48	0	48	27	0	27	427	0	427	10	0	10	59	0	59
Project Trucks	298	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	1,716	138	0	138	9	0	9	9	0	9	57	0	57	36	0	36	436	0	436	19	9	28	68	9	77
2031 With Project	4,371	140	34	174	17	62	79	19	96	115	67	79	146	47	23	69	450	25	475	25	24	49	79	29	109
LOS (Baseline)	B	B			B	B		B	C		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)	D	B			B	B		B	C		B	C		B	B		F	B		B	B		C	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17	11	28	39	10	49	54	2	56	98	9	107	34	14	48	23	8	31	23	3	26	15	4	19	19	10	29	7	7	14
LOS	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	18	12	30	42	11	53	58	2	60	105	10	115	36	15	51	25	9	33	25	3	28	16	4	20	20	11	31	8	8	15
Project Worker Vehicles	0	103	103	0	34	34	0	0	0	0	0	0	0	377	377	0	126	126	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	112	112	0	43	43	0	0	0	0	0	0	0	377	377	0	126	126	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	18	124	142	42	54	96	58	2	60	105	10	115	36	392	428	25	134	159	25	3	28	16	4	20	20	11	31	8	8	15
LOS (Baseline)	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	D		B	B		B	B		C	B		B	E		B	D		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Manning Ave**
Segment: **e/o Derrick Ave (w/o solar driveways)**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,207	9	18	27	15	27	42	20	36	56	18	23	41	11	20	31	11	8	19	11	16	27	6	18	24
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,366	10	19	29	16	29	45	21	39	60	19	25	44	12	21	33	12	9	20	12	17	29	6	19	26
Project Worker Vehicles	1,418	138	0	138	0	0	0	0	0	0	48	0	48	27	0	27	427	0	427	10	0	10	59	0	59
Project Trucks	298	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	1,716	138	0	138	9	0	9	9	0	9	57	0	57	36	0	36	436	0	436	19	9	28	68	9	77
2031 With Project	4,082	147	19	167	25	29	54	30	39	69	77	25	101	48	21	69	448	9	456	31	26	57	74	28	102
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		D	B		B	B		B	B		C	B		B	B		F	B		B	B		C	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	27	9	36	25	16	41	20	22	42	30	34	64	22	19	41	21	6	27	9	15	24	10	11	21	17	3	20	7	9	16
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	29	10	39	27	17	44	21	24	45	32	36	69	24	20	44	23	6	29	10	16	26	11	12	23	18	3	21	8	10	17
Project Worker Vehicles	0	103	103	0	34	34	0	0	0	0	0	0	0	377	377	0	126	126	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	112	112	0	43	43	0	0	0	0	0	0	0	377	377	0	126	126	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	29	122	151	27	61	87	21	24	45	32	36	69	24	397	421	23	132	155	10	16	26	11	12	23	18	3	21	8	10	17
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	C		B	B		B	B		B	B		B	E		B	D		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Lassen Ave**
Segment: **North of SR 198**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	4,870	66	43	109	100	32	132	91	32	123	63	27	90	39	26	65	35	33	68	33	34	67	27	28	55
LOS		B	B		C	B		C	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	5,221	71	46	117	107	34	142	98	34	132	68	29	96	42	28	70	38	35	73	35	36	72	29	30	59
Project Worker Vehicles	408	0	0	0	0	0	0	14	0	14	8	0	8	123	0	123	3	0	3	17	0	17	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	408	0	0	0	0	0	0	14	0	14	8	0	8	123	0	123	3	0	3	17	0	17	0	0	0
2031 With Project	5,629	71	46	117	107	34	142	111	34	146	75	29	104	165	28	193	40	35	76	52	36	89	29	30	59
LOS (Baseline)		C	B		C	B		C	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		C	B		C	B		C	B		C	B		D	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	50	47	97	35	65	100	36	39	75	25	45	70	39	39	78	36	54	90	33	40	73	38	39	77	29	26	55	28	30	58
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	54	50	104	38	70	107	39	42	80	27	48	75	42	42	84	39	58	96	35	43	78	41	42	83	31	28	59	30	32	62
Project Worker Vehicles	0	0	0	0	30	30	0	10	10	0	0	0	0	0	0	0	108	108	0	36	36	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	30	30	0	10	10	0	0	0	0	0	0	0	108	108	0	36	36	0	0	0	0	0	0	0	0	0
2031 With Project	54	50	104	38	99	137	39	52	90	27	48	75	42	42	84	39	166	205	35	79	114	41	42	83	31	28	59	30	32	62
LOS (Baseline)	B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	C		B	B		B	B		B	B		B	D		B	C		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Lassen Ave**
Segment: **South of Elkhorn Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	7,305	33	77	110	51	99	150	66	99	165	34	89	123	32	69	101	28	98	126	43	78	121	25	71	96
LOS		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
Analysis Year 2031																									
Baseline Volume	7,832	35	83	118	55	106	161	71	106	177	36	95	132	34	74	108	30	105	135	46	84	130	27	76	103
Project Worker Vehicles	408	40	0	40	0	0	0	0	0	0	14	0	14	8	0	8	123	0	123	3	0	3	17	0	17
Project Trucks	302	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	710	40	0	40	9	0	9	9	0	9	23	0	23	17	0	17	132	0	132	12	9	21	26	9	35
2031 With Project	8,542	75	83	158	64	106	170	80	106	186	59	95	155	51	74	125	162	105	267	58	93	151	53	85	138
LOS (Baseline)		B	C		B	C		C	C		B	C		B	C		B	C		B	C		B	C	
LOS (With Project)		C	C		B	C		C	C		B	C		B	C		D	C		B	C		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	84	49	133	96	41	137	68	51	119	68	42	110	73	55	128	85	38	123	91	55	146	69	48	117	52	55	107	34	41	75
LOS	C	B		C	B		B	B		B	B		C	B		C	B		C	B		C	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	90	53	143	103	44	147	73	55	128	73	45	118	78	59	137	91	41	132	98	59	157	74	51	125	56	59	115	36	44	80
Project Worker Vehicles	0	30	30	0	10	10	0	0	0	0	0	0	0	108	108	0	36	36	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	39	39	0	19	19	0	0	0	0	0	0	0	108	108	0	36	36	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	90	91	181	103	63	166	73	55	128	73	45	118	78	167	246	91	77	168	98	59	157	74	51	125	56	59	115	36	44	80
LOS (Baseline)	C	B		C	B		C	B		C	B		C	B		C	B		C	B		C	B		B	B		B	B	
LOS (With Project)	C	C		C	B		C	B		C	B		C	D		C	C		C	B		C	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Elkhorn Ave**
Segment: **East of Lassen Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	517	8	5	13	11	6	17	11	8	19	1	5	6	4	3	7	6	5	11	5	4	9	3	1	4
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	554	9	5	14	12	6	18	12	9	20	1	5	6	4	3	8	6	5	12	5	4	10	3	1	4
Project Worker Vehicles	948	0	92	92	0	0	0	0	0	0	0	32	32	0	18	18	0	285	285	0	7	7	0	39	39
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	948	0	92	92	0	0	0	0	0	0	0	32	32	0	18	18	0	285	285	0	7	7	0	39	39
2031 With Project	1,502	9	97	106	12	6	18	12	9	20	1	38	39	4	21	26	6	291	297	5	11	17	3	40	43
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	C		B	B		B	B		B	B		B	B		B	E		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	5	5	10	2	4	6	3	8	11	3	1	4	1	4	5	3	2	5	2	3	5	5	2	7	0	6	6	3	2	5
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	5	5	11	2	4	6	3	9	12	3	1	4	1	4	5	3	2	5	2	3	5	5	2	8	0	6	6	3	2	5
Project Worker Vehicles	69	0	69	23	0	23	0	0	0	0	0	0	252	0	252	84	0	84	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	69	0	69	23	0	23	0	0	0	0	0	0	252	0	252	84	0	84	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	74	5	80	25	4	29	3	9	12	3	1	4	253	4	257	87	2	89	2	3	5	5	2	8	0	6	6	3	2	5
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	C	B		B	B		B	B		B	B		E	B		C	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Clarkson Ave**
Segment: **w/o San Mateo Ave, e/o Cantua School**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	972	12	1	13	12	11	23	15	7	22	12	9	21	12	5	17	13	9	22	7	5	12	9	7	16
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	1,042	13	1	14	13	12	25	16	8	24	13	10	23	13	5	18	14	10	24	8	5	13	10	8	17
Project Worker Vehicles	1,200	0	117	117	0	0	0	0	0	0	0	41	41	0	23	23	0	361	361	0	9	9	0	50	50
Project Trucks	288	0	0	0	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	9	13	4	4	8
Project Total	1,488	0	117	117	4	0	4	4	0	4	4	41	45	4	23	27	4	361	365	4	18	22	4	54	58
2031 With Project	2,530	13	118	131	17	12	29	20	8	28	17	50	67	17	28	45	18	371	389	12	23	35	14	61	75
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	C		B	B		B	B		B	B		B	B		B	E		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6	10	16	8	12	20	8	16	24	18	15	33	11	8	19	4	11	15	6	15	21	7	9	16	6	6	12	4	3	7
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	6	11	17	9	13	21	9	17	26	19	16	35	12	9	20	4	12	16	6	16	23	8	10	17	6	6	13	4	3	8
Project Worker Vehicles	87	0	87	29	0	29	0	0	0	0	0	0	319	0	319	106	0	106	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	4	4	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	87	4	91	29	4	33	0	0	0	0	0	0	319	0	319	106	0	106	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	94	15	109	38	17	55	9	17	26	19	16	35	331	9	339	111	12	122	6	16	23	8	10	17	6	6	13	4	3	8
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	C	B		B	B		B	B		B	B		E	B		C	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Clarkson Ave**
Segment: **e/o Santa Clara Ave, w/o Cantua School playground**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,885	6	5	11	19	17	36	15	10	25	7	8	15	6	6	12	13	12	25	13	2	15	19	15	34
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,021	6	5	12	20	18	39	16	11	27	8	9	16	6	6	13	14	13	27	14	2	16	20	16	36
Project Worker Vehicles	1,200	0	117	117	0	0	0	0	0	0	0	41	41	0	23	23	0	361	361	0	9	9	0	50	50
Project Trucks	288	0	0	0	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	9	13	4	4	8
Project Total	1,488	0	117	117	4	0	4	4	0	4	4	41	45	4	23	27	4	361	365	4	18	22	4	54	58
2031 With Project	3,509	6	122	128	24	18	43	20	11	31	12	49	61	10	29	40	18	374	392	18	20	38	24	70	94
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	C		B	B		B	B		B	B		B	B		B	E		B	B		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	21	7	28	21	22	43	14	21	35	9	11	20	17	15	32	17	7	24	14	14	28	7	6	13	6	16	22	17	17	34
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	23	8	30	23	24	46	15	23	38	10	12	21	18	16	34	18	8	26	15	15	30	8	6	14	6	17	24	18	18	36
Project Worker Vehicles	87	0	87	29	0	29	0	0	0	0	0	0	319	0	319	106	0	106	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	4	4	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	87	4	91	29	4	33	0	0	0	0	0	0	319	0	319	106	0	106	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	110	12	121	52	28	79	15	23	38	10	12	21	337	16	353	124	8	132	15	15	30	8	6	14	6	17	24	18	18	36
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	C	B		B	B		B	B		B	B		E	B		D	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Kamm Ave**
Segment: **e/o Del Norte Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	877	1	7	8	6	8	14	9	13	22	10	7	17	11	12	23	10	6	16	7	5	12	6	3	9
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	940	1	8	9	6	9	15	10	14	24	11	8	18	12	13	25	11	6	17	8	5	13	6	3	10
Project Worker Vehicles	364	0	35	35	0	0	0	0	0	0	0	12	12	0	7	7	0	110	110	0	3	3	0	15	15
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	364	0	35	35	0	0	0	0	0	0	0	12	12	0	7	7	0	110	110	0	3	3	0	15	15
2031 With Project	1,304	1	43	44	6	9	15	10	14	24	11	20	31	12	20	32	11	116	127	8	8	16	6	18	25
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	C		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3	8	11	8	8	16	12	9	21	15	3	18	19	10	29	7	3	10	4	6	10	8	1	9	15	4	19	6	4	10
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	3	9	12	9	9	17	13	10	23	16	3	19	20	11	31	8	3	11	4	6	11	9	1	10	16	4	20	6	4	11
Project Worker Vehicles	27	0	27	9	0	9	0	0	0	0	0	0	97	0	97	32	0	32	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	27	0	27	9	0	9	0	0	0	0	0	0	97	0	97	32	0	32	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	30	9	38	17	9	26	13	10	23	16	3	19	117	11	128	40	3	43	4	6	11	9	1	10	16	4	20	6	4	11
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Kamm Ave**
Segment: **e/o Napa Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	836	0	1	1	5	5	10	4	3	7	6	8	14	2	1	3	7	9	16	4	2	6	5	7	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	896	0	1	1	5	5	11	4	3	8	6	9	15	2	1	3	8	10	17	4	2	6	5	8	13
Project Worker Vehicles	7,586	0	737	737	0	0	0	0	0	0	0	258	258	0	145	145	0	2,284	2,284	0	55	55	0	313	313
Project Trucks	454	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	3	9	12	9	9	18
Project Total	8,040	0	746	746	0	9	9	0	9	9	0	267	267	0	154	154	0	2,293	2,293	3	64	67	9	322	331
2031 With Project	8,936	0	747	747	5	14	20	4	12	17	6	276	282	2	155	157	8	2,303	2,310	7	66	74	14	330	344
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	F		B	B		B	B		B	E		B	D		B	F		B	B		B	E	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	8	3	11	6	1	7	3	4	7	6	2	8	6	19	25	0	5	5	1	5	6	3	1	4	3	2	5	0	0	0
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	9	3	12	6	1	8	3	4	8	6	2	9	6	20	27	0	5	5	1	5	6	3	1	4	3	2	5	0	0	0
Project Worker Vehicles	553	0	553	184	0	184	0	0	0	0	0	0	2,015	0	2,015	672	0	672	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	9	0	9	9	0	9	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	562	0	562	193	0	193	9	0	9	0	0	0	2,015	0	2,015	672	0	672	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	571	3	574	200	1	201	12	4	17	6	2	9	2,022	20	2,042	672	5	677	1	5	6	3	1	4	3	2	5	0	0	0
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	F	B		D	B		B	B		B	B		F	B		F	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Kamm Ave**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,197	10	14	24	2	3	5	3	11	14	0	1	1	7	10	17	6	8	14	3	5	8	6	6	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	1,283	11	15	26	2	3	5	3	12	15	0	1	1	8	11	18	6	9	15	3	5	9	6	6	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	298	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	298	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
2031 With Project	1,581	11	15	26	11	3	14	12	12	24	9	1	10	17	11	27	15	9	24	12	14	27	15	15	31
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	10	12	22	7	7	14	6	10	16	12	12	24	2	5	7	9	11	20	6	5	11	12	3	15	5	3	8	20	0	20
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	11	13	24	8	8	15	6	11	17	13	13	26	2	5	8	10	12	21	6	5	12	13	3	16	5	3	9	21	0	21
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	11	22	33	8	17	24	6	11	17	13	13	26	2	5	8	10	12	21	6	5	12	13	3	16	5	3	9	21	0	21
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **McMullin Grade**
Segment: **West of Madera Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6,362	14	71	85	21	78	99	34	87	121	22	98	120	23	72	95	23	70	93	27	96	123	25	72	97
LOS		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
Analysis Year 2031																									
Baseline Volume	6,821	15	76	91	23	84	106	36	93	130	24	105	129	25	77	102	25	75	100	29	103	132	27	77	104
Project Worker Vehicles	5,866	0	570	570	0	0	0	0	0	0	0	200	200	0	112	112	0	1,766	1,766	0	43	43	0	242	242
Project Trucks	152	0	3	3	0	3	3	0	3	3	0	3	3	0	3	3	0	3	3	1	3	4	3	3	6
Project Total	6,018	0	573	573	0	3	3	0	3	3	0	203	203	0	115	115	0	1,769	1,769	1	46	47	3	245	248
2031 With Project	12,839	15	649	664	23	87	109	36	96	133	24	308	331	25	192	217	25	1,844	1,869	30	149	179	30	322	352
LOS (Baseline)		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
LOS (With Project)		B	F		B	C		B	C		B	E		B	D		B	F		B	D		B	E	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	112	25	137	60	41	101	86	31	117	73	30	103	93	32	125	77	38	115	88	37	125	47	32	79	65	36	101	36	36	72
LOS	C	B		B	B		C	B		C	B		C	B		C	B		C	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	120	27	147	64	44	108	92	33	125	78	32	110	100	34	134	83	41	123	94	40	134	50	34	85	70	39	108	39	39	77
Project Worker Vehicles	428	0	428	143	0	143	0	0	0	0	0	0	1,558	0	1,558	519	0	519	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	3	0	3	3	0	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	431	0	431	146	0	146	3	0	3	0	0	0	1,558	0	1,558	519	0	519	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	551	27	577	210	44	254	95	33	128	78	32	110	1,658	34	1,692	602	41	643	94	40	134	50	34	85	70	39	108	39	39	77
LOS (Baseline)	C	B		B	B		C	B		C	B		C	B		C	B		C	B		B	B		C	B		B	B	
LOS (With Project)	F	B		E	B		C	B		C	B		F	B		F	B		C	B		B	B		C	B		B	B	

Road Segment Analyses
Year 2031

Road: **Dickenson Ave**
Segment: **s/o Jensen Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	6,413	21	72	93	26	106	132	19	119	138	24	87	111	20	55	75	20	52	72	29	62	91	38	52	90
LOS		B	C		B	C		B	C		B	C		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	6,876	23	77	100	28	114	142	20	128	148	26	93	119	21	59	80	21	56	77	31	66	98	41	56	96
Project Worker Vehicles	4,992	0	0	0	0	0	0	0	170	170	0	95	95	0	1,503	1,503	0	36	36	0	206	206	0	0	0
Project Trucks	134	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	5,126	0	2	2	0	2	2	0	172	172	0	97	97	0	1,505	1,505	0	38	38	0	208	208	2	2	4
2031 With Project	12,002	23	79	102	28	116	144	20	299	320	26	191	216	21	1,564	1,585	21	94	116	31	275	306	43	58	100
LOS (Baseline)	B	C			B	C		B	D		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)	B	C			B	C		B	E		B	D		B	F		B	C		B	E		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	84	34	118	84	32	116	79	35	114	78	24	102	62	38	100	61	43	104	75	34	109	68	39	107	50	33	83	46	35	81
LOS	C	B		C	B		C	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	90	36	127	90	34	124	85	38	122	84	26	109	66	41	107	65	46	112	80	36	117	73	42	115	54	35	89	49	38	87
Project Worker Vehicles	0	0	0	364	0	364	121	0	121	0	0	0	0	0	0	1,326	0	1,326	442	0	442	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	366	0	366	123	0	123	0	0	0	0	0	0	1,326	0	1,326	442	0	442	0	0	0	0	0	0	0	0	0
2031 With Project	92	36	129	456	34	490	208	38	246	84	26	109	66	41	107	1,392	46	1,438	522	36	559	73	42	115	54	35	89	49	38	87
LOS (Baseline)	C	B		C	B		C	B		C	B		B	B		B	B		C	B		C	B		B	B		B	B	
LOS (With Project)	C	B		F	B		E	B		C	B		B	B		F	B		F	B		C	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **James Rd**
Segment: **n/o Jefferson Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,490	7	32	39	7	42	49	17	64	81	17	48	65	13	22	35	15	16	31	14	25	39	12	21	33
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,670	8	34	42	8	45	53	18	69	87	18	51	70	14	24	38	16	17	33	15	27	42	13	23	35
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	2,670	8	34	42	8	45	53	18	69	87	18	51	70	14	24	38	16	17	33	15	27	42	13	23	35
LOS (Baseline)		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	32	16	48	37	13	50	32	9	41	49	22	71	41	17	58	26	22	48	24	17	41	15	22	37	20	17	37	18	17	35
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	34	17	51	40	14	54	34	10	44	53	24	76	44	18	62	28	24	51	26	18	44	16	24	40	21	18	40	19	18	38
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	34	17	51	40	14	54	34	10	44	53	24	76	44	18	62	28	24	51	26	18	44	16	24	40	21	18	40	19	18	38
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Derrick Ave**
Segment: **North of Adams Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,487	8	43	51	17	45	62	11	46	57	13	26	39	9	13	22	8	13	21	10	12	22	4	17	21
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,666	9	46	55	18	48	66	12	49	61	14	28	42	10	14	24	9	14	23	11	13	24	4	18	23
Project Worker Vehicles	874	0	0	0	0	0	0	0	30	30	0	17	17	0	263	263	0	6	6	0	36	36	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	874	0	0	0	0	0	0	0	30	30	0	17	17	0	263	263	0	6	6	0	36	36	0	0	0
2031 With Project	3,540	9	46	55	18	48	66	12	79	91	14	45	59	10	277	287	9	20	29	11	49	60	4	18	23
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	C		B	B		B	E		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	33	10	43	29	16	45	31	16	47	41	11	52	38	11	49	23	21	44	14	19	33	17	22	39	14	11	25	13	12	25
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	35	11	46	31	17	48	33	17	50	44	12	56	41	12	53	25	23	47	15	20	35	18	24	42	15	12	27	14	13	27
Project Worker Vehicles	0	0	0	64	0	64	21	0	21	0	0	0	0	0	0	232	0	232	77	0	77	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	64	0	64	21	0	21	0	0	0	0	0	0	232	0	232	77	0	77	0	0	0	0	0	0	0	0	0
2031 With Project	35	11	46	95	17	112	54	17	72	44	12	56	41	12	53	257	23	279	92	20	113	18	24	42	15	12	27	14	13	27
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		C	B		B	B		B	B		B	B		E	B		C	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Manning Ave**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,168	11	15	26	7	9	16	3	12	15	9	10	19	3	4	7	3	4	7	3	6	9	13	14	27
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	1,252	12	16	28	8	10	17	3	13	16	10	11	20	3	4	8	3	4	8	3	6	10	14	15	29
Project Worker Vehicles	544	0	0	0	0	0	0	19	0	19	10	0	10	164	0	164	4	0	4	22	0	22	0	0	0
Project Trucks	298	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	842	0	0	0	9	0	9	28	0	28	19	0	19	173	0	173	13	0	13	31	9	40	9	9	18
2031 With Project	2,094	12	16	28	17	10	26	31	13	44	29	11	40	176	4	180	16	4	20	35	15	50	23	24	47
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		D	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	9	11	20	7	7	14	8	13	21	7	7	14	4	10	14	5	6	11	7	5	12	12	3	15	2	1	3	2	0	2
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	10	12	21	8	8	15	9	14	23	8	8	15	4	11	15	5	6	12	8	5	13	13	3	16	2	1	3	2	0	2
Project Worker Vehicles	0	0	0	0	40	40	0	13	13	0	0	0	0	0	0	0	145	145	0	48	48	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	9	9	0	49	49	0	13	13	0	0	0	0	0	0	0	145	145	0	48	48	0	0	0	0	0	0	0	0	0
2031 With Project	10	21	30	8	56	64	9	27	36	8	8	15	4	11	15	5	151	156	8	54	61	13	3	16	2	1	3	2	0	2
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	D		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Panoche Rd**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,404	1	12	13	11	12	23	14	15	29	24	19	43	7	5	12	5	9	14	4	5	9	12	16	28
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	1,505	1	13	14	12	13	25	15	16	31	26	20	46	8	5	13	5	10	15	4	5	10	13	17	30
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	5	10
Project Total	0	0	0	0	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	5	10
2031 With Project	1,505	1	13	14	17	13	30	20	16	36	31	20	51	13	5	18	10	10	20	9	5	15	18	22	40
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	9	10	19	12	7	19	5	7	12	13	8	21	12	28	40	2	7	9	9	7	16	15	5	20	3	0	3	6	2	8
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	10	11	20	13	8	20	5	8	13	14	9	23	13	30	43	2	8	10	10	8	17	16	5	21	3	0	3	6	2	9
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	10	16	25	13	13	25	5	8	13	14	9	23	13	30	43	2	8	10	10	8	17	16	5	21	3	0	3	6	2	9
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **California Ave**
Segment: **e/o San Diego Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,272	3	20	23	3	63	66	3	126	129	4	64	68	15	20	35	1	15	16	8	19	27	3	31	34
LOS		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,436	3	21	25	3	68	71	3	135	138	4	69	73	16	21	38	1	16	17	9	20	29	3	33	36
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	2,436	3	21	25	3	68	71	3	135	138	4	69	73	16	21	38	1	16	17	9	20	29	3	33	36
LOS (Baseline)		B	B		B	B		B	D		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	D		B	C		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	32	8	40	25	9	34	25	8	33	25	6	31	42	7	49	28	6	34	21	6	27	15	3	18	13	4	17	19	9	28
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	34	9	43	27	10	36	27	9	35	27	6	33	45	8	53	30	6	36	23	6	29	16	3	19	14	4	18	20	10	30
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	34	9	43	27	10	36	27	9	35	27	6	33	45	8	53	30	6	36	23	6	29	16	3	19	14	4	18	20	10	30
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Belmont Ave**
Segment: **e/o San Diego Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,214	3	25	28	0	64	64	10	123	133	7	58	65	5	34	39	4	14	18	10	20	30	12	11	23
LOS		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	2,374	3	27	30	0	69	69	11	132	143	8	62	70	5	36	42	4	15	19	11	21	32	13	12	25
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
2031 With Project	2,374	3	27	30	0	71	71	11	134	145	8	64	72	5	38	44	4	17	21	11	23	34	15	14	29
LOS (Baseline)		B	B		B	C		B	D		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	C		B	D		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	24	11	35	36	13	49	31	6	37	45	16	61	38	9	47	20	9	29	11	16	27	5	16	21	4	25	29	37	12	49
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	26	12	38	39	14	53	33	6	40	48	17	65	41	10	50	21	10	31	12	17	29	5	17	23	4	27	31	40	13	53
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	28	12	40	41	14	55	33	6	40	48	17	65	41	10	50	21	10	31	12	17	29	5	17	23	4	27	31	40	13	53
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Shields Ave**
Segment: **w/o Russell Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,781	4	8	12	5	30	35	10	31	41	3	28	31	10	20	30	18	19	37	8	19	27	8	24	32
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	1,909	4	9	13	5	32	38	11	33	44	3	30	33	11	21	32	19	20	40	9	20	29	9	26	34
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	1,909	4	9	13	5	32	38	11	33	44	3	30	33	11	21	32	19	20	40	9	20	29	9	26	34
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	24	12	36	18	11	29	38	8	46	13	11	24	19	10	29	14	8	22	6	3	9	5	2	7	10	13	23	3	21	24
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	26	13	39	19	12	31	41	9	49	14	12	26	20	11	31	15	9	24	6	3	10	5	2	8	11	14	25	3	23	26
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	26	13	39	19	12	31	41	9	49	14	12	26	20	11	31	15	9	24	6	3	10	5	2	8	11	14	25	3	23	26
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Bullard Ave**
Segment: **e/o Washoe Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	**5:00 to 5:15 AM**			**5:15 to 5:30 AM**			**5:30 to 5:45 AM**			**5:45 to 6:00 AM**			**6:00 to 6:15 AM**			**6:15 to 6:30 AM**			**6:30 to 6:45 AM**			**6:45 to 7:00 AM**		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3,570	22	15	37	17	35	52	29	43	72	20	44	64	34	11	45	18	48	66	22	50	72	30	37	67
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	3,828	24	16	40	18	38	56	31	46	77	21	47	69	36	12	48	19	51	71	24	54	77	32	40	72
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
Project Total	0	0	0	0	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	2	2	4
2031 With Project	3,828	24	16	40	18	40	58	31	48	79	21	49	71	36	14	50	19	53	73	24	56	79	34	42	76
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			**3:45 to 4:00 PM**			**4:00 to 4:15 PM**			**4:15 to 4:30 PM**			**4:30 to 4:45 PM**			**4:45 to 5:00 PM**			**5:00 to 5:15 PM**			**5:15 to 5:30 PM**			**5:30 to 5:45 PM**			**5:45 to 6:00 PM**		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	27	27	54	19	13	32	30	23	53	26	7	33	27	20	47	38	10	48	25	17	42	20	13	33	22	18	40	29	15	44
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	29	29	58	20	14	34	32	25	57	28	8	35	29	21	50	41	11	51	27	18	45	21	14	35	24	19	43	31	16	47
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	2	0	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	31	29	60	22	14	36	32	25	57	28	8	35	29	21	50	41	11	51	27	18	45	21	14	35	24	19	43	31	16	47
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Ave 7**
Segment: **e/o Firebaugh Blvd**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	4,812	22	56	78	24	69	93	53	52	105	33	37	70	29	51	80	25	53	78	46	56	102	35	75	110
LOS		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	
Analysis Year 2031																									
Baseline Volume	5,159	24	60	84	26	74	100	57	56	113	35	40	75	31	55	86	27	57	84	49	60	109	38	80	118
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
Project Total	0	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
2031 With Project	5,159	24	61	85	26	75	101	57	57	114	35	41	76	31	56	87	27	58	85	50	61	111	39	81	120
LOS (Baseline)		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	
LOS (With Project)		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	43	57	100	46	32	78	32	28	60	49	37	86	47	44	91	44	36	80	34	32	66	38	26	64	44	42	86	28	37	65
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	46	61	107	49	34	84	34	30	64	53	40	92	50	47	98	47	39	86	36	34	71	41	28	69	47	45	92	30	40	70
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	47	61	108	50	34	85	35	30	65	53	40	92	50	47	98	47	39	86	36	34	71	41	28	69	47	45	92	30	40	70
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2031

