LENNAR RESIDENTIAL SUBDIVISION

INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

Lot Line Adjustment
Vesting Tentative Tract No. 934

Initial Study prepared in accordance with Section 15164 of the California Environmental Quality Act (CEQA) Guidelines

Prepared for

City of Hanford
Community Development Department
317 N. Douty Street
Hanford, CA 93230

Prepared by

Precision Civil Engineering, Inc.
1234 O Street
Fresno, CA 93721

November 2021
Recirculated February 2022

PRECISION CIVIL ENGINEERING, INC

Table of Contents

Figures

Tables

NOTE TO READER:

This Initial Study/MND was originally circulated from November 19, 2021, to December 9, 2021, and is being recirculated pursuant to CEQA Guidelines Section 15073.5 RECIRCULATION OF A NEGATIVE DECLARATION PRIOR TO ADOPTION. Per CEQA Guidelines Section 15073.5:

> *(a) A lead agency is required to recirculate a negative declaration when the document must be substantially revised after public notice of its availability has previously been given pursuant to Section 15072, but prior to its adoption. Notice of recirculation shall comply with Section 15072 and 15073.*
>
> *(b) A "substantial revision" of the negative declaration shall mean:*
>
> *(1) A new, avoidable significant effect is identified, and mitigation measures or project revisions must be added in order to reduce the effect of insignificance, or*
>
> *(2) The lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required.*

Since the Initial Study/MND was originally circulated, the lead agency identified new substantial evidence for the evaluation of impacts related to Vehicle Miles Traveled (VMT). As a result, the Traffic Study and VMT Analysis were revised by Peters Engineering Group on January 28, 2022, to utilize the new substantial evidence. It can be concluded that, based upon the new substantial evidence, that the Project's VMT impact will be less than significant thereby changing the impact conclusion from less than significant with mitigation incorporated, to less than significant with no mitigation measures required. Revisions are indicated by red text in Section 4.17 TRANSPORTATION and Section 4.6 ENERGY.

1 INTRODUCTION

Precision Civil Engineering, Inc. (PCE) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of City of Hanford (City) to address the environmental effects of the proposed Lennar Residential Subdivision (Vesting Tentative Tract Map No. 934; Lot Line Adjustment No. 2021-05) (Project). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et. seq. The City of Hanford is the Lead Agency for this proposed Project. The site and the proposed Project are described in detail in Section 2 PROJECT DESCRIPTION.

1.1 Regulatory Information

An Initial Study (IS) is a document prepared by a lead agency to determine whether a project may have a significant effect on the environment. In accordance with California Code of Regulations Title 14 (Chapter 3, Section 15000, et seq.), also known as the CEQA Guidelines, Section 15064 (a)(1) states that an environmental impact report (EIR) must be prepared if there is substantial evidence in light of the whole record that the proposed Project under review may have a significant effect on the environment and should be further analyzed to determine mitigation measures or project alternatives that might avoid or reduce project impacts to less than significant levels. A negative declaration (ND) may be prepared instead if the lead agency finds that there is no substantial evidence in light of the whole record that the project may have a significant effect on the environment. An ND is a written statement describing the reasons why a proposed Project, not otherwise exempt from CEQA, would not have a significant effect on the environment and, therefore, why it would not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a ND or mitigated ND shall be prepared for a project subject to CEQA when either:

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

b. The IS identified potentially significant effects, but:

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

1.2 Document Format

This IS/MND contains five chapters plus appendices. SECTION 1 INTRODUCTION provides bases of the IS/MND's regulatory information and an overview of the proposed Project. SECTION 2 PROJECT DESCRIPTION provides a detailed description of proposed Project components. SECTION 3 DETERMINATION concludes that the Initial Study is a mitigated negative declaration, identifies the environmental factors potentially affected based on the analyses contained in this IS, and includes with the Lead Agency's determination based upon those analyses. SECTION 4 EVALUATION OF ENVIRONMENTAL IMPACTS presents the CEQA checklist and environmental analyses for all impact areas and the mandatory findings of significance. A brief discussion of the reasons why the Project impact is anticipated to be potentially significant, less than significant with mitigation incorporated, less than significant, or why no impacts are expected is included. SECTION 5 MITIGATION MONITORING AND REPORTING PROGRAM presents the mitigation measures recommended in the IS/MND for the Project. The Air Quality/Greenhouse Gas Impact Assessment, Traffic Study and VMT Analysis, and Pre-Consultation Letters are provided as Appendix A, Appendix B, and Appendix C respectively, at the end of this document.

1.3 Pre-consultation Letters Received

- Consultation from Renee Creech with the Hanford Joint Union High School District on July 26, 2021
- Consultation from Chad Curran with Pacific Gas and Electric Company on July 27, 2021
- Consultation from Michael Wilson with AT&T on July 23, 2021
- Consultation from Oscar Gonzalez with Kings Area Rural Transit (KART) on July 29, 2021
- Consultation from the SJVAPCD on August 11, 2021
- Consultation from the Hanford Fire Department on October 14, 2021
- Consultation from the Santa Rosa Rancheria Tachi Yokut Tribe on July 27, 2021

Letters can be provided by the City of Hanford upon request. Contact the Community Development Department at (559) 585-2580 or 317 N Douty Street, Hanford, CA 93230.

2 PROJECT DESCRIPTION

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

2.1 Project Title

Lennar Residential Subdivision (Vesting Tentative Tract Map No. 934; Lot Line Adjustment No. 2021-05)

2.2 Lead Agency Name and Address

City of Hanford
317 N. Douty Street
Hanford, CA 93230

2.3 Contact Person and Phone Number

Lead Agency

Gabrielle de Silva Myers
Senior Planner
(559) 585-2578

Applicant

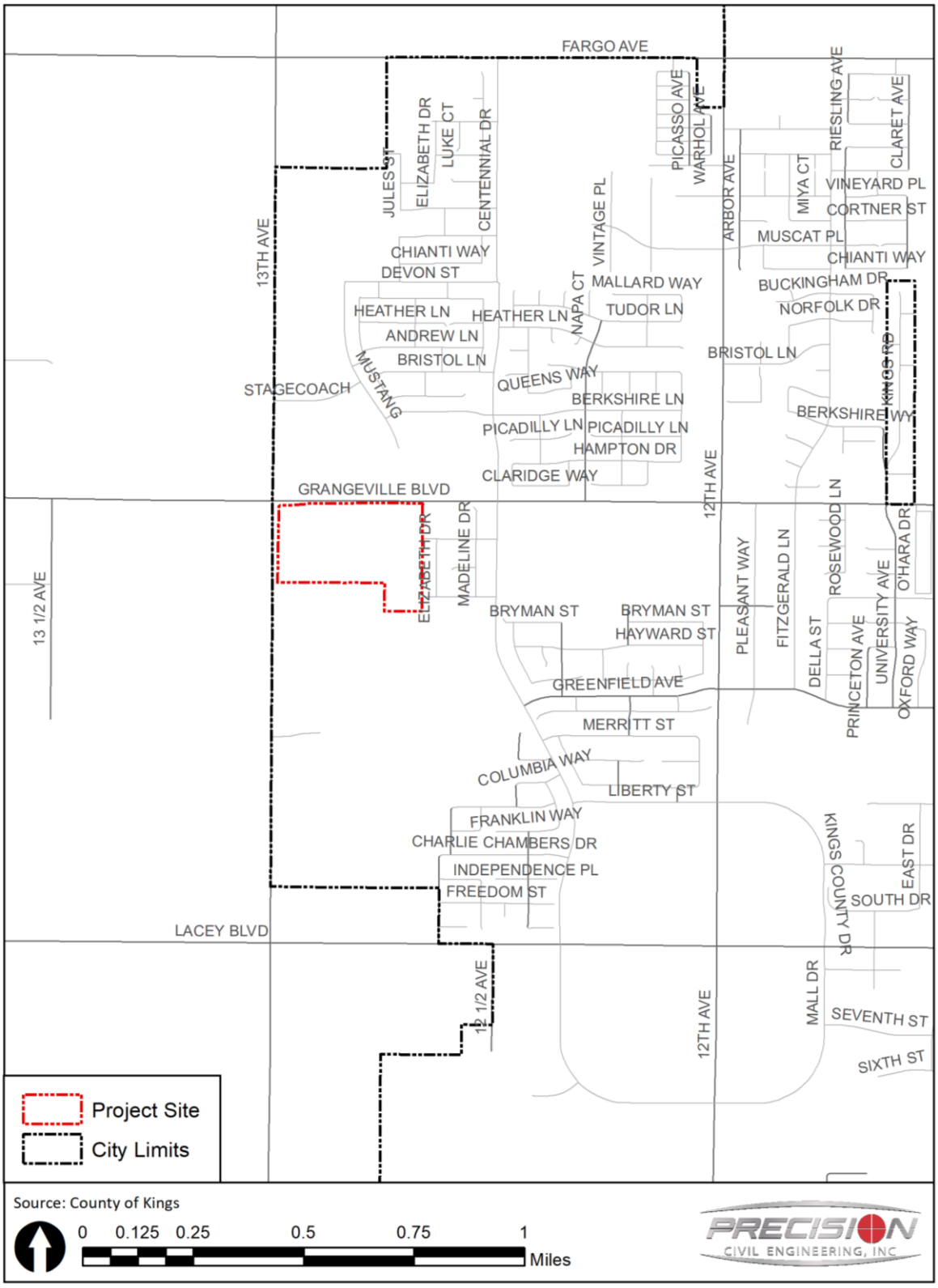
Lennar Homes of California, Inc.
8080 N Palm, Suite #110
Fresno, CA 93711

2.4 Study Prepared By

Precision Civil Engineering
1234 O Street
Fresno, CA 93721

2.5 Project Location

The proposed Project is located in the southeastern area of the city of Hanford, California on the southeast corner of 13th Avenue and Grangeville Boulevard approximately 1.7 miles north of State Route-198 (SR-198) (see Figure 2-1). The site consists of four (4) parcels that total approximately 36.48-acres (gross). The site is identified as APNs 009-050-01, 009-050-02, 009-050-03, and 009-050-04 of Kings County and is a portion of Section 27, Township 18 South, Range 21 East, Mount Diablo Base and Meridian.



CITY OF HANFORD - LENNAR CENTRAL VALLEY PROJECT
INITIAL STUDY

Created: 9/27/2021

Figure 2-1 Project Vicinity Map

2.6 Latitude and Longitude

The centroid of the Project area is 36.34129960049618, -119.68891697174561.

2.7 General Plan Designation

The Project site has a General Plan land use designation of Low Density Residential (Figure 2-2). In accordance with the General Plan, the expected density range for Low Density Residential is two (2) to 10 dwelling units per acre (du/ac), with an expected average of four (4) du/ac. According to the General Plan Land Use ***Policy L31***, the purpose of the Low-Density Residential land use designation is to "*provide mainly single-family development on lot sizes typically found in urban settings.*" ***Policy L32*** states that permitted use include *"Duplexes, second dwelling units, and home occupations can also be allowed when made compatible with the residential nature of the neighborhood."* ***Policy L33*** regulates that the sizes of new individual lots shall range from 5,000 to 10,000 square feet (sf.). The Project would allow for the construction of 161 single-family lots with the density of 4.52 du/ac and a minimum lot size of 5,000 sf., which is consistent with the General Plan.

2.8 Zoning

The Project site is in the R-L-5 Low-Density Residential Zone District (Figure 2-3). The City of Hanford Municipal Code (HMC) allows residential uses, such as single-family dwellings, supportive housing, transitional housing, and residential care facilities, in the R-L-5 zone. Other permitted uses are day cares, park or playgrounds, public schools, and storm drainage basins. The development standards for the R-L-5 Zone District and the dimensions for the proposed Project are outlined in Table 2-1.

Table 2-1 R-L-5 Development Standards

R-L-5 Development Standards			Proposed Project
Lot Area (minimum)		5,000 sf.	5,000 sf. (average: 6,403 sf.)
Lot Dimensions (minimum)			
Lot Frontage		40 feet (ft.)	43 ft.
Lot Width	Interior	50 ft.	50 ft.
	Corner	60 ft.	60 ft.
Lot Depth		90 ft.	99 ft.
Setbacks	front	15 ft.	15 ft.
	rear	15 ft.	15 ft.
	side	5 ft. (interior), 10 ft. (property line)	5 ft. (interior) and 10 ft. (property line)
Distance between structures (minimum)		10 ft.	10 ft.
Maximum Height		35 ft.	35 ft.