Road: **Ave 7 1/2**
Segment: **w/o Firebaugh Blvd**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	7,896	35	88	123	43	103	146	79	87	166	50	57	107	36	58	94	41	69	110	55	78	133	44	88	132
LOS		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	
Analysis Year 2031																									
Baseline Volume	8,466	38	94	132	46	110	157	85	93	178	54	61	115	39	62	101	44	74	118	59	84	143	47	94	142
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
Project Total	0	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	2	1	1	2
2031 With Project	8,466	38	95	133	46	111	158	85	94	179	54	62	116	39	63	102	44	75	119	60	85	145	48	95	144
LOS (Baseline)		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	
LOS (With Project)		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	69	75	144	67	62	129	65	55	120	68	59	127	76	76	152	78	62	140	64	44	108	60	51	111	60	66	126	48	57	105
LOS	C	C		B	B		B	B		B	B		C	C		C	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	74	80	154	72	66	138	70	59	129	73	63	136	81	81	163	84	66	150	69	47	116	64	55	119	64	71	135	51	61	113
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	75	80	155	73	66	139	71	59	130	73	63	136	81	81	163	84	66	150	69	47	116	64	55	119	64	71	135	51	61	113
LOS (Baseline)	C	C		C	B		C	B		C	B		C	C		C	B		C	B		B	B		B	C		B	B	
LOS (With Project)	C	C		C	B		C	B		C	B		C	C		C	B		C	B		B	B		B	C		B	B	

Road Segment Analyses
Year 2031

Road: **Nees Ave**
Segment: **w/o Russell Ave**

Count Year 2024
Analysis Year 2031
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	5,522	17	38	55	13	64	77	25	85	110	33	61	94	37	55	92	20	37	57	37	54	91	10	54	64
LOS		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2031																									
Baseline Volume	5,920	18	41	59	14	69	83	27	91	118	35	65	101	40	59	99	21	40	61	40	58	98	11	58	69
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
Project Total	0	0	0	0	9	0	9	9	0	9	9	0	9	9	0	9	9	0	9	9	9	18	9	9	18
2031 With Project	5,920	18	41	59	23	69	92	36	91	127	44	65	110	49	59	108	30	40	70	49	67	116	20	67	87
LOS (Baseline)		B	B		B	C		B	C		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	C		B	C		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	52	21	73	91	25	116	58	29	87	66	21	87	62	35	97	43	37	80	70	14	84	52	22	74	54	19	73	47	13	60
LOS	B	B		C	B		B	B		B	B		B	B		B	B		C	B		B	B		B	B		B	B	
Analysis Year 2031																														
Baseline Volume	56	23	78	98	27	124	62	31	93	71	23	93	66	38	104	46	40	86	75	15	90	56	24	79	58	20	78	50	14	64
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	9	9	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2031 With Project	56	32	87	98	36	133	62	31	93	71	23	93	66	38	104	46	40	86	75	15	90	56	24	79	58	20	78	50	14	64
LOS (Baseline)	B	B		C	B		B	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	
LOS (With Project)	B	B		C	B		B	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	

APPENDIX F

ROAD SEGMENT ANALYSES – YEAR 2033

Road Segment Analyses
Year 2033

Road: **SR 145 (Fresno Coalinga Rd)**
Segment: **West of Mt. Whitney Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	4,417	11	35	46	16	65	81	17	38	55	25	59	84	34	53	87	35	95	130	26	61	87	33	52	85
LOS		B	B		B	B		B	B		B	B		B	B		B	C		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	4,831	12	38	50	17	71	89	19	42	60	27	65	92	37	58	95	38	104	142	28	67	95	36	57	93
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	5	10	5	5	10
Project Total	0	0	0	0	5	0	5	5	0	5	5	0	5	5	0	5	5	0	5	5	5	10	5	5	10
2033 With Project	4,831	12	38	50	22	71	94	24	42	65	32	65	97	42	58	100	43	104	147	33	72	105	41	62	103
LOS (Baseline)		B	B		B	C		B	B		B	B		B	B		B	C		B	B		B	B	
LOS (With Project)		B	B		B	C		B	B		B	B		B	B		B	C		B	C		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	60	26	86	59	37	96	48	36	84	59	28	87	62	31	93	43	29	72	52	16	68	40	28	68	28	24	52	16	20	36
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	66	28	94	65	40	105	52	39	92	65	31	95	68	34	102	47	32	79	57	17	74	44	31	74	31	26	57	17	22	39
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	66	33	99	65	45	110	52	39	92	65	31	95	68	34	102	47	32	79	57	17	74	44	31	74	31	26	57	17	22	39
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Mt. Whitney Ave**
Segment: **East of Lassen**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,914	7	21	28	21	38	59	20	45	65	17	48	65	17	36	53	18	46	64	16	37	53	9	37	46
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	3,187	8	23	31	23	42	65	22	49	71	19	52	71	19	39	58	20	50	70	17	40	58	10	40	50
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	3,187	8	23	31	23	42	65	22	49	71	19	52	71	19	39	58	20	50	70	17	40	58	10	40	50
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	47	21	68	53	27	80	56	19	75	49	17	66	37	31	68	34	28	62	47	14	61	30	19	49	26	25	51	16	21	37
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	51	23	74	58	30	87	61	21	82	54	19	72	40	34	74	37	31	68	51	15	67	33	21	54	28	27	56	17	23	40
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	51	23	74	58	30	87	61	21	82	54	19	72	40	34	74	37	31	68	51	15	67	33	21	54	28	27	56	17	23	40
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Oller St (SR 180)**
Segment: **North of Belmont Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	8,150	44	72	116	31	83	114	38	117	155	51	65	116	27	75	102	38	60	98	46	66	112	47	77	124
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																									
Baseline Volume	8,914	48	79	127	34	91	125	42	128	170	56	71	127	30	82	112	42	66	107	50	72	122	51	84	136
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	8,914	48	79	127	34	91	125	42	128	170	56	71	127	30	82	112	42	66	107	50	72	122	51	84	136
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	120	83	203	82	61	143	85	59	144	65	77	142	76	64	140	78	79	157	69	82	151	93	91	184	78	73	151	77	70	147
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																														
Baseline Volume	131	91	222	90	67	156	93	65	157	71	84	155	83	70	153	85	86	172	75	90	165	102	100	201	85	80	165	84	77	161
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	131	91	222	90	67	156	93	65	157	71	84	155	83	70	153	85	86	172	75	90	165	102	100	201	85	80	165	84	77	161
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2033

Road: **Belmont Ave**
Segment: **West of Oller (SR 180)**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3,703	17	15	32	16	38	54	20	27	47	7	37	44	11	19	30	12	20	32	17	15	32	13	19	32
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																									
Baseline Volume	4,050	19	16	35	17	42	59	22	30	51	8	40	48	12	21	33	13	22	35	19	16	35	14	21	35
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	4,050	19	16	35	17	42	59	22	30	51	8	40	48	12	21	33	13	22	35	19	16	35	14	21	35
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	66	37	103	44	27	71	51	17	68	43	28	71	47	16	63	30	25	55	36	37	73	37	44	81	37	35	72	35	33	68
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																														
Baseline Volume	72	40	113	48	30	78	56	19	74	47	31	78	51	17	69	33	27	60	39	40	80	40	48	89	40	38	79	38	36	74
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	72	40	113	48	30	78	56	19	74	47	31	78	51	17	69	33	27	60	39	40	80	40	48	89	40	38	79	38	36	74
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2033

Road: **Clarkson Avenue**
Segment: **East of Derrick Avenue (SR 33)**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,046	5	3	8	11	9	20	7	9	16	8	9	17	4	3	7	5	3	8	8	2	10	7	5	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	1,144	5	3	9	12	10	22	8	10	17	9	10	19	4	3	8	5	3	9	9	2	11	8	5	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	1,144	5	3	9	12	10	22	8	10	17	9	10	19	4	3	8	5	3	9	9	2	11	8	5	13
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17	2	19	10	15	25	6	10	16	8	7	15	10	7	17	8	4	12	10	5	15	5	6	11	6	3	9	8	14	22
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	19	2	21	11	16	27	7	11	17	9	8	16	11	8	19	9	4	13	11	5	16	5	7	12	7	3	10	9	15	24
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	19	2	21	11	16	27	7	11	17	9	8	16	11	8	19	9	4	13	11	5	16	5	7	12	7	3	10	9	15	24
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Derrick Ave (SR 33)**
Segment: **North of Clarkson Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	3,226	26	55	81	38	46	84	30	58	88	23	26	49	11	20	31	11	12	23	14	19	33	11	17	28
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	3,528	28	60	89	42	50	92	33	63	96	25	28	54	12	22	34	12	13	25	15	21	36	12	19	31
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	3,528	28	60	89	42	50	92	33	63	96	25	28	54	12	22	34	12	13	25	15	21	36	12	19	31
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	23	30	53	27	19	46	39	21	60	30	30	60	41	22	63	13	23	36	20	24	44	27	24	51	16	21	37	19	19	38
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	25	33	58	30	21	50	43	23	66	33	33	66	45	24	69	14	25	39	22	26	48	30	26	56	17	23	40	21	21	42
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	25	33	58	30	21	50	43	23	66	33	33	66	45	24	69	14	25	39	22	26	48	30	26	56	17	23	40	21	21	42
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Derrick Avenue (SR 33)**
Segment: **South of Clarkson Avenue**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,762	25	52	77	32	38	70	28	58	86	21	25	46	9	17	26	10	9	19	13	12	25	8	12	20
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	3,021	27	57	84	35	42	77	31	63	94	23	27	50	10	19	28	11	10	21	14	13	27	9	13	22
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	3,021	27	57	84	35	42	77	31	63	94	23	27	50	10	19	28	11	10	21	14	13	27	9	13	22
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	29	21	50	22	19	41	34	20	54	27	26	53	40	18	58	10	16	26	22	21	43	23	21	44	15	17	32	14	20	34
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	32	23	55	24	21	45	37	22	59	30	28	58	44	20	63	11	17	28	24	23	47	25	23	48	16	19	35	15	22	37
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	32	23	55	24	21	45	37	22	59	30	28	58	44	20	63	11	17	28	24	23	47	25	23	48	16	19	35	15	22	37
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Madera Avenue (SR 145)**
Segment: **South of SR 180**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	12,545	57	58	115	53	66	119	53	83	136	61	79	140	57	74	131	73	48	121	56	44	100	59	71	130
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																									
Baseline Volume	13,720	62	63	126	58	72	130	58	91	149	67	86	153	62	81	143	80	52	132	61	48	109	65	78	142
Project Worker Vehicles	1,764	0	0	0	0	0	0	0	60	60	0	34	34	0	531	531	0	13	13	0	73	73	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	1,764	0	0	0	0	0	0	0	60	60	0	34	34	0	531	531	0	13	13	0	73	73	0	0	0
2033 With Project	15,484	62	63	126	58	72	130	58	151	209	67	120	187	62	612	674	80	65	145	61	121	182	65	78	142
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	E or F		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	143	128	271	146	116	262	137	92	229	130	96	226	139	81	220	129	91	220	141	103	244	96	100	196	100	93	193	81	82	163
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																														
Baseline Volume	156	140	296	160	127	287	150	101	250	142	105	247	152	89	241	141	100	241	154	113	267	105	109	214	109	102	211	89	90	178
Project Worker Vehicles	0	0	0	129	0	129	43	0	43	0	0	0	0	0	0	469	0	469	156	0	156	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	129	0	129	43	0	43	0	0	0	0	0	0	469	0	469	156	0	156	0	0	0	0	0	0	0	0	0
2033 With Project	156	140	296	288	127	415	193	101	293	142	105	247	152	89	241	610	100	709	310	113	423	105	109	214	109	102	211	89	90	178
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		E or F	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2033

Road: **Whitesbridge Road (SR 180)**
Segment: **East of Madera Avenue (SR 145)**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17,311	37	70	107	63	109	172	57	109	166	69	74	143	72	68	140	83	74	157	84	78	162	115	89	204
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																									
Baseline Volume	18,933	40	77	117	69	119	188	62	119	182	75	81	156	79	74	153	91	81	172	92	85	177	126	97	223
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	18,933	40	77	117	69	119	188	62	119	182	75	81	156	79	74	153	91	81	172	92	85	177	126	97	223
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	191	134	325	165	136	301	160	133	293	165	153	318	159	153	312	172	131	303	161	170	331	151	182	333	145	143	288	164	132	296
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																														
Baseline Volume	209	147	355	180	149	329	175	145	320	180	167	348	174	167	341	188	143	331	176	186	362	165	199	364	159	156	315	179	144	324
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	209	147	355	180	149	329	175	145	320	180	167	348	174	167	341	188	143	331	176	186	362	165	199	364	159	156	315	179	144	324
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2033

Road: **Whitesbridge Road (SR 180)**
Segment: **West of Madera Avenue (SR 145)**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	16,551	37	75	112	71	121	192	59	95	154	64	88	152	65	68	133	81	67	148	88	72	160	114	89	203
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																									
Baseline Volume	18,102	40	82	122	78	132	210	65	104	168	70	96	166	71	74	145	89	73	162	96	79	175	125	97	222
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	18,102	40	82	122	78	132	210	65	104	168	70	96	166	71	74	145	89	73	162	96	79	175	125	97	222
LOS (Baseline)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	155	123	278	150	142	292	137	146	283	124	159	283	161	165	326	135	153	288	139	198	337	132	189	321	105	171	276	153	144	297
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																														
Baseline Volume	170	135	304	164	155	319	150	160	310	136	174	310	176	180	357	148	167	315	152	217	369	144	207	351	115	187	302	167	157	325
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	170	135	304	164	155	319	150	160	310	136	174	310	176	180	357	148	167	315	152	217	369	144	207	351	115	187	302	167	157	325
LOS (Baseline)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2033

Road: **13th Street**
Segment: **East of SR 33**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6,111	29	28	57	53	51	104	71	37	108	34	43	77	42	28	70	61	44	105	45	41	86	35	36	71
LOS		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	6,684	32	31	62	58	56	114	78	40	118	37	47	84	46	31	77	67	48	115	49	45	94	38	39	78
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	6,684	32	31	62	58	56	114	78	40	118	37	47	84	46	31	77	67	48	115	49	45	94	38	39	78
LOS (Baseline)		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	59	63	122	68	60	128	62	55	117	54	51	105	53	79	132	68	72	140	54	65	119	60	60	120	61	44	105	47	82	129
LOS	B	B		B	B		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	C	
Analysis Year 2033																														
Baseline Volume	65	69	133	74	66	140	68	60	128	59	56	115	58	86	144	74	79	153	59	71	130	66	66	131	67	48	115	51	90	141
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	65	69	133	74	66	140	68	60	128	59	56	115	58	86	144	74	79	153	59	71	130	66	66	131	67	48	115	51	90	141
LOS (Baseline)	B	C		C	B		B	B		B	B		B	C		C	C		B	C		B	B		B	B		B	C	
LOS (With Project)	B	C		C	B		B	B		B	B		B	C		C	C		B	C		B	B		B	B		B	C	

Road Segment Analyses
Year 2033

Road: **SR 33**
Segment: **North of 13th Street**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	11,311	93	51	144	127	52	179	96	50	146	97	48	145	55	35	90	61	46	107	57	43	100	78	44	122
LOS		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																									
Baseline Volume	12,371	102	56	157	139	57	196	105	55	160	106	52	159	60	38	98	67	50	117	62	47	109	85	48	133
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	12,371	102	56	157	139	57	196	105	55	160	106	52	159	60	38	98	67	50	117	62	47	109	85	48	133
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	100	113	213	85	119	204	80	107	187	105	95	200	92	96	188	108	109	217	93	99	192	84	113	197	80	101	181	102	116	218
LOS	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	
Analysis Year 2033																														
Baseline Volume	109	124	233	93	130	223	87	117	205	115	104	219	101	105	206	118	119	237	102	108	210	92	124	215	87	110	198	112	127	238
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	109	124	233	93	130	223	87	117	205	115	104	219	101	105	206	118	119	237	102	108	210	92	124	215	87	110	198	112	127	238
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C		C	C	

Road Segment Analyses
Year 2033

Road: **12th Street**
Segment: **West of SR 33**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	8,563	11	89	100	13	134	147	20	125	145	18	140	158	20	74	94	35	87	122	30	137	167	23	109	132
LOS		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	
Analysis Year 2033																									
Baseline Volume	9,365	12	97	109	14	147	161	22	137	159	20	153	173	22	81	103	38	95	133	33	150	183	25	119	144
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	9,365	12	97	109	14	147	161	22	137	159	20	153	173	22	81	103	38	95	133	33	150	183	25	119	144
LOS (Baseline)		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	
LOS (With Project)		B	C		B	D		B	D		B	D		B	C		B	C		B	D		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	95	37	132	111	45	156	170	36	206	102	61	163	75	60	135	92	52	144	79	44	123	55	37	92	71	31	102	75	47	122
LOS	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	
Analysis Year 2033																														
Baseline Volume	104	40	144	121	49	171	186	39	225	112	67	178	82	66	148	101	57	157	86	48	135	60	40	101	78	34	112	82	51	133
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	104	40	144	121	49	171	186	39	225	112	67	178	82	66	148	101	57	157	86	48	135	60	40	101	78	34	112	82	51	133
LOS (Baseline)	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	
LOS (With Project)	C	B		C	B		D	B		C	B		C	B		C	B		C	B		B	B		C	B		C	B	

Road Segment Analyses
Year 2033

Road: **San Mateo Ave**
Segment: **n/o Clarkson Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	841	5	4	9	5	7	12	1	7	8	12	8	20	5	15	20	7	27	34	7	7	14	4	5	9
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	920	5	4	10	5	8	13	1	8	9	13	9	22	5	16	22	8	30	37	8	8	15	4	5	10
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	920	5	4	10	5	8	13	1	8	9	13	9	22	5	16	22	8	30	37	8	8	15	4	5	10
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	14	5	19	6	4	10	5	3	8	8	10	18	9	12	21	3	5	8	8	4	12	9	9	18	9	6	15	10	6	16
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	15	5	21	7	4	11	5	3	9	9	11	20	10	13	23	3	5	9	9	4	13	10	10	20	10	7	16	11	7	17
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	15	5	21	7	4	11	5	3	9	9	11	20	10	13	23	3	5	9	9	4	13	10	10	20	10	7	16	11	7	17
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Manning Ave**
Segment: **w/o James Ave (e/o solar driveways)**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,476	2	32	34	7	58	65	9	90	99	9	74	83	10	21	31	13	23	36	5	14	19	11	19	30
LOS		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	2,708	2	35	37	8	63	71	10	98	108	10	81	91	11	23	34	14	25	39	5	15	21	12	21	33
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	2,708	2	35	37	8	63	71	10	98	108	10	81	91	11	23	34	14	25	39	5	15	21	12	21	33
LOS (Baseline)		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	C		B	C		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	17	11	28	39	10	49	54	2	56	98	9	107	34	14	48	23	8	31	23	3	26	15	4	19	19	10	29	7	7	14
LOS	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	19	12	31	43	11	54	59	2	61	107	10	117	37	15	52	25	9	34	25	3	28	16	4	21	21	11	32	8	8	15
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	19	12	31	43	11	54	59	2	61	107	10	117	37	15	52	25	9	34	25	3	28	16	4	21	21	11	32	8	8	15
LOS (Baseline)	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		C	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Manning Ave**
Segment: **e/o Derrick Ave (w/o solar driveways)**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,207	9	18	27	15	27	42	20	36	56	18	23	41	11	20	31	11	8	19	11	16	27	6	18	24
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	2,414	10	20	30	16	30	46	22	39	61	20	25	45	12	22	34	12	9	21	12	17	30	7	20	26
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	2,414	10	20	30	16	30	46	22	39	61	20	25	45	12	22	34	12	9	21	12	17	30	7	20	26
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	27	9	36	25	16	41	20	22	42	30	34	64	22	19	41	21	6	27	9	15	24	10	11	21	17	3	20	7	9	16
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	30	10	39	27	17	45	22	24	46	33	37	70	24	21	45	23	7	30	10	16	26	11	12	23	19	3	22	8	10	17
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	30	10	39	27	17	45	22	24	46	33	37	70	24	21	45	23	7	30	10	16	26	11	12	23	19	3	22	8	10	17
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Lassen Ave**
Segment: **North of SR 198**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	4,870	66	43	109	100	32	132	91	32	123	63	27	90	39	26	65	35	33	68	33	34	67	27	28	55
LOS		B	B		C	B		C	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	5,326	72	47	119	109	35	144	100	35	135	69	30	98	43	28	71	38	36	74	36	37	73	30	31	60
Project Worker Vehicles	6,792	0	660	660	0	0	0	0	0	0	0	231	231	0	130	130	0	2,045	2,045	0	50	50	0	281	281
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	6,792	0	660	660	0	0	0	0	0	0	0	231	231	0	130	130	0	2,045	2,045	0	50	50	0	281	281
2033 With Project	12,118	72	707	779	109	35	144	100	35	135	69	261	329	43	158	201	38	2,081	2,119	36	87	123	30	311	341
LOS (Baseline)		C	B		C	B		C	B		C	B		B	B		B	B		B	B		B	B	
LOS (With Project)		C	F		C	B		C	B		C	E		B	D		B	F		B	C		B	E	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	50	47	97	35	65	100	36	39	75	25	45	70	39	39	78	36	54	90	33	40	73	38	39	77	29	26	55	28	30	58
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	55	51	106	38	71	109	39	43	82	27	49	77	43	43	85	39	59	98	36	44	80	42	43	84	32	28	60	31	33	63
Project Worker Vehicles	495	0	495	165	0	165	0	0	0	0	0	0	1,804	0	1,804	601	0	601	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	495	0	495	165	0	165	0	0	0	0	0	0	1,804	0	1,804	601	0	601	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	550	51	601	203	71	274	39	43	82	27	49	77	1,847	43	1,890	641	59	700	36	44	80	42	43	84	32	28	60	31	33	63
LOS (Baseline)	B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	F	B		D	C		B	B		B	B		F	B		F	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Lassen Ave**
Segment: **South of Elkhorn Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	7,305	33	77	110	51	99	150	66	99	165	34	89	123	32	69	101	28	98	126	43	78	121	25	71	96
LOS		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
Analysis Year 2033																									
Baseline Volume	7,989	36	84	120	56	108	164	72	108	180	37	97	135	35	75	110	31	107	138	47	85	132	27	78	105
Project Worker Vehicles	6,792	0	0	0	0	0	0	0	231	231	0	130	130	0	2,045	2,045	0	50	50	0	281	281	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	6,792	0	0	0	0	0	0	0	231	231	0	130	130	0	2,045	2,045	0	50	50	0	281	281	0	0	0
2033 With Project	14,781	36	84	120	56	108	164	72	339	411	37	227	264	35	2,120	2,155	31	157	187	47	366	413	27	78	105
LOS (Baseline)		B	C		B	C		C	C		B	C		B	C		B	C		B	C		B	C	
LOS (With Project)		B	C		B	C		C	E		B	E		B	F		B	D		B	E		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	84	49	133	96	41	137	68	51	119	68	42	110	73	55	128	85	38	123	91	55	146	69	48	117	52	55	107	34	41	75
LOS	C	B		C	B		B	B		B	B		C	B		C	B		C	B		C	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	92	54	145	105	45	150	74	56	130	74	46	120	80	60	140	93	42	135	100	60	160	75	52	128	57	60	117	37	45	82
Project Worker Vehicles	0	0	0	495	0	495	165	0	165	0	0	0	0	0	0	1,804	0	1,804	601	0	601	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	495	0	495	165	0	165	0	0	0	0	0	0	1,804	0	1,804	601	0	601	0	0	0	0	0	0	0	0	0
2033 With Project	92	54	145	600	45	645	239	56	295	74	46	120	80	60	140	1,897	42	1,939	701	60	761	75	52	128	57	60	117	37	45	82
LOS (Baseline)	C	B		C	B		C	B		C	B		C	B		C	B		C	B		C	B		B	B		B	B	
LOS (With Project)	C	B		F	B		E	B		C	B		C	B		F	B		F	B		C	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Elkhorn Ave**
Segment: **East of Lassen Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	517	8	5	13	11	6	17	11	8	19	1	5	6	4	3	7	6	5	11	5	4	9	3	1	4
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	565	9	5	14	12	7	19	12	9	21	1	5	7	4	3	8	7	5	12	5	4	10	3	1	4
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	565	9	5	14	12	7	19	12	9	21	1	5	7	4	3	8	7	5	12	5	4	10	3	1	4
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	5	5	10	2	4	6	3	8	11	3	1	4	1	4	5	3	2	5	2	3	5	5	2	7	0	6	6	3	2	5
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	5	5	11	2	4	7	3	9	12	3	1	4	1	4	5	3	2	5	2	3	5	5	2	8	0	7	7	3	2	5
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	5	5	11	2	4	7	3	9	12	3	1	4	1	4	5	3	2	5	2	3	5	5	2	8	0	7	7	3	2	5
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Clarkson Ave**
Segment: **w/o San Mateo Ave, e/o Cantua School**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	972	12	1	13	12	11	23	15	7	22	12	9	21	12	5	17	13	9	22	7	5	12	9	7	16
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	1,063	13	1	14	13	12	25	16	8	24	13	10	23	13	5	19	14	10	24	8	5	13	10	8	17
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	1,063	13	1	14	13	12	25	16	8	24	13	10	23	13	5	19	14	10	24	8	5	13	10	8	17
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6	10	16	8	12	20	8	16	24	18	15	33	11	8	19	4	11	15	6	15	21	7	9	16	6	6	12	4	3	7
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	7	11	17	9	13	22	9	17	26	20	16	36	12	9	21	4	12	16	7	16	23	8	10	17	7	7	13	4	3	8
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	7	11	17	9	13	22	9	17	26	20	16	36	12	9	21	4	12	16	7	16	23	8	10	17	7	7	13	4	3	8
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Clarkson Ave**
Segment: **e/o Santa Clara Ave, w/o Cantua School playground**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,885	6	5	11	19	17	36	15	10	25	7	8	15	6	6	12	13	12	25	13	2	15	19	15	34
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	2,062	7	5	12	21	19	39	16	11	27	8	9	16	7	7	13	14	13	27	14	2	16	21	16	37
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	2,062	7	5	12	21	19	39	16	11	27	8	9	16	7	7	13	14	13	27	14	2	16	21	16	37
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	21	7	28	21	22	43	14	21	35	9	11	20	17	15	32	17	7	24	14	14	28	7	6	13	6	16	22	17	17	34
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	23	8	31	23	24	47	15	23	38	10	12	22	19	16	35	19	8	26	15	15	31	8	7	14	7	17	24	19	19	37
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	23	8	31	23	24	47	15	23	38	10	12	22	19	16	35	19	8	26	15	15	31	8	7	14	7	17	24	19	19	37
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Kamm Ave**
Segment: **e/o Del Norte Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	877	1	7	8	6	8	14	9	13	22	10	7	17	11	12	23	10	6	16	7	5	12	6	3	9
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	959	1	8	9	7	9	15	10	14	24	11	8	19	12	13	25	11	7	17	8	5	13	7	3	10
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	959	1	8	9	7	9	15	10	14	24	11	8	19	12	13	25	11	7	17	8	5	13	7	3	10
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3	8	11	8	8	16	12	9	21	15	3	18	19	10	29	7	3	10	4	6	10	8	1	9	15	4	19	6	4	10
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	3	9	12	9	9	17	13	10	23	16	3	20	21	11	32	8	3	11	4	7	11	9	1	10	16	4	21	7	4	11
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	3	9	12	9	9	17	13	10	23	16	3	20	21	11	32	8	3	11	4	7	11	9	1	10	16	4	21	7	4	11
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Kamm Ave**
Segment: **e/o Napa Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	836	0	1	1	5	5	10	4	3	7	6	8	14	2	1	3	7	9	16	4	2	6	5	7	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	914	0	1	1	5	5	11	4	3	8	7	9	15	2	1	3	8	10	17	4	2	7	5	8	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	914	0	1	1	5	5	11	4	3	8	7	9	15	2	1	3	8	10	17	4	2	7	5	8	13
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	8	3	11	6	1	7	3	4	7	6	2	8	6	19	25	0	5	5	1	5	6	3	1	4	3	2	5	0	0	0
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	9	3	12	7	1	8	3	4	8	7	2	9	7	21	27	0	5	5	1	5	7	3	1	4	3	2	5	0	0	0
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	9	3	12	7	1	8	3	4	8	7	2	9	7	21	27	0	5	5	1	5	7	3	1	4	3	2	5	0	0	0
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Kamm Ave**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,197	10	14	24	2	3	5	3	11	14	0	1	1	7	10	17	6	8	14	3	5	8	6	6	12
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	1,309	11	15	26	2	3	5	3	12	15	0	1	1	8	11	19	7	9	15	3	5	9	7	7	13
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	1,309	11	15	26	2	3	5	3	12	15	0	1	1	8	11	19	7	9	15	3	5	9	7	7	13
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	10	12	22	7	7	14	6	10	16	12	12	24	2	5	7	9	11	20	6	5	11	12	3	15	5	3	8	20	0	20
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	11	13	24	8	8	15	7	11	17	13	13	26	2	5	8	10	12	22	7	5	12	13	3	16	5	3	9	22	0	22
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	11	13	24	8	8	15	7	11	17	13	13	26	2	5	8	10	12	22	7	5	12	13	3	16	5	3	9	22	0	22
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **McMullin Grade**
Segment: **West of Madera Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	6,362	14	71	85	21	78	99	34	87	121	22	98	120	23	72	95	23	70	93	27	96	123	25	72	97
LOS		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
Analysis Year 2033																									
Baseline Volume	6,958	15	78	93	23	85	108	37	95	132	24	107	131	25	79	104	25	77	102	30	105	135	27	79	106
Project Worker Vehicles	6,792	0	0	0	0	0	0	0	231	231	0	130	130	0	2,045	2,045	0	50	50	0	281	281	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	6,792	0	0	0	0	0	0	0	231	231	0	130	130	0	2,045	2,045	0	50	50	0	281	281	0	0	0
2033 With Project	13,750	15	78	93	23	85	108	37	326	363	24	237	261	25	2,124	2,149	25	126	151	30	386	415	27	79	106
LOS (Baseline)		B	C		B	C		B	C		B	C		B	C		B	C		B	C		B	C	
LOS (With Project)		B	C		B	C		B	E		B	E		B	F		B	D		B	E		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	112	25	137	60	41	101	86	31	117	73	30	103	93	32	125	77	38	115	88	37	125	47	32	79	65	36	101	36	36	72
LOS	C	B		B	B		C	B		C	B		C	B		C	B		C	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	122	27	150	66	45	110	94	34	128	80	33	113	102	35	137	84	42	126	96	40	137	51	35	86	71	39	110	39	39	79
Project Worker Vehicles	0	0	0	495	0	495	165	0	165	0	0	0	0	0	0	1,804	0	1,804	601	0	601	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	495	0	495	165	0	165	0	0	0	0	0	0	1,804	0	1,804	601	0	601	0	0	0	0	0	0	0	0	0
2033 With Project	122	27	150	561	45	606	259	34	293	80	33	113	102	35	137	1,889	42	1,930	698	40	738	51	35	86	71	39	110	39	39	79
LOS (Baseline)	D	B		B	B		C	B		C	B		C	B		C	B		C	B		B	B		C	B		B	B	
LOS (With Project)	D	B		F	B		E	B		C	B		C	B		F	B		F	B		B	B		C	B		B	B	