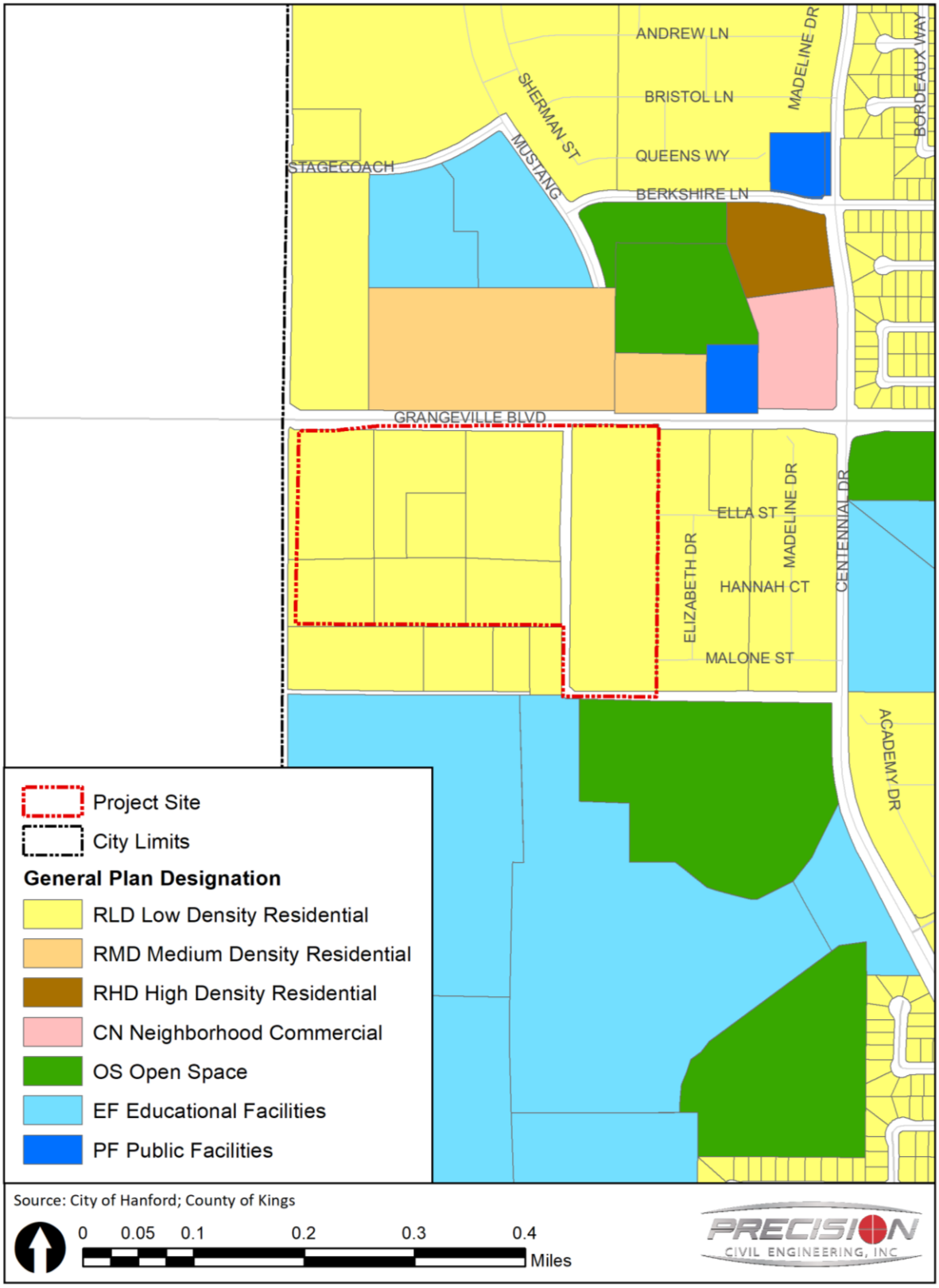
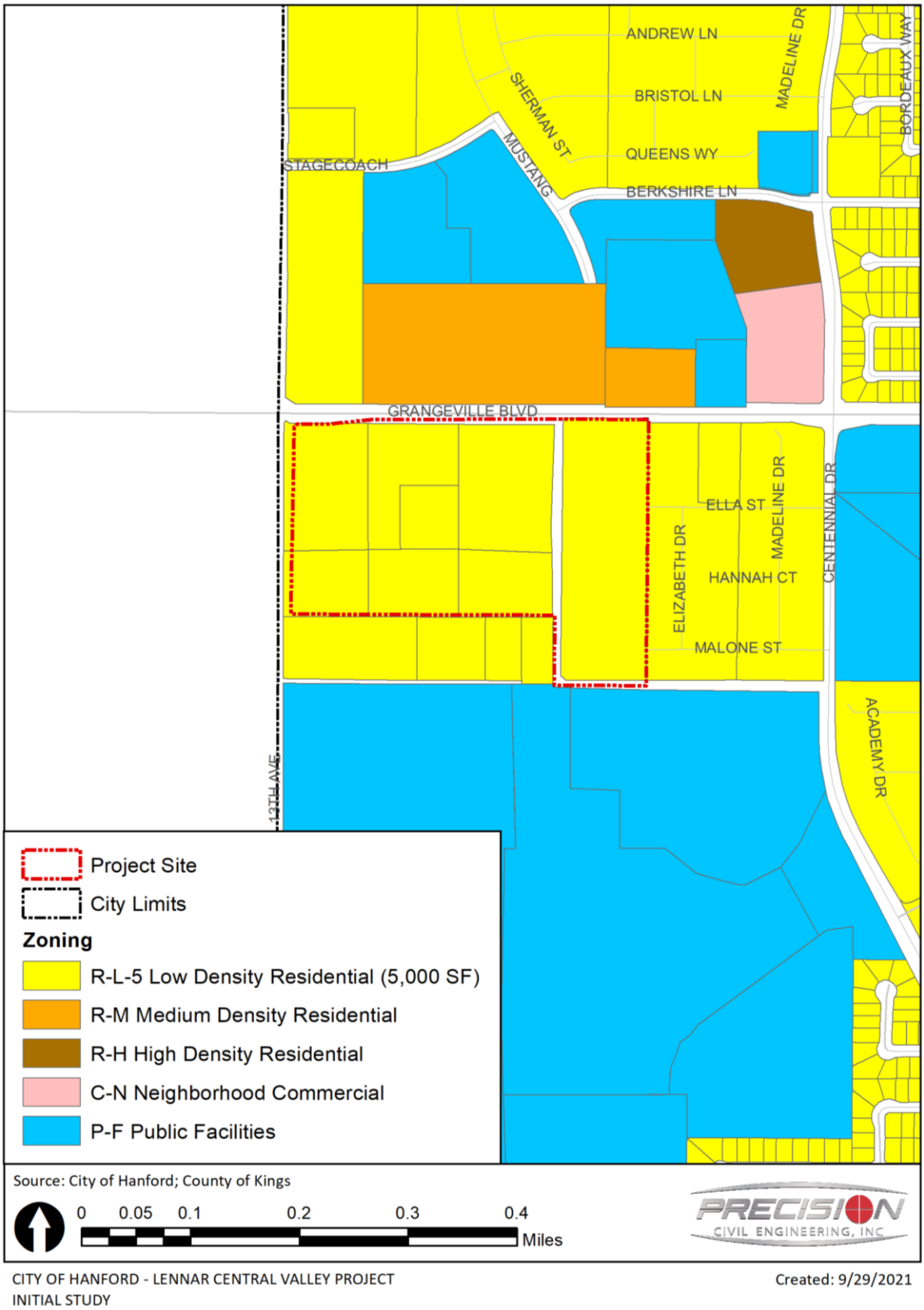


Figure 2-2 General Plan Designated Land Use



CITY OF HANFORD - LENNAR CENTRAL VALLEY PROJECT
INITIAL STUDY

Created: 9/29/2021

Figure 2-3 Current Zoning

2.9 Description of Project

The proposed Project includes a tentative tract map (Vesting Tentative Tract No. 934) and lot line adjustment (Lot Line Adjustment No. 2021-05) to facilitate the development of a residential development in the city of Hanford. The Project would allow for the construction of a residential subdivision that consists of 161 single-family lots (4.52 du/ac) to occupy approximately 36.48-acres located on the southeast corner of 13th Avenue and Grangeville Boulevard in Hanford, CA (APNs 009-050-01, 009-050-02, 009-050-03, and 009-050-04). The minimum proposed lot is 5,000 sf. and the average lot area is 6,403 sf. The Project also proposes a 1.53-acre outlot (Outlot A) for an onsite stormwater drainage basin.

2.10 Site and Surrounding Land Uses and Setting

The existing site contains two (2) single-family residential sites located at 12819 Grangeville Boulevard, Hanford, CA 93230 and 12779 Grangeville Boulevard, Hanford CA 93230. The existing residential sites are to remain and will be excluded from the Project boundary by a lot line adjustment prior to final map approval. Vehicular access to Grangeville Boulevard will be provided for both sites. The Project site also contains buildings and structures associated with the Northstar Veterinary Services Clinic located at 12701 Grangeville Boulevard, Hanford, CA 93230. These structures will be removed as a part of the Project in order to expand the basin (i.e., Outlot A). No street frontage improvements are present (i.e., no curb, gutter, sidewalk, storm drains, or streetlights).

The site is relatively flat with a Nord Complex soil type that is well drained, has medium runoff, with more than 80-inch water table depth. The existing biotic site conditions and resources of the Project site can be defined primarily as agricultural. There are trees, shrubs, and herbaceous vegetation surround and are fully contained within the existing residential sites. There are also several trees along the site's northerly perimeter adjacent to Grangeville Boulevard. These trees are not protected and will be removed.

Historically, the Project site and vicinity have been designated and operated as agricultural land. Grangeville Boulevard, a two (2)-lane east-west arterial forms the northerly Project site boundary and 13th Avenue forms the westerly Project site boundary. As referenced in Table 2-2, the Project site is surrounded by agricultural and/or single-family residential land to the south, east, and west, and vacant land to the north. The properties to the north, south, and east are zoned and planned for residential uses.

Table 2-2 Existing Uses, General Plan Designations, and Zone Districts of Surrounding Properties

Direction from the Project site	Existing Land Use	Planned Land Use	Zone District
North	Vacant	Low Density Residential, Medium Density Residential	R-L-5: Low Density Residential (5,000 sf.), R-M: Medium Density Residential
South	Agriculture and single-family residential	Low Density Residential, Open Space	R-L-5: Low Density Residential (5,000 sf.), P-F: Public Facilities
East	Agriculture and single-family residential	Low Density Residential	R-L-5: Low Density Residential (5,000 sf.)
West	Agriculture	County - Agriculture	County - Agriculture

2.11 Project Entitlements

The Project requires approval of Vesting Tentative Tract Map No. 934 and Lot Line Adjustment No. 2021-05. The Vesting Tentative Tract Map will allow for the subdivision of the site and the lot line adjustment will adjust the property lines of affected parcels (APNs 009-050-01, 02, 03, and 04).

2.12 Site Preparation

Site preparation would include demolition and removal of existing structures related to Northstar Veterinary Services Clinic in addition to trees and crops to accommodate the Project. Site preparation would include typical grading activities to ensure an adequately graded site for drainage purposes. Site preparation would also include minor excavation for the installation of utility infrastructure, for conveyance of water, sewer, stormwater, and irrigation. Site preparation would not affect the two (2) existing residential sites, as those sites will be excluded per the lot line adjustment.

2.13 Project Components

This section describes the overall components of the Project, such as the proposed buildings, landscape, vehicle and pedestrian circulation, and utilities.

Demolition

Existing structures related to Northstar Veterinary Services Clinic in addition to trees and crops would be subject to demolition to accommodate the Project.

Site Layout and Elevations

As shown in Figure 2-4, the Project proposes the construction of 161 single-family lots (4.52 units per acre) to occupy approximately 36.48-acres. The minimum proposed lot is 50-ft. by 100-ft., or 5,000 sf., and the average lot area is 6,403 sf. The Project also proposes one outlot for a stormwater drainage basin.

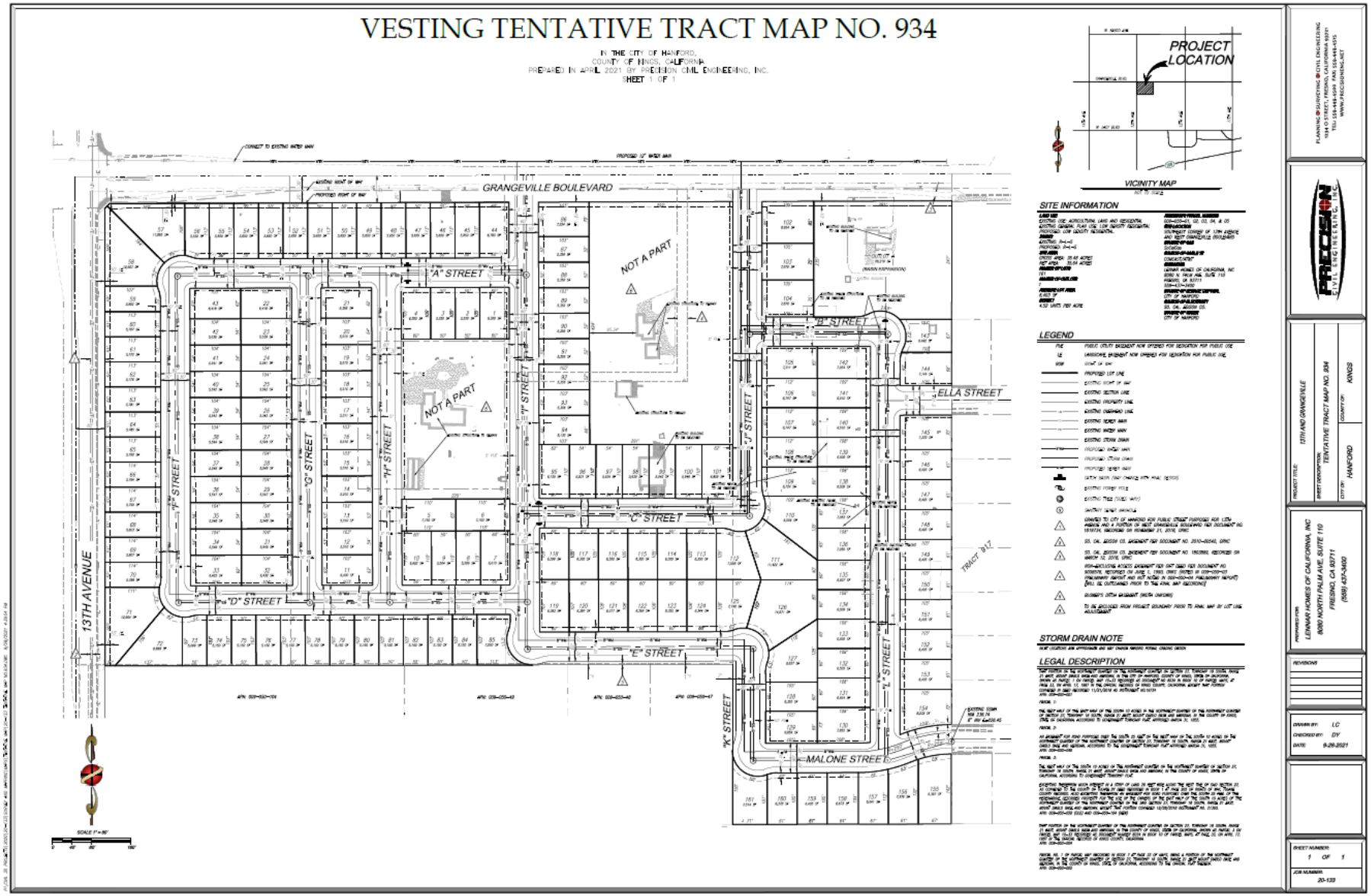


Figure 2-4 Project Site Plan

Site Circulation and Parking

Grangeville Boulevard, a two (2)-lane east-west arterial forms the northerly Project site boundary and 13th Avenue, a two (2)-lane north-south major arterial forms the westerly Project site boundary. The primary access points to the subdivision are proposed on Grangeville Boulevard at "I Street" (future local) and "J Street" (future local). No access is proposed from 13th Avenue. The portions of Grangeville Boulevard and 13th Avenue will be improved with curb, gutter, sidewalk, landscaping, and streetlights. The Project would also be connected to the existing, adjacent residential subdivision to the east by "Ella Street" and "Malone Street" (existing and future locals). Local streets (60-ft. width) contained within the subdivision will include sidewalk, curb, gutter, landscaping, and parking lanes.

Utilities

The Project is subject to provision of utilities and service systems. Utilities for the site would consist of water, sewer, electric, cable, gas, and stormwater infrastructure. The Project would include installation of a 12-inch water main along Grangeville Boulevard to connect to the existing water main in addition to eight (8)-inch water mains and eight (8)-inch sewer mains throughout the subdivision. The Project also proposes a 1.53-acre outlot (Outlot A) for an onsite stormwater drainage basin.

2.14 Required Project Approvals

The City of Hanford requires the following review, permits, and/or approvals for the proposed Project. Other approvals not listed below may be required as identified through the entitlement process. In addition, other agencies may have the authority to issue permits prior to implementation of the Project as listed below.

- Grading Permit
- Encroachment Permit
- Building Permit
- Sign Permit
- San Joaquin Valley Air Pollution Control District
- California Regional Water Quality Control Board

2.15 Technical Studies

The analysis of the Project throughout this Initial Study relied in part on the technical studies listed below prepared for the Project, as well as other sources, including, but not limited to, Draft Environmental Impact Report (EIR) SCH No. 2015041024 prepared for the City of Hanford 2035 General Plan Update.

- **Appendix A:** Air Quality & Greenhouse Gas Impact Assessment prepared by VRPA Technologies, Inc. on September 30, 2021.
- **Appendix B:** Traffic Study and VMT Analysis prepared by Peters Engineering Group. The study and analysis were amended on January 28, 2022.
- **Appendix C:** Pre-Consultation Letters received by the City of Hanford.

A Phase I cultural resources survey for the Project area was conducted by ASM Affiliates on September 14. 2021. The report is confidential and is therefore not provided in this initial study; however, results are incorporated herein.

2.16 Consultation with California Native American Tribes

The State requires lead agencies to consider the potential effects of proposed projects and consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Resources through the California Environmental Quality Act (CEQA) Guidelines. Pursuant to PRC Section 21080.3.1, the lead agency shall begin consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed project. Such significant cultural resources are either sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe which is either on or eligible for inclusion in the California Historic Register or local historic register, or, the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC Section 21074(a)(1-2)). According to the most recent census data, California is home to 109 currently recognized Indian tribes. Tribes in California currently have nearly 100 separate reservations or Rancherias

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

Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality.

The City of Hanford conducted tribal consultation pursuant to AB 52 and SB 18. In response, the City received pre-consultation from the Santa Rosa Rancheria Tachi Yokut Tribe. The Tribe requested that an archeological survey be conducted in addition to a California Historical Resources Information System (CHRIS) search and Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). In addition, the Tribe has requested the following Mitigation Measures (MM) to be incorporated with the proposed Project:

> *MM CR-1. If cultural resources are discovered during construction or related activities, all work shall be halted and a qualified archeologist and the City of Hanford shall be notified. The find shall be properly investigated and appropriate measures shall be taken before construction may continue.*
>
> *MM CR-2. Prior to ground disturbing activities, construction staff shall receive a cultural presentation by the Santa Rosa Rancheria regarding cultural resources and laws and regulations for the discovery of cultural resources and human remains.*
>
> *MM CR-3. A Native American monitor shall be present for ground disturbing activities.*
>
> *MM CR-4. A Burial Treatment Plan shall be signed by the applicant/property owner prior to any earth disturbing activities.*
>
> *MM CR-5. A curation agreement shall be signed with the Santa Rosa Rancheria.*

3 DETERMINATION

3.1 Environmental Factors Potentially Affected

As indicated by the discussions of existing and baseline conditions, and impact analyses that follow in this Chapter, environmental factors not checked below would have no impacts or less than significant impacts resulting from the project. Environmental factors that are checked below would have potentially significant impacts resulting from the project. Mitigation measures are recommended for each of the potentially significant impacts that would reduce the impact to less than significant.

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

The analyses of environmental impacts in SECTION 4 EVALUATION OF ENVIRONMENTAL IMPACTS result in an impact statement, which shall have the following meanings.

Potentially Significant Impact. This category is applicable if there is substantial evidence that an effect may be significant, and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

Less than Significant with Mitigation Incorporated. This category applies where the incorporation of mitigation measures would reduce an effect from a "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

Less Than Significant Impact. This category is identified when the proposed Project would result in impacts below the threshold of significance, and no mitigation measures are required.

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

3.2 Determination

The environmental analysis contained in the Initial Study and Mitigated Negative Declaration was prepared for the Lennar Residential Subdivision (Vesting Tentative Tract Map No. 934; Lot Line Adjustment No. 2021-05), in accordance with the California Environmental Quality Act (CEQA), CEQA Guidelines, and the City of Hanford Municipal Code. The IS/MND is tiered from the 2035 General Plan Update Program Level Environmental Impact Report (EIR) (SCH No. 2015041024), certified by the City Council on April 18, 2017, for which Statement of Overriding Considerations was adopted for Agriculture and Forestry Resources (program and cumulative), Air Quality (cumulative), Biological Resources (program and cumulative), Cultural Resources (program and cumulative), Greenhouse Gases (cumulative), and Population and Housing (program and cumulative) for the EIR.

Pursuant to Public Resources Code Section 21157.1 and California Environmental Quality Act (CEQA) Guidelines Section 15177, this Project has been evaluated with respect to each item on the attached environmental checklist to determine whether this project may cause any additional significant effect on the environment which was not previously examined in the 2035 General Plan Update EIR. After conducting a review of the adequacy of the 2035 General Plan Update EIR pursuant to Public Resources Code, Section 21157.6(b)(1), the City of Hanford Community Development Department, as Lead Agency, finds that no substantial changes have occurred with respect to the circumstances under which the EIR was certified and that no new information, which was not known and could not have been known at the time that the EIR was certified as complete, has become available.

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

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

Based upon the evaluation guided by the environmental checklist form, it was determined that there are no foreseeable impacts from the Project that are additional to those identified in the 2035 General Plan Update EIR, and/or impacts which require mitigation measures not included in the EIR Mitigation Monitoring and Reporting Program. The completed environmental checklist form indicates whether an impact is potentially significant, less than significant with mitigation, or less than significant.

For some categories of potential impacts, the checklist may indicate that a specific adverse environmental effect has been identified which is of sufficient magnitude to be of concern. Such an effect may be inherent in the nature and magnitude of the Project or may be related to the design and characteristics of the individual project. Effects so rated are not sufficient in themselves to require the preparation of an EIR and have been mitigated to the extent feasible. With the Project-specific mitigation imposed, there is no substantial evidence in the record that this Project may have additional significant, direct, indirect or cumulative effects on the environment that are significant and that were not identified and analyzed in the 2035 General Plan Update EIR. Both the EIR Mitigation Monitoring and Reporting Program and the Project-specific Mitigation Monitoring and Reporting Program will be imposed on this Project.

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

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

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

■ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An EIR is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Approved By:

Mary E Beatie 2/2/22

Mary E. Beatie, Interim Director — Date

City of Hanford, Community Development Department

4 EVALUATION OF ENVIRONMENTAL IMPACTS

4.1 AESTHETICS

	Except as provided in Public Resources Code Section 21099, **would the project:**	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Have a substantial adverse effect on a scenic vista?				X
b)	Substantially damage scenic resources, including, but not limited to, trees, rock out-croppings, and historic buildings within a state scenic highway?				X
c)	In non-urbanized areas, substantially degrade the existing visual character or quality public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

4.1.1 Environmental Setting

The city of Hanford is located within Kings County in the San Joaquin Valley in central California in an area that can be characterized as urban agricultural. The city is predominately flat with minimal natural watercourses; no scenic vistas are identified by the Hanford General Plan. The Project site is in the northwestern area of the city of Hanford, situated on the southeast corner of Grangeville Boulevard and 13th Avenue approximately 1.7 miles north of SR-198. According to the California Scenic Highway Mapping System, there are no adopted or eligible state scenic highways within the city of Hanford. The nearest eligible state scenic highway is a portion of SR-198, which is approximately 15.5-miles southeast of the Project site. [1]

In general, the Project site is within an area of the city that is predominately characterized by residential, educational, and recreational development. The property to the east of the Project site is developed with an existing single-family residential subdivision that would be connected to the proposed Project by two (2) local streets. In addition, the property to the north of the Project site across Grangeville Boulevard is currently undergoing construction to develop a single-family residential subdivision. Regarding educational development, Sierra Pacific High School and the College of the Sequoias are located to the south of the Project site and Frontier Elementary is located to the north. Silver Oaks Park and Hanford Sports Complex and are located less than a quarter mile to the north and south of the site, respectively. As a result, the area is characterized by a mix of development types and uses, as well as typical infrastructure, such as roadways, streetlights, parking lot lights, and ambient light sources typical of residential development.