Road Segment Analyses
Year 2033

Road: **Dickenson Ave**
Segment: **s/o Jensen Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	6,413	21	72	93	26	106	132	19	119	138	24	87	111	20	55	75	20	52	72	29	62	91	38	52	90
LOS		B	C		B	C		B	C		B	C		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	7,014	23	79	102	28	116	144	21	130	151	26	95	121	22	60	82	22	57	79	32	68	100	42	57	98
Project Worker Vehicles	5,028	0	0	0	0	0	0	0	171	171	0	96	96	0	1,514	1,514	0	37	37	0	208	208	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	5,028	0	0	0	0	0	0	0	171	171	0	96	96	0	1,514	1,514	0	37	37	0	208	208	0	0	0
2033 With Project	12,042	23	79	102	28	116	144	21	301	322	26	191	218	22	1,574	1,596	22	94	115	32	275	307	42	57	98
LOS (Baseline)		B	C		B	C		B	D		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)		B	C		B	C		B	E		B	D		B	F		B	C		B	E		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	84	34	118	84	32	116	79	35	114	78	24	102	62	38	100	61	43	104	75	34	109	68	39	107	50	33	83	46	35	81
LOS	C	B		C	B		C	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	92	37	129	92	35	127	86	38	125	85	26	112	68	42	109	67	47	114	82	37	119	74	43	117	55	36	91	50	38	89
Project Worker Vehicles	0	0	0	367	0	367	122	0	122	0	0	0	0	0	0	1,336	0	1,336	445	0	445	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	367	0	367	122	0	122	0	0	0	0	0	0	1,336	0	1,336	445	0	445	0	0	0	0	0	0	0	0	0
2033 With Project	92	37	129	458	35	493	209	38	247	85	26	112	68	42	109	1,402	47	1,449	527	37	564	74	43	117	55	36	91	50	38	89
LOS (Baseline)	C	B		C	B		C	B		C	B		B	B		B	B		C	B		C	B		B	B		B	B	
LOS (With Project)	C	B		F	B		E	B		C	B		B	B		F	B		F	B		C	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **James Rd**
Segment: **n/o Jefferson Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,490	7	32	39	7	42	49	17	64	81	17	48	65	13	22	35	15	16	31	14	25	39	12	21	33
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	2,723	8	35	43	8	46	54	19	70	89	19	52	71	14	24	38	16	17	34	15	27	43	13	23	36
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	2,723	8	35	43	8	46	54	19	70	89	19	52	71	14	24	38	16	17	34	15	27	43	13	23	36
LOS (Baseline)		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	32	16	48	37	13	50	32	9	41	49	22	71	41	17	58	26	22	48	24	17	41	15	22	37	20	17	37	18	17	35
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	35	17	52	40	14	55	35	10	45	54	24	78	45	19	63	28	24	52	26	19	45	16	24	40	22	19	40	20	19	38
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	35	17	52	40	14	55	35	10	45	54	24	78	45	19	63	28	24	52	26	19	45	16	24	40	22	19	40	20	19	38
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Derrick Ave**
Segment: **North of Adams Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	2,487	8	43	51	17	45	62	11	46	57	13	26	39	9	13	22	8	13	21	10	12	22	4	17	21
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	2,720	9	47	56	19	49	68	12	50	62	14	28	43	10	14	24	9	14	23	11	13	24	4	19	23
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	2,720	9	47	56	19	49	68	12	50	62	14	28	43	10	14	24	9	14	23	11	13	24	4	19	23
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
Existing Volume	33	10	43	29	16	45	31	16	47	41	11	52	38	11	49	23	21	44	14	19	33	17	22	39	14	11	25	13	12	25
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	36	11	47	32	17	49	34	17	51	45	12	57	42	12	54	25	23	48	15	21	36	19	24	43	15	12	27	14	13	27
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	36	11	47	32	17	49	34	17	51	45	12	57	42	12	54	25	23	48	15	21	36	19	24	43	15	12	27	14	13	27
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Manning Ave**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,168	11	15	26	7	9	16	3	12	15	9	10	19	3	4	7	3	4	7	3	6	9	13	14	27
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	1,277	12	16	28	8	10	17	3	13	16	10	11	21	3	4	8	3	4	8	3	7	10	14	15	30
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	1,277	12	16	28	8	10	17	3	13	16	10	11	21	3	4	8	3	4	8	3	7	10	14	15	30
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	9	11	20	7	7	14	8	13	21	7	7	14	4	10	14	5	6	11	7	5	12	12	3	15	2	1	3	2	0	2
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	10	12	22	8	8	15	9	14	23	8	8	15	4	11	15	5	7	12	8	5	13	13	3	16	2	1	3	2	0	2
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	10	12	22	8	8	15	9	14	23	8	8	15	4	11	15	5	7	12	8	5	13	13	3	16	2	1	3	2	0	2
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Panoche Rd**
Segment: **e/o I-5**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,404	1	12	13	11	12	23	14	15	29	24	19	43	7	5	12	5	9	14	4	5	9	12	16	28
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	1,536	1	13	14	12	13	25	15	16	32	26	21	47	8	5	13	5	10	15	4	5	10	13	17	31
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	1,536	1	13	14	12	13	25	15	16	32	26	21	47	8	5	13	5	10	15	4	5	10	13	17	31
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	9	10	19	12	7	19	5	7	12	13	8	21	12	28	40	2	7	9	9	7	16	15	5	20	3	0	3	6	2	8
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	10	11	21	13	8	21	5	8	13	14	9	23	13	31	44	2	8	10	10	8	17	16	5	22	3	0	3	7	2	9
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	10	11	21	13	8	21	5	8	13	14	9	23	13	31	44	2	8	10	10	8	17	16	5	22	3	0	3	7	2	9
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **California Ave**
Segment: **e/o San Diego Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,272	3	20	23	3	63	66	3	126	129	4	64	68	15	20	35	1	15	16	8	19	27	3	31	34
LOS		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	2,485	3	22	25	3	69	72	3	138	141	4	70	74	16	22	38	1	16	17	9	21	30	3	34	37
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	2,485	3	22	25	3	69	72	3	138	141	4	70	74	16	22	38	1	16	17	9	21	30	3	34	37
LOS (Baseline)		B	B		B	C		B	D		B	C		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	C		B	D		B	C		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	32	8	40	25	9	34	25	8	33	25	6	31	42	7	49	28	6	34	21	6	27	15	3	18	13	4	17	19	9	28
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	35	9	44	27	10	37	27	9	36	27	7	34	46	8	54	31	7	37	23	7	30	16	3	20	14	4	19	21	10	31
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	35	9	44	27	10	37	27	9	36	27	7	34	46	8	54	31	7	37	23	7	30	16	3	20	14	4	19	21	10	31
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Belmont Ave**
Segment: **e/o San Diego Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	2,214	3	25	28	0	64	64	10	123	133	7	58	65	5	34	39	4	14	18	10	20	30	12	11	23
LOS		B	B		B	B		B	D		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	2,421	3	27	31	0	70	70	11	135	145	8	63	71	5	37	43	4	15	20	11	22	33	13	12	25
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	2,421	3	27	31	0	70	70	11	135	145	8	63	71	5	37	43	4	15	20	11	22	33	13	12	25
LOS (Baseline)		B	B		B	C		B	D		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	C		B	D		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	24	11	35	36	13	49	31	6	37	45	16	61	38	9	47	20	9	29	11	16	27	5	16	21	4	25	29	37	12	49
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	26	12	38	39	14	54	34	7	40	49	17	67	42	10	51	22	10	32	12	17	30	5	17	23	4	27	32	40	13	54
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	26	12	38	39	14	54	34	7	40	49	17	67	42	10	51	22	10	32	12	17	30	5	17	23	4	27	32	40	13	54
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Shields Ave**
Segment: **w/o Russell Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	1,781	4	8	12	5	30	35	10	31	41	3	28	31	10	20	30	18	19	37	8	19	27	8	24	32
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	1,948	4	9	13	5	33	38	11	34	45	3	31	34	11	22	33	20	21	40	9	21	30	9	26	35
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	1,948	4	9	13	5	33	38	11	34	45	3	31	34	11	22	33	20	21	40	9	21	30	9	26	35
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	24	12	36	18	11	29	38	8	46	13	11	24	19	10	29	14	8	22	6	3	9	5	2	7	10	13	23	3	21	24
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	26	13	39	20	12	32	42	9	50	14	12	26	21	11	32	15	9	24	7	3	10	5	2	8	11	14	25	3	23	26
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	26	13	39	20	12	32	42	9	50	14	12	26	21	11	32	15	9	24	7	3	10	5	2	8	11	14	25	3	23	26
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Bullard Ave**
Segment: **e/o Washoe Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	3,570	22	15	37	17	35	52	29	43	72	20	44	64	34	11	45	18	48	66	22	50	72	30	37	67
LOS		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	3,904	24	16	40	19	38	57	32	47	79	22	48	70	37	12	49	20	52	72	24	55	79	33	40	73
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	3,904	24	16	40	19	38	57	32	47	79	22	48	70	37	12	49	20	52	72	24	55	79	33	40	73
LOS (Baseline)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	27	27	54	19	13	32	30	23	53	26	7	33	27	20	47	38	10	48	25	17	42	20	13	33	22	18	40	29	15	44
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	30	30	59	21	14	35	33	25	58	28	8	36	30	22	51	42	11	52	27	19	46	22	14	36	24	20	44	32	16	48
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	30	30	59	21	14	35	33	25	58	28	8	36	30	22	51	42	11	52	27	19	46	22	14	36	24	20	44	32	16	48
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Ave 7**
Segment: **e/o Firebaugh Blvd**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	4,812	22	56	78	24	69	93	53	52	105	33	37	70	29	51	80	25	53	78	46	56	102	35	75	110
LOS		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	
Analysis Year 2033																									
Baseline Volume	5,263	24	61	85	26	75	102	58	57	115	36	40	77	32	56	87	27	58	85	50	61	112	38	82	120
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	5,263	24	61	85	26	75	102	58	57	115	36	40	77	32	56	87	27	58	85	50	61	112	38	82	120
LOS (Baseline)		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	
LOS (With Project)		B	B		B	C		B	B		B	B		B	B		B	B		B	B		B	C	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	43	57	100	46	32	78	32	28	60	49	37	86	47	44	91	44	36	80	34	32	66	38	26	64	44	42	86	28	37	65
LOS	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	47	62	109	50	35	85	35	31	66	54	40	94	51	48	100	48	39	87	37	35	72	42	28	70	48	46	94	31	40	71
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	47	62	109	50	35	85	35	31	66	54	40	94	51	48	100	48	39	87	37	35	72	42	28	70	48	46	94	31	40	71
LOS (Baseline)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)	B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B		B	B	

Road Segment Analyses
Year 2033

Road: **Ave 7 1/2**
Segment: **w/o Firebaugh Blvd**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	**5:00 to 5:15 AM**			**5:15 to 5:30 AM**			**5:30 to 5:45 AM**			**5:45 to 6:00 AM**			**6:00 to 6:15 AM**			**6:15 to 6:30 AM**			**6:30 to 6:45 AM**			**6:45 to 7:00 AM**		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	7,896	35	88	123	43	103	146	79	87	166	50	57	107	36	58	94	41	69	110	55	78	133	44	88	132
LOS		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	
Analysis Year 2033																									
Baseline Volume	8,636	38	96	135	47	113	160	86	95	182	55	62	117	39	63	103	45	75	120	60	85	145	48	96	144
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	8,636	38	96	135	47	113	160	86	95	182	55	62	117	39	63	103	45	75	120	60	85	145	48	96	144
LOS (Baseline)		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	
LOS (With Project)		B	C		B	C		C	C		B	B		B	B		B	C		B	C		B	C	

	3:30 to 3:45 PM			**3:45 to 4:00 PM**			**4:00 to 4:15 PM**			**4:15 to 4:30 PM**			**4:30 to 4:45 PM**			**4:45 to 5:00 PM**			**5:00 to 5:15 PM**			**5:15 to 5:30 PM**			**5:30 to 5:45 PM**			**5:45 to 6:00 PM**		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	69	75	144	67	62	129	65	55	120	68	59	127	76	76	152	78	62	140	64	44	108	60	51	111	60	66	126	48	57	105
LOS	C	C		B	B		B	B		B	B		C	C		C	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	75	82	157	73	68	141	71	60	131	74	65	139	83	83	166	85	68	153	70	48	118	66	56	121	66	72	138	52	62	115
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	75	82	157	73	68	141	71	60	131	74	65	139	83	83	166	85	68	153	70	48	118	66	56	121	66	72	138	52	62	115
LOS (Baseline)	C	C		C	B		C	B		C	B		C	C		C	B		C	B		B	B		B	C		B	B	
LOS (With Project)	C	C		C	B		C	B		C	B		C	C		C	B		C	B		B	B		B	C		B	B	

Road Segment Analyses
Year 2033

Road: **Nees Ave**
Segment: **w/o Russell Ave**

Count Year 2024
Analysis Year 2033
Annual Growth Rate 1%

	24-Hour	5:00 to 5:15 AM			5:15 to 5:30 AM			5:30 to 5:45 AM			5:45 to 6:00 AM			6:00 to 6:15 AM			6:15 to 6:30 AM			6:30 to 6:45 AM			6:45 to 7:00 AM		
	Combined Both Directions	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	5,522	17	38	55	13	64	77	25	85	110	33	61	94	37	55	92	20	37	57	37	54	91	10	54	64
LOS		B	B		B	B		B	C		B	B		B	B		B	B		B	B		B	B	
Analysis Year 2033																									
Baseline Volume	6,039	19	42	60	14	70	84	27	93	120	36	67	103	40	60	101	22	40	62	40	59	100	11	59	70
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	6,039	19	42	60	14	70	84	27	93	120	36	67	103	40	60	101	22	40	62	40	59	100	11	59	70
LOS (Baseline)		B	B		B	C		B	C		B	B		B	B		B	B		B	B		B	B	
LOS (With Project)		B	B		B	C		B	C		B	B		B	B		B	B		B	B		B	B	

	3:30 to 3:45 PM			3:45 to 4:00 PM			4:00 to 4:15 PM			4:15 to 4:30 PM			4:30 to 4:45 PM			4:45 to 5:00 PM			5:00 to 5:15 PM			5:15 to 5:30 PM			5:30 to 5:45 PM			5:45 to 6:00 PM		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
Existing Volume	52	21	73	91	25	116	58	29	87	66	21	87	62	35	97	43	37	80	70	14	84	52	22	74	54	19	73	47	13	60
LOS	B	B		C	B		B	B		B	B		B	B		B	B		C	B		B	B		B	B		B	B	
Analysis Year 2033																														
Baseline Volume	57	23	80	100	27	127	63	32	95	72	23	95	68	38	106	47	40	87	77	15	92	57	24	81	59	21	80	51	14	66
Project Worker Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 With Project	57	23	80	100	27	127	63	32	95	72	23	95	68	38	106	47	40	87	77	15	92	57	24	81	59	21	80	51	14	66
LOS (Baseline)	B	B		C	B		B	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	
LOS (With Project)	B	B		C	B		B	B		C	B		B	B		B	B		C	B		B	B		B	B		B	B	

APPENDIX G

INTERSECTION ANALYSES

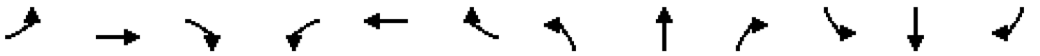
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	34	38	101	273	42
Future Vol, veh/h	13	34	38	101	273	42
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	34	38	101	273	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	471	294	315	0	-	0
Stage 1	294	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	551	745	1245	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	533	745	1245	-	-	-
Mov Cap-2 Maneuver	533	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	854	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10.57	2.18	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	492	-	533	745	-	-
HCM Lane V/C Ratio	0.031	-	0.024	0.046	-	-
HCM Control Delay (s/veh)	8	0	11.9	10.1	-	-
HCM Lane LOS	A	A	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	50	46	8	88	1	1	88	25	1	135	156
Future Volume (veh/h)	50	50	46	8	88	1	1	88	25	1	135	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	50	41	8	88	1	1	88	20	1	135	136
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	301	565	69	623	7	198	1097	242	198	673	601
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.11	0.38	0.38	0.11	0.38	0.38
Sat Flow, veh/h	727	843	1585	72	1746	19	1781	2894	638	1781	1777	1585
Grp Volume(v), veh/h	100	0	41	97	0	0	1	53	55	1	135	136
Grp Sat Flow(s),veh/h/ln	1570	0	1585	1836	0	0	1781	1777	1755	1781	1777	1585
Q Serve(g_s), s	0.2	0.0	1.5	0.0	0.0	0.0	0.0	1.7	1.8	0.0	4.6	5.2
Cycle Q Clear(g_c), s	3.3	0.0	1.5	3.2	0.0	0.0	0.0	1.7	1.8	0.0	4.6	5.2
Prop In Lane	0.50		1.00	0.08		0.01	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	620	0	565	698	0	0	198	673	665	198	673	601
V/C Ratio(X)	0.16	0.00	0.07	0.14	0.00	0.00	0.01	0.08	0.08	0.01	0.20	0.23
Avail Cap(c_a), veh/h	620	0	565	698	0	0	198	673	665	198	673	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	0.0	19.1	19.6	0.0	0.0	35.6	17.9	17.9	35.6	18.8	19.0
Incr Delay (d2), s/veh	0.6	0.0	0.2	0.4	0.0	0.0	0.0	0.2	0.2	0.0	0.7	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.6	1.4	0.0	0.0	0.0	0.7	0.8	0.0	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.2	0.0	19.4	20.1	0.0	0.0	35.6	18.1	18.2	35.6	19.5	19.9
LnGrp LOS	C		B	C			D	B	B	D	B	B
Approach Vol, veh/h		141			97			109			272	
Approach Delay, s/veh		20.0			20.1			18.3			19.7	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	39.0		37.0	14.0	39.0		37.0				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	10.0	34.1		32.1	10.0	34.1		32.1				
Max Q Clear Time (g_c+I1), s	2.0	3.8		5.3	2.0	7.2		5.2				
Green Ext Time (p_c), s	0.0	0.6		0.7	0.0	1.7		0.5				

Intersection Summary			
HCM 7th Control Delay, s/veh		19.6	
HCM 7th LOS		B	

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	46	97	1	113	1	291
v/c Ratio	0.18	0.08	0.15	0.01	0.09	0.01	0.22
Control Delay (s/veh)	21.0	2.5	20.3	36.0	14.2	36.0	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.0	2.5	20.3	36.0	14.2	36.0	9.0
Queue Length 50th (ft)	39	0	37	1	16	1	25
Queue Length 95th (ft)	75	12	71	5	34	5	52
Internal Link Dist (ft)	1577		661		415		917
Turn Bay Length (ft)				160		125	
Base Capacity (vph)	556	610	652	196	1312	196	1330
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.08	0.15	0.01	0.09	0.01	0.22

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	4	13	59	1	92	8	164	84	55	126	13
Future Volume (veh/h)	1	4	13	59	1	92	8	164	84	55	126	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	4	11	59	1	82	8	164	74	55	126	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	61	153	516	3	215	19	513	222	114	880	76
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.01	0.21	0.21	0.06	0.27	0.27
Sat Flow, veh/h	66	444	1122	1398	19	1569	1781	2415	1044	1781	3310	286
Grp Volume(v), veh/h	16	0	0	59	0	83	8	119	119	55	67	70
Grp Sat Flow(s),veh/h/ln	1632	0	0	1398	0	1588	1781	1777	1682	1781	1777	1819
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.1	0.1	1.3	1.4	0.7	0.7	0.7
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.7	0.0	1.1	0.1	1.3	1.4	0.7	0.7	0.7
Prop In Lane	0.06		0.69	1.00		0.99	1.00		0.62	1.00		0.16
Lane Grp Cap(c), veh/h	386	0	0	516	0	217	19	378	358	114	472	484
V/C Ratio(X)	0.04	0.00	0.00	0.11	0.00	0.38	0.41	0.31	0.33	0.48	0.14	0.14
Avail Cap(c_a), veh/h	2105	0	0	1994	0	1896	757	2424	2295	1211	2877	2945
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.9	0.0	0.0	9.1	0.0	9.2	11.6	7.8	7.9	10.6	6.6	6.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.1	13.6	0.5	0.5	3.1	0.1	0.1
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	0.0	0.0	0.0	0.2	0.0	0.3	0.1	0.3	0.3	0.3	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.9	0.0	0.0	9.2	0.0	10.4	25.2	8.3	8.4	13.7	6.7	6.7
LnGrp LOS	A			A		B	C	A	A	B	A	A
Approach Vol, veh/h		16			142			246			192	
Approach Delay, s/veh		8.9			9.9			8.9			8.7	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	9.9		8.1	4.3	11.2		8.1				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	16.0	32.1		28.1	10.0	38.1		28.1				
Max Q Clear Time (g_c+I1), s	2.7	3.4		3.1	2.1	2.7		3.1				
Green Ext Time (p_c), s	0.1	1.4		0.0	0.0	0.8		0.6				

Intersection Summary			
HCM 7th Control Delay, s/veh		9.1	
HCM 7th LOS		A	

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	59	93	8	248	55	139
v/c Ratio	0.05	0.19	0.22	0.02	0.16	0.15	0.08
Control Delay (s/veh)	8.4	13.0	5.5	13.5	7.5	12.8	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.4	13.0	5.5	13.5	7.5	12.8	7.1
Queue Length 50th (ft)	1	5	0	1	6	5	5
Queue Length 95th (ft)	12	32	24	9	36	30	25
Internal Link Dist (ft)	5		690		417		415
Turn Bay Length (ft)		100		110		175	
Base Capacity (vph)	1431	1213	1397	581	3147	929	3452
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.07	0.01	0.08	0.06	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	252	13	21	214	50	55	80	34	17	88	17
Future Volume (veh/h)	8	252	13	21	214	50	55	80	34	17	88	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	252	11	21	214	44	55	80	30	17	88	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	602	26	48	558	113	108	714	319	39	576	257
Arrive On Green	0.01	0.17	0.17	0.03	0.19	0.19	0.06	0.20	0.20	0.02	0.16	0.16
Sat Flow, veh/h	1781	3469	151	1781	2946	594	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	8	129	134	21	127	131	55	80	30	17	88	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1777	1763	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.1	2.0	2.0	0.4	1.9	2.0	0.9	0.6	0.5	0.3	0.7	0.2
Cycle Q Clear(g_c), s	0.1	2.0	2.0	0.4	1.9	2.0	0.9	0.6	0.5	0.3	0.7	0.2
Prop In Lane	1.00		0.08	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	19	309	320	48	337	334	108	714	319	39	576	257
V/C Ratio(X)	0.42	0.42	0.42	0.44	0.38	0.39	0.51	0.11	0.09	0.43	0.15	0.06
Avail Cap(c_a), veh/h	519	1445	1499	577	1503	1491	750	3236	1443	519	2775	1238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	11.4	11.4	14.8	10.9	10.9	14.0	10.1	10.0	14.9	11.1	10.9
Incr Delay (d2), s/veh	13.9	0.9	0.9	6.3	0.7	0.7	3.6	0.1	0.1	7.4	0.1	0.1
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	0.7	0.7	0.2	0.6	0.6	0.4	0.2	0.1	0.2	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.0	12.3	12.2	21.1	11.6	11.7	17.7	10.1	10.2	22.3	11.2	11.0
LnGrp LOS	C	B	B	C	B	B	B	B	B	C	B	B
Approach Vol, veh/h		271			279			165			120	
Approach Delay, s/veh		12.7			12.4			12.7			12.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.7	11.1	4.8	10.3	5.9	9.9	4.3	10.8
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.0	28.1	10.0	25.1	13.0	24.1	9.0	26.1
Max Q Clear Time (g_c+I1), s	2.3	2.6	2.4	4.0	2.9	2.7	2.1	4.0
Green Ext Time (p_c), s	0.0	0.5	0.0	1.4	0.1	0.5	0.0	1.4

Intersection Summary	
HCM 7th Control Delay, s/veh	12.6
HCM 7th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	265	21	264	55	80	34	17	88	17
v/c Ratio	0.02	0.24	0.05	0.24	0.12	0.05	0.04	0.04	0.07	0.03
Control Delay (s/veh)	17.3	11.8	16.4	10.7	15.0	11.3	0.1	16.6	14.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.3	11.8	16.4	10.7	15.0	11.3	0.1	16.6	14.4	0.1
Queue Length 50th (ft)	1	10	2	9	5	3	0	1	3	0
Queue Length 95th (ft)	12	64	22	58	41	26	0	19	29	0
Internal Link Dist (ft)		1284		2468		2566			2594	
Turn Bay Length (ft)	130		160		210		160			
Base Capacity (vph)	674	2898	750	2872	958	3012	1365	674	2886	1313
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.09	0.03	0.09	0.06	0.03	0.02	0.03	0.03	0.01

Intersection Summary

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	92	92	294	315	13
Future Vol, veh/h	34	92	92	294	315	13
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	92	92	294	315	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	800	322	328	0	-	0
Stage 1	322	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	354	719	1232	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	719	1232	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.55	1.94	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	429	-	323	719	-	-
HCM Lane V/C Ratio	0.075	-	0.105	0.128	-	-
HCM Control Delay (s/veh)	8.2	0	17.5	10.7	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	0.4	-	-

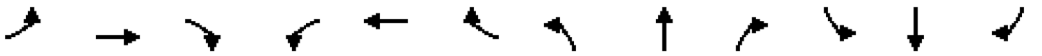
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	97	118	17	42	25	101	244	17	29	252	109
Future Volume (veh/h)	101	97	118	17	42	25	101	244	17	29	252	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	97	98	17	42	24	101	244	12	29	252	89
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	274	548	125	297	152	356	1383	68	178	781	269
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.20	0.40	0.40	0.10	0.30	0.30
Sat Flow, veh/h	704	792	1585	224	859	440	1781	3448	169	1781	2593	893
Grp Volume(v), veh/h	198	0	98	83	0	0	101	125	131	29	171	170
Grp Sat Flow(s),veh/h/ln	1497	0	1585	1523	0	0	1781	1777	1840	1781	1777	1710
Q Serve(g_s), s	0.0	0.0	3.9	0.1	0.0	0.0	4.3	4.1	4.1	1.3	6.7	7.0
Cycle Q Clear(g_c), s	9.9	0.0	3.9	10.0	0.0	0.0	4.3	4.1	4.1	1.3	6.7	7.0
Prop In Lane	0.51		1.00	0.20		0.29	1.00		0.09	1.00		0.52
Lane Grp Cap(c), veh/h	578	0	548	575	0	0	356	713	738	178	535	515
V/C Ratio(X)	0.34	0.00	0.18	0.14	0.00	0.00	0.28	0.18	0.18	0.16	0.32	0.33
Avail Cap(c_a), veh/h	578	0	548	575	0	0	356	713	738	178	535	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	20.5	20.2	0.0	0.0	30.5	17.4	17.4	37.1	24.3	24.4
Incr Delay (d2), s/veh	1.6	0.0	0.7	0.5	0.0	0.0	2.0	0.5	0.5	2.0	1.6	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	3.4	0.0	1.5	1.3	0.0	0.0	2.0	1.7	1.8	0.7	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.9	0.0	21.3	20.8	0.0	0.0	32.5	17.9	17.9	39.0	25.9	26.1
LnGrp LOS	C		C	C			C	B	B	D	C	C
Approach Vol, veh/h		296			83			357			370	
Approach Delay, s/veh		23.0			20.8			22.0			27.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	41.0		36.0	22.0	32.0		36.0				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	9.0	36.1		31.1	18.0	27.1		31.1				
Max Q Clear Time (g_c+I1), s	3.3	6.1		11.9	6.3	9.0		12.0				
Green Ext Time (p_c), s	0.0	1.5		1.4	0.2	1.9		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			23.9									
HCM 7th LOS			C									

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	118	84	101	261	29	361
v/c Ratio	0.38	0.19	0.14	0.29	0.19	0.16	0.34
Control Delay (s/veh)	24.9	4.8	15.6	33.1	17.2	39.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.9	4.8	15.6	33.1	17.2	39.6	20.0
Queue Length 50th (ft)	84	0	23	49	47	15	64
Queue Length 95th (ft)	144	34	54	95	74	42	102
Internal Link Dist (ft)	1577		661		415		917
Turn Bay Length (ft)				160		125	
Base Capacity (vph)	519	625	592	354	1410	177	1071
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.19	0.14	0.29	0.19	0.16	0.34

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	156	4	97	1	290	97	76	324	4
Future Volume (veh/h)	1	1	1	156	4	97	1	290	97	76	324	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	1	1	156	4	87	1	290	87	76	324	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	152	99	511	12	272	6	667	196	142	1176	7
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.00	0.25	0.25	0.08	0.32	0.32
Sat Flow, veh/h	253	855	554	1415	70	1526	1781	2707	797	1781	3621	22
Grp Volume(v), veh/h	3	0	0	156	0	91	1	188	189	76	159	167
Grp Sat Flow(s),veh/h/ln	1661	0	0	1415	0	1596	1781	1777	1727	1781	1777	1866
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	1.4	0.0	2.5	2.6	1.1	1.8	1.8
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.8	0.0	1.4	0.0	2.5	2.6	1.1	1.8	1.8
Prop In Lane	0.33		0.33	1.00		0.96	1.00		0.46	1.00		0.01
Lane Grp Cap(c), veh/h	468	0	0	511	0	284	6	438	425	142	577	606
V/C Ratio(X)	0.01	0.00	0.00	0.31	0.00	0.32	0.16	0.43	0.44	0.53	0.28	0.28
Avail Cap(c_a), veh/h	1928	0	0	1841	0	1783	512	1858	1806	1024	2369	2488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	10.6	0.0	10.0	13.9	8.8	8.9	12.3	7.0	7.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.6	10.9	0.7	0.7	3.1	0.3	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.7	0.0	0.4	0.0	0.7	0.7	0.5	0.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.4	0.0	0.0	10.9	0.0	10.6	24.8	9.5	9.6	15.4	7.2	7.2
LnGrp LOS	A			B		B	C	A	A	B	A	A
Approach Vol, veh/h		3			247			378			402	
Approach Delay, s/veh		9.4			10.8			9.6			8.8	
Approach LOS		A			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	11.8		9.9	4.0	13.9		9.9				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	16.0	29.1		31.1	8.0	37.1		31.1				
Max Q Clear Time (g_c+I1), s	3.1	4.6		2.0	2.0	3.8		4.8				
Green Ext Time (p_c), s	0.1	2.3		0.0	0.0	2.0		1.0				

Intersection Summary			
HCM 7th Control Delay, s/veh		9.6	
HCM 7th LOS		A	

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	156	101	1	387	76	328
v/c Ratio	0.01	0.43	0.21	0.00	0.33	0.23	0.20
Control Delay (s/veh)	12.0	17.9	5.5	20.0	12.3	18.4	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.0	17.9	5.5	20.0	12.3	18.4	8.4
Queue Length 50th (ft)	0	30	1	0	34	15	18
Queue Length 95th (ft)	5	83	28	4	77	51	64
Internal Link Dist (ft)	5		690		417		415
Turn Bay Length (ft)		100		110		175	
Base Capacity (vph)	1258	1079	1245	360	2500	721	3094
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.14	0.08	0.00	0.15	0.11	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	458	34	55	412	84	135	252	105	160	185	97
Future Volume (veh/h)	76	458	34	55	412	84	135	252	105	160	185	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	458	28	55	412	74	135	252	85	160	185	79
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	830	51	101	694	124	179	544	243	214	614	274
Arrive On Green	0.07	0.24	0.24	0.06	0.23	0.23	0.10	0.15	0.15	0.12	0.17	0.17
Sat Flow, veh/h	1781	3402	207	1781	3013	537	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	239	247	55	242	244	135	252	85	160	185	79
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1781	1777	1774	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.7	4.9	4.9	1.3	5.1	5.1	3.1	2.7	2.0	3.6	1.9	1.8
Cycle Q Clear(g_c), s	1.7	4.9	4.9	1.3	5.1	5.1	3.1	2.7	2.0	3.6	1.9	1.8
Prop In Lane	1.00		0.11	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	434	447	101	409	408	179	544	243	214	614	274
V/C Ratio(X)	0.61	0.55	0.55	0.55	0.59	0.60	0.75	0.46	0.35	0.75	0.30	0.29
Avail Cap(c_a), veh/h	469	1025	1058	341	898	896	640	1881	839	768	2136	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	13.8	13.8	19.2	14.3	14.3	18.3	16.1	15.8	17.8	15.1	15.0
Incr Delay (d2), s/veh	4.7	1.1	1.1	4.6	1.4	1.4	6.3	0.6	0.9	5.2	0.3	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.7	1.8	0.6	1.8	1.9	1.4	1.0	0.7	1.6	0.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.6	14.9	14.9	23.7	15.7	15.8	24.6	16.7	16.7	22.9	15.3	15.6
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		562			541			472			424	
Approach Delay, s/veh		16.0			16.5			19.0			18.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	11.3	6.4	15.1	8.2	12.1	6.9	14.5
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	18.0	22.1	8.0	24.1	15.0	25.1	11.0	21.1
Max Q Clear Time (g_c+I1), s	5.6	4.7	3.3	6.9	5.1	3.9	3.7	7.1
Green Ext Time (p_c), s	0.3	1.7	0.0	2.7	0.2	1.3	0.1	2.5

Intersection Summary	
HCM 7th Control Delay, s/veh	17.3
HCM 7th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	492	55	496	135	252	105	160	185	97
v/c Ratio	0.28	0.44	0.23	0.54	0.41	0.38	0.27	0.44	0.26	0.23
Control Delay (s/veh)	31.4	20.1	32.7	23.1	30.6	27.0	7.0	29.7	25.1	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.4	20.1	32.7	23.1	30.6	27.0	7.0	29.7	25.1	5.5
Queue Length 50th (ft)	26	83	19	82	47	45	0	55	32	0
Queue Length 95th (ft)	76	152	62	158	116	95	33	129	70	27
Internal Link Dist (ft)		1284		2468		2566			2594	
Turn Bay Length (ft)	130		160		210		160			
Base Capacity (vph)	392	1705	285	1481	534	1575	771	641	1789	860
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.29	0.19	0.33	0.25	0.16	0.14	0.25	0.10	0.11

Intersection Summary

Intersection	
Int Delay, s/veh	92.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	34	1770	1833	273	42
Future Vol, veh/h	13	34	1770	1833	273	42
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	34	1770	1833	273	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	5667	294	315	0	-	0
Stage 1	294	-	-	-	-	-
Stage 2	5373	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 0	745	~ 1245	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	~ 2	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	745	~ 1245	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	~ 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v		101.61	0
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 884	-	-	745	-	-
HCM Lane V/C Ratio	1.421	-	-	0.046	-	-
HCM Control Delay (s/veh)	206.8	0	-	10.1	-	-
HCM Lane LOS	F	A	-	B	-	-
HCM 95th %tile Q(veh)	74.5	-	-	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	50	46	8	88	1	4069	88	25	1	135	156
Future Volume (veh/h)	50	50	46	8	88	1	4069	88	25	1	135	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	50	41	8	88	1	4069	88	20	1	135	136
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	181	317	55	353	4	792	1682	371	117	359	321
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.44	0.58	0.58	0.07	0.20	0.20
Sat Flow, veh/h	700	907	1585	56	1767	19	1781	2894	638	1781	1777	1585
Grp Volume(v), veh/h	100	0	41	97	0	0	4069	53	55	1	135	136
Grp Sat Flow(s),veh/h/ln	1607	0	1585	1843	0	0	1781	1777	1755	1781	1777	1585
Q Serve(g_s), s	0.2	0.0	1.9	0.0	0.0	0.0	40.0	1.2	1.2	0.0	5.9	6.7
Cycle Q Clear(g_c), s	4.2	0.0	1.9	3.9	0.0	0.0	40.0	1.2	1.2	0.0	5.9	6.7
Prop In Lane	0.50		1.00	0.08		0.01	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	381	0	317	412	0	0	792	1033	1020	117	359	321
V/C Ratio(X)	0.26	0.00	0.13	0.24	0.00	0.00	5.14	0.05	0.05	0.01	0.38	0.42
Avail Cap(c_a), veh/h	381	0	317	412	0	0	792	1033	1020	117	359	321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	29.6	30.4	0.0	0.0	25.0	8.1	8.2	39.3	31.0	31.3
Incr Delay (d2), s/veh	1.7	0.0	0.8	1.3	0.0	0.0	1865.7	0.1	0.1	0.1	3.0	4.1
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	2.0	0.0	0.8	1.9	0.0	0.0	425.9	0.4	0.5	0.0	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.1	0.0	30.4	31.7	0.0	0.0	1890.7	8.2	8.3	39.4	34.0	35.4
LnGrp LOS	C		C	C			F	A	A	D	C	D
Approach Vol, veh/h		141			97			4177			272	
Approach Delay, s/veh		31.6			31.7			1842.0			34.7	
Approach LOS		C			C			F			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	57.2		22.9	44.0	23.1		22.9				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	5.9	52.3		18.0	40.0	18.2		18.0				
Max Q Clear Time (g_c+I1), s	2.0	3.2		6.2	42.0	8.7		5.9				
Green Ext Time (p_c), s	0.0	0.6		0.4	0.0	1.0		0.3				

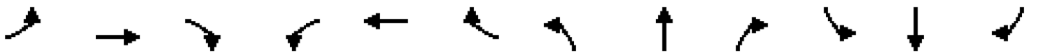
Intersection Summary		
HCM 7th Control Delay, s/veh		1645.2
HCM 7th LOS		F

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	46	97	4069	113	1	291
v/c Ratio	0.32	0.11	0.27	5.18	0.06	0.01	0.37
Control Delay (s/veh)	34.1	0.5	32.4	Error	6.4	39.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.1	0.5	32.4	Error	6.4	39.0	15.6
Queue Length 50th (ft)	49	0	47	~4393	10	1	33
Queue Length 95th (ft)	96	0	91	#4621	21	6	69
Internal Link Dist (ft)	1577		661		415		917
Turn Bay Length (ft)				160		125	
Base Capacity (vph)	313	412	364	786	1999	116	782
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.11	0.27	5.18	0.06	0.01	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	4	13	59	1	4156	8	168	84	55	126	13
Future Volume (veh/h)	1	4	13	59	1	4156	8	168	84	55	126	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	4	11	59	1	4056	8	168	74	55	126	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	163	360	222	0	1062	18	261	110	80	469	41
Arrive On Green	0.67	0.67	0.67	0.67	0.67	0.67	0.01	0.11	0.11	0.04	0.14	0.14
Sat Flow, veh/h	0	244	536	1398	0	1585	1781	2434	1028	1781	3310	286
Grp Volume(v), veh/h	16	0	0	59	0	4057	8	121	121	55	67	70
Grp Sat Flow(s),veh/h/ln	780	0	0	1398	0	1585	1781	1777	1685	1781	1777	1819
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	52.1	0.3	5.1	5.4	2.4	2.6	2.7
Cycle Q Clear(g_c), s	52.1	0.0	0.0	11.3	0.0	52.1	0.3	5.1	5.4	2.4	2.6	2.7
Prop In Lane	0.06		0.69	1.00		1.00	1.00		0.61	1.00		0.16
Lane Grp Cap(c), veh/h	572	0	0	222	0	1063	18	191	181	80	252	258
V/C Ratio(X)	0.03	0.00	0.00	0.27	0.00	3.82	0.44	0.63	0.67	0.69	0.27	0.27
Avail Cap(c_a), veh/h	572	0	0	222	0	1063	135	416	395	135	416	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	0.0	0.0	6.1	0.0	12.8	38.2	33.2	33.4	36.6	29.7	29.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	1270.3	15.8	3.4	4.3	10.2	0.6	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.4	0.0	388.7	0.2	2.3	2.4	1.2	1.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.2	0.0	0.0	6.7	0.0	1283.1	54.1	36.7	37.6	46.7	30.3	30.3
LnGrp LOS	A			A		F	D	D	D	D	C	C
Approach Vol, veh/h		16			4116			250			192	
Approach Delay, s/veh		9.2			1264.8			37.7			35.0	
Approach LOS		A			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	13.2		57.0	4.8	15.9		57.0				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	5.9	18.2		52.1	5.9	18.2		52.1				
Max Q Clear Time (g_c+I1), s	4.4	7.4		54.1	2.3	4.7		54.1				
Green Ext Time (p_c), s	0.0	1.0		0.0	0.0	0.5		0.0				

Intersection Summary			
HCM 7th Control Delay, s/veh		1141.7	
HCM 7th LOS		F	

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	59	4157	8	252	55	139
v/c Ratio	0.02	0.06	3.33	0.06	0.52	0.41	0.23
Control Delay (s/veh)	3.8	6.0	Error	37.5	25.6	46.3	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	3.8	6.0	Error	37.5	25.6	46.3	26.6
Queue Length 50th (ft)	1	10	~3785	4	42	27	27
Queue Length 95th (ft)	9	26	#4192	18	78	66	58
Internal Link Dist (ft)	5		690		417		415
Turn Bay Length (ft)		100		110		175	
Base Capacity (vph)	952	943	1250	136	861	136	867
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.06	3.33	0.06	0.29	0.40	0.16

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	252	13	21	3666	50	55	80	34	17	88	17
Future Volume (veh/h)	8	252	13	21	3666	50	55	80	34	17	88	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	252	11	21	3666	44	55	80	30	17	88	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	2073	90	43	2199	26	84	354	158	36	258	115
Arrive On Green	0.01	0.60	0.60	0.02	0.61	0.61	0.05	0.10	0.10	0.02	0.07	0.07
Sat Flow, veh/h	1781	3469	151	1781	3596	43	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	8	129	134	21	1807	1903	55	80	30	17	88	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1777	1863	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.3	2.2	2.2	0.8	42.1	42.1	2.1	1.4	1.2	0.7	1.6	0.6
Cycle Q Clear(g_c), s	0.3	2.2	2.2	0.8	42.1	42.1	2.1	1.4	1.2	0.7	1.6	0.6
Prop In Lane	1.00		0.08	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	18	1062	1102	43	1086	1139	84	354	158	36	258	115
V/C Ratio(X)	0.44	0.12	0.12	0.49	1.66	1.67	0.65	0.23	0.19	0.47	0.34	0.13
Avail Cap(c_a), veh/h	153	1086	1127	153	1086	1139	153	944	421	153	944	421
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	6.0	6.0	33.2	13.4	13.4	32.3	28.6	28.4	33.4	30.4	29.9
Incr Delay (d2), s/veh	15.4	0.1	0.0	8.4	302.8	305.7	8.3	0.3	0.6	9.4	0.8	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.7	0.7	0.4	104.1	110.0	1.1	0.6	0.5	0.4	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.3	6.1	6.1	41.6	316.2	319.1	40.5	28.9	29.0	42.7	31.1	30.4
LnGrp LOS	D	A	A	D	F	F	D	C	C	D	C	C
Approach Vol, veh/h		271			3731			165			120	
Approach Delay, s/veh		7.3			316.2			32.8			32.7	
Approach LOS		A			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	11.8	5.7	46.1	7.3	9.9	4.7	47.0
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	5.9	18.3	5.9	42.1	5.9	18.3	5.9	42.1
Max Q Clear Time (g_c+I1), s	2.7	3.4	2.8	4.2	4.1	3.6	2.3	44.1
Green Ext Time (p_c), s	0.0	0.4	0.0	1.6	0.0	0.4	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	277.8
HCM 7th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	265	21	3716	55	80	34	17	88	17
v/c Ratio	0.05	0.12	0.14	1.65	0.35	0.14	0.09	0.11	0.23	0.06
Control Delay (s/veh)	33.3	6.4	34.4	312.4	38.8	26.2	0.5	34.1	31.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.3	6.4	34.4	312.4	38.8	26.2	0.5	34.1	31.2	0.4
Queue Length 50th (ft)	3	21	8	~1274	23	13	0	7	18	0
Queue Length 95th (ft)	17	52	32	#1730	63	40	0	28	43	0
Internal Link Dist (ft)		1284		2468		2566			2594	
Turn Bay Length (ft)	130		160		210		160			
Base Capacity (vph)	158	2245	158	2254	158	981	525	158	981	525
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.12	0.13	1.65	0.35	0.08	0.06	0.11	0.09	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	3072.5

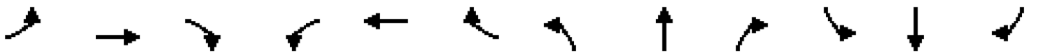
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	1612	92	294	1835	13
Future Vol, veh/h	34	1612	92	294	1835	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1612	92	294	1835	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2320	1842	1848	0	-	0
Stage 1	1842	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	41	~ 94	328	-	-	-
Stage 1	138	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 27	~ 94	328	-	-	-
Mov Cap-2 Maneuver	~ 27	-	-	-	-	-
Stage 1	92	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	$ 7241.54	4.81	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	274	-	27	94	-	-
HCM Lane V/C Ratio	0.28	-	1.237	17.223	-	-
HCM Control Delay (s/veh)	20.2	0	$ 464.5	$ 7384.5	-	-
HCM Lane LOS	C	A	F	F	-	-
HCM 95th %tile Q(veh)	1.1	-	4	192.9	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	97	3698	17	42	25	101	244	17	29	252	109
Future Volume (veh/h)	101	97	3698	17	42	25	101	244	17	29	252	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	97	3678	17	42	24	101	244	12	29	252	89
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	180	548	53	119	50	356	1383	68	178	781	269
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.20	0.40	0.40	0.10	0.30	0.30
Sat Flow, veh/h	421	520	1585	15	344	146	1781	3448	169	1781	2593	893
Grp Volume(v), veh/h	198	0	3678	83	0	0	101	125	131	29	171	170
Grp Sat Flow(s),veh/h/ln	941	0	1585	505	0	0	1781	1777	1840	1781	1777	1710
Q Serve(g_s), s	0.0	0.0	31.1	9.9	0.0	0.0	4.3	4.1	4.1	1.3	6.7	7.0
Cycle Q Clear(g_c), s	17.0	0.0	31.1	26.8	0.0	0.0	4.3	4.1	4.1	1.3	6.7	7.0
Prop In Lane	0.51		1.00	0.20		0.29	1.00		0.09	1.00		0.52
Lane Grp Cap(c), veh/h	386	0	548	223	0	0	356	713	738	178	535	515
V/C Ratio(X)	0.51	0.00	6.72	0.37	0.00	0.00	0.28	0.18	0.18	0.16	0.32	0.33
Avail Cap(c_a), veh/h	386	0	548	223	0	0	356	713	738	178	535	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	29.5	21.2	0.0	0.0	30.5	17.4	17.4	37.1	24.3	24.4
Incr Delay (d2), s/veh	4.8	0.0	2575.6	4.7	0.0	0.0	2.0	0.5	0.5	2.0	1.6	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	3.9	0.0	403.1	1.5	0.0	0.0	2.0	1.7	1.8	0.7	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.7	0.0	2605.1	25.9	0.0	0.0	32.5	17.9	17.9	39.0	25.9	26.1
LnGrp LOS	C		F	C			C	B	B	D	C	C
Approach Vol, veh/h		3876			83			357			370	
Approach Delay, s/veh		2473.5			25.9			22.0			27.0	
Approach LOS		F			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	41.0		36.0	22.0	32.0		36.0				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	9.0	36.1		31.1	18.0	27.1		31.1				
Max Q Clear Time (g_c+I1), s	3.3	6.1		33.1	6.3	9.0		28.8				
Green Ext Time (p_c), s	0.0	1.5		0.0	0.2	1.9		0.2				

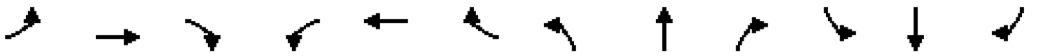
Intersection Summary												
HCM 7th Control Delay, s/veh			2050.2									
HCM 7th LOS			F									

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	3698	84	101	261	29	361
v/c Ratio	0.38	3.90	0.14	0.29	0.19	0.16	0.34
Control Delay (s/veh)	24.9	Error	15.6	33.1	17.2	39.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.9	Error	15.6	33.1	17.2	39.6	20.0
Queue Length 50th (ft)	84	~3676	23	49	47	15	64
Queue Length 95th (ft)	144	#3921	54	95	74	42	102
Internal Link Dist (ft)	1577		661		415		917
Turn Bay Length (ft)				160		125	
Base Capacity (vph)	519	949	592	354	1410	177	1071
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	3.90	0.14	0.29	0.19	0.16	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	156	4	97	1	290	97	3656	324	4
Future Volume (veh/h)	1	1	1	156	4	97	1	290	97	3656	324	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	1	1	156	4	87	1	290	87	3656	324	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	128	88	385	11	245	4	518	152	620	1947	12
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.00	0.19	0.19	0.35	0.54	0.54
Sat Flow, veh/h	300	794	547	1415	70	1526	1781	2707	797	1781	3621	22
Grp Volume(v), veh/h	3	0	0	156	0	91	1	188	189	3656	159	167
Grp Sat Flow(s),veh/h/ln	1642	0	0	1415	0	1596	1781	1777	1727	1781	1777	1866
Q Serve(g_s), s	0.0	0.0	0.0	4.7	0.0	2.3	0.0	4.4	4.6	16.0	2.1	2.1
Cycle Q Clear(g_c), s	0.1	0.0	0.0	4.8	0.0	2.3	0.0	4.4	4.6	16.0	2.1	2.1
Prop In Lane	0.33		0.33	1.00		0.96	1.00		0.46	1.00		0.01
Lane Grp Cap(c), veh/h	368	0	0	385	0	257	4	340	330	620	955	1004
V/C Ratio(X)	0.01	0.00	0.00	0.41	0.00	0.35	0.26	0.55	0.57	5.90	0.17	0.17
Avail Cap(c_a), veh/h	1169	0	0	1114	0	1079	310	1124	1093	620	1433	1506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	18.2	0.0	17.2	22.9	16.8	16.9	15.0	5.4	5.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.0	0.8	31.9	1.4	1.6	2208.3	0.1	0.1
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	0.0	0.0	0.0	1.4	0.0	0.8	0.0	1.7	1.7	385.3	0.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.2	0.0	0.0	18.9	0.0	18.0	54.8	18.2	18.4	2223.3	5.5	5.5
LnGrp LOS	B			B		B	D	B	B	F	A	A
Approach Vol, veh/h		3			247			378			3982	
Approach Delay, s/veh		16.2			18.6			18.4			2041.7	
Approach LOS		B			B			B			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.0	13.7		12.3	4.1	29.6		12.3				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	16.0	29.1		31.1	8.0	37.1		31.1				
Max Q Clear Time (g_c+I1), s	18.0	6.6		2.1	2.0	4.1		6.8				
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	2.0		1.0				