4.1.2 Impact Assessment

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

No Impact. The Hanford General Plan does not identify or designate scenic vistas within the City or Sphere of Influence. In addition, the Project site does not contain any visual features or historic resources as identified in the General Plan. As a result, the Project would not adversely affect scenic vistas and no impact would occur as a result of the Project.

[1] Caltrans. California State Scenic Highway System Map. Accessed on October 1, 2021, https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa

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

No Impact. According to the California State Scenic Highway Program, there are no officially designated State Scenic Highways in the city of Hanford. The closest eligible scenic highway is a portion of SR-198 that is approximately 15.5 miles from the Project site. As such, the proposed Project would not damage scenic resources, including trees, rock out-croppings, and historic buildings within a state scenic highway and no impact would occur as a result of the Project.

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

Less than Significant Impact. The Project site is within an area of the city that can be considered urbanized. The area generally comprises residential, educational, and recreational development with infrastructure, such as roadways, streetlights, parking lot lights, and ambient light sources typical of such development. The Project proposes a single-family residential development within the R-L-5 Zone District and would thereby be required to comply with the design requirements contained in *Chapter 17.10 Low Density Residential* Zones of the HMC. Through compliance with the applicable zoning and other regulations governing scenic quality, the Project would result in a less than significant impact.

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

Less than Significant Impact. Generally, lighting impacts are associated with artificial lighting in evening hours either through interior lighting from windows or exterior lighting (e.g., street lighting, parking lot lighting, landscape lighting, cars, and trucks). Development of the Project site would incrementally increase the amount of light from streetlights, exterior lighting, and vehicular headlights in addition to light and glare from construction activities. Such sources could create adverse effects on day or nighttime views in the area. As such, the Project would be required to comply with *Section 17.50.140 – Outdoor Lighting Standards* of the HMC, which contain specific, enforceable requirements and/or restrictions intended to prevent light and glare impacts:

Hanford Municipal Code – Section 17.50.140 Outdoor Lighting Standards

D. General Outdoor Lighting Standards. The following requirements and standards shall apply in all zone districts for the installation and use of outdoor lighting fixtures.

1.All lights and light fixtures, except public street lights, shall be located, aimed or shielded so as to minimize light trespassing across property boundaries or skyward.

2.No lights or light fixtures shall flash, revolve, blink or otherwise resemble a traffic control signal or operate in such a fashion to create a hazard for passing traffic.

3.Building mounted lighting fixtures shall be attached only to the walls of the building. The top of a light fixture attached to a building wall shall not be higher than the top of the building parapet or the top of the roof eave, whichever is lower.

4.Canopy ceiling light fixtures shall be recessed or the sides of the lens area shall be shielded in order to eliminate emission of horizontal light.

5.The height of freestanding light fixtures including freestanding parking lot fixtures shall be measured from the top of a light fixture to the adjacent grade at the base of the support for that light fixture and shall not exceed the following:

a. Eighteen (18) feet in height, when located within fifty (50) feet of any residential zone district; and

b. Twenty-five (25) feet in height when located within fifty-one (51) to one hundred fifty (150) feet of any residential zone district; and

c. Thirty (30) feet in height when located more than one hundred fifty (150) feet from any residential zone district; and

d. Fifty (50) feet in height when located in the RC regional commercial zone or freestanding light fixtures for public outdoor recreational facilities.

E. Specific Outdoor Lighting Standards. In addition to the general outdoor lighting standards stated in subsection D, the following additional requirements shall apply to outdoor lighting fixtures in the R-L, R-M, R-H, and OR zone districts:

1. Mercury vapor lamps shall be a fully shielded fixture with all light directed on-site.

2. Freestanding light fixtures, including freestanding parking lot light fixtures, shall not exceed eighteen (18) feet in height measured from the top of a light fixture to the adjacent grade at the base of the support for that light fixture.

In addition, the Project would be subject to compliance with Title 24 – Residential Lighting Design Guide which would reduce impacts related to nighttime light. The lighting design guide covers outdoor spaces including regulations for mounted luminaires (i.e., high efficacy, motion sensor controlled, time clocks, energy management control systems, etc.). As such, conditions imposed on the Project by the City of Hanford pursuant to the HMC and Title 24 would reduce light and glare impacts to a less than significant impact.

4.1.3 Mitigation Measures

None required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?		X		
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d)	Result in the loss of forest land or conversion of forest land to non-forest use?				X
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?			X	

4.2.1 Environmental Setting

The Project site is located within the city limits of Hanford. The existing land use of the subject site is agriculture; however, the site is planned for low-density residential uses and is within the R-L-5 Low Density Residential Zone District. The site does not contain forestry resources such as forest land or timberland.

Farmland Monitoring and Mapping Program

The California Department of Conservation manages the Farmland Mapping and Monitoring Program (FMMP) that provides maps and data for analyzing land use impacts to farmland. The FMMP produces the Important Farmland Finder as a resource map that shows quality (soils) and land use information. Agricultural land is rated according to soil quality and irrigation status, in addition to many other physical and chemical characteristics. The highest quality land is called "Prime Farmland" which is defined by the FMMP as *"farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date."* According to the FMMP, California Important Farmland Finder, the Project site is categorized as Prime Farmland, Semi-Agricultural and Rural Commercial Land, and Rural Residential Land. [2]

Hanford General Plan

The Hanford 2035 General Plan EIR, adopted April 15, 2017, contemplated the conversion of farmland within the Hanford Planning Area, inclusive of the Project site, to non-agricultural uses and determined the impact to be significant and unavoidable, with no feasible mitigation measures available. A Statement of Overriding Considerations was adopted for the significant and unavoidable impact to Agriculture, demonstrating that the environmental impacts are "acceptable" due to the project benefits and considerations.[3]

[2] California Department of Conservation. (2018). California Important Farmland Finder. Accessed on October 1, 2021, https://maps.conservation.ca.gov/DLRP/CIFF/

[3] Council of the City of Hanford. (2017). Resolution of the certifying environmental impact report SCH no. SCH No. 2015041024. Statement of Overriding Considerations.

California Land Conservation Act

The California Land Conservation Act of 1965 (i.e., the Williamson Act) allows local governments to enter contracts with private landowners to restrict parcels of land agricultural or open space uses. In return, property tax assessments of the restricted parcels are lower than full market value. The Project site is not subject to the Williamson Act Contract.

4.2.2 Impact Assessment

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Less than Significant Impact with Mitigation Incorporated. The Project site is currently used for agricultural operations and is partially designated as "Prime Farmland" according to the FMMP. Thus, the Project would result in the conversion of prime farmlands to non-agricultural use. However, the General Plan EIR analyzed impacts of urban growth on agricultural land, including the conversion of the Project site to low-density residential uses, and found impacts to be significant and unavoidable. Based on this finding, the City issued and adopted a Statement of Overriding Considerations. However, because the Project would result in the conversion of farmland and is within one (1)-mile of the city limits, the Project shall be subject to comply with *Mitigation Measure (MM) AG-1* to offset any potential impacts. With mitigation incorporated, the Project's impacts would be reduced to less than significant.

> *MM AG-1. The Project shall comply with HMC Section 16.40.110 Right to Farm, sub-section (E) Disclosure and Recordation Requirements, "all approvals for improvement or development of property including without limitation application for rezonings, land divisions, zoning permits, and residential building permits, on property in the city of Hanford within one (1) mile of the city's urban limit line, shall include a condition that notice and disclosure of this agricultural land use policy be given by the applicant, or the owner if different from the applicant. The applicant, or owner if different from the applicant, shall also acknowledge the contents of the notice and disclosure, which includes a description of the property the notice and disclosure pertains to, in the Official Records of the Kings County Recorder, and recorded at the applicant's own expense." The Hanford Community Development Department is responsible for carrying out the notice, disclosure, and recordation required by the HMC.*

b) *In accordance with the General Plan EIR, the Project is subject to compliance with Conflict with existing zoning for agricultural use or a Williamson Act contract?*

No Impact. The Project site is not zoned for or located within an area zoned for agricultural uses and is not under Williamson Act contract. Thus, the Project would result in no impact.

c) *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*

No Impact. The Project site is not zoned for forestry or timberland uses and does not contain forestry or timberland uses. As a result, the Project would have no impact.

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

No Impact. The Project site does not contain forest land or timberland. As a result, the Project would have no impact.

e) *Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?*

Less than Significant impact. The Project site is within the city limits of Hanford and is within an area planned and zoned for residential uses. There is no forest land within the Project site or area. The conversion of the Project site and surrounding properties from farmland to non-agricultural was anticipated by and previously analyzed through the General Plan EIR. As discussed under criterion a) above, the City issued a Statement of Overriding Considerations and incorporated MM Agriculture 1 for impacts to agricultural lands. Compliance with MM Agriculture 1 would reduce the Project's impact to less than significant.

4.2.3 Mitigation Measures

The proposed Project shall implement and incorporate, as applicable, the Agricultural Resources related mitigation measures as identified in the Mitigation Monitoring and Reporting Program dated October 18, 2021, including the mitigation measure identified above.

4.3 AIR QUALITY

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan (e.g., by having potential emissions of regulated criterion pollutants which exceed the San Joaquin Valley Air Pollution Control Districts (SJVAPCD) adopted thresholds for these pollutants)?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

4.3.1 Environmental Setting

An Air Quality and Greenhouse Gas Impact Assessment was prepared for the Project by VRPA Technologies, Inc. on September 30, 2021. The report and supporting tables are provided in Appendix A. The environmental setting, methodology, and assessment are incorporated herein.

This section describes existing air quality within the San Joaquin Valley Air Basin and in Kings County, including the identification of air pollutant standards, meteorological and topological conditions affecting air quality, and current air quality conditions. Air quality is described in relation to ambient air quality standards for criteria pollutants such as, ozone, carbon monoxide, and particulate matter. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas.

Geographical Location

The SJVAB is comprised of eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Encompassing 24,840 square miles, the San Joaquin Valley is the second largest air basin in California. Cumulatively, counties within the Air Basin represent approximately 16 percent of the State's geographic area. The Air Basin is bordered by the Sierra Nevada Mountains on the east (8,000 to 14,492 feet in elevation), the Coastal Range on the west (4,500 feet in elevation), and the Tehachapi Mountains on the south (9,000 feet elevation). The San Joaquin Valley is open to the north extending to the Sacramento Valley Air Basin.

Topographic Conditions

Kings County is located within the San Joaquin Valley Air Basin [as determined by the California Air Resources Board (CARB)]. Air basins are geographic areas sharing a common "air shed." A description of the Air Basin in the County, as designated by CARB, is provided in the paragraph below. Air pollution is directly related to the region's topographic features, which impact air movement within the Basin.

Wind patterns within the SJVAB result from marine air that generally flows into the Basin from the San Joaquin River Delta. The Coastal Range hinders wind access into the Valley from the west, the Tehachapi's prevent southerly passage of airflow, and the high Sierra Nevada Mountain Range provides a significant barrier to the east. These topographic features result in weak airflow that becomes restricted vertically by high barometric pressure over the Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500-3,000 feet).

Climate Conditions

Hanford is located in one of the most polluted air basins in the country. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Hanford is characterized by warm, dry summers and cool winters with significant Tule fog.

Ozone, classified as a "regional" pollutant, often afflicts areas downwind of the original source of precursor emissions. Ozone can be easily transported by winds from a source area. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas before concentrations peak. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions.

Other primary pollutants, carbon monoxide (CO), for example, may form high concentrations when wind speed is low. During the winter, Hanford experiences cold temperatures and calm conditions that increase the likelihood of a climate conducive to high CO concentrations.

Precipitation and fog tend to reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water-soluble, so precipitation and fog tends to "reduce" CO concentrations in the atmosphere. PM10 is somewhat "washed" from the atmosphere with precipitation. Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high-pressure belt located off the Pacific coast. In the winter, this high- pressure system moves southward, allowing Pacific storms to move through the San Joaquin Valley. These storms bring in moist, maritime air that produces considerable precipitation on the western, upslope side of the Coast Ranges. Significant precipitation also occurs on the western side of the Sierra Nevada. On the valley floor, however, there is some down slope flow from the Coast Ranges and the resultant evaporation of moisture from associated warming results in a minimum of precipitation. Nevertheless, the majority of the precipitation falling in the San Joaquin Valley is produced by those storms during the winter. Precipitation during the summer months is in the form of convective rain showers and is rare. It is usually associated with an influx of moisture into the San Joaquin Valley through the San Francisco area during an anomalous flow pattern in the lower layers of the atmosphere. Although the hourly rates of precipitation from these storms may be high, their rarity keeps monthly totals low.