Intersection Summary		
HCM 7th Control Delay, s/veh		1766.1
HCM 7th LOS		F

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	156	101	1	387	3656	328
v/c Ratio	0.01	0.52	0.24	0.01	0.52	6.65	0.16
Control Delay (s/veh)	15.0	25.1	6.7	24.0	18.7	Error	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.0	25.1	6.7	24.0	18.7	Error	7.2
Queue Length 50th (ft)	1	42	1	0	46	~2223	19
Queue Length 95th (ft)	6	96	31	5	90	#2998	63
Internal Link Dist (ft)	5		690		417		415
Turn Bay Length (ft)		100		110		175	
Base Capacity (vph)	995	851	1002	275	1949	550	2547
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.18	0.10	0.00	0.20	6.65	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	3498	34	55	412	84	135	252	105	160	185	97
Future Volume (veh/h)	76	3498	34	55	412	84	135	252	105	160	185	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	3498	28	55	412	74	135	252	85	160	185	79
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	1465	12	89	1192	212	176	455	203	208	518	231
Arrive On Green	0.06	0.41	0.41	0.05	0.40	0.40	0.10	0.13	0.13	0.12	0.15	0.15
Sat Flow, veh/h	1781	3613	29	1781	3013	537	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	1718	1808	55	242	244	135	252	85	160	185	79
Grp Sat Flow(s),veh/h/ln	1781	1777	1865	1781	1777	1774	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.5	24.1	24.1	1.8	5.7	5.7	4.4	4.0	2.9	5.2	2.8	2.7
Cycle Q Clear(g_c), s	2.5	24.1	24.1	1.8	5.7	5.7	4.4	4.0	2.9	5.2	2.8	2.7
Prop In Lane	1.00		0.02	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	721	756	89	703	702	176	455	203	208	518	231
V/C Ratio(X)	0.71	2.38	2.39	0.62	0.34	0.35	0.77	0.55	0.42	0.77	0.36	0.34
Avail Cap(c_a), veh/h	330	721	756	240	703	702	450	1322	589	540	1501	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	17.7	17.7	27.7	12.6	12.6	26.1	24.3	23.9	25.5	22.9	22.8
Incr Delay (d2), s/veh	8.3	627.0	629.8	6.7	0.3	0.3	6.8	1.1	1.4	5.9	0.4	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	133.9	141.2	0.9	2.0	2.1	2.1	1.6	1.1	2.4	1.1	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.7	644.7	647.5	34.4	12.9	12.9	32.9	25.4	25.3	31.4	23.3	23.7
LnGrp LOS	D	F	F	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		3602			541			472			424	
Approach Delay, s/veh		633.3			15.1			27.5			26.4	
Approach LOS		F			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	12.5	7.0	29.0	9.9	13.6	7.6	28.4
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	18.0	22.1	8.0	24.1	15.0	25.1	11.0	21.1
Max Q Clear Time (g_c+I1), s	7.2	6.0	3.8	26.1	6.4	4.8	4.5	7.7
Green Ext Time (p_c), s	0.3	1.6	0.0	0.0	0.2	1.3	0.1	2.4

Intersection Summary	
HCM 7th Control Delay, s/veh	459.1
HCM 7th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	3532	55	496	135	252	105	160	185	97
v/c Ratio	0.35	2.71	0.29	0.45	0.49	0.46	0.30	0.53	0.25	0.23
Control Delay (s/veh)	34.9	787.8	36.1	21.4	34.6	30.4	7.6	34.0	26.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.9	787.8	36.1	21.4	34.6	30.4	7.6	34.0	26.6	5.5
Queue Length 50th (ft)	32	~1488	23	84	56	54	0	66	38	0
Queue Length 95th (ft)	76	#1888	62	158	116	95	33	129	70	27
Internal Link Dist (ft)		1284		2468		2566			2594	
Turn Bay Length (ft)	130		160		210		160			
Base Capacity (vph)	297	1304	216	1201	406	1196	614	487	1358	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	2.71	0.25	0.41	0.33	0.21	0.17	0.33	0.14	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX H

MITIGATED INTERSECTION ANALYSES

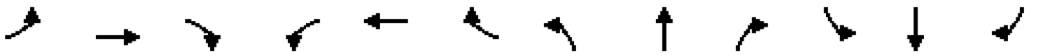
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	34	142	205	273	42
Future Vol, veh/h	13	34	142	205	273	42
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	34	142	205	273	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	783	294	315	0	-	0
Stage 1	294	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	362	745	1245	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	316	745	1245	-	-	-
Mov Cap-2 Maneuver	316	-	-	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	616	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.95	3.38	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	737	-	316	745	-	-
HCM Lane V/C Ratio	0.114	-	0.041	0.046	-	-
HCM Ctrl Dly (s/v)	8.3	0	16.9	10.1	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.1	0.1	-	-



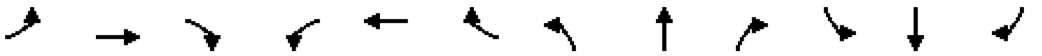
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	50	46	8	88	1	369	88	25	1	135	156
Future Volume (veh/h)	50	50	46	8	88	1	369	88	25	1	135	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	50	41	8	88	1	369	88	20	1	135	136
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	181	317	55	353	4	792	1682	371	117	359	321
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.44	0.58	0.58	0.07	0.20	0.20
Sat Flow, veh/h	700	907	1585	56	1767	19	1781	2894	638	1781	1777	1585
Grp Volume(v), veh/h	100	0	41	97	0	0	369	53	55	1	135	136
Grp Sat Flow(s),veh/h/ln	1607	0	1585	1843	0	0	1781	1777	1755	1781	1777	1585
Q Serve(g_s), s	0.2	0.0	1.9	0.0	0.0	0.0	13.1	1.2	1.2	0.0	5.9	6.7
Cycle Q Clear(g_c), s	4.2	0.0	1.9	3.9	0.0	0.0	13.1	1.2	1.2	0.0	5.9	6.7
Prop In Lane	0.50		1.00	0.08		0.01	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	381	0	317	412	0	0	792	1033	1020	117	359	321
V/C Ratio(X)	0.26	0.00	0.13	0.24	0.00	0.00	0.47	0.05	0.05	0.01	0.38	0.42
Avail Cap(c_a), veh/h	381	0	317	412	0	0	792	1033	1020	117	359	321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	29.6	30.4	0.0	0.0	17.5	8.1	8.2	39.3	31.0	31.3
Incr Delay (d2), s/veh	1.7	0.0	0.8	1.3	0.0	0.0	2.0	0.1	0.1	0.1	3.0	4.1
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	2.0	0.0	0.8	1.9	0.0	0.0	5.5	0.4	0.5	0.0	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.1	0.0	30.4	31.7	0.0	0.0	19.5	8.2	8.3	39.4	34.0	35.4
LnGrp LOS	C		C	C			B	A	A	D	C	D
Approach Vol, veh/h		141			97			477			272	
Approach Delay, s/veh		31.6			31.7			16.9			34.7	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	57.2		22.9	44.0	23.1		22.9				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	5.9	52.3		18.0	40.0	18.2		18.0				
Max Q Clear Time (g_c+I1), s	2.0	3.2		6.2	15.1	8.7		5.9				
Green Ext Time (p_c), s	0.0	0.6		0.4	1.1	1.0		0.3				

Intersection Summary			
HCM 7th Control Delay, s/veh		25.4	
HCM 7th LOS		C	

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	46	97	369	113	1	291
v/c Ratio	0.32	0.11	0.27	0.47	0.06	0.01	0.37
Control Delay (s/veh)	34.1	0.5	32.4	20.0	6.4	39.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.1	0.5	32.4	20.0	6.4	39.0	15.6
Queue Length 50th (ft)	49	0	47	143	10	1	33
Queue Length 95th (ft)	96	0	91	220	21	6	69
Internal Link Dist (ft)	1577		661		415		917
Turn Bay Length (ft)				160		125	
Base Capacity (vph)	313	412	364	786	1999	116	782
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.11	0.27	0.47	0.06	0.01	0.37

Intersection Summary



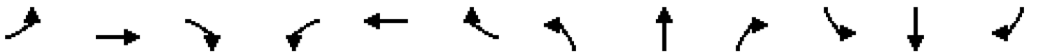
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	4	13	59	1	456	8	168	84	55	126	13
Future Volume (veh/h)	1	4	13	59	1	456	8	168	84	55	126	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	4	11	59	1	356	8	168	74	55	126	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	167	385	705	2	537	19	398	168	108	706	61
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.01	0.16	0.16	0.06	0.21	0.21
Sat Flow, veh/h	23	492	1133	1398	4	1581	1781	2434	1028	1781	3310	286
Grp Volume(v), veh/h	16	0	0	59	0	357	8	121	121	55	67	70
Grp Sat Flow(s),veh/h/ln	1648	0	0	1398	0	1586	1781	1777	1685	1781	1777	1819
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	6.1	0.1	1.9	2.1	0.9	1.0	1.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	0.9	0.0	6.1	0.1	1.9	2.1	0.9	1.0	1.0
Prop In Lane	0.06		0.69	1.00		1.00	1.00		0.61	1.00		0.16
Lane Grp Cap(c), veh/h	680	0	0	705	0	538	19	290	275	108	379	388
V/C Ratio(X)	0.02	0.00	0.00	0.08	0.00	0.66	0.42	0.42	0.44	0.51	0.18	0.18
Avail Cap(c_a), veh/h	2763	0	0	2535	0	2613	332	1023	970	332	1023	1047
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.0	0.0	0.0	7.2	0.0	8.9	15.5	11.9	11.9	14.4	10.2	10.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.4	13.9	1.0	1.1	3.7	0.2	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.2	0.0	1.5	0.1	0.7	0.7	0.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.0	0.0	0.0	7.2	0.0	10.3	29.4	12.8	13.0	18.1	10.4	10.4
LnGrp LOS	A			A		B	C	B	B	B	B	B
Approach Vol, veh/h		16			416			250			192	
Approach Delay, s/veh		7.0			9.9			13.5			12.6	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	10.1		15.6	4.3	11.6		15.6				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	5.9	18.2		52.1	5.9	18.2		52.1				
Max Q Clear Time (g_c+I1), s	2.9	4.1		2.2	2.1	3.0		8.1				
Green Ext Time (p_c), s	0.0	1.1		0.1	0.0	0.5		2.9				

Intersection Summary			
HCM 7th Control Delay, s/veh		11.4	
HCM 7th LOS		B	

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	59	457	8	252	55	139
v/c Ratio	0.04	0.15	0.59	0.02	0.27	0.15	0.13
Control Delay (s/veh)	7.0	10.6	5.2	14.3	8.6	14.5	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.0	10.6	5.2	14.3	8.6	14.5	8.8
Queue Length 50th (ft)	1	5	0	1	7	5	5
Queue Length 95th (ft)	10	28	46	10	40	35	30
Internal Link Dist (ft)	5		690		417		415
Turn Bay Length (ft)		100		110		175	
Base Capacity (vph)	1610	1390	1583	383	2273	383	2334
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.04	0.29	0.02	0.11	0.14	0.06

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	252	13	21	1446	50	55	80	34	17	88	17
Future Volume (veh/h)	8	252	13	21	1446	50	55	80	34	17	88	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	252	11	21	1446	44	55	80	30	17	88	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	1843	80	44	1921	58	90	413	184	37	307	137
Arrive On Green	0.01	0.53	0.53	0.02	0.55	0.55	0.05	0.12	0.12	0.02	0.09	0.09
Sat Flow, veh/h	1781	3469	151	1781	3521	107	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	8	129	134	21	729	761	55	80	30	17	88	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1777	1851	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.3	2.1	2.1	0.7	18.3	18.4	1.8	1.2	1.0	0.5	1.3	0.5
Cycle Q Clear(g_c), s	0.3	2.1	2.1	0.7	18.3	18.4	1.8	1.2	1.0	0.5	1.3	0.5
Prop In Lane	1.00		0.08	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	19	944	979	44	969	1010	90	413	184	37	307	137
V/C Ratio(X)	0.43	0.14	0.14	0.48	0.75	0.75	0.61	0.19	0.16	0.46	0.29	0.11
Avail Cap(c_a), veh/h	184	1260	1307	184	1260	1313	184	1171	522	184	1171	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	6.9	6.9	27.9	10.1	10.2	27.0	23.2	23.1	28.1	24.8	24.4
Incr Delay (d2), s/veh	15.0	0.1	0.1	7.8	1.9	1.8	6.5	0.2	0.4	8.8	0.5	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.7	0.7	0.4	6.0	6.2	0.9	0.5	0.4	0.3	0.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.5	6.9	6.9	35.7	12.0	12.0	33.4	23.4	23.5	36.8	25.3	24.8
LnGrp LOS	D	A	A	D	B	B	C	C	C	D	C	C
Approach Vol, veh/h		271			1511			165			120	
Approach Delay, s/veh		8.0			12.3			26.7			26.9	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	11.6	5.4	35.7	6.9	9.9	4.6	36.5
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	6.0	19.1	6.0	41.1	6.0	19.1	6.0	41.1
Max Q Clear Time (g_c+I1), s	2.5	3.2	2.7	4.1	3.8	3.3	2.3	20.4
Green Ext Time (p_c), s	0.0	0.4	0.0	1.6	0.0	0.4	0.0	11.2

Intersection Summary	
HCM 7th Control Delay, s/veh	13.8
HCM 7th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	265	21	1496	55	80	34	17	88	17
v/c Ratio	0.05	0.12	0.12	0.70	0.31	0.13	0.09	0.10	0.21	0.06
Control Delay (s/veh)	32.5	6.7	33.5	12.4	36.3	25.3	0.5	33.2	30.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.5	6.7	33.5	12.4	36.3	25.3	0.5	33.2	30.2	0.4
Queue Length 50th (ft)	3	21	8	197	22	13	0	7	17	0
Queue Length 95th (ft)	17	53	32	406	62	40	0	28	43	0
Internal Link Dist (ft)		1284		2468		2566			2594	
Turn Bay Length (ft)	130		160		210		160			
Base Capacity (vph)	183	2467	183	2471	183	1165	601	183	1165	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.11	0.61	0.30	0.07	0.06	0.09	0.08	0.03

Intersection Summary

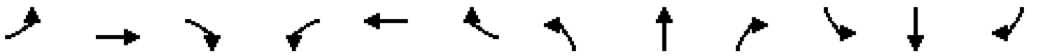
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	132	92	294	355	13
Future Vol, veh/h	34	132	92	294	355	13
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	132	92	294	355	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	840	362	368	0	-	0
Stage 1	362	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	336	683	1191	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	305	683	1191	-	-	-
Mov Cap-2 Maneuver	305	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	624	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.91	1.97	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	429	-	305	683	-	-
HCM Lane V/C Ratio	0.077	-	0.112	0.193	-	-
HCM Control Delay (s/veh)	8.3	0	18.3	11.5	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	0.7	-	-



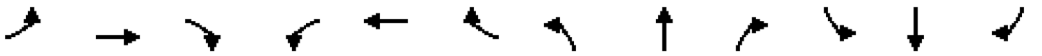
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	97	294	17	42	25	101	244	17	29	252	109
Future Volume (veh/h)	101	97	294	17	42	25	101	244	17	29	252	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	97	234	17	42	24	101	244	12	29	252	89
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	274	548	123	290	148	356	1383	68	178	781	269
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.20	0.40	0.40	0.10	0.30	0.30
Sat Flow, veh/h	704	792	1585	216	840	429	1781	3448	169	1781	2593	893
Grp Volume(v), veh/h	198	0	234	83	0	0	101	125	131	29	171	170
Grp Sat Flow(s),veh/h/ln	1496	0	1585	1485	0	0	1781	1777	1840	1781	1777	1710
Q Serve(g_s), s	0.0	0.0	10.2	0.1	0.0	0.0	4.3	4.1	4.1	1.3	6.7	7.0
Cycle Q Clear(g_c), s	9.9	0.0	10.2	10.0	0.0	0.0	4.3	4.1	4.1	1.3	6.7	7.0
Prop In Lane	0.51		1.00	0.20		0.29	1.00		0.09	1.00		0.52
Lane Grp Cap(c), veh/h	577	0	548	561	0	0	356	713	738	178	535	515
V/C Ratio(X)	0.34	0.00	0.43	0.15	0.00	0.00	0.28	0.18	0.18	0.16	0.32	0.33
Avail Cap(c_a), veh/h	577	0	548	561	0	0	356	713	738	178	535	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	22.6	20.2	0.0	0.0	30.5	17.4	17.4	37.1	24.3	24.4
Incr Delay (d2), s/veh	1.6	0.0	2.4	0.6	0.0	0.0	2.0	0.5	0.5	2.0	1.6	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	3.4	0.0	4.1	1.3	0.0	0.0	2.0	1.7	1.8	0.7	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.9	0.0	25.0	20.8	0.0	0.0	32.5	17.9	17.9	39.0	25.9	26.1
LnGrp LOS	C		C	C			C	B	B	D	C	C
Approach Vol, veh/h		432			83			357			370	
Approach Delay, s/veh		24.5			20.8			22.0			27.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	41.0		36.0	22.0	32.0		36.0				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	9.0	36.1		31.1	18.0	27.1		31.1				
Max Q Clear Time (g_c+I1), s	3.3	6.1		12.2	6.3	9.0		12.0				
Green Ext Time (p_c), s	0.0	1.5		1.9	0.2	1.9		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			24.3									
HCM 7th LOS			C									

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	294	84	101	261	29	361
v/c Ratio	0.38	0.40	0.14	0.29	0.19	0.16	0.34
Control Delay (s/veh)	24.9	4.4	15.6	33.1	17.2	39.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.9	4.4	15.6	33.1	17.2	39.6	20.0
Queue Length 50th (ft)	84	0	23	49	47	15	64
Queue Length 95th (ft)	144	52	54	95	74	42	102
Internal Link Dist (ft)	1577		661		415		917
Turn Bay Length (ft)				160		125	
Base Capacity (vph)	519	739	592	354	1410	177	1071
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.40	0.14	0.29	0.19	0.16	0.34

Intersection Summary



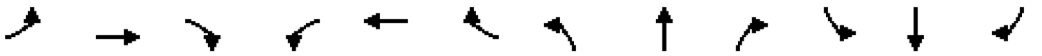
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	156	4	97	1	290	97	252	324	4
Future Volume (veh/h)	1	1	1	156	4	97	1	290	97	252	324	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	1	1	156	4	87	1	290	87	252	324	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	142	94	459	12	260	5	597	176	344	1493	9
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.00	0.22	0.22	0.19	0.41	0.41
Sat Flow, veh/h	268	836	552	1415	70	1526	1781	2707	797	1781	3621	22
Grp Volume(v), veh/h	3	0	0	156	0	91	1	188	189	252	159	167
Grp Sat Flow(s),veh/h/ln	1655	0	0	1415	0	1596	1781	1777	1727	1781	1777	1866
Q Serve(g_s), s	0.0	0.0	0.0	3.4	0.0	1.7	0.0	3.1	3.2	4.4	1.9	1.9
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.4	0.0	1.7	0.0	3.1	3.2	4.4	1.9	1.9
Prop In Lane	0.33		0.33	1.00		0.96	1.00		0.46	1.00		0.01
Lane Grp Cap(c), veh/h	427	0	0	459	0	272	5	392	381	344	733	770
V/C Ratio(X)	0.01	0.00	0.00	0.34	0.00	0.33	0.19	0.48	0.49	0.73	0.22	0.22
Avail Cap(c_a), veh/h	1290	0	0	1245	0	1159	376	1344	1306	1449	2415	2536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	0.0	12.8	0.0	12.1	16.5	11.3	11.3	12.6	6.3	6.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.7	15.9	0.9	1.0	3.0	0.1	0.1
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	0.0	0.0	0.0	0.9	0.0	0.5	0.0	1.0	1.0	1.6	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.4	0.0	0.0	13.3	0.0	12.8	32.4	12.2	12.3	15.6	6.4	6.4
LnGrp LOS	B			B		B	C	B	B	B	A	A
Approach Vol, veh/h		3			247			378			578	
Approach Delay, s/veh		11.4			13.1			12.3			10.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	12.2		10.6	4.0	18.6		10.6				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	27.0	25.1		24.1	7.0	45.1		24.1				
Max Q Clear Time (g_c+I1), s	6.4	5.2		2.0	2.0	3.9		5.4				
Green Ext Time (p_c), s	0.7	2.2		0.0	0.0	2.0		0.9				

Intersection Summary			
HCM 7th Control Delay, s/veh		11.6	
HCM 7th LOS		B	

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	3	156	101	1	387	252	328
v/c Ratio	0.01	0.48	0.23	0.00	0.49	0.55	0.17
Control Delay (s/veh)	16.0	24.3	6.9	27.0	18.3	22.4	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.0	24.3	6.9	27.0	18.3	22.4	7.4
Queue Length 50th (ft)	1	38	1	0	43	60	19
Queue Length 95th (ft)	6	107	34	5	102	153	65
Internal Link Dist (ft)	5		690		417		415
Turn Bay Length (ft)		100		110		175	
Base Capacity (vph)	831	709	851	259	1809	998	3107
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.22	0.12	0.00	0.21	0.25	0.11

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	1278	34	55	412	84	135	252	105	160	185	97
Future Volume (veh/h)	76	1278	34	55	412	84	135	252	105	160	185	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	1278	28	55	412	74	135	252	85	160	185	79
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	1602	35	86	1331	237	173	425	190	202	483	215
Arrive On Green	0.06	0.45	0.45	0.05	0.44	0.44	0.10	0.12	0.12	0.11	0.14	0.14
Sat Flow, veh/h	1781	3555	78	1781	3013	537	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	638	668	55	242	244	135	252	85	160	185	79
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1781	1777	1774	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.8	20.4	20.4	2.0	5.8	5.9	4.9	4.5	3.3	5.8	3.1	3.0
Cycle Q Clear(g_c), s	2.8	20.4	20.4	2.0	5.8	5.9	4.9	4.5	3.3	5.8	3.1	3.0
Prop In Lane	1.00		0.04	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	801	836	86	785	784	173	425	190	202	483	215
V/C Ratio(X)	0.75	0.80	0.80	0.64	0.31	0.31	0.78	0.59	0.45	0.79	0.38	0.37
Avail Cap(c_a), veh/h	253	968	1011	161	877	875	274	1024	457	296	1067	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	15.6	15.6	31.0	11.9	12.0	29.2	27.6	27.1	28.6	26.1	26.0
Incr Delay (d2), s/veh	10.6	4.0	3.8	7.8	0.2	0.2	7.5	1.3	1.7	8.8	0.5	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	8.1	8.4	1.0	2.1	2.1	2.4	1.9	1.3	2.9	1.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.4	19.6	19.4	38.8	12.2	12.2	36.8	29.0	28.8	37.4	26.6	27.1
LnGrp LOS	D	B	B	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1382			541			472			424	
Approach Delay, s/veh		20.7			14.9			31.2			30.8	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	12.8	7.2	34.8	10.4	13.9	7.8	34.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	11.0	19.1	6.0	36.1	10.2	19.9	9.4	32.7
Max Q Clear Time (g_c+I1), s	7.8	6.5	4.0	22.4	6.9	5.1	4.8	7.9
Green Ext Time (p_c), s	0.1	1.5	0.0	7.4	0.1	1.2	0.1	3.0

Intersection Summary	
HCM 7th Control Delay, s/veh	22.9
HCM 7th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	1312	55	496	135	252	105	160	185	97
v/c Ratio	0.40	0.82	0.39	0.36	0.60	0.48	0.31	0.65	0.33	0.28
Control Delay (s/veh)	41.3	24.6	45.6	17.0	46.6	34.4	7.9	47.9	31.6	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.3	24.6	45.6	17.0	46.6	34.4	7.9	47.9	31.6	6.4
Queue Length 50th (ft)	37	304	28	84	67	64	0	79	45	0
Queue Length 95th (ft)	82	#473	67	134	#147	100	35	#174	76	29
Internal Link Dist (ft)		1284		2468		2566			2594	
Turn Bay Length (ft)	130		160		210		160			
Base Capacity (vph)	225	1727	144	1552	244	917	499	264	955	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.76	0.38	0.32	0.55	0.27	0.21	0.61	0.19	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX F – WATER SUPPLY ASSESSMENT

Prepared by

Karen E. Johnson, Water Resources Planning

July 2025

Water Supply Assessment

Valley Clean Infrastructure Plan

Fresno County, California

Prepared for:

Westlands Water District

July 2025

Karen E. Johnson
Water Resources Planning
kejwater@aol.com

TABLE OF CONTENTS

CHAPTER 1 – INTRODUCTION

Background and Purpose..... 1

Description of the VCIP..... 2

Plan Area..... 3

Energy Resource Plan..... 3

Infrastructure Plan..... 3

CHAPTER 2 – WATER DEMANDS

Climatic Conditions..... 8

Construction Water Demand 8

Solar PV Generating Facility and Energy Storage Construction 9

Collection Substation Construction 9

Gen-tie Line Construction 9

Connector Transmission Line Construction 10

Total Construction Water Demand 10

Operational Water Demand 11

Panel Washing 12

Vegetation Management..... 12

Operational Management Activities 12

Total Operational Water Demand 13

Decommissioning and Site Reclamation 14

Historical Water Production 14

CHAPTER 3 – WATER SUPPLIES

Surface Water Supplies 16

CVP Contract Water Supplies 17

Surface Water Imports Program 19

Regional Groundwater Supply..... 19

Subbasin Characteristics..... 19

Groundwater Level Trends..... 20

Groundwater Sustainability Plan 22

Aquifer's Ability to Recover 26

Sustainable Yield and Groundwater Allocation Program 27

VCIP Supply Availability 28
District Owned Lands 28
Privately Owned Lands 29
Supply Availability 29
Water Supply Reliability 30
Other Planned Projects 32
CHAPTER 4 – CONCLUSIONS
Sufficiency Findings..... 34
REFERENCES.....36

TABLES

Table 1 – Climate Data 8
Table 2 – Construction Water Demand 10
Table 3 – VCIP Phasing of Construction Demands 11
Table 4 – Operational Water Demand per Typical 250-MW Solar Facility 13
Table 5 – VCIP Phasing of Operational Demands 14
Table 6 – Westlands Water District Water Supplies 18
Table 7 – Groundwater Use and Elevation Change in Westlands Water District 21
Table 8 – VCIP Supplies and Demand 31

FIGURES

Figure 1 – Project Setting 6
Figure 2 – VCIP Concept Plan 7

CHAPTER 1 – INTRODUCTION

BACKGROUND AND PURPOSE

This Water Supply Assessment (WSA) was prepared for Westlands Water District (the District or WWD) regarding the proposed Valley Clean Infrastructure Plan (the VCIP or project), for which the District is preparing a Programmatic Environmental Impact Report (PEIR) as the lead agency under the California Environmental Quality Act (CEQA).

The primary purpose of the WSA is to determine if there is sufficient water supply to meet the projected demands of the project under normal, single dry, and multiple dry water years during a 20-year projection. The WSA will be included in the PEIR prepared for the VCIP. This forms the basis for an assessment of water supply sufficiency in accordance with the requirements of California Water Code § 10910, *et seq.* The WSA was prepared in conformance with the requirements of Senate Bill 610 (Chapter 643, Statutes of 2001) (referred to here as SB 610). SB 610 was adopted, along with a companion measure SB 221 effective January 1, 2002, to improve the nexus between land use planning and water supply availability. Information regarding water supply availability is to be provided to local public agency decision makers prior to approval of projects that meet or exceed specific criteria.[1]

- A proposed residential development of more than 500 dwelling units.
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- A proposed hotel or motel, or both, having more than 500 rooms.
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- A mixed-use project that includes one or more of the projects defined herein.
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(Wat. Code, § 10912; see Cal. Code Regs., tit. 14 (CEQA Guidelines), § 15155.)

To determine water demands for a 500 unit residential development, local data were used. Based on the City of Hanford's water system master plan, medium density residential water demands are 2,450 gallons per day per acre (Hanford 2017a). The Hanford General Plan indicates an average of nine dwelling units per acre for the net medium density residential category (Hanford 2017b). The resulting average water demand by a 500 dwelling unit project in the vicinity of the project is 168 acre-feet per year (AFY).[2] As discussed in Chapter 2 of this WSA, the maximum water construction demand of 2,227 acre-feet (AF) will

[1] While the District is not a city or county, this WSA has been prepared for informational purposes. (Wat. Code, § 10910 ["Any city or county . . . shall comply with this part."].)

[2] With a 10 percent increase for net acres for the dwelling unit density in the General Plan to gross acres.

be needed annually for four years for this project, declining through the remainder of the construction period with a maximum annual operational demand of 514 AF after all construction is completed around year 2039. As these demands would exceed the amount of water required by a 500 dwelling unit project, the VCIP meets the definition of a "project" for which a WSA is required.