Precipitation on the San Joaquin Valley floor and in the Sierra Nevada decreases from north to south. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center, receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. This is primarily because the Pacific storm track often passes through the northern part of the state while the southern part of the state remains protected by the Pacific High. Precipitation in the San Joaquin Valley Air Basin (SJVAB) is confined primarily to the winter months with some also occurring in late summer and fall. Average annual rainfall for the entire San Joaquin Valley is approximately 5 to 16 inches. Snowstorms, hailstorms, and ice storms occur infrequently in the San Joaquin Valley and severe occurrences of any of these are very rare.

The winds and unstable air conditions experienced during the passage of storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong low-level temperature inversions and very stable air conditions. This situation leads to the San Joaquin Valley's famous Tule Fogs. The formation of natural fog is caused by local cooling of the atmosphere until it is saturated (dew point temperature). This type of fog, known as radiation fog is more likely to occur inland. Cooling may also be accomplished by heat radiation losses or by

horizontal movement of a mass of air over a colder surface. This second type of fog, known as advection fog, generally occurs along the coast.

Conditions favorable to fog formation are also conditions favorable to high concentrations of CO and PM10. Ozone levels are low during these periods because of the lack of sunlight to drive the photochemical reaction. Maximum CO concentrations tend to occur on clear, cold nights when a strong surface inversion is present and large numbers of fireplaces are in use. A secondary peak in CO concentrations occurs during morning commute hours when a large number of motorists are on the road and the surface inversion has not yet broken.

The water droplets in fog, however, can act as a sink for CO and nitrogen oxides (NOx), lowering pollutant concentrations. At the same time, fog could help in the formation of secondary particulates such as ammonium sulfate. These secondary particulates are believed to be a significant contributor of winter season violations of the PM10 and PM2.5 standards.

Anthropogenic (Man-Made) Sources

In addition to climatic conditions (wind, lack of rain, etc.), air pollution can be caused by anthropogenic or man-made sources. Air pollution in the SJVAB can be directly attributed to human activities, which cause air pollutant emissions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, agriculture, and other socioeconomic activities. The most significant factors, which are accelerating the decline of air quality in the SJVAB, are the Valley's rapid population growth and its associated increases in traffic, urbanization, and industrial activity.

Carbon monoxide emissions overwhelmingly come from mobile sources in the San Joaquin Valley; on-road vehicles contributed 34 percent, while other mobile vehicles, such as trains, planes, and off-road vehicles, contribute another 20 percent in 2012 according to emission projections from the CARB. Motor vehicles account for significant portions of regional gaseous and particulate emissions. Local large employers such as industrial plants can also generate substantial regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Ozone is the result of a photochemical reaction between Oxides of nitrogen (NOx) and Reactive Organic Gases (ROG). Mobile sources contribute 84 percent of all NOx emitted from anthropogenic sources based on data provided in Appendix B of the Air District's 2016 Ozone Plan. In addition, mobile sources contribute 26 percent of all the ROG emitted from sources within the San Joaquin Valley.

The principal factors that affect air quality in and around Hanford are:

1. The sink effect, climatic subsidence and temperature inversions and low wind speeds
2. Automobile and truck travel
3. Increases in mobile and stationary pollutants generated by local urban growth

Automobiles, trucks, buses and other vehicles using hydrocarbon (HC) fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters; animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Kings County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities. Finally, industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Kings County consist of agricultural production and processing operations.

The primary contributors of PM10 emissions in the San Joaquin Valley are farming activities (22%) and road dust, both paved and unpaved (35%) in 2020 according to emission projections from the CARB. Fugitive windblown dust from "open" fields contributed 14 percent of the PM10.

The four major sources of air pollutant emissions in the SJVAB include industrial plants, motor vehicles, construction activities, and agricultural activities. Industrial plants account for significant portions of regional gaseous and particulate emissions. Motor vehicles, including those from large employers, generate substantial regional gaseous and particulate emissions. Finally, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.). In addition to these primary sources of air pollution, urban areas upwind from Kings County including areas north and west of the San Joaquin Valley, can cause or generate emissions that are transported into Kings County. All four of the major pollutant sources affect ambient air quality throughout the Air Basin.

Consultation Received: Consultation was received from the SJVAPCD on August 11, 2021. The District offers comments regarding

1) Project Related Criteria Pollutant Emissions
2) Voluntary Emission Reduction Agreement
3) Health Risk Screening/Assessment
4) Ambient Air Quality Analysis

5) Vegetation Barriers and Urban Greening
6) Solar Deployment in the Community
7) Clean Lawn and Garden Equipment in the Community
8) Electric Vehicle Charger
9) District Rules and Regulations

Project related criteria pollutant emissions are addressed in the following assessment.

4.3.2 Impact Assessment

Thresholds of Significance

The impact assessment for air quality focuses on potential effects the Project might have on air quality within the Hanford region. The SJVAPCD has established thresholds of significance for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to the activities that will occur indefinitely as a result of Project operations. Impacts will be evaluated both on the basis of CEQA Appendix G criteria and SJVAPCD significance criteria. The impacts to be evaluated will be those involving construction and operational emissions of criteria pollutants. The SJVAPCD has established thresholds for certain pollutants shown in Table 6.

Table 6
SJVAPCD Air Quality Thresholds of Significance

Project Type	Ozone Precursor Emissions (tons/year)					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions	100	10	10	27	15	15
Operational Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operational Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD 2020

CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA and NEPA documents, pre-project planning, compliance with local air quality rules and regulations, etc.

Short-Term Impacts

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust and exhaust pollutants generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture. Exhaust pollutants are the non-useable gaseous waste products produced during the combustion process. Engine exhaust contains CO, HC, and NOx pollutants which are harmful to the environment.

Adverse effects of construction activities cause increased dust-fall and locally elevated levels of total suspended particulate. Dust-fall can be a nuisance to neighboring properties or previously completed developments surrounding or within the Project area and may require frequent washing during the construction period.

PM10 emissions can result from construction activities of the Project. The SJVAPCD has determined that compliance with Regulation VIII and other control measures will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than significant for most development projects. Even with implementation of District Regulation VIII and District Rule 9510, large development projects may not be able to reduce project specific construction impacts below District thresholds of significance.

Ozone precursor emissions are also an impact of construction activities and can be quantified through calculations. Numerous variables factored into estimating total construction emission include: level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and amount of materials to be transported onsite or offsite. Additional exhaust emissions would be associated with the transport of workers and materials. Because the specific mix of construction equipment is not presently known for this Project, construction emissions were estimated using CalEEMod Model defaults for construction equipment.

Table 7 shows the CalEEMod estimated construction emissions that would be generated from construction of the Project. Results of the analysis show that emissions generated from construction of the Project will not exceed the SJVAPCD emission thresholds.

Table 7
Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Construction Emissions (tons)	2.81	3.09	2.79	0.01	0.66	0.34	497.88
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

Long-Term Emissions

Long-Term emissions from the Project would be generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment.

Localized Operational Emissions – Ozone/Particulate Matter

Significance criteria have been established for criteria pollutant emissions as documented in Section 3.1. Operational emissions have been estimated for the Project using the CalEEMod Model and detailed results are included in Appendix A.

Results of the CalEEMod analysis are shown in Table 8. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants.

Table 8
Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Opeational Emissions	7.89	1.63	2.17	0.02	1.66	0.47	2063.63
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

As noted previously, the Project will be subject to the SJVAPCD's Regulation VIII-Fugitive PM10 Prohibitions. Regulation VIII is comprised of District Rules 8011 through 8081, which are designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including

construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc.

Localized Operational Emissions – Carbon Monoxide

The SJVAPCD is currently in unclassified/attainment for Federal standards and attainment for State standards for CO. An analysis of localized CO concentrations is typically warranted to ensure that standards are maintained. Segment counts in the immediate vicinity of the Project site along 13th Avenue and Grangeville Boulevard were obtained from the City of Hanford traffic counts which are typically updated every three years. Daily traffic counts along 13th Avenue and Grangeville Boulevard (see appendices) were adjusted to reflect 2021 and 2042 traffic and conditions. Adjusted counts were then compared to the Modified HCM-Based Level of Service (LOS) Tables (Florida Tables). Results of this analysis demonstrates that adjacent roadway segment will operate at LOS 'D' or better through the Year 2042. As a result, the overall CO concentrations at roadways and intersections in the study area would be less than significant.

Localized Operational Emissions – Toxic Air Contaminants (TAC)

The SJVAPCD's Guidance Document, Guidance for Assessing and Mitigating Air Quality Impacts – 2015, identifies the need for projects to analyze the potential for adverse air quality impacts to sensitive receptors. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the proposed Project is a Type B project in that it may potentially place sensitive receptors in the vicinity of existing sources. Type A projects would potentially place new toxic sources in the vicinity of existing receptors. Considering the components of the Project and the Source Categories provided in Table 4, the proposed Project is not a Type A project and would not place new toxic sources in the vicinity of existing sources.

TABLE 4
Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

SOURCE CATEGORY	ADVISORY RECOMMENDATIONS
Freeways and High-Traffic Roads [1]	- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). - Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. - Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	- Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. - Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	- Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

1: The recommendation to avoid siting new sensitive land uses within 500 feet of a freeway was identified in CARB's Air Quality and Land Use Handbook published in 2005. CARB recently published a technical advisory to the Air Quality and Land Use Handbook indicating that new research has demonstrated promising strategies to reduce pollution exposure along transportation corridors.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Since the Project is not located within the recommended buffer distances associated with the sources found in Table 4, a health risk assessment is not needed at this time. As noted above, the proposed Project is not a Type A project and would not place new toxic sources in the vicinity of existing sources.

Localized Operational Emissions – Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation,

anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact.

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The Project will not generate odorous emissions given the nature or characteristics of the Project. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant.

Localized Operational Emissions – Naturally Occurring Abestos (NOA)

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Construction of the Project may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust

Control Plan under the SJVAPCD's Rule 8021. Compliance with Rule 8021 would limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities associated with the Project.

Indirect Source Review

The Project is subject to the SJVAPCD's ISR program, which is also known as Rule 9510. Rule 9510 and the Administrative ISR Fee Rule (Rule 3180) are the result of state requirements outlined in the California Health and Safety Code, Section 40604 and the State Implementation Plan (SIP). The purpose of the SJVAPCD's ISR program is to reduce emissions of NOx and PM10 from new projects. In general, new development contributes to the air-pollution problem in the Valley by increasing the number of vehicles and vehicle miles traveled.

Utilizing the ISR Fee Estimator calculator available on the SJVAPCD website, it was determined that the Project's total cost for emission reductions is $126,272.64 without implementation of emission reduction measures. The ISR Fee Estimator worksheets are included in the appendices. The fee noted above may be reduced dependent upon the formal ISR review process.

a) ***Would the project conflict with or obstruct implementation of the applicable air quality plan (e.g., by having potential emissions of regulated criterion pollutants which exceed the San Joaquin Valley Air Pollution Control Districts (SJVAPCD) adopted thresholds for these pollutants)?***

Less than Significant Impact. The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. KCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Hanford 2035 General Plan. The Project is consistent with the currently adopted General Plan for the City of Hanford and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is

consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant Impact. The Kings County area is nonattainment for Federal and State air quality standards for ozone, in attainment of Federal standards and nonattainment for State standards for PM10, and nonattainment for Federal and State standards for PM2.5. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in Section 4.1.1, the Project is consistent with the currently adopted General Plan for the City of Hanford and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2016 and 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project is not characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

As discussed above, results of the analysis show that emissions generated from construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, no mitigation is needed.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the Project is a Type B Project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. As noted above, the proposed Project is not a Type A project and would not place new toxic sources in the vicinity of existing sources. Therefore, the Project will not expose sensitive receptors to substantial pollutant concentrations and any impacts would be less than significant.

Short-Term Impacts

The annual emissions from the construction phase of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown in Table 7. Therefore, construction emissions associated with the Project are considered less than significant.

Long-Term Impacts

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Table 8 summarizes the Project's operational impacts by pollutant. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants. Therefore, operational emissions associated with the Project are considered less than significant.

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

Less than Significant Impact. The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of

facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. The Project will not generate odorous emissions given the nature or characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

4.3.3 Mitigation Measures

The proposed Project shall implement and incorporate, as applicable, the Air Quality related mitigation measures as identified in the Mitigation Monitoring and Reporting Program dated October 18, 2021.