The purpose of a water supply assessment is to address the reasonably foreseeable impacts of supplying water to a project, particularly those on an existing public water system. Under SB 610, a "public water system" is a system that provides potable piped water to the public for human consumption and has 3,000 or more service connections (Wat. Code, §§ 10912(c), 10910(b).) As part of this analysis, SB 610 asks whether there is a current Urban Water Management Plan (UWMP) that accounts for a project's demand. A "urban water supplier" is a publicly or privately owned supplier that provides potable water for municipal purposes to more than 3,000 customers or supplies more than 3,000 AF annually. (Wat. Code, § 10617.) Every urban water supplier shall prepare and adopt an UWMP, which will be updated at least once every five years. (Wat. Code, §§ 10620, 10621.)

Regarding the VCIP, there is no public potable water system needed to serve the project.[3] The project site is located within the boundaries of the District, which provides irrigation water to users within its jurisdiction. The District also delivers non-potable, untreated surface water to municipal and industrial (M&I) users. The M&I purposes include but are not limited to single family dwellings, farm housing, commercial operations, industrial operations, military, and state institutions. As such, the District is not a "public water system" under SB 610 because it does not provide piped water to the public for human consumption. (Wat. Code, § 10912(c).) Water required during construction and operation of the project does not need to be treated for human consumption and will be obtained from groundwater wells and/or from District surface water supplies. There is no UWMP that accounts for the project's water demands. Because the District does not provide potable municipal water to more than 3,000 customers or supply more than 3,000 AFY of treated piped water, it is not an urban water supplier and is not required to prepare an UWMP. (Wat. Code, §§ 10617, 10620.) While inapplicable to the VCIP, the closest jurisdictions with UWMPs include the cities of Hanford, Lemoore, and Coalinga. The District, however, prepares annual groundwater reports, pursuant to SGMA, and regular Water Management Plans (Surface water) to satisfy requirements of the Agricultural Water Management Planning Act.

DESCRIPTION OF THE VCIP

The proposed VCIP provides an overall plan to guide and facilitate the beneficial repurposing of drainage-impaired and other private and District-owned lands with renewable energy generation and storage, and conveyance related facilities such as transmission facilities, generation interconnection tie-lines (gen-tie lines), substations, and related infrastructure to convey the clean energy.

Solar panels

[3] During construction and decommissioning, drinking water for workers would be provided by bottled water delivered by truck. During project operations, potable water for domestic use would be stored in an on-site water tank which would be refilled as needed via truck delivery.

Plan Area

The Plan Area is presented on Figure 1, Project Setting. It encompasses the entire Fresno County portion, approximately 534,800 acres, of the District's 614,700-acre service area. Within the Plan Area, approximately 136,000 acres have been identified as "Development Focus Areas" (DFAs); see Figure 2, VCIP Concept Plan. These lands, which are suitable for clean energy development, include approximately 72,000 acres of District-owned land and approximately 64,000 acres of privately-owned lands for which the landowners have expressed interest in clean energy facilities. The 136,000 gross acres of repurposed farmland in the DFAs would accommodate the planned generation capacity of up to 21,000 mega-watts (MW) under the VCIP.

Energy Resource Plan

In the VCIP, the Energy Resource Plan identifies specific areas within the Plan Area for potential renewable energy development, including solar photovoltaic (PV) facilities with integrated energy storage systems (ESS), along with typical supporting facilities such as Operations and Maintenance (O&M) facilities and project substations. Separate ESS facilities dedicated solely to energy storage are also included in the Energy Resource Plan.

The individual solar PV facilities would range in size from 100 MW (on approximately 640 acres) to about 1,150 MW (on approximately 7,500 acres), with the latter representing the approximate maximum generation that can be accommodated by a double-circuit 230-kV gen-tie line. It is assumed that a typical solar PV facility would have a generating capacity of 250 MW and would occupy about 1,600 acres. This project size represents the typical upper limit for a project size that is manageable for construction contractors and financing. It is assumed that each solar facility would include an on-site ESS integrated into the project design with a maximum storage capacity equivalent to the facility's generation capacity. A typical facility could include an on-site battery energy storage system (BESS) that would provide up to 250 MW of storage. As such, this analysis covers an overall BESS storage capacity within the VCIP of 21,000 MW. Currently, these BESS facilities would likely utilize lithium-ion batteries, but could include other technologies.

As an alternative co-locating and integrating the BESS facilities with the solar PV facilities, some BESS facilities could consist of stand-alone energy storage facilities which would operate independently of solar generation facilities. These facilities could provide temporary storage for solar power generated at off-site solar facilities, and would dispatch the stored power to the electrical grid when needed. Since the number of stand-alone BESS facilities that would be proposed within the VCIP, if any, cannot be predicted, it is assumed for purposes of this analysis that all BESS facilities would likely be located within the solar PV facilities and integrated with the solar PV facility sites. As noted above, this analysis covers an overall BESS storage capacity within VCIP of 21,000 MW, which would consist of some combination of stand-alone BESS facilities and BESS integrated into solar facilities.

Infrastructure Plan

The Infrastructure Plan consists of transmission facilities and collection substations required for the collection of solar generation within the Plan Area, and for the delivery of renewable energy to electricity markets in California. The energy produced at the solar facilities would be transferred to gen-tie lines for

conveyance to one of five new collection substations to be distributed throughout the Plan Area. The collection substations would provide for interconnection to the state and federal power systems for delivery of solar generation to areas outside the Plan Area.

Collection Substations. The Infrastructure Plan includes five collection substations which would be distributed from north to south along the backbone transmission corridor running though the eastern portion of the Plan Area. These 500/230-kV substations would serve as collection points for power generated in the surrounding DFAs as received from the gen-tie network and would provide interconnection to the state and federal power systems. It is expected that each collection substation would accommodate approximately 4,000 MW of solar power generated at solar facilities occupying an average of about 26,000 acres around each substation. Each collection substation is anticipated to have a footprint of about 60 acres, to be located within a larger site of about 160 acres which would provide sufficient buffer area to accommodate the convergence of incoming gen-tie lines from the nearby solar generation and energy storage facilities. The construction of each collection substation would take about 24 months. Therefore, a footprint of 60 acres was used here to determine construction water demands.

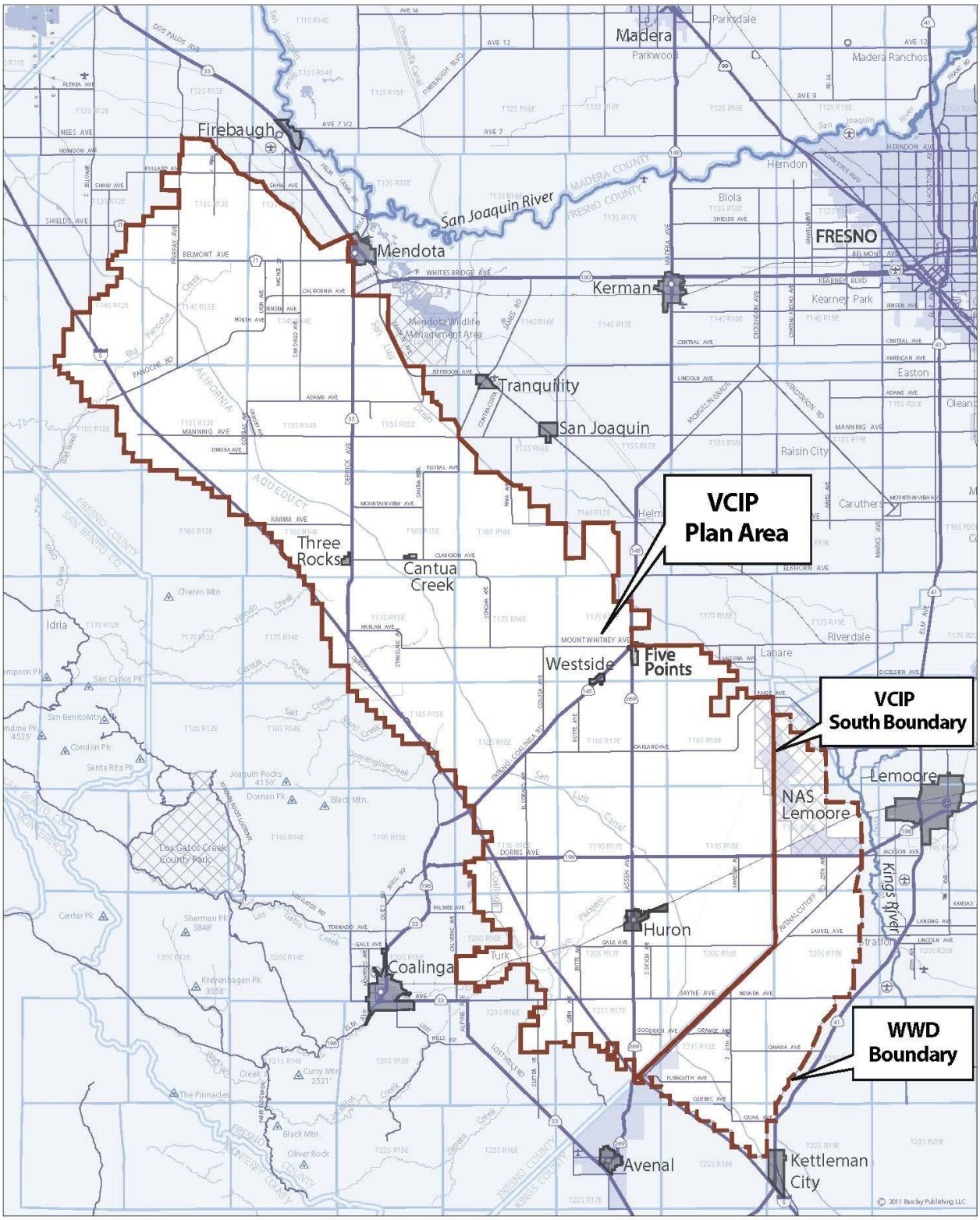
Gen-Tie Lines. Each solar PV generating facility and stand-alone energy storage facility would be served by a 230-kV gen-tie line which would convey the generated power to one of five 500/230-kV collection substations located along the backbone transmission line within the VCIP. The gen-tie lines would branch out from each collection substation to collect from the solar and energy storage facilities in the vicinity. It is estimated that approximately 260 miles of gen-tie line would be needed to serve the VCIP solar and energy storage facilities. Each of the 20 gen-tie lines required will have an average length of 13 miles. The average 13-mile gen-tie line segment is expected to be constructed over a four-month period. Assuming an approximate 10-year build-out period for the VCIP infrastructure, the gen-tie lines would be constructed at a pace of about 26 miles per year, on average. The precise alignments of the gen-tie lines would depend on the size, location, and timing of solar and energy storage projects as they are planned to come on-line which cannot be defined at a plan level under the VCIP. However, the general construction and operational nature of the gen-tie facilities can be characterized in sufficient detail to allow for the meaningful evaluation of construction water demands.

Connector Transmission Lines within the VCIP. As shown on Figure 2, VCIP Concept Plan, the five collection substations within the VCIP would be connected by a backbone transmission corridor running through the eastern portion of the Plan Area in a northwest-southeast direction. This corridor would have a total length of approximately 138 line miles and would collect the VCIP-generated power and provide interconnection to the state and federal power systems. It is anticipated that the VCIP connector transmission corridors would include up to two parallel 500-kV transmission lines within 1,000-foot-wide corridors. The two parallel lines would require a combined right-of-way of approximately 450 feet, with the additional width included to provide equipment maneuvering space during construction as well as design flexibility at the engineering stage.

In addition, a central transmission corridor is planned to run east-west through the Plan Area to provide connection between the VCIP backbone corridor at Substation No. 3 and a new Manning Substation planned for the vicinity of W. Manning Avenue and Interstate 5. This connecting transmission corridor would be approximately 20 miles long and would provide an alternative path for energy exported from the VCIP to connect to the larger grid. It would also provide redundancy and resilience to the system. The

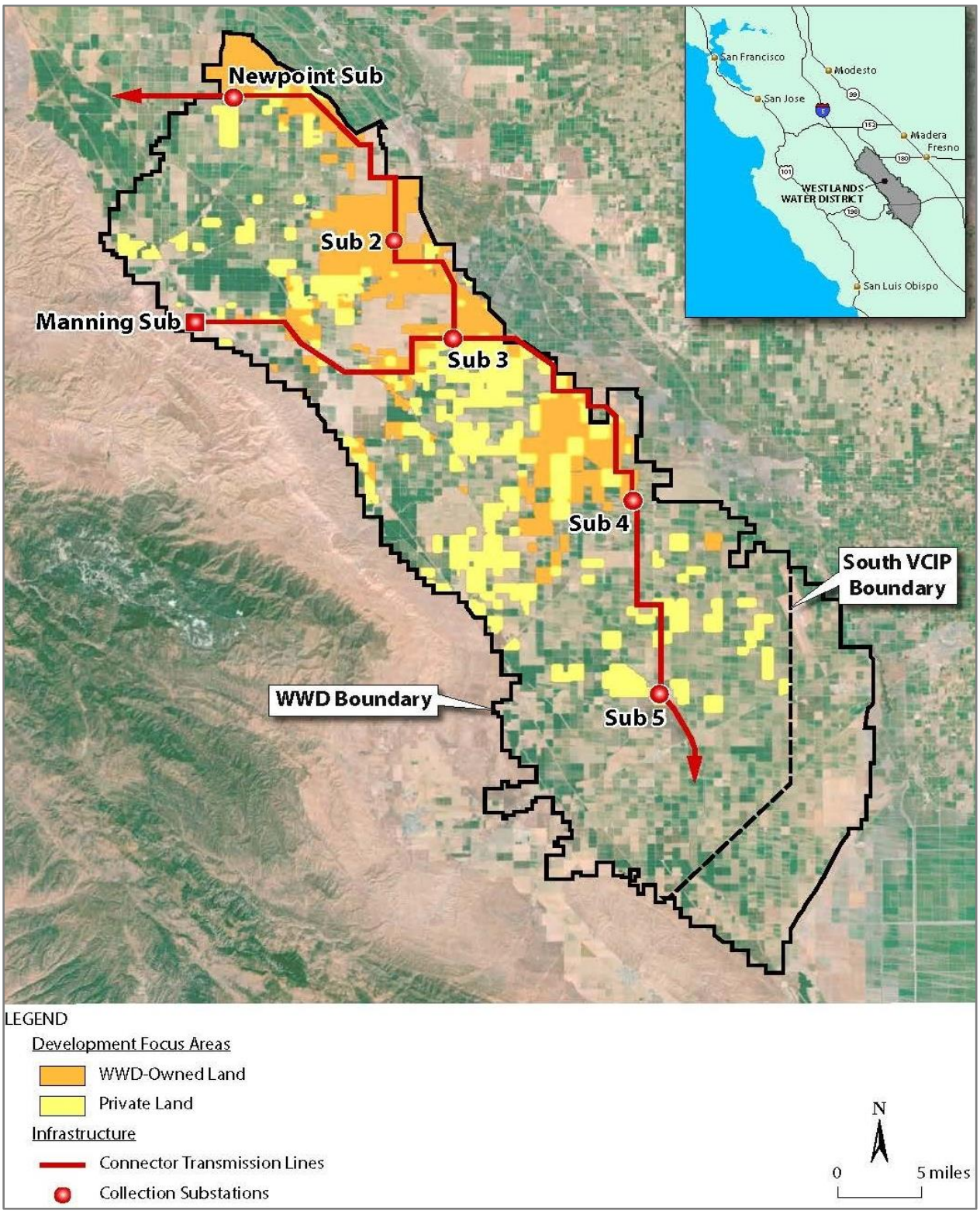
Manning Substation is not part of the VCIP, however the 20-mile connecting transmission line connecting the VCIP to the Manning Substation is part of the VCIP.

Chapter 2 of this WSA provides a discussion of future project water demands and historical site demands. Water supply information, the comparison of demands with supplies, and the reliability of supplies is provided in Chapter 3, followed by sufficiency findings in Chapter 4.



Source: Westlands Water District
Map Source: Bert Verrips, AICP, Environmental Consulting, 2024

Project Setting
Figure 1



Source: Google Earth
Map Source: Bert Verrips, AICP, Environmental Consulting, 2024

VCIP Concept Plan
Figure 2

CHAPTER 2 – WATER DEMANDS

Regional climatic characteristics are summarized here along with projected project construction and operational water demands. Water is needed during construction of the solar generation and storage facilities, substations, and transmission lines. Operational water is needed for panel washing, vegetation management, and operational management activities. Historical water production/use data within the Plan Area are provided.

CLIMATIC CONDITIONS

The Plan Area is in the semi-arid San Joaquin Valley. Temperatures during the summer are hot, frequently exceeding 100 degrees Fahrenheit. Cool winters occasionally fall below freezing. Average maximum and minimum temperatures are presented in Table 1 for a weather monitoring station central to the District. The growing season is long with most rainfall occurring between October and March. As presented in Table 1, the average annual precipitation in this region is 7.45 inches. With climate change, the California Department of Water Resources (DWR) expects a reduced snowpack in the Sierra Nevada, spring runoff shifting to earlier in the year, more frequent and extreme dry periods, and shorter winters (DWR, 2025a).

Table 1. Climate Data

Month	Average Maximum Temperature (F)	Average Minimum Temperature (F)	Average Precipitation (inches)
January	59	38	1.61
February	64	38	1.37
March	69	42	1.44
April	75	46	0.82
May	83	52	0.39
June	91	58	0.13
July	96	63	0.03
August	95	61	0.10
September	90	57	0.23
October	79	48	0.79
November	67	40	0.55
December	57	36	1.12
Annual	77	48	8.58

Source: Temperature and precipitation from WWD Central Zone (WWD, 2023a)

CONSTRUCTION WATER DEMAND

Projected water demands associated with the VCIP include temporary water demands for the construction of solar generation facilities and storage, and infrastructure to convey the energy generated.

Solar PV Generating Facility and Energy Storage Construction

Each typical 250-MW solar project would include a central staging area for construction management and support. The VCIP contemplates both stand-alone ESS facilities to operate independently of the solar facilities and energy storage systems co-located and integrated within the solar PV facilities. However, the locations of the potential stand-alone energy storage facilities are unknown and cannot be forecasted. Therefore, for purposes of the PEIR and this WSA, it is assumed that the VCIP will include 21,000 MW of BESSs, all of which will be integrated with the solar facilities.

The highest water demands would be associated with construction in preparing the sites for the solar arrays and trenching for conduit. During this earthwork phase of construction, non-potable water would be used for dust control and soil conditioning. Based on experience with similar projects located on sites with similar physical conditions,[4] the water demand for preparation and construction of a typical 1,600-acre solar facility project site would average 0.15 acre-feet per acre (AF/acre), resulting in a total consumption of 240 AF of water during a 12-month construction period. This is presented in Table 2. Bottled water would be provided to the construction workers for consumption. Water is not needed for sanitary needs during construction; portable chemical toilets would be provided and serviced as needed by a private contractor. It is anticipated that eighty-five (85) 1,600-acre sites would be developed in the Plan Area with a total water demand of 20,400 AF over the approximately ten-year construction period for the VCIP.

Collection Substation Construction

During construction of the collection substations, water is required for dust suppression and soil conditioning. At a demand rate of 0.15 AF/acre, the typical 60-acre collection substation site would require 9.0 AF of water. The five substations together require a total water demand of 45 AF. Each of the five collection substations would be constructed over a 24-month period.

Gen-tie Line Construction

The gen-tie lines would require water during construction at the same water demand of 0.15 AF/acre. A total of 260 miles of gen-tie lines would be needed to service the VCIP solar and energy storage facilities for an average length of 13 miles for each of the approximately 20 gen-tie lines required. The total disturbed land area for the 260 miles of gen-tie lines would be 1,544 acres, which would require water for dust suppression and soil conditioning for clearing the right-of-way and staging areas for tower installation, pulling/tensioning sites, and staging/material storage sites. This equates to 5.94 acres per gen-tie line mile; with 77.2 acres per 13-mile segment, the water demand factor would be 11.58 AF per segment. Construction is estimated to result in two segments per year or about 26 miles of gen-tie lines built annually over 10 years, which would result in a total demand of approximately 231.6 AF with 23.2 AFY required during each year of the 10-year construction period.

[4] Based on actual water volume used during construction of three nearby utility-scale solar projects located in the Westlands Solar Park in Kings County with a combined generating capacity of 650 MW. Average construction water required for the three projects was 0.09 AF/acre. The demand factor applied in this WSA is based on the highest demand of 0.15 AF/acre for the Aquamarine Solar Facility during 2021 (a very dry year) (Biller 2024/2025).

Connector Transmission Line Construction

The collection substations within the VCIP would be connected by a northwest-southeast backbone transmission corridor approximately 59 miles long with two transmission lines in the corridor, and a 20-mile-long east-west single-line segment connecting this backbone corridor to the planned Manning Substation (not part of the VCIP), for a total of 138 line miles. These internal connector lines would be constructed similar to the gen-tie lines described above but in 15-mile segments. The total disturbed land area for the 138 miles of connecting lines would be 1,076 acres, which would require water for dust suppression and soil conditioning for clearing the right-of-way and staging areas for tower installation, pulling/tensioning sites, and staging/material storage sites. This equates to 7.8 acres per connector line mile; with 117 acres per 15-mile segment, the water demand factor is 17.55 AF per segment. At a demand rate of 0.15 AF per acre, the 1,076 acres of disturbed area would result in a total demand of 161.4 AF, with 32.3 AF required during each year of the five-year construction period.

Total Construction Water Demand

As presented in Table 2, each of the anticipated VCIP construction activities requiring dust suppression and soil conditioning have been broken down into construction projects or segments of the overall VCIP. Water requirements were identified for each individual project based on the acreage anticipated to be disturbed. For example, there are 85 solar PV 250-MW production facility projects with each site having 1,600 acres of disturbed land. The construction water demand of 240 AF per 1,600-acre project is presented along with the approximate total acreage disturbed and the total water demand.

Table 2. Construction Water Demand

Activity	Facility Project	Demand per Project (AF)	Number of Projects	Total Acreage Disturbed	Total Water Demand (AF)
Solar Production and Energy Storage Facilities[1]	1,600 acre site	240	85	136,000	20,400
Collection Substations[2]	60 acre site	9	5	300	45
Gen-tie Lines[3]	13 miles	11.58	20	1,544	232
Connector Line[4]	15 miles	17.55	9.2	1,076	161
Total Construction Water Demand					20,838

Note: Dust control and soil conditioning water demand is 0.15 AF/acre of disturbed area.
[1] Based on 1,600 acres disturbed for each of the 85 solar facility and storage sites.
[2]Based on 60 acres disturbed for each of the 5 collection substation sites.
[3]Based on 260 miles of gen-tie lines at 5.94 acres per mile equals 1,544 acres disturbed.
[4]Based on 138 miles of connector lines at 7.8 acres per mile for the two lines equals 1,076 acres disturbed.
Data source: Bert Verrips, AICP, Environmental Consulting, 2024.

Annual construction water demands were determined for each of the projects and combined. Table 3 presents the phasing of the construction demands over time based on the project phasing plan with

construction starting on the first substation in the first year of 2028. These numbers are not exact due to staging of projects, but provide a general estimate of annual construction demand over time. The total annual construction demand is used in the analysis of supply reliability in Chapter 3. It is anticipated that most construction water would be obtained from existing agricultural wells in the Plan Area, while surface water may be available from the District in some years.

Table 3. VCIP Phasing of Construction Demands (AF)

Year	Solar & Storage Facilities[1]	Substations[2]	Gen-tie Lines[3]	Internal Connector Lines[4]	Total Annual Demand	Disturbed Land (acres)
Project Demand Factor (AF)	240	9	11.58	17.55		
2028	0	4.5	0	0	5	30
2029	2,160	9.0	23	35	2,227	14,771
2030	2,160	9.0	23	35	2,227	14,771
2031	2,160	9.0	23	35	2,227	14,771
2032	2,160	9.0	23	35	2,227	14,771
2033	2,160	4.5	23	21	2,213	14,647
2034	2,160	0	23	0	2,183	14,477
2035	2,160	0	23	0	2,183	14,477
2036	2,160	0	23	0	2,183	14,477
2037	2,160	0	23	0	2,183	14,477
2038	960	0	23	0	983	6,477

Note: Demand factors and projects per year from Table 2. Numbers may not add due to rounding

[1] Assumed 9 projects constructed per year through 2037; 4 during 2038.

[2] Assumed 2 years required for each substation starting in 2028.

[3] Assumed 26 line miles per year.

[4] Assumed 30 line miles per year through 2032; 18 line miles in 2033.

Data source: Bert Verrips, AICP, Environmental Consulting, 2024.

OPERATIONAL WATER DEMAND

In addition to construction related water demands, solar generation and storage facilities will have on-going operational water demands. Water would not be required for the maintenance of substations or the transmission related infrastructure facilities such as gen-tie lines and connecting lines. Water demands associated with solar and storage facilities would include water needed for panel washing, vegetation management (i.e., sheep watering), and centralized operational activities. Water demands associated with project decommissioning and restoration of lands to a condition suitable for agricultural uses are also discussed.

Panel Washing

Maintenance would primarily consist of washing the PV modules (panels) up to two times each year to remove accumulated dust from panel surfaces to maintain efficiency.[5] The cleaning interval would be determined by the rate at which electrical output degrades between cleanings. Periodic panel washing would occur during late spring and late summer months while rainfall would provide cleaning in the winter. Light duty trucks with tow-behind water trailers would transport the water, which workers would spray to wet the panel surfaces before squeegeeing them dry. No chemical cleaners would be used for module washing. Based on the most recent experience with the 250-MW Aquamarine Solar Facility in 2022, 2023, and 2024, for a single 250-MW project, the water demand for one complete cycle of panel washing is approximately 2.5 AF. Panel washing with two cycles each year would therefore require 5.0 AFY for each PV solar project. The VCIP includes the equivalent of 85 typical 250-MW solar PV projects, which would result in a total demand of approximately 425 AFY.

Vegetation Management

Under the VCIP, each project operator would decide whether to utilize sheep grazing to manage on-site vegetation. For the purposes of the PEIR and this analysis, it is assumed that the typical solar project would employ sheep grazing in addition to mechanical means of vegetation control. Sheep would graze each 1,600-acre typical site for approximately five months during the first half of the year to control on-site vegetation. Sheep grazing within each project site would have a density of 0.5 sheep per acre, on approximately 1,400 acres to remain in vegetative cover, for a total of approximately 700 sheep. During a five-month grazing period per year (151 days January through May), at three gallons per day per sheep, 453 gallons per sheep per year is required for each 250-MW project (NRCS 2002). The total water required for sheep watering for each 250-MW project would be 317,100 gallons per year or 0.97 AFY. While the actual extent of sheep grazing would be determined at the project level and cannot be accurately predicted, sheep grazing on each potential project would result in a total VCIP demand of approximately 82.45 AFY.

Operational Management Activities

General operational management activities, such as washing or rinsing equipment and other non-potable water uses for each 250-MW project are estimated to require 2,000 gallons per month, based on the Aquamarine Solar Facility operations. For the VCIP, the total estimated annual water usage for operations would be 24,000 gallons or 0.07 AF of non-potable water for each project.

Potable water for domestic uses would be delivered to the facility by a water delivery service. The typical 250 MW solar plus energy storage facility would include a water storage tank for potable water, which would provide for drinking, hand washing, and toilet flushing at the O&M building. The water tank would be refilled regularly at a rate of approximately 5,000 gallons per month (i.e., the capacity of a standard water tanker truck), for a total of approximately 16 AFY for full VCIP implementation. The potable water would be provided by a commercial supplier who would purchase it from a municipal water source outside the Subbasin. (Therefore, potable water is not included in the water demand totals in this WSA.) The

[5] Panel cleaning at the nearby Aquamarine Solar Facility was conducted twice in 2022, and only one time each year in 2023 and 2024. It is anticipated that only one panel washing cycle per year would be needed for VCIP solar facilities, except in very dry years, like 2022, when up to two panel cleaning cycles may be needed (Biller 2025).

potable water would be delivered to the O&M building through water pipes connecting the tank to the building. Given the small quantities of potable water that would be required (i.e., approximately three percent of total operational water demands), and given the multiple water delivery services within the vicinity of the Plan Area, there are sufficient supplies to meet all potable water demands.