4.4 BIOLOGICAL RESOURCES

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				X
c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X

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

4.4.1 Environmental Setting

Historically, the Project site and vicinity have been designated and operated as agricultural land. In addition, the site contains existing residential and commercial structures. Therefore, the site has been highly disturbed as a result of periodic grading, disking, and residential, commercial, and agricultural activity. The existing biotic site conditions and resources of the Project site can be defined primarily as agricultural. There are trees, shrubs, and herbaceous vegetation surround and are fully contained within the existing residential sites. There are also several eucalyptus trees along the site's northerly perimeter adjacent to Grangeville Boulevard. These trees are not protected and will be removed. There are no water features on site. Lastly, the site is relatively flat with a Nord Complex soil type that is well drained, has medium runoff, with more than 80-inch water table depth.

U.S. Fish and Wildlife – Special-Status Species Database

The Project site is located in Kings County. The U.S. Fish and Wildlife's Information for Planning and Consultation (IPaC) database indicates 19 endangered species and four (4) critical habitats that are potentially affected in the County.[4]

California Department of Fish and Wildlife – Natural Diversity Database

The Project site is located in the Hanford Quad. The California Department of Fish and Wildlife's Natural Diversity Database (CNDDB) indicates one (1) federally listed, state listed, or special-status wildlife and plant species that have been observed in or near the Hanford Quad: San Joaquin kit fox.[5] There are three (3) occurrences of the San Joaquin kit fox in the five (5)-mile radius from the Project site:

- #1101: Jun 12, 2006, 1.36 miles northeast;

[4] U.S. fish and Wildlife Service. Information and Planning Consultation Online System. Accessed on October 12, 2021, https://ecos.fws.gov/ipac/

[5] California Department of Fish and Wildlife. Biogeographic Information and Observation System. Accessed on October 4, 2021, https://apps.wildlife.ca.gov/bios/?tool=cnddbQuick

- # 214: Aug 15, 2000, 3.54 miles southeast;
- # 922: 1971, 3.69 miles southeast.

The general habitat for the San Joaquin kit fox is annual grasslands or grassy open states with scattered shrubby vegetation, and their micro habitat is loose-textured sandy soils for burrowing and a suitable prey base.

U.S. Fish & Wildlife – National Wetlands Inventory

A search of the National Wetlands Inventory (NWI) shows no federally protected wetlands (including but not limited to marsh, vernal pool, coastal, etc.) on the Project site or within the immediate vicinity of the Project area.[6] The NWI does identify a man-made "R5UBFx habitat" that runs across Grangeville and turns south through the site's center. The R5UBFx indicates Riverine System (R) with an unknown perennial sub-system (5), of an unconsolidated bottom (UB), that is semipermanently flooded (F), and has been excavated by humans (X) (i.e., an irrigation canal). Based on the historically use of the site and surrounding properties for agricultural purposes, it can be assumed that the man-made irrigation canal is and has been used for agriculture and thereby does not provide essential habitat for any species.

Hanford General Plan

The General Plan identified endangered or threatened species potentially within the city include the hoary bat, Swainson's hawk, Western pond turtle, and San Joaquin kit fox. The Hanford General Plan outlines policies related to the conservation of biological resources:

Goal O4 *Protection of natural habitat and other biological resources.*

> ***Policy O34 Recreation and Sensitive Habitat.*** *Avoid the potential negative impacts of increased human activity on sensitive habitat areas when establishing new recreational facilities or programs.*
>
> ***Policy O35 Impacts from Development.*** *Ensure that potential impacts to biological resources and sensitive habitat are carefully evaluated when considering development projects.*

[6] U.S. Fish & Wildlife Service. National Wetlands Inventory. Accessed October 4, 2021, https://www.fws.gov/wetlands/data/Mapper.html

Policy O37 Mature Trees. *Promote the preservation of existing mature trees and encourage the planting of appropriate shade trees in new developments.*

Policy O38 Native Tree Species and Drought Tolerant Vegetation. *Encourage the planting of native tree species and drought-tolerant vegetation.*

4.4.2 Impact Assessment

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

Less than Significant Impact. The Project site and surrounding properties have historically been designated and operated as agricultural land. The site currently contains existing residential and commercial structures. Therefore, the site has been highly disturbed as a result of periodic grading, disking, and residential, commercial, and agricultural activity. The existing biotic site conditions and resources of the Project site can be defined primarily as agricultural. There are trees, shrubs, and herbaceous vegetation surround and are fully contained within the existing residential sites. There are also several eucalyptus trees along the site's northerly perimeter adjacent to Grangeville Boulevard. These trees are not protected and will be removed. There are no water features on site. Additionally, the site is relatively flat with a Nord Complex soil type that is well drained, has medium runoff, with more than 80-inch water table depth. Lastly, the site is within city limits and is planned for residential uses. Consequently, the site does not provide essential habitat for any candidate, sensitive, or special status species. As a result, a less than significant impact would occur as a result of the Project.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

No Impact. According to the General Plan, California Department of Fish and Wildlife, and U.S. Fish and Wildlife Service, there are no known riparian habitats or other sensitive natural communities identified on the Project site or within the immediate vicinity of the Project. In addition, the site does not contain any water features that would provide habitat for such species. In addition, the site is heavily impacted with very little vegetation which would not provide essential habitat. For these reasons, it can be determined that the Project site does not provide any riparian habitat and thus, no impact would occur because of the Project.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. Based on the search of the NWI, the Project site does not contain any federally protected wetlands. Typically, the primary wetland indicators include hydrophytic vegetation, hydric soils, and surface hydrology. The on-site topography consists of leveled agricultural land containing single-family residences and commercial uses. In addition, there does not appear to be ponds or standing water on the Project site. Further, the soils at the site are 100% of Nord complex.[7] The characteristics of Nord complex are fine sandy loam or stratified sandy loam to loam, 0 to 2 percent slopes, well drained, and very low runoff. The depth to water table is more than 80 inches. The runoff class is low to medium. This soil type is not subject to annual flooding or ponding. Lastly, based on the historically use of the site and surrounding properties for agricultural purposes, it can be assumed that the man-made irrigation canal is and has been used for agriculture and thereby does not provide essential habitat for any species. For these reasons, it can be determined that the Project site would not result in any impact on state or federally protected wetlands.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No Impact. Wildlife movement corridors are linear habitats that function to connect two (2) or more areas of significant wildlife habitat. These corridors may function on a local level as links between small habitat patches (e.g., streams in urban settings) or may provide critical connections between regionally significant habitats (e.g., deer movement corridors).

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

As previously mentioned, the Project site does not contain habitat that could support wildlife species in nesting, foraging, or escaping from predators. This is based on the existing conditions of

[7] United States Department of Agriculture Natural Resources Conservation Service. Web Soil Survey. Accessed on October 4, 2021, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

the site including the site's heavy alteration and lack of cover, vegetation, or water features. Due to these conditions, it can be determined that the Project would not interfere with wildlife movement and no impact would occur as a result of the Project.

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

No Impact. The General Plan outlines policies related to the conservation of biological resources and the HMC outlines regulations related to "heritage trees" – specifically, *Section 12.12.310* of the HMC requires tree protection plans for "heritage trees" (i.e., native Oak Trees). Due to the lack of identified special-species or natural habitat on the Project site, in addition to lack of trees that meet the City's definition of heritage trees, the Project would not conflict with any local policies or ordinances protecting biological resources. Thus, the Project would have no impact.

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

No Impact. The Project site is within the PG&E San Joaquin Valley Operation and Maintenance Habitat Conservation Plan (HCP). The HCP covers PG&E's routine operations and maintenance activities and minor new construction, on any PG&E gas and electrical transmission and distribution facilities, easements, private access routes, or lands owned by PG&E. The Project would not conflict or interfere with HCP. The Project is also located in the planning area of the Recovery Plan for Upland Species of the San Joaquin Valley, which addresses recovery goals for several species. The Project would not conflict with the plan since the site does not provide appropriate habitat for the species mentioned and would comply to applicable General Plan policies regarding habitat conservation. The City, County, and Regional Planning Agency do not have any other adopted or approved plans for habitat or natural community conservation. For these reasons, the Project would have no impact.

4.4.3 Mitigation Measures

The proposed Project shall implement and incorporate, as applicable, the Biological Resources related mitigation measures as identified in the Mitigation Monitoring and Reporting Program dated October 18, 2021.

4.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

4.5.1 Environmental Setting

Generally, the term 'cultural resources' describes property types such as prehistoric and historical archaeological sites, buildings, bridges, roadways, and tribal cultural resources. As defined by CEQA, historical resources include sites, structures, objects, or districts that may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance. Such resources are eligible for listing in the California Register of Historic Resources by the State Historical Resources Commission. The city of Hanford has three (3) buildings listed on the National Register of Historic Places: Hanford Carnegie Library, Kings County Courthouse, and Taoist Temple.

Hanford General Plan

The General Plan identifies policies on historic and cultural resources related to new development including:

Policy O46 Archaeological Site Consultation. *Consult with appropriate Native American associations about potential archaeological sites in the beginning stages of the development review process.*

Policy O47 Archaeological Site Study. *Require archaeological studies by a certified archeologist in areas of archeological potential significance prior to approval of development projects.*

Policy O48 Cultural Site Consultation. *Consult with the California Archaeological Inventory Southern San Joaquin Valley at California State University, Bakersfield about potential cultural sites on projects that could have an impact on cultural resources.*

Policy O49 Cultural Site Discovery. *Halt construction at a development site if cultural resources are encountered unexpectedly during construction.*

Tribal Consultation

The City of Hanford conducted tribal consultation pursuant to AB 52 and SB 18. In response, the City received pre-consultation from the Santa Rosa Rancheria Tachi Yokut Tribe. The Tribe requested that an archeological survey be conducted in addition to a California Historical Resources Information System (CHRIS) search and Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). In addition, the Tribe has requested the following Mitigation Measures (MM) to be incorporated with the proposed Project:

> ***MM CR-1.*** *If cultural resources are discovered during construction or related activities, all work shall be halted and a qualified archeologist and the City of Hanford shall be notified. The find shall be properly investigated and appropriate measures shall be taken before construction may continue.*
>
> ***MM CR-2.*** *Prior to ground disturbing activities, construction staff shall receive a cultural presentation by the Santa Rosa Rancheria regarding cultural resources and laws and regulations for the discovery of cultural resources and human remains.*
>
> ***MM CR-3.*** *A Native American monitor shall be present for ground disturbing activities.*
>
> ***MM CR-4.*** *A Burial Treatment Plan shall be signed by the applicant/property owner prior to any earth disturbing activities.*
>
> ***MM CR-5.*** *A curation agreement shall be signed with the Santa Rosa Rancheria.*

CHRIS Record Search

The Southern San Joaquin Information Center (SSJIC) conducted a California Historical Resources Information System (CHRIS) Record Search for the Project site and surrounding area (0.5-mile radius, "Project Area") on September 13, 2021 (Confidential). The results indicate that the Project Area had been partly surveyed previously and that one (1) cultural resource, the historic Last Chance Ditch (CA-KIN-191H) crossed through it. Based on the map provided, the cultural resource is not located on the Project site.

SLF NAHC Record Search

A NAHSC Sacred Lands Files search was conducted on October 4, 2021. The search results were negative and did not indicate any known sacred sites or tribal cultural resources within the Project Area.

Phase I Survey

A Phase I cultural resources survey for the Project area was conducted by ASM Affiliates on September 14. 2021. The report is confidential and is therefore not provided in this initial study; however, results are incorporated herein. No historical or archaeological resources of any kind were discovered within the Project Area. In addition, the previously recorded historical Last Chance Ditch was found to be abandoned and filled-in. Based on the proximity of the Project site to the Last Chance Ditch, the survey considers the site to be archaeologically sensitive. Following the suggestions of the Santa Rosa Rancheria Tachi Yokut Tribe, the survey recommends the aforementioned mitigation measures.

4.5.2 Impact Assessment

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

Less than Significant Impact with Mitigation Incorporated. Based on the records searches and field survey conducted, there are no local, state, or federal designated historical resources on the Project site or within the Project area. While there is no evidence that historical resources exist on the Project site, there is some possibility that hidden and buried resources may exist in the area with no surface evidence. As such, the Project would not cause a change to a historical resource pursuant to Section 15064.5. In the event of the accidental discovery and recognition of previously unknown resources before or during grading activities, the proposed Project shall incorporate General Plan *Policy O49* and to reduce any potentially significant impacts to less than significant. In addition, mitigation measures *MM CR-1* to *MM CR-5* are requested by Santa Rosa Rancheria and are incorporated herein to mitigate for potential subsurface cultural resources. As a result, the Project will have a less than significant impact with mitigation measures incorporated.

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

Less than Significant Impact with Mitigation Incorporated. Based on the records searches and field survey conducted, there is no evidence that archaeological resource of any type exists on the Project site. Nevertheless, there is some possibility that a non-visible, buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a

significant impact. Hanford General Plan *Policy O49* mitigates for cultural resources that are encountered unexpectedly during construction. In addition, mitigation measures *MM CR-1* to *MM CR-5* are requested by Santa Rosa Rancheria and are incorporated herein to mitigate for potential subsurface cultural resources. Thus, if such resources were discovered, implementation of the required condition would reduce the impact to less than significant. As a result, the Project will have a less than significant impact with mitigation measures incorporated.

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

Less Than Significant Impact with Mitigation Incorporated. There is no evidence that human remains exist on the Project site. Nevertheless, there is some possibility that a non-visible buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a significant impact. If any human remains are discovered during construction, California Code of Regulations Section 15064.5(e), Public Resources Code Section 5097.98, and California Health and Safety Code Section 7050.5 will mitigate for the impacts. In addition, mitigation measures *MM CR-1* to *MM CR-5* requested by Santa Rosa Rancheria are incorporated herein to mitigate for potential subsurface cultural resources and human remains. Therefore, if any human remains were discovered, implementation of related regulations and mitigation measures would reduce the Project's impact to less than significant.

4.5.3 Mitigation Measures

The proposed Project shall implement and incorporate, as applicable, the Cultural Resources related mitigation measures as identified in the Mitigation Monitoring and Reporting Program dated October 18, 2021, including the mitigation measure identified above.

4.6 ENERGY

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

4.6.1 Environmental Setting

Appendix F – Energy Conservation of the CEQA Guidelines requires consideration of energy implications in project decisions, including a discussion of the potential energy impacts with emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy resources (Public Resources Code Section 21100(b)(3)). Per Appendix F, a project would be considered inefficient, wasteful and unnecessary if it violated existing energy standards, had a negative effect on local and regional energy supplies and requirements for additional capacity, had a negative effect on peak and base period demands for electricity and other energy forms, and effected energy resources.

The California Energy Commission updates the Building Energy Efficiency Standards (Title 24, Parts 6 and 11) every three years as part of the California Code of Regulations. The standards were established in 1978 in effort to reduce the state's energy consumption. They apply for new construction of, and additions and alterations to, residential and nonresidential buildings and relate to various energy efficiencies including but not limited to ventilation, air conditioning, and lighting.[8] The California Green Building Standards Code (CALGreen), Part 11, Title 24, California

[8] California Energy Commission. 2019 Building Energy Efficiency Standards. Accessed on September 17, 2021, https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency

Code of Regulations, was developed in 2007 to meet the state goals for reducing Greenhouse Gas emissions pursuant to AB32. CALGreen covers five (5) categories: planning and design, energy efficiency, water efficiency and conservation, material and resource efficiency, and indoor environmental quality.[9] The 2019 Building Energy Efficiency Standards went into effect on January 1, 2020. Additionally, the California Air Resources Board (CARB) oversees air pollution control efforts, regulations, and programs that contribute to reduction of energy consumption. Compliance with these energy efficiency regulations and programs ensure that development will not result in wasteful, inefficient, or unnecessary consumption of energy sources.

California Energy Action Plan. The Energy Action Plan (EAP) for California was approved in 2003 and updated in 2008. The California Public Utilities Commission (PUC) approved the Energy Action Plan (EAP) for California in 2003, with an updated in 2008. The 2008 EAP established goals and next steps to integrate and coordinate energy efficiency demand and response programs and actions.[10]

Hanford General Plan. Energy resources and conservation are discussed in the Mineral and Energy Resources Element of the Hanford General Plan. The following objectives policies of the Hanford General Plan relate to energy resources and conservation of new development in order to reduce community-wide energy consumption in Hanford:

Policy O13 Solar Power Generation. *Support and encourage solar generation facilities that support residential, commercial, and industrial uses.*

Policy O14 Alternative Fuels and Renewable Energy. *Promote and encourage the use of alternative fuels and renewable energy.*

Policy O15 Energy-efficient Design Features. *Require that new development incorporate energy-efficient design features for HVAC, lighting systems, and insulation that meet or exceed California Code of Regulations Title 24.*

[9] California Department of General Services. (2020). 2019 California Green Building Standards Code. Accessed on October 4, 2021, https://codes.iccsafe.org/content/CGBC2019P3

[10] State of California. (2008). Energy Action Plan 2008 Update. Accessed on October 4, 2021, https://docs.cpuc.ca.gov/word_pdf/REPORT/28715.pdf

Policy O16 Vegetation to Conserve Energy. *Encourage the use of native and drought tolerant shade trees and vines on southern and western exposure building walls as an energy conservation technique.*

Policy O19 Recycling. *Support recycling activities throughout the City.*

4.6.2 Impact Assessment

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

Less than Significant Impact. The Project proposes the development of a 161-lot single-family residential development with an anticipated population of 460. Energy would be consumed through Project construction and operations, further analyzed below.

Construction

Construction is anticipated to be completed over a 1.5-year timeframe and will be short-term and temporary. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities. Construction would include demolition, site preparation, building construction, paving, and architectural coatings – all of which require the transportation of building materials and equipment. Therefore, the primary source of energy for construction activities would be diesel and gasoline (i.e., petroleum fuels).

All construction equipment shall conform to current emissions standards and related fuel efficiencies including applicable CARB regulations (Airborne Toxic Control Measure), California Code of Regulations (Title 13, Motor Vehicles), and Title 24 standards. Compliance with such regulations would ensure that the short-term, temporary construction activities do not result in wasteful, inefficient, or unnecessary consumption of energy resources. Compliance with such regulations would ensure that the short-term, temporary construction activities do not result in wasteful, inefficient, or unnecessary consumption of energy resources.

Operations

Operations would involve heating, cooling, equipment, and vehicle trips. Energy consumption related to operations would be associated with natural gas, electricity, and fuel. Energy and natural gas consumption were estimated using CalEEMod (Appendix A) and vehicle trips were estimated through a Vehicle Miles Traveled (VMT) analysis (Appendix B). Results are outlined below.

- ***Electricity:*** total electricity consumption (residential and non-residential) for Kings County in 2019 was 1,583,071,346 kWh and the estimated population was 152,940. [11] [12] Thus, the 2019 per capita electricity usage for Kings County was approximately 10,350 kWh. In comparison, the estimated electricity demand for the Project at buildout is 1,283,810 kWh/yr and the estimated population is 460. Thus, the estimated per capita electricity usage for the Project is 2,790 kWh per year. Based on these estimates, the per capita electricity consumption for Kings County *with the project* can be expected to decrease to 10,328 kWh/yr.[13] Overall, when compared to energy outputs for Kings County, the Project would not result in wasteful, inefficient, or unnecessary consumption of electricity.
- ***Natural Gas:*** total natural gas consumption (residential and non-residential) for Kings County in 2019 was 69,152,009 kBTU and the estimated population was 152,940. [14] Thus, the 2019 per capita natural gas consumption for Kings County was approximately 452 kBTU. In comparison, the estimated natural gas consumption for the Project at buildout is 3,870,050 kBTU/yr and the estimated population is 460. Thus, the estimated per capita natural gas consumption is 8,413 kBTU per year. Based on these estimates, the per capita natural gas consumption for Kings County *with the project* can be expected to increase by five (5) percent to 476 kBTU/yr.[15] Despite the anticipated increase in energy outputs, it can be assumed that the Project would not result in a substantial increase based on required compliance with CALGreen, Title 24, and General Plan policies. Such standards and policies are intended to increase energy efficiency and reduce energy demand. Therefore, while the Project would increase energy demand, such energy would be consumed more efficiently as required by state regulations. Documentation demonstrating compliance with such standards will be required to be submitted with the building permit application; and compliance will be enforced by the Building Department.

[11] California Energy Commission. Electricity Consumption by County. Accessed October 12, 2021, https://ecdms.energy.ca.gov/elecbycounty.aspx

[12] U.S. Census Bureau. Quick Facts for Kings County, California. Accessed October 12, 2021, https://www.census.gov/quickfacts/kingscountycalifornia

[13] To get this number, add the 2019 total electricity usage for Kings County to the estimated usage generated by the Project (1,583,071,346 kWh plus 1,283,810 kWh equals 1,584,355,156 kWh), then divide by the estimated population with the Project (152,940 plus 460 equals 153,400) to get 10,328 kWh per capita.

[14] California Energy Commission. Gas Consumption by County. Accessed October 12, 2021, https://ecdms.energy.ca.gov/gasbycounty.aspx

[15] To get this number, add the 2019 total natural gas consumption for Kings County to the estimated usage generated by the Project (69,152,009 kBTU plus 3,870,050 equals 73,022,059), then divide by the estimated population with the Project (152,940 plus 460 equals 153,400) to get 476 kBTU per capita.

- *Fuel Consumption:* vehicle miles traveled (VMT) associated with the Project were estimated and analyzed under Section 4.17 based on a VMT analysis conducted by Peters Engineering on January 28, 2022. According to the Traffic Study and VMT Analysis conducted by the Peters Engineering Group, the Project site is located in an area that is expected to generate VMT at a rate of no more than 15 percent below the Countywide average per capita. Therefore, a less than significant impact would occur as a result of the Project.

Overall, the results of the analyses do not rise to a level of significance given the Project's required compliance with various energy efficiency regulations and policies including CALGreen, Title 24, the General Plan, and CARB. Thus, through compliance, the Project is not expected to result in wasteful, inefficient, or unnecessary consumption of energy resources and a less than significant impact would occur as a result of the Project.

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

Less than Significant Impact. As discussed under criterion a), the construction and operations of the Project would be subject to compliance with applicable energy efficiency regulations including CALGreen, Title 24, General Plan, and CARB. Thus, applicable state and local regulations and programs would be implemented to reduce energy waste from construction and operations. Therefore, through compliance, the Project would not conflict with or obstruct any state or local plan for energy efficiency and a less than significant impact would occur as a result of the Project.

4.6.3 Mitigation Measures

None Required.

4.7 GEOLOGY AND SOILS

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

d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?				X
f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

4.7.1 Environmental Setting

The Project site is in the San Joaquin Valley which is one of the two (2) large valleys comprising the Great Valley Geomorphic Province. The San Joaquin Valley is surrounded by Sierra Nevada (east), Coast Ranges (west), Tehachapi (south), and the Sacramento Valley (north). The topography of the city of Hanford is relatively flat with a gradual slope from east to west.

A brief discussion of the likelihood of seismic activities to occur in or affect Hanford is provided below. However, CEQA requires an analysis of the Project's impacts on the environment, not the environment's potential impacts on the Project; therefore, shaking, liquefaction, and other seismic activities are less than significant.

Faulting

There are no active faults mapped in the city of Hanford or Kings County, nor are the city or region located in any Alquist-Priolo Special Studies Zones. [16] Further, the Project site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resources Code). According to the Kings County Multi-Jurisdictional Local Hazard Mitigation Plan, there is no history of earthquakes in the

[16] California Department of Conservation. (2010). 2010 Fault Activity Map of California. Accessed on October 8, 2021, https://www.conservation.ca.gov/cgs/Pages/Program-RGMP/2010_faultmap.aspx

city of Hanford and the peak ground acceleration is low. [17] The nearest active faults are San Andreas (46.5 miles southwest) and the White Wolf Fault (100+ miles southeast).

Subsurface Soils

A search of the Web Soil Survey by the USDA Natural Resources Conservation Service indicates that the Project site is comprised 100% of Nord complex.[18] The characteristics of Nord complex are fine sandy loam or stratified sandy loam to loam, 0 to 2 percent slopes, well drained, and very low runoff. The depth to water table is more than 80 inches. The runoff class is low to medium. This soil type is not subject to annual flooding or ponding.

Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soils behave similarly to a fluid when subjected to high-intensity ground shaking. Per the General Plan, the city of Hanford does not have a significant liquefaction potential since it is in a stable geologic formation. Further, liquefaction potential and risk in the Kings County is considered minimal due to the nature of the underlying soils, relatively deep-water table, and history of low ground shaking potential. This is evidenced by the Seismic Safety Map in the Kings County 2035 General Plan Health and Safety Element which shows that the city of Hanford is not in a zone where landslides, subsidence, or liquefaction could possibly occur.[19]

Erosion

Wind and flowing water are the primary agents of erosion in the San Joaquin Valley. The Kings County Multi-Jurisdictional Local Hazard Mitigation Plan does not identify areas susceptible to erosion within Kings County or the city of Hanford.