Total Operational Water Demand

As presented in Table 4, the combined operational water demand for a typical 250-MW facility would total approximately 6.05 AF of water annually over each 1,600-acre project site. Operational demands include panel washing (5.0 AFY), sheep watering (0.97 AFY), and general operational uses (0.07 AFY). This rounded 6.05 AFY demand is equivalent to 0.004 AF/acre, or 0.6 AF per quarter-section (160 acres) per year. Overall, annual VCIP water demands are not anticipated to vary based on climatic conditions.

Table 4. Operational Water Demand per Typical 250-MW Solar Facility

Activity	Water Demand (gallons)	Water Demand (AFY)
Project Water Demands		
Panel Washing	1,629,255	5.0
Sheep Watering	317,100	0.97
General Operations	24,000	0.07
Total Operational Water Demand	**1,970,355**	**6.046**

Note: Based on a single 250-MW project on 1,600 acres at buildout. The 85 projects at 6.046 AFY totals 514 AFY.
Source: Bert Verrips, AICP, Environmental Consulting, 2024.

Annual operational water demands were determined based on the construction phasing schedule of the 85 planned 250-MW solar facilities. As presented in Table 5, VCIP Phasing of Operational Demands, after the first full year of construction, the first solar facility project will come on-line in 2030. The annual operational water demand presented here is important in this assessment in determining the availability of adequate water supplies. It is anticipated that operational water would be obtained from a combination of existing agricultural wells in the Plan Area, surface water provided by the District for projects on District-owned and private land, and supplemental surface supplies procured by the District and private landowners.

Table 5. VCIP Phasing of Operational Demands[1]

Year	Cumulative Built PV Projects	Cumulative Operational Demands (AF)
2028	0	0
2029	0	0
2030	9	54
2031	18	109
2032	27	163
2033	36	218
2034	45	272
2035	54	326
2036	63	381
2037	72	435
2038	81	490
2039+	85	514

[1] Based on VCIP phasing plan and 6.046 AF per PV project.

Decommissioning and Site Reclamation

At the end of its useful life after approximately 35 years of operation, the typical solar facility would be decommissioned and the site would be restored to a condition suitable for agricultural uses in accordance with the project's decommissioning plan. Water for dust suppression would be required, with water usage expected to be similar to that used during construction. However, the timeframe for decommissioning activities is likely to be less than the duration of project construction for each of the facilities. Therefore, while the VCIP's maximum annual construction demands for all VCIP facilities would be 2,227 AF, it is anticipated that water requirements for dust suppression during decommissioning will be less on a per acre basis. Because decommissioning and site reclamation water requirements are for a time beyond the time frame of a Water Supply Assessment, the need for decommissioning and site reclamation water in 35 years is noted here but not included in the 20-year demand analyses.[6]

HISTORICAL WATER PRODUCTION

In the recent past, the 136,000 acres of VCIP DFA lands have been used for cultivating cotton, tomatoes, winter wheat, almonds, and other crops, with varying portions of the Plan Area left fallow in any given year depending on availability of imported surface water supplies for irrigation. The District provides agricultural water for irrigation using its Central Valley Project (CVP) repayment and assignment contract water and other sources (either CVP or non-CVP water sources). Landowners on privately owned lands augment reduced CVP contract water supplies with either pumped groundwater from on-site wells or non CVP contract surface water supplies, as needed.

As discussed in more detail in Chapter 3, annual water production varies substantially depending on the availability of the District's CVP contract water. The average rate of applied water for crop irrigation can range from 2.4 to 2.6 AFY from all sources (CVP water, supplemental surface water, and groundwater).

[6] For informational purposes, it is expected that water demands for decommissioning would be no greater than maximum construction water demands of 2,227 AFY.

The groundwater is relatively high in salinity so the amount of groundwater that can be blended with the higher quality imported surface water is limited by the salinity tolerance of crops.

Based on these factors, it is estimated that the annual volume of irrigation water (groundwater and surface water) historically applied in the 136,000-acre DFAs ranged up to 353,600 AFY. However, under recent historical conditions, total water use within the DFAs is substantially lower. As provided in further detail below, the 72,000 acres of District-owned lands are no longer irrigated. In 2024, the majority of the DFA lands were fallow, with 53,044 acres actively farmed. For context, at a rate of 2.6 AFY per acre, these 53,044 acres would require approximately 137,914 AFY. As noted, irrigation water for the privately-owned DFA lands would have been provided by a combination of CVP contract water, supplemental water, and groundwater. The surface and groundwater supplies are non-potable water for crop irrigation; there are no sources of potable domestic water available for the VCIP from municipal water systems, except supplies purchased from outside the Plan Area and trucked to solar facilities within the DFAs.

CHAPTER 3 – WATER SUPPLIES

The District provides water services to agricultural, municipal, and industrial users. The District delivers CVP contract water, allocated by the U.S. Bureau of Reclamation (USBR), and other surface water supplies acquired by the District and water users. To provide timely, reliable, and affordable water services and to facilitate the Sustainable Groundwater Management Act of 2014 (SGMA) implementation, the District provides funding for education and technology, enabling growers to effectively and efficiently use and conserve CVP contract water and groundwater. The District surveys the static water levels in the wells and monitors the quality and quantity of pumped groundwater as part of its Water Management Plan. A key component of the District's Water Management Plan is water conservation. The conservation program consists of the following elements.

- Irrigation Guide for water requirements per crop
- Water Conservation and Management Handbook
- Workshops and meeting on water management information
- Technical assistance and conservation computer programs
- Meter repair and updated program
- Groundwater monitoring
- Pump efficiency tests
- Conjunctive use of supplies
- Irrigation System Improvement Program
- Satellite imagery purchased about once every two weeks

Water for VCIP construction needs would be provided by the existing on-site agricultural wells, other agricultural wells in the vicinity of the Plan Area, or with District surface water supplies, if available. Upon completion of the various components of the project, water for ongoing operational water supplies would be obtained from on-site agricultural wells and/or surface water provided by the District through its conveyance system. This section discusses surface water and groundwater available to meet the demands associated with the project, District's supply conditions, and availability of supplies sufficient to serve the project's total projected needs, in addition to existing and planned future uses, during normal, single dry, and multiple dry years during a 20-year projection.

SURFACE WATER SUPPLIES

The VCIP Plan Area, shown on Figure 2, lies entirely within the boundaries of the District's Fresno County portion. The District was formed in 1952 to serve agricultural water users on the west side of the San Joaquin Valley and has a service area of 614,700 acres, of which approximately 72,000 acres are lands owned by the District for which the permanent right to surface water and groundwater allocation has been removed from the land. The total acquired lands reached approximately 86,000 acres, but the District has reconveyed approximately 14,000 acres, primarily for solar development. District owned lands are generally only dry land farmed through the District's land lease program. Some lands have recorded non-irrigation covenants, but essentially all District owned land is fallowed or dry land farmed.

CVP Contract Water Supplies

Although the District's service area is 614,700 acres, the irrigable land is approximately 568,000 acres. Due to a series of settlements and land acquisition programs that reduced private land ownership in the District, there are now about 470,000 privately owned irrigable acres that have a right to apply for a per acre entitlement of CVP water. If the average applied surface water rate on privately owned irrigable lands is 2.6 AF/acre, then the total volume of water required for the entire privately owned irrigable area of 470,000 acres within the District is about 1.22 million AF. USBR delivers the District's CVP contract water supply via the San Luis Canal / California Aqueduct. Under its current repayment contract and several assignment contracts with USBR, the District is entitled to receive 1.195 million acre-feet (MAF) of CVP contract water in years when 100 percent of this CVP water is allocated. The District conveys its allocated CVP contract water to water users pursuant to its rules and regulations through a series of lateral pipes extending from the San Luis Canal to metered valves located throughout the District.

In recent years, actual deliveries of CVP contract water to the District have been dramatically curtailed. Also, passage of the Central Valley Project Improvement Act and adoption of other regulations dedicated more water to fish and wildlife, placing the District at a very low priority for water deliveries during times of shortage. As presented in Table 6, during the 10 years of 2015 and 2024, the District received an average of 36 percent of its CVP contract water[7]. In 2014, 2015, 2021, and 2022, the District received "zero" allocation of CVP contract water (see Table 6) (WWD 2025) and in 2016 received five percent of its CVP contract water (see Table 6). However, even when the District receives a "zero" allocation of CVP contract water, it would be able to supply VCIP operational demands through its CVP M&I allocation or the health and safety allocation from USBR (DWR 2014; WWD 2023c), or supplemental surface water supplies. During the 2015 and 2024 period, the District received its full 100 percent contract entitlement only twice: in 2017 and 2023. In five of those 10 years, the District received water allocations that were less than 50 percent of its contract entitlement.

The District augments CVP contract water with other supplies such as flood flows from the San Joaquin and Kings rivers when available; these seasonal supplies are made available to the District as they flow into the Mendota Pool. Water transfers (private and District managed Supplemental Water Program) have become an important component in the District supply portfolio. Under the Supplemental Water Program, the District pursues additional water supply each year on behalf of its farmers from surplus supplies that may be available from other districts that are contractors of the CVP or the State Water Project. District farmers may also pursue water transfers from sources within or outside the District, or may use water brokers to do so. Supplemental water is delivered to District farmers through the District's water distribution pipeline system. Transfers and other purchases are included in Table 6 as "Additional District Supply." The District has continued to improve the availability and reliability of imported surface water. For example, in 2021, despite no initial allocation from the CVP, the District and its water users secured 173,000 AF of surface water from the CVP and an additional 44,000 AF of surface water from other non-CVP contract sources for irrigation during the 2021 contract water year.

[7] Average CVP deliveries 2015 through 2024 = 423,638 AF / 1,195,000 AF total CVP entitlement = 35.5 percent.

Table 6. Westlands Water District Water Supplies

Water Year	CVP Allocation %	Net CVP (AF)	Ground-water (AF)	Water User Acquired (AF)	Additional District Supply (AF)	Total Supply (AF)	Fallowed Acres
1988	100%	1,150,000	160,000	7,657	97,712	1,415,369	45,632
1989	100%	1,035,369	175,000	20,530	99,549	1,330,448	64,579
1990	50%	625,196	300,000	18,502	-2,223	941,475	52,544
1991	27%	229,666	600,000	22,943	77,399	930,008	125,082
1992	27%	208,668	600,000	42,623	100,861	952,152	112,718
1993	54%	682,833	225,000	152,520	82,511	1,142,864	90,413
1994	43%	458,281	325,000	56,541	108,083	947,905	75,732
1995	100%	1,021,719	150,000	57,840	121,747	1,351,306	43,528
1996	95%	994,935	50,000	92,953	172,609	1,310,497	26,754
1997	90%	968,408	30,000	94,908	261,085	1,354,401	35,554
1998	100%	945,115	15,000	54,205	162,684	1,177,004	33,481
1999	70%	806,040	60,000	178,632	111,144	1,155,816	37,206
2000	65%	695,693	225,000	198,294	133,314	1,252,301	46,748
2001	49%	611,267	215,000	75,592	135,039	1,036,898	73,802
2002	70%	776,526	205,000	106,043	64,040	1,151,609	94,557
2003	75%	863,150	160,000	107,958	32,518	1,163,626	76,654
2004	70%	800,704	210,000	96,872	44,407	1,151,983	70,367
2005	85%	996,147	75,000	20,776	98,347	1,190,270	66,804
2006	100%	1,076,461	25,000	45,936	38,079	1,185,476	54,944
2007	50%	647,864	310,000	87,554	61,466	1,106,884	96,409
2008	40%	347,222	460,000	85,421	102,862	995,505	99,663
2009	10%	202,991	480,000	68,070	70,149	821,210	156,239
2010	45%	590,059	140,000	71,296	79,242	880,597	131,339
2011	80%	876,910	45,000	60,380	191,686	1,173,976	59,514
2012	40%	405,451	355,000	111,154	123,636	995,241	112,755
2013	20%	188,448	638,000	101,413	143,962	1,071,823	131,848
2014	0%	98,573	655,000	59,714	26,382	839,669	220,053
2015	0%	82,429	660,000	51,134	34,600	828,163	218,112
2016	5%	9,204	612,000	72,154	174,374	867,732	179,784
2017	100%	911,307	54,000	-50,009	174,490	1,089,788	146,275
2018	50%	580,050	328,000	42,338	55,872	1,006,260	148,320
2019	75%	827,317	89,000	37,985	53,433	1,007,735	158,103
2020	20%	259,540	493,000	66,436	78,780	897,756	190,972
2021	0%	99,928	636,000	63,822	20,595	820,345	211,920
2022	0%	3,822	603,000	37,546	104,866	749,234	227,563
2023	100%	871,194	10,000	13,515	231,606	1,126,315	211,678
2024	50%	591,588	97,000	44,582	89,944	823,114	212,973

Definitions:
Water Year – March 1 to February 28 (29 Leap Year)
CVP Allocation – Final CVP water supply allocation (100% = 1,150,000 AF)+(Reassignment = 45,383 AF)
Net CVP – CVP Allocation adjusted for carry over and rescheduled losses
Groundwater – Total groundwater pumped
Water User Acquired – Private landowner water transfers
Additional District Supply – Surplus water, supplemental supplies, and other adjustments
Fallowed Acres – Agricultural land out of production
Source: WWD 2025a, accessed June 2025.

The amount of groundwater pumped from the basin in any given year is typically inversely proportional to the availability of surface water supplies. This is evident for dry water years 2013 through 2016, 2021, and 2022, and the wet water years of 2017 and 2023, for example, as shown in Table 6.

Surface Water Imports Program

The primary focus of the District's Surface Water Imports program is to increase surface water availability and reliability and to reduce the corresponding landowner reliance on groundwater within the Subbasin by fulfilling most of the agricultural, municipal, and industrial water demands within the Subbasin. Surface water deliveries will be obtained through existing CVP contracts and through water transfer and exchange projects. Increasing the supply of surface water will allow surface water to be used in lieu of groundwater, leading to increased groundwater storage and levels. The increased delivery of surface water can further conjunctive use strategies (WWD 2022a).

REGIONAL GROUNDWATER SUPPLY

Growers within the District's service area augment District deliveries with pumped groundwater, as needed.. The Plan Area and the 136,000 acres of DFAs are located within the Fresno County portion of the Westside Subbasin (5-22.09) (Subbasin) of the San Joaquin Valley Basin within the Tulare Lake Hydrologic Region. The District is the Groundwater Sustainability Agency (GSA) for the Subbasin, for which the District's Board of Directors adopted a Groundwater Sustainability Plan (GSP). The District collects metered pumping data as the GSA. With the development of the groundwater sustainability plan discussed below, additional data are being developed annually. Sufficient data is available to make quantitative estimates of water availability and reliability, combined with reasonable assumptions based on available information and data.

Subbasin Characteristics

The Tulare Lake Hydrologic Region covers approximately 17,000 square miles including all of Kings and Tulare counties, and most of Fresno and Kern counties. Significant geographic features include the Temblor Range to the west, the Tehachapi Mountains to the south and the southern Sierra Nevada to the east. The Kings, Kaweah, Tule, and Kern Rivers drain into the southern portion of the valley internally towards the Tulare drainage basin.

The Subbasin is primarily located in Fresno County, with a relatively small portion (approximately 79,900 acres) located in Kings County. The Subbasin encompasses a surface area of approximately 622,215 acres (972 square miles) within the western portion of the larger San Joaquin Groundwater Basin. The Subbasin is located between the Coast Range foothills on the west and the San Joaquin River drainage and Fresno Slough to the east. To the southwest is the Pleasant Valley Subbasin, and to the west are Tertiary marine sediments of the Coast Ranges. To the north and east is the Delta-Mendota Subbasin, to the east is the Kings Subbasin, and to the south is the Tulare Lake Subbasin (WWD, 2024b).

The aquifer system comprising the Subbasin consists of unconsolidated continental deposits of Tertiary and Quaternary age. These deposits form an unconfined to semi-confined Upper Aquifer and a confined Lower Aquifer. These aquifers are separated by an aquitard named the Corcoran Clay member of the Tulare Formation. The Corcoran clay creates a significant hydraulic separation between the semi-confined Upper Aquifer and confined Lower Aquifer. Where this layer is present, it impedes vertical flow of water

except where there is leakage through intra-borehole flow through composite wells. The shallow zone is a portion within the Upper Aquifer which has been defined as the uppermost 100 feet. Groundwater encountered in the upper 100 feet is not hydrologically connected to the rest of the Upper Aquifer showing no seasonal or long-term variation and is likely supported by recharge from irrigation. Groundwater extraction is not known to occur in the shallow zone due to poor water quality and limited production capacity. It is not defined as one of the primary aquifer units in the Subbasin; groundwater production occurs in wells in the deeper portions of the Upper Aquifer (as well as the Lower Aquifer) (WWD, 2024b).

The unconfined to semi-confined aquifer (Upper Aquifer) above the Corcoran Clay includes younger alluvium, older alluvium, and part of the Tulare Formation. These deposits consist of highly lenticular, poorly sorted clay, silt, and sand intercalated with occasional beds of well-sorted fine to medium grained sand. This clay layer ranges in thickness from 20 to 200 feet, underlies most of the District, and has extensive wells penetrating the clay which allows partial interaction between the zones (DWR, 2006). The depth to the top of the Corcoran Clay varies from approximately 400 feet in the east to 800 feet or more at the western margins of the Subbasin (WWD, 2024b). The confined aquifer (Lower Aquifer) consists of the lower part of the Tulare Formation and possibly the uppermost part of the San Joaquin Formation. This unit is composed of lenticular beds of silty clay, clay, silt, and sand interbedded with occasional strata of well-sorted sand.

Water quality in the Lower Aquifer typically varies with depth with poorer quality existing at the upper and lower limits of the Lower Aquifer and the optimum quality somewhere between. The upper limit of the Lower Aquifer is the base of the Corcoran Clay with the USGS identifying the lower limit as the base of the fresh groundwater. In the northern Subbasin the base of fresh water is at elevations of -1,000 feet to less than -400 feet mean sea level. The southern Subbasin freshwater extends to -2,000 feet, up to 1,600 feet lower than the elevation at which it occurs in the Subbasin's north (WWD, 2024b).

The groundwater quality in the Upper Aquifer and Lower Aquifer between 2016 and 2023 ranges throughout the Subbasin with wells mostly containing TDS concentrations above 1,000 milligrams per liter (mg/L) to above 2,000 mg/L. In addition to high TDS, the Subbasin can also contain naturally occurring selenium and boron that may affect usability as irrigation water. In general, groundwater quality in the Lower Aquifer is considered better than the Upper Aquifer (WWD, 2024b)

Groundwater Level Trends

In the Upper Aquifer, groundwater level data for 2014 to 2024 indicate various degrees of groundwater elevation declines. During drought conditions from 2012 through 2016, there were significant declines followed by recovered levels after 2017. Groundwater level declines again followed dry conditions from 2020 through 2022 with significant increases occurring after the wet conditions in 2023 (WWD, 2024b).

As shown in Table 7, Lower Aquifer groundwater levels were generally at their lowest levels during the 1950s through late 1960s prior to the delivery of CVP contract water to the District, which began in 1967-68. Groundwater levels gradually increased to a maximum in about 1987-88, falling briefly during the 1976-77 drought and again during the 1987-92 drought. In 1998, Lower Aquifer groundwater levels

Table 7. Groundwater Use and Elevation Change in Westlands Water District

Crop[1] Year	Pumped AF	Elevation FT	Elevation Change FT	Crop Year	Pumped AF	Elevation FT	Elevation Change FT
1956	964,000	-65	-13	1986	145,000	71	8
1957	928,000	-56	9	1987	159,000	89	18
1958	884,000	-29	27	1988	160,000	64	-25
1959	912,000	-77	-48	1989	175,000	63	-1
1960	872,000	-81	-4	1990	300,000	9	-54
1961	824,000	-96	-15	1991	600,000	-32	-41
1962	920,000			1992	600,000	-62	-30
1963	883,000			1993	225,000	1	63
1964	913,000			1994	325,000	-51	-52
1965	822,000			1995	150,000	27	78
1966	924,000	-134		1996	50,000	49	22
1967	875,000	-156	-22	1997	30,000	63	14
1968	596,000	-135	21	1998	15,000	63	0
1969	592,000	-120	15	1999	20,000	65	2
1970	460,000	-100	20	2000	225,000	43	-22
1971	377,000	-93	7	2001	215,000	25	-18
1972		-54	39	2002	205,000	22	-3
1973		-37	17	2003	160,000	30	8
1974	96,000	-22	15	2004	210,000	24	-6
1975	111,000	-11	11	2005	75,000	56	32
1976	97,000	-2	9	2006	15,000	77	21
1977	472,000	-99	-97	2007	310,000	35	-42
1978	159,000	-4	95	2008	460,000	-11	-46
1979	140,000	-13	-9	2009	480,000	-31	-20
1980	106,000	4	17	2010	140,000	9	40
1981	99,000	11	7	2011	45,000	49	40
1982	105,000	32	21	2012[2]	355,000	1	-48
1983	31,000	56	24	2013	638,000	-58	-59
1984	73,000	61	5	2014	655,000	-76	-18
1985	228,000	63	2	2015	660,000	-120	-44

Source: WWD, 2016a.

[1] Crop year is from October 1 of previous year to September 30 of current year.

[2] Starting with 2012, groundwater pumped is for Water Year (March 1 through February 28)

recovered nearly to the 1987-88 levels after a series of wet years. In this Lower Aquifer, groundwater levels declined considerably since 2010. For some wells, levels declined by as much as 200 feet between 2010 and 2015. Groundwater levels have since recovered from these near historic lows around 2015. Groundwater levels continue to vary with climatic conditions (WWD, 2024b).

Dry conditions and the resulting reduction in imported surface water use has historically resulted in increased rates of subsidence within most of the Subbasin. With reduced pumping and injection in aquifer storage and recovery wells, land surface elevation has increased by up to 0.5 feet in in the central and southeastern portion of the Subbasin and more modest rates on the western side. A significant increase in land surface elevation between Checks 15 and 19 during 2023 suggests the subsidence during the preceding drought was elastic with less pronounced increases in water levels during 2023 in the Lower

Aquifer. On the eastern side of the Subbasin, subsidence in adjacent basins appears to affect rates of subsidence within the Subbasin (WWD, 2024b).

Recharge is primarily from seepage of Coast Range streams along the west side of the Subbasin and deep percolation of surface irrigation. Secondary recharge to the Upper Aquifer and Lower Aquifer occurs from areas to the east and northeast as subsurface flows. Groundwater flow direction changes with extended dry periods due to an increase in groundwater pumping (DWR, 2006; WWD, 2016; DWR, 2020; WWD, 2024b).

Groundwater Sustainability Plan

The SGMA required a designated GSA to prepare a GSP for each high- or medium-priority basin (or subbasin), with adoption deadlines of 2020 or 2022 depending on the basin's priority. DWR designated the Subbasin as critically overdrafted, which required the District to prepare a GSP by January 31, 2020 (DWR, 2015).

As the primary water purveyor in the Subbasin, the District is the designated GSA for the Subbasin and developed the GSP. Fresno County serves as the GSA for the portions of the Subbasin that are within the County's jurisdictional boundaries, including the areas within the City of Huron's jurisdictional boundaries, but outside the boundaries of the District. The District, in cooperation with Fresno County, prepared the "Westside Subbasin Groundwater Sustainability Plan," which the County and the District adopted on January 7 and January 8, 2020, respectively. The District resubmitted the GSP to DWR on July 18, 2022. DWR approved the GSP on August 4, 2023. DWR included a list of recommended corrective actions to improve the GSP. Based on the list of corrective actions, the District identified a need for an amendment to the GSP, which was adopted in December 2024 and January 2025 by the District and Fresno County, respectively (2025 GSP Amendment).

The purpose of the GSP is to characterize groundwater conditions in the subbasin, to evaluate and report on conditions of overdraft, to establish sustainability goals and sustainability management criteria, and to describe projects and management actions the GSA intends to implement to achieve sustainability by 2040 (DWR, 2020; WWD 2022a). The plans and progress toward meeting the sustainability goal - that the Subbasin will be operated within its sustainable yield by 2040 and maintain sustainability through the entire planning and implementation horizon through 2070 - will be evaluated every five years.

A GSP five-year update, also known as a periodic evaluation, is an evaluation of the implementation of an approved GSP performed by the GSA. The evaluation is described in a written assessment submitted to DWR and represents a progress report for each evaluation cycle – at least every five years after initial GSP submission. The evaluation summarizes the basin's conditions in relation to the sustainable management criteria established in the GSP, the implementation of projects and management actions, and other information as specified in SGMA and the GSP Regulations. The purpose of the five-year updates is to determine whether GSP implementation is meeting interim milestones and is on track to meeting the sustainability goal for the basin (WWD, 2022b). The District submitted its five-year update, 2025 Periodic Evaluation, to DWR in January 2025. The Periodic Evaluation indicates that current groundwater level conditions generally reflect progress toward groundwater sustainability. (WWD, 2025; DWR, 2025b.)

Projects and management actions developed for the GSP are aimed at preventing and managing chronic lowering of groundwater levels, and significant and unreasonable reduction of groundwater storage, land subsidence, and degradation of groundwater quality. Proposed projects and management actions identified in the 2022 GSP were grouped into the following project categories and are described below (WWD, 2022a).

1. Surface water imports (described under Surface Water Supplies)
2. Initial allocation of groundwater extraction
3. Aquifer storage and recovery
4. Targeted pumping reductions (to reduce pumping near Check 16, 17, and 20)
5. Percolation basins

Initial Allocation of Groundwater Extraction. The GSA has prepared a groundwater allocation framework to manage demand by equally distributing the total annual pumping from the subbasin based on gross land acreage overlying the subbasin. The groundwater allocation program includes a "transition period" from 2022 to 2030, in which a uniform annual allocation was initially established at 1.3 AF/acre and then subsequently reduced each year by 0.1 AF/acre until 2030 when the allocation would reach 0.6 AF/acre. The groundwater will be distributed based on per-acre land ownership for all qualifying lands. Under the GSP, landowners overlying the Subbasin with the ability to make reasonable and beneficial use of groundwater on their lands will be entitled to apply for a groundwater allocation based solely on overlying (developed or undeveloped) acreage and irrespective of prior use of groundwater utilization. Landowners with groundwater allocations may pump their allocation, bank any unused allocation (credits), or transfer unused allocations and groundwater credits to another landowner with the District's permission. The District has also developed regulations requiring metering of all extraction wells, and fines for excess extraction. The District also adopted land-based fees and extraction facility fees to support its implementation of the GSP.

Aquifer Storage and Recovery. An aquifer storage and recovery program (ASR) involving the direct injection and subsurface storage of groundwater using agricultural wells has been proposed by the GSA to improve water supply reliability within the Subbasin. Landowners will voluntarily participate in the program to have recharged water augment a landowner's groundwater allocation and increase their supply. (See Article 1.) As of the end of the 2023 water year, the District approved 72 water user ASR projects. ASR projects that directly inject water into the confined aquifer system provided 5,600 AF of additional recharge in the Subbasin during the 2023 water year.

Targeted Pumping Reductions. It is possible that the combination of other measures will not be sufficient individually or collectively to avoid significant and unreasonable land subsidence in certain regions of the Subbasin. When combined with cumulative Subbasin pumping, groundwater withdrawals near Checks 16, 17, and 20 of the San Luis Canal/California Aqueduct, may require focused management efforts. Consequently, the GSP proposes to offer or, if necessary to avoid significant and unreasonable land subsidence, to require surface water substitution to reduce groundwater pumping near the canal. In exchange for the reduction in pumping, the GSA may provide incentives to landowners included in this program. Participating landowners may be required to bear material unmitigated impacts in accepting the substitute surface water. Because the project water requirements are significantly lower than that required for irrigated agriculture, implementation of the VCIP may provide similar benefits.

Percolation Basins. The District proposes engaging in managed aquifer recharge through percolation basins in selected areas of the Subbasin to increase groundwater in storage. These basins would be constructed on District-owned or privately held land where the Corcoran Clay is not present. In 2023, the District and water users recharged approximately 385,000 AF.

The District has pursued District-operated recharge enhancement projects as a conjunctive use strategy to promote groundwater sustainability in the Subbasin. District recharge projects are intended to store surplus surface water (when available) in the aquifer to increase groundwater storage. These strategies are intended to mitigate impacts of groundwater extraction during droughts to improve water supply resiliency and avoid undesirable results. Feasibility studies and construction of District owned recharge facilities began in 2019 with the first projects beginning operation during the 2020 water year.

The District is proposing to construct and operate percolation basins on District-owned lands located along the western margin of the Subbasin where the Corcoran clay is not present. Additionally, the District recently acquired land that could be favorable for Upper Aquifer percolation basin recharge. Percolation basins are a conjunctive use strategy where surface water is retained and infiltrated through permeable surficial deposits to recharge the Upper Aquifer and Lower Aquifer. The District would utilize these basins to store and recharge supplemental surface water in the aquifer to enhance groundwater conditions within the Subbasin. The District conducted basin style recharge at four locations in 2023.

The District has conducted studies to facilitate implementation of landowner recharge projects described below.

• ASR Pilot Study: As described in the PEIR, the District contracted with Brown & Caldwell to conduct a pilot ASR study to demonstrate ASR feasibility. This 2018 study was followed up by a 2019 Report of Waste Discharge and Technical Report submitted to the Central Valley Regional Water Quality Control Board used to secure programmatic regulatory compliance for up to 400 ASR wells and provide landowners with technical information for implementing ASR projects.

• Recharge Feasibility Study: The District contracted with Universal Engineering Sciences to conduct a geological investigation on groundwater recharge potential largely in the southwestern portion of the Subbasin. The study, which was published in 2024, relied on 123 Cone Penetration Tests and 10 hollow stem auger borings to identify areas with favorable recharge conditions.

• Towed Electromagnetic Resistivity (tTEM) Survey: The District contracted with Luhdorff and Scalmanini and Geophysical Imaging Partners to conduct a desktop study followed by a tTEM survey to identify recharge potential in drainage impaired lands in the eastern portion of the Subbasin near Naval Air Station Lemoore in 2024 (in progress at the time of this writing). The goal of this study is to help identify if there is any localized potential for modified surface-based recharge in drainage impaired portions of the Subbasin.

As a result of the aforementioned studies, the District collected additional subsurface information regarding soil types in the Subbasin and updated the District Groundwater Sustainability Guidance For Processing Groundwater Recharge Project Application document to ensure that Groundwater Users are recharging in areas that optimize groundwater conditions.

The District has encouraged, incentivized, and provided support to landowner-operated groundwater recharge enhancement projects in the Subbasin. Like District-operated projects, landowner recharge projects are intended to store surplus surface water in the aquifer system, when available, to increase groundwater storage in the Subbasin. These strategies are intended to mitigate impacts of groundwater extraction during droughts to improve water supply resiliency and avoid undesirable results.

The District has encouraged and incentivized landowners within the Subbasin to establish groundwater recharge projects including percolation basins, flood managed aquifer recharge (Flood MAR or flood irrigation), sublateral recharge, and ASR. Landowner projects serve as a groundwater replenishment strategy to enhance groundwater storage within the Subbasin when surface water supply is available. The District has funded multiple investigations to determine recharge feasibility, completed studies to ensure environmental compliance, and developed programs to incentivize landowner participation in Subbasin recharge enhancement.

As described in the District's 2025 Periodic Evaluation, substantial progress towards the implementation of Project Management Actions described in the 2022 GSP was made during the first five years of GSP implementation. Over this period, the District prioritized sustainable groundwater management by (1) expanding existing Project Management Actions and (2) developing two new Project Management Actions: Agricultural Land Repurposing, and Desalination and On-Farm Recycling. Agricultural Land Repurposing includes converting agricultural lands to less water-intensive beneficial uses to reduce groundwater demand. This includes clean energy development. The Desalination and On-Farm Recycling Project focuses on developing infrastructure to treat salty Upper Aquifer groundwater during wet years, and using the permeate for crop irrigation and applying the resulting concentrate on salt tolerant crops to manage treatment byproduct. The initial phase of the Desalination Project involves a 2-year pilot project, focused on operating a small reverse osmosis (RO) facility and monitoring the transport and fate of concentrate in the crop-based byproduct water management system. (WWD, 2025.)

The 2025 Amendment to the GSP builds upon the 2022 GSP and describes projects and management actions the GSA intends to implement to achieve groundwater sustainability by 2024. Specifically, the 2025 GSP Amendment identifies the following projects and management actions:

1. Surface water deliveries
2. Groundwater allocation program
3. Westlands Water District groundwater recharge enhancement
4. Water user groundwater recharge projects
5. Targeted groundwater pumping reduction program
6. Agricultural land repurposing
7. Desalination and on-farm recycling

The first five projects are substantially similar to those described above in the 2022 GSP and are therefore not repeated here.

Agricultural Land Repurposing. The District is pursuing strategic long-term land repurposing projects that aim to both reduce agricultural water demand and promote community development, environmental stewardship, clean energy, and economic sustainability. These initiatives include the District's Strategic Plan and the proposed VCIP. The District's Strategic Plan outlines key strategies to ensure the District

achieves long-term groundwater sustainability, preserves economic opportunities for growers and the communities, and protects against undesirable results, such as subsidence. As more particularly described in the PEIR, the VCIP is an initiative that focuses on expanding clean and renewable energy infrastructure within California's Central Valley. It aims to support the region's transition to more sustainable energy sources while addressing environmental and economic challenges. The Subbasin has long been a hub for agricultural activity, which traditionally relied on significant groundwater extraction and fossil fuel energy sources. The VCIP seeks to align energy development with goals of sustainability and resilience, including the reduction of carbon emissions and groundwater sustainability.

Desalination and On-Farm Recycling. Under the broader Storage, Treatment and Aquifer Recharge (STAR) Project, the District is developing a Desalination and On-Farm Recycling Project (Desalination Project) to extract and treat groundwater from portions of the underlying aquifer system where water quality has previously prevented the use of water for irrigation and other beneficial uses. Use of groundwater extracted from these areas could provide a reliable source of additional supply, increasing the sustainable yield of the Subbasin and provide a new source of reliable water to disadvantaged communities during shortages. The first phase of the Desalination Project is a pilot study that will be used to demonstrate feasibility and develop the full-scale project which is anticipated to pump and treat up to 20,000 acre-feet of water per year. The Desalination Pilot will use the brine water produced from RO to irrigate halophytic (salt-tolerant) crops without degrading soil or shallow aquifer water quality. The Desalination Pilot seeks to maximize uptake of ions in the brine water via halophytic crops and phytoremediation plant species. If successful, the District will consider expanding the pilot project to an appropriate scale to contribute to sustainability objectives.

Aquifer's Ability to Recover

Most of the information provided in the following subsections on District groundwater conditions was obtained from the District's 2015 Deep Groundwater Conditions Report (WWD, 2016), 2012 and 2017 Water Management Plans (WWD, 2013; WWD, 2017a), 2020 Westside Subbasin GSP; 2021 Westside Subbasin Annual Report (WWD, 2022b), 2023 Water Management Plan (2023a); and the 2025 Westside Subbasin Periodic Evaluation (WWD, 2025).

As presented in Table 7, prior to the delivery of CVP water into the District, annual groundwater pumping ranged from 822,000 to 964,000 AF during the period from 1953 to 1968. The majority of this pumping was from the Lower Aquifer below the Corcoran Clay, causing the sub-Corcoran piezometric groundwater surface (i.e., the top of the subsurface groundwater body or the water table) to reach the lowest recorded average elevation of 156 feet below mean sea level in 1967. The U.S. Geological Survey concluded that extraction of large quantities of groundwater prior to CVP deliveries resulted in compaction of water bearing sediments and caused land subsidence ranging from 1 to 24 feet between 1926 and 1972.

After CVP water deliveries began in 1968, the groundwater surface rose steadily until reaching 89 feet above mean sea level in 1987, the highest average elevation on record dating back to the early 1940s. The only exception during this period was in 1977 when a drought and drastic reduction of CVP deliveries resulted in groundwater pumping of approximately 472,000 AF and an accompanying drop in the groundwater surface elevation of approximately 97 feet.

During the early 1990s, groundwater pumping increased due to reduced CVP water supplies due to drought and regulatory actions. Groundwater pumping reached an estimated 600,000 AF annually during 1991 and 1992 when the District received 25 percent of its contractual entitlement of CVP water. This increased pumping caused the groundwater surface to decline to 62 feet below mean sea level, the lowest elevation since 1977. DWR estimated the amount of subsidence since 1983 to be almost two feet in some areas of the District, with most of that subsidence occurring since 1989.

Based on data presented in Table 6 and Table 7, during 2015 to 2024, CVP allocations averaged 423,638 AF (36 percent of CVP contract volume), total groundwater pumped was 3,582,000 AF, and in 2015 the groundwater surface elevation decreased 129 feet. The CVP allocations for 2014, 2015, 2021, and 2022 water years were "zero" with the accompanying increase in groundwater pumped ranging from 603,000 AF to 660,000 AF during those four years. To address subsidence from increased groundwater extractions, the state adopted SGMA and required that overdrafted basins, such as the Subbasin, be managed by a GSA via a GSP to aid in aquifer recovery and to obtain sustainability.

Sustainable Yield and Groundwater Allocation Program

SGMA defines sustainable yield is defined as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result." (Wat. Code, § 10721(w).) The GSP determined that the estimated sustainable yield for the historical period (1989-2015) across the Subbasin is 305,000 AFY and that the estimated sustainable yield for the projected period (2020-2070) ranges from 270,000 to 294,000 AFY, depending on the future climate scenario (WWD, 2022a).

Pursuant to SGMA, the District developed, adopted, and revised Article 1. Regulations for the Groundwater Allocation Program and Use of Groundwater within the Westside Subbasin. Article 1 establishes the sustainable yield of the Subbasin and outlines the provisions governing the allocation of groundwater, including the definition of the implementation period and requirements for registration, well metering, and transfer of groundwater credits.

A component of the District's allocation program is the installation of District-owned meters at all well locations where agricultural water extraction will occur. As of March 2023, all current agricultural wells have been furnished with a District-owned groundwater flow meter. Groundwater pumping data is obtained remotely through the Automatic Metering Infrastructure (AMI). The District also monitors all meter and extraction information from privately owned water meters within the Subbasin on a quarterly basis. As new production wells are constructed within the Subbasin, the GSA will furnish the new well(s) with a District-owned groundwater flow meter. The District conducts a monthly assessment of groundwater extraction and recharge for each landowner to track groundwater allocations, carryover, and recharge credits. The District also releases and processes annual applications to register for the Groundwater Allocation Program for the coming water contract year.

To manage groundwater supplies during the initial years of GSP implementation, the GSA established an interim allocation of groundwater extraction intended to manage demand by equally distributing total annual pumping from the Subbasin based on overlying land acreage. Under the GSP, approximately 525,000 gross acres (as opposed to irrigable acres for surface water) within the Subbasin are eligible to

receive a groundwater allocation, which limits the volume of annual groundwater pumping. The groundwater allocation framework established under the GSP includes a "transition period" from 2022 to 2030, in which a uniform annual allocation cap is initially established at 1.3 AF/acre and then subsequently reduced each year starting in 2024 by 0.1 AF/acre until 2030 when the allocation reaches 0.6 AF/acre (WWD 2024a).

Under Article 1 (WWD, 2024), no groundwater is allocated annually to District-owned lands. (Article 1, 1.9(A).) However, any groundwater user that receives a groundwater allocation "may use it on any Eligible Land within the Westside Subbasin." (Article 1, 1.3(C).) In addition, any groundwater user may "bank any unused quantity as carryover and/or Transfer any unused portion of the Groundwater Allocation." (Article 1, 1.9(c).) Landowners may carry over unused groundwater allocation from one year to the next and earn groundwater credits by implementing recharge projects. Potential VCIP developers may negotiate with landowners to procure groundwater credits for solar/BESS project construction and operations.

Landowners that receive an allocation may also transfer groundwater credits to a "Gross Acre" which is defined as "an acre within the Westside Subbasin assessed by Fresno or Kings County, that has been irrigated prior to December 31, 2015, or is suitable for reasonable and beneficial use of groundwater. Land that does not meet this definition may be deemed to meet the definition pursuant to an approved request for variance." Pursuant to Article 1, projects on District-owned land may purchase unused groundwater credits from private landowners and extract that water from wells located on District-owned land or transfer the groundwater via a pipeline to a project located on District-owned land.

While groundwater extraction is typically low during years with a high CVP allocation, the Groundwater Allocation Program has added additional incentives to utilize surface water in lieu of groundwater extraction. This resulted in the recovery of groundwater levels and a rebound in ground elevation ("reverse subsidence") observed during the 2023 contract water year. It is anticipated that the transition to the final landowner specific annual rate-based allocation in 2030 will continue to reduce localized high rates of groundwater extraction during years where a low surface water allocation has historically led to substantial local declines in groundwater levels and land subsidence.

As the construction of potential VCIP projects would occur from 2029 through 2038, the long-term allocation of 0.6 AF/acre was used in this analysis as available supply for the reasonable and beneficial uses associated with VCIP implementation.

VCIP SUPPLY AVAILABILITY

District Owned Lands

For potential VCIP projects on existing District-owned lands, the District would likely either sell or lease these lands to the project proponent. The District will reserve overlying groundwater rights when it sells the land and execute a M&I water agreement with the lessee or project proponent. The District has indicated that land owned by the District but sold or leased for solar development through VCIP is eligible to receive M&I surface water deliveries through its existing system of lateral pipelines for conveyance of imported surface water to meet operational demands. This is because these lands are eligible for allocation or delivery of water under Reclamation law and any applicable District Regulation as described in *Article 2, Regulations for the Allocation and Use of Agricultural Water within Westlands Water District*,

as revised September 2023, and *Article 19, Regulations Regarding the Application for and Use of Municipal and Industrial Water within Westlands Water District*. (WWD, 2023c, 2023d). During years of extreme shortage of surface water supplies, the District would continue to provide M&I supplies to solar and energy storage facilities on District-owned lands through its health and safety allocation from USBR. Further, project proponents may also purchase groundwater credits from other landowners for use on District-owned lands.

Privately Owned Lands

For solar and energy storage facilities located on privately-owned lands, operational water supplies would be provided by the underlying landowner from its surface and/or groundwater allocations. If the District cannot provide the surface water supply from its CVP contract, operational water would be obtained from existing on-site agricultural wells or from surface water transferred into the District.

Supply Availability

Based on the long-term groundwater pumping limit of 0.6 AF/acre per year (AFY/acre) established under the GSP, the overall pumping limit on 64,000 acres of solar facilities on private lands would be 38,400 AFY, which would be more than sufficient to provide for the maximum operational water demands of 260 AFY from projects on those lands at buildout (i.e., 64,000 ac x 0.004 AFY/acre).

Construction water demands will be greater than annual operational water demands but still significantly less than that allowed under the 0.6 AFY/acre GSP allocation. Annual construction demands within the 10 year construction period were calculated to reflect the VCIP phasing plan and peak between years 2029 through 2032 at 2,227 AFY. See Table 3 for more information on construction demands.

As noted previously, since CVP contract water generally may not be used for construction, construction water would generally come from groundwater within the District or water procured from other CVP or State Water Project contractors. At this program level of review, the amount of VCIP facilities to be constructed on District-owned lands or private lands in any given year is not known. While construction water for projects on private lands would likely come from groundwater wells on the project sites or its larger farm holding, construction water for projects on District lands would likely be purchased (via a District-approved groundwater transfer) from agricultural lands in the vicinity which are eligible for groundwater allocation, or from surplus District surface supplies (if available), or purchased from other sources. Given the broad distribution of District-owned lands throughout the Plan Area, this groundwater supply could come from anywhere in the District, but most likely would come from lands adjacent to or near the District-owned lands in northern and eastern portions of the Plan Area. Since it cannot be predicted where groundwater from off-site sources would be obtained, it is assumed that the development of VCIP projects on District-owned and private lands would obtain groundwater from an area of land equivalent to the lands subject to disturbance during a given year of VCIP development. For example, 14,771 acres of disturbed lands under construction in 2030 would obtain groundwater from an equivalent area of lands in the Plan Area. The annual groundwater allocation for 14,771 acres (at 0.6 AFY/ac) would be 8,863 AFY which is much greater than the project construction demand of 2,227 AFY.

WATER SUPPLY RELIABILITY

SB 610 requires the consideration of supply availability during normal, single dry, and multiple dry water years. Reasonable assumptions can be made regarding availability and reliability under normal year and dry year scenarios based on available data and information for the project.

The temporary groundwater supply required for construction of the VCIP will be provided from existing on-site agricultural wells, other wells located in the vicinity, or available surface water. The GSP determined that the allocation of groundwater of 0.6 AF/acre/year was to be used as the available supply for the analysis of supplies and demands. With a total of 64,000 acres of land within the Subbasin that is eligible for a groundwater allocation within VCIP, groundwater availability for VCIP is up to 38,400 AFY for construction and operational demands. Unused groundwater allocations (or carryover credits) from these lands may be transferred to land not eligible for an annual groundwater allocation. Transferred groundwater credits may be extracted from District-owned land, including from abandoned wells, or transferred to District-owned lands from private wells.

For the construction of solar energy generation and infrastructure projects, groundwater in the Subbasin is considered available and reliable under normal water years, a single dry water year, and multiple dry years, as shown in Table 8. Based on the temporary construction demands presented in Table 3, peak year 2030 demands of 2,227 AF are compared with an estimated 9,897 AF of historical water production for the same year based on recent historical annual average (2015 to 2024) groundwater production of 0.67 AFY/acre for agricultural irrigation.[8] The projected temporary application of water presented in Table 3 for dust control represents a far less intensive use of water supplies compared to pre-development conditions.

In addition, based on the information provided in this WSA and presented in Table 5, the operational water demand at full build-out in year 2039 is 514 AF. This is significantly less than the available annual groundwater allocation of 38,400 AF (using 0.6 AFY/acre) for 64,000 acres of eligible DFA lands and the historic production requirements for eligible DFA lands of 42,880 AFY (using the recent historical average of 0.67 AFY/acre for groundwater).

The peak combined operations and construction demand is in year 2037; total demands for year 2037 are 2,673 AF. The projected demand for all years of analysis is not expected to result in adverse water supply reliability impacts.

The amount of CVP contract water received by the District during any given year varies depending on climatic and hydrologic conditions, Delta constraints, and other factors. The District augments the contract water with transfers and other purchased supplies, and growers augment surface supplies through groundwater pumping and market-based groundwater credit transfers, participating in the District's Supplemental Water program, acquiring their own transfers, or hiring a water broker to acquire water on their behalf. However, given the extreme variability in availability of supplemental water from year to year, supplemental water sources are not considered reliable for purposes of water supply planning and are not required to meet VCIP's projected water demand.

[8] Based on average annual groundwater pumping from 2015 to 2024 of 357,500 AFY / 525,000 acres eligible for groundwater allocation.

Table 8. VCIP Supplies and Demand (AFY)[1]

	2025	2030	2035	2040	2045	2050
Normal Year Construction						
Groundwater Supply [2]	0	8,863	8,682	0	0	0
WWD Supply [3]	0	0	0	0	0	0
Construction Demand [4]	0	*2,227*	*2,183*	0	0	0
Normal Year Operations						
Groundwater Supply [2]	0	0	0	42,880	42,880	42,880
WWD Supply [5]	0	450	2,250	2,250	2,250	2,250
Operations Demand [6]	0	*54*	*326*	*514*	*514*	*514*
Single Dry Year Construction						
Groundwater Supply [2]	0	8,863	8,682	0	0	0
WWD Supply[3]	0	0	0	0	0	0
Construction Demand [4]	0	*2,227*	*2,183*	0	0	0
Single Dry Year Operations						
Groundwater Supply [2]	0	0	0	42,880	42,880	42,880
WWD Supply [5]	0	450	2,250	2,250	2,250	2,250
Operations Demand [6]	0	*54*	*326*	*514*	*514*	*514*
Multiple Dry Year Construction (Year 1, 2, 3)						
Groundwater Supply [2]	0	8,863	8,682	0	0	0
WWD Supply[3]	0	0	0	0	0	0
Construction Demand [4]	0	*2,227*	*2,183*	*0*	*0*	*0*
Multiple Dry Year Operations (Year 1, 2, 3)						
Groundwater Supply [2]	0	0	0	42,880	42,880	42,880
WWD Supply [5]	0	450	2,250	2,250	2,250	2,250
Operations Demand [6]	0	*54*	*326*	*514*	*514*	*514*

[1] Table reflects phasing order which places priority on developing District-owned lands first. Thus, the 72,000 acres of District-owned lands are assumed to be developed between 2029 and 2034. Development on the 64,000 acres of private lands begins in 2035, and the first year of operations on private lands is 2036.
[2] The GSP sustainable yield of up to 0.6 AFY/acre of groundwater is assumed available for the 72,000 acres of District-owned VCIP lands to meet temporary construction water demands; however, groundwater would be pumped from adjacent or nearby lands since no groundwater pumping is allowed on District-owned lands. This unit factor was applied to the acreage under construction or projects developed. Supply is available from local agricultural wells.
[3] WWD supply is not available for construction, except in years when surplus water is available; therefore, WWD supply is not relied upon for construction, and groundwater is considered the source for all construction water.
[4] From Table 3. Demands reflect acreage under construction.
[5] The VCIP solar projects on District-owned land are eligible to receive up to 5 AFY per 160 acres for operations under Article 2 of WWD's Rules and Regulations.
[6] From Table 5. Demand reflects the cumulative number of PV projects constructed.

During operation of the project, the long-term water demand of 54 AFY in 2030 would increase to 514 AFY by 2039 for operational uses such as panel cleaning, sheep watering, and ongoing operations. This demand would be met using groundwater or M&I (surface) water provided by the District. The District manages its supplies for long term supply reliability. It augments CVP contract water with acquired surface water, which is supplemented by groundwater pumped by growers, as presented in Table 6. If for some reason District surface water supplies are not available to meet VCIP operational demands, groundwater would be pumped from existing on-site agricultural wells or from other agricultural wells in the vicinity and trucked to the site for panel washing.

Based on the information provided in this WSA, sufficient water supplies (surface and/or groundwater) are considered available and reliable to meet the VCIP maximum operational demand of 514 AFY and groundwater supplies to meet the maximum construction demand of 2,227 AFY, under normal, dry, and multiple dry year climatic conditions, as shown in Table 8. As presented in this WSA, the project water demand will result in significantly less groundwater pumping of the Subbasin during construction than that currently being pumped, and minimal groundwater pumping during solar facility operations after full buildout.

OTHER PLANNED PROJECTS

Other planned uses in the Subbasin consist almost entirely of other solar PV generation and energy storage facilities in Kings and Fresno counties. As of July 2025, a total of 51 other solar and energy storage projects have been approved or are pending approval in the Subbasin portions of the two counties. Of these, 39 solar and energy storage projects have been completed, another 10 projects have been approved, and two projects are pending approval by the two counties.[9] It is estimated that the 12 unconstructed projects would consume a total of approximately 2,156 AF of water during construction. For five of these projects, this estimate is based on information available from public documents; for the remaining seven projects where no public documents contain water demand estimates, construction water demands were estimated based on a factor of 0.15 AFY/ac.

Based on review of available environmental documents for foreseeable solar and energy storage projects in the Subbasin, construction water for the solar and energy storage projects would be obtained from local groundwater sources within the Subbasin, but surface water will be available in some years. Use of construction water at a rate of 0.15 AFY/acre would be consistent with the Subbasin's long-term sustainable yield of 0.6 AFY/acre. For comparison, upon completion, operational water demands for VCIP solar and energy storage facilities would be approximately 0.004 AFY/acre (i.e., 1,600 acres per project x 85 projects/514 AFY). As discussed, it is assumed that operational water for the other solar and energy storage projects on District-owned land would mostly be obtained from surface water resources, while operational water for VCIP projects on privately-owned lands would be obtained from a combination of groundwater and surface water sources, with the ratio of surface versus groundwater supply depending on negotiations with the underlying landowner in each project case. Since this ratio cannot be predicted, it is conservatively assumed that all operational water supplies for energy projects on private lands would be obtained from groundwater, except for potable water delivered by truck as described above. These

[9] This total does not include four solar/BESS projects (2 approved + 2 pending) located within the VCIP DFAs, since the water demands for those projects have been accounted for in the water supply analysis for the VCIP.

operational water demands would be well below the long-term 0.6 AFY per acre SGMA allocation and therefore would be consistent with the Subbasin's sustainable yield.

In addition to solar and energy storage projects, six other projects are pending approval in the Subbasin. These include three pistachio processing plants, two highway commercial developments, and one utility substation (Manning Substation). One pistachio plant would, if approved, utilize only surface water provided by the District. The other two plants would utilize groundwater pursuant to agreements with the District, which would ensure groundwater pumping complies with the allocations established in the GSP. The two highway commercial projects would receive M&I water from the District's surface water deliveries. The Manning Substation would require no water supply for operations.

CHAPTER 4 – CONCLUSIONS

SUFFICIENCY FINDINGS

An analysis of the ability of the groundwater basin (based on District Subbasin data) to meet projected construction water demands of the VCIP was based on several factors. The primary consideration is that solar projects have rights to extract a reasonable quantity of groundwater from the groundwater basin they overlie via an annual allocation or a purchase of groundwater credits from other landowners via a District-approved transfer. In addition, the maximum project construction demands of 2,227 AFY for the four years beginning in 2029 and long-term operational demand of 514 AFY are substantially less than the sustainable groundwater yield of the Subbasin on a per acre basis for the District per the GSP.

As discussed above, there are differences in water supply conditions depending on whether a VCIP project is to be located on District-owned land or privately-owned land. As discussed, construction water for all VCIP projects would be obtained from groundwater sources, although some surface water for construction may be available from the District in some years, although this is not relied upon here.

Operational water for VCIP projects on District-owned land would come from CVP contract water or supplemental surface water supplies provided by the District. It is anticipated that the District's allocations of CVP contract water will continue to resemble the most recent 10-year period of 2015 to 2024, where the District received an average of 36 percent of its CVP contract water with "zero" allocations in multiple years. However, even if the District receives no CVP allocation ("zero") in any given year, it would still be able to meet the operational demands of solar projects entitled to receive an M&I allocation pursuant to Article 19 of the District's Rules and Regulations or the health and safety allocation from USBR. As illustrated in Table 6, the District and users within its service area have augmented available CVP supplies with other surface water sources during each year since 1988, particularly during dry years. Due to the established market for these purchases and their longstanding availability during all water year types, it is anticipated that these additional sources will continue to be available, which bolsters water supply reliability. Therefore, no deficiencies in operational supplies are expected for solar and energy storage projects on District-owned land.

Groundwater supplies would be used for construction of all VCIP projects, and for some portion of operational water on privately-owned lands. The projected groundwater demands of the VCIP, in addition to those of completed and planned projects, are substantially lower than the GSP's long-term groundwater allocation of 0.6 AFY/acre long-term, which is consistent with the Subbasin's sustainable yield through 2070. (It is noted that VCIP's water demands would also be substantially lower than baseline demands from irrigation and M&I uses, both in terms of pumping rates, which average 0.67 AFY per acre of irrigable land District-wide, and in terms of absolute volumes of annual pumping within the DFAs eligible for groundwater allocation.) Therefore, a sufficient groundwater supply exists to serve all projected water demands associated with the VCIP, in addition to the completed and planned projects, on lands eligible to receive a groundwater allocation from the GSP (i.e., non-District-owned lands).

With consideration of these variables and conditions, it is concluded that groundwater supplies from the Subbasin will meet construction demands for VCIP during the approximately 10-year construction period, in addition to the demand of existing and other planned future solar projects in the subbasin. District water supplies, augmented by groundwater supplies if needed, will meet the projected 514 AFY for VCIP operational water demands over a 20-year planning horizon, in addition to the demand of existing and other planned future uses.[10] No supply deficiencies are expected in normal, dry, and multiple dry years for the proposed project. This WSA was prepared in compliance with the California Water Code, as amended by SB 610.

[10] Regarding decommissioning, it is noted that WSA's are required to cover a 20-year period, although decommissioning of VCIP projects is not expected to occur until at least 40 years in the future. For informational purposes, it is expected that water demands for decommissioning would be no greater than maximum construction water demands of 2,227 AFY. At a demand rate of 0.15 AFY/ac for groundwater (no surface water would be used for decommissioning), the overall demand would be substantially below the 0.6 AFY/ac groundwater allocation under the GSP. Therefore, no supply deficiencies are anticipated for decommissioning.

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