---

[17] Kings County Office of Emergency Management. (2012). Kings County Multi-Jurisdictional Local Hazard Mitigation Plan. Accessed on October 8, 2021, https://www.countyofkings.com/home/showpublisheddocument/23875/637298992208470000

[18] United States Department of Agriculture Natural Resources Conservation Service. Web Soil Survey. Accessed on October 4, 2021, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

[19] County of Kings. (2010. 2035 Kings County General Plan. Accessed on October 8, 2021, https://www.countyofkings.com/home/showpublisheddocument/3106/635274892972100000

Ground Subsidence

Ground subsidence is the settling or sinking of surface soil deposits with little or no horizontal motion. Soils with high silt or clay content are subject to subsidence. According to the Kings County Multi-Jurisdictional Hazard Mitigation Plan, land subsidence in the region rarely occurs and its impacts are not significant.

Hanford General Plan

The General Plan include objectives and policies relevant to earthquakes in its Health, Safety, and Noise Element:

> ***Policy H15 Building Codes and Standards for Earthquakes.*** *Maintain and enforce current buildings codes and standards to reduce the potential for structural failure caused by ground shaking and other geologic hazards.*
>
> ***Policy H16 Hazardous Buildings Upgrade.*** *Develop policies to assist in the upgrading of seismically hazardous (unreinforced masonry) buildings within the City.*
>
> ***Policy H17 Geologic and Soils Studies.*** *Require geologic and soils studies to identify potential hazards as part of the approval process for all new development prior to grading activities where questionable conditions exist.*

Hanford Municipal Code

Chapter 15.52 Flood Damage Prevention Regulations of the HMC contains the City's floodplain management regulations. Methods and provisions contained in the chapter are applicable to all areas of special flood hazards within the city of Hanford. The Project site is designated as Zone X on the most recent Flood Insurance Rate Map (FIRM) No. 06031C0180C and No. 06031C0185C dated June 16, 2009. Zone X is an area of minimal flood hazards with a 0.2 percent-annual-chance of flood (i.e., 500-year flood). Therefore, *HMC Chapter 15.52* is not applicable to the Project.

4.7.2 Impact Assessment

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

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

No Impact. There are no known active earthquake faults in Hanford, nor is Hanford within an Alquist-Priolo earthquake fault zone as established by the Alquist-Priolo Fault Zoning Act. As such, development of the Project in an area void of earthquake faults would not cause rupture of a known earthquake fault. Therefore, no impact would occur as a result of the Project.

ii. *Strong seismic ground shaking?*

No Impact. The Project site is in an area that is traditionally characterized by relatively low seismic activity. Further, the site is relatively flat with stable soils and is not in close proximity to any fault lines. In addition, the Project would be required to conform to current seismic protection standards in the California Building Code (CBC) and General Plan, which are intended to minimize potential risks. Therefore, because of the Project's stable soils and distance from active fault lines, and because of the Project's conformance to CBC seismic safety standards, the Project does not have any aspect that could result in strong seismic ground shaking. Therefore, no impact would occur as a result of the Project.

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

No Impact. The Project site is relatively flat with stable soils and no apparent unique or significant landforms. Further, the city of Hanford does not have a significant liquefaction potential since it is in a stable geologic formation. For these reasons, liquefaction or seismically induced settlement or bearing loss is considered unlikely, even if there should be a substantial increase in ground water level. Further, development of the site would require compliance with the City's grading and drainage standards. Therefore, because of the Project's relatively flat topography, stability of soils, infrequency of seismic activity, and required compliance with City standards, the Project does not have any aspect that could result in seismic-related ground failure, including liquefaction. Therefore, no impact would occur as a result of the Project.

iv. *Landslides?*

No Impact. Landslides are not expected to affect the Project site as the city of Hanford is not located in a zone where landslides, subsidence, or liquefaction could possibly occur. Furthermore, the topography of the Project site is flat with stable, native soils. As such, development of the Project on a stable site in an area that is not susceptible to seismic activities or geologic instability would not cause landslides. Therefore, no impact would occur as a result of the Project.

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

Less than Significant Impact. Development of the Project site would require typical site preparation activities such as grading and trenching which may result in the potential for short-term soil disturbance or erosion impacts. Construction would also involve the use of water which may cause further soil disturbance. Such impacts would be addressed through compliance with

General Plan *Policy 012*, which requires new development to implement measures to minimize soil erosion related to construction, and regulations set by the State Water Resources Control Board (SWRCB).

The SWRCB requires sites larger than one (1) acre to comply with the General Permit for Discharges of Storm Water Associated with Construction Activity (i.e., General Permit Order No. 2012-0006-DWQ). The General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer (QSD). The SWPPP estimates the sediment risk associated with construction activities and includes best management practices (BMP) to control erosion. BMPs specific to erosion control cover erosion, sediment, tracking, and waste management controls.

Implementation of the SWPPP in addition to compliance with General Plan *Policy 012* minimizes the potential for the Project to result in substantial soil erosion or loss of topsoil. With these provisions in place, impacts to soil and topsoil by the Project would be considered less than significant.

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

No Impact. The Project site is not located in a zone where landslides, subsidence, or liquefaction could occur. Further, the site is relatively flat with stable soils and no apparent unique or significant landforms. Therefore, development of the Project on a stable site would not cause landslides, lateral spreading, subsidence, liquefaction, or collapse. Therefore, no impact would occur as a result of the Project.

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

No Impact. The Project site comprises stable, native soils that are not classified as expansive soils as defined in Table 18-1-B of the Uniform Building Code (1994) that would create substantial direct or indirect risks to life or property. Therefore, no impact would occur as a result of the Project.

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No Impact. The Project will not involve the installation of a septic tank or alternative wastewater disposal system. The Project would be connected to the City's sewer system. Therefore, the Project would have no impact.

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

Less than Significant Impact. As discussed in Cultural Resources (Section 4.5), there are no known paleontological resources or unique geological features known to the City within this area or on this site. Nevertheless, there is some possibility that a non-visible, buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a significant impact. Hanford General Plan *Policy O49* mitigates for cultural resources that are encountered unexpectedly during construction. In addition, mitigation measures *MM CR-1* to *MM CR-5* are requested by Santa Rosa Rancheria and incorporated to the Initial Study to mitigate for potential subsurface cultural resources. Thus, in if such resources were discovered, implementation of the required condition would reduce the impact to less than significant.

4.7.3 Mitigation Measures

None required.

4.8 GREENHOUSE GAS EMISSIONS

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

4.8.1 Environmental Setting

An Air Quality and Greenhouse Gas Impact Assessment was prepared for the Project by VRPA Technologies, Inc. on September 30, 2021. The report and supporting tables are provided in Appendix A. The environmental setting, methodology, and assessment are incorporated herein.

4.8.2 Impact Assessment

Thresholds of Significance

CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the Kings County Association of Governments (KCAG) region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. KCAG's 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which was adopted in August 2018, projects that the Kings County region would achieve the prescribed emissions targets.

In 2009, the SJVAPCD adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009), and
- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009).

This guidance and policy are the reference documents referenced in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD (2015) acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

- If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
- If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
- If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC 2015). Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 9 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is approximately 79% less than the threshold identified by the SCAQMD.

Table 9
Project Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Project Operational Emissions Per Year	2,080 MT/yr

Source: CalEEMod, VRPA 2021

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

Less than Significant Impact. The SJVAPCD acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

- If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
- If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
- If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 9 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is approximately 79% less than the threshold identified by the SCAQMD.

The KCAG Regional Climate Action Plan identifies a baseline (2005) GHG emissions inventory for all countywide sectors (transportation, waste management, etc.). Kings County's baseline GHG emissions is approximately 1,046,804 MTCO2eq./year. The proposed Project's GHG emissions represents 0.2% of the total GHG emissions for Kings County's baseline GHG emissions.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, any impacts would be less than significant.

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

Less than Significant Impact. California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the KCAG region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. KCAG's 2018 RTP/SCS, which was adopted in August 2018, projects that the Kings County region would achieve the prescribed emissions targets.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. KCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is City of Hanford 2035 General Plan Update, which was adopted in 2018.

The Project is consistent with the currently adopted General Plan for the City of Hanford and the adopted KCAG 2018 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project (Table 9) are approximately 79% less than the threshold identified by the SCAQMD (see the discussion for Impact 4.2.1 above).

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit. Below is a list of applicable strategies in the Scoping Plan and the Project's consistency with those strategies.

- California Light-Duty Vehicle GHG Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs for long-term climate change goals. *The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to light-duty vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.*
- Energy Efficiency – Pursuit of comparable investment in energy efficiency from all retail providers of electricity in California. Maximize energy efficiency building and appliance standards. *The Project is consistent with this reduction measure. Though this measure applies to the State to increase its energy standards, the Project would comply with this measure through existing regulation. The Project would not conflict or obstruct this reduction measure.*
- Low Carbon Fuel – Development and adoption of the low carbon fuel standard. The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, any impacts would be less than significant.

4.8.3 Mitigation Measures

The proposed Project shall implement and incorporate, as applicable, the Greenhouse Gas Emissions related mitigation measures as identified in the Mitigation Monitoring and Reporting Program dated October 18, 2021.

4.9 HAZARDOUS AND HAZARDOUS MATERIAL

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	

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

4.9.1 Environmental Setting

For the purposes of this section, the term “hazardous materials” refers to "injurious substances," which include flammable liquids and gases, poisons, corrosives, explosives, oxidizers, radioactive materials, and medical supplies and waste. These materials are either generated or used by various commercial and industrial activities. Hazardous wastes are injurious substances that have been or will be disposed. Potential hazards arise from the transport of hazardous materials, including leakage and accidents involving transporting vehicles. There also are hazards associated with the use and storage of these materials and wastes. Hazardous materials are grouped into the following four categories based on their properties:

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

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

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

materials would be subject to existing federal, State, and local regulations and is similar to the transport, use, and disposal of hazard materials.

Record Search

The California Department of Toxic Substance Control's EnviroStor database[20] and the State Water Resources Control Board's GeoTracker database[21] include hazardous release and contamination sites. A search of each database was conducted on October 4, 2021. The searches revealed no hazardous material release sites on the Project site. The closest hazardous site in the Project vicinity identified was a voluntary cleanup site 350 feet southwest of the Project site, located at 9431 13th Avenue, Hanford, CA 93230.

Hanford General Plan

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

Goal H6: *Avoidance of properties contaminated by toxic or hazardous materials.*

> ***Policy H29 Household Hazardous Materials.*** *Coordinate with other public agencies to educate consumers about the proper household use and disposal of hazardous materials.*
>
> ***Policy H30 Industrial Hazardous Materials.*** *Require industrial uses that rely extensively on the use of hazardous materials to adopt an acceptable use, storage, disposal, and emergency response program that has been approved by appropriate agencies.*
>
> ***Policy H31 Adequate Separation from Sensitive Uses.*** *Require adequate separation between industrial areas where hazardous materials are present and sensitive uses such as schools, residential areas, parks, and public facilities.*
>
> ***Policy H32 Project Review Evaluation.*** *Evaluate the risks involving the disposal, transport, manufacture, storage and handling of hazardous material in Hanford in the project review process.*

[20] California Department of Toxic Substances Control. Envirostor. Accessed October 14, 2021, https://www.envirostor.dtsc.ca.gov/public/

[21] California State Water Resources Control Board. GeoTracker. Accessed October 14, 2021, https://geotracker.waterboards.ca.gov/

Policy H33 Educational Opportunities. *Coordinate with Kings County to provide educational opportunities to the public regarding the generation of small quantity, household and agricultural waste products regarding their responsibilities for source reduction and proper and safe hazardous waste management.*

Policy H34 Sensitive Receptors. *Avoid siting uses with new sensitive receptors near existing industrial facilities that use or produce hazardous material or may emit toxic air contaminants.*

Policy H35 Kings County Health Department. *Coordinate with the Kings County Health Department for the implementation of the Hazardous Materials Disclosure Law.*

4.9.2 Impact Assessment

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

Less than Significant Impact. The Project consists of a residential development. The type of hazardous materials that would be associated with the Project are those typical of residential developments: household cleaners, landscape maintenance, soaps, pesticides for pest control, etc. Because of the use, it is not expected that the Project would routinely transport, use, or dispose of hazardous materials other than those typical of residential uses and such materials would not be of the type or quantity that would pose a significant hazard to the public. Potential impacts during construction of the Project could result from the use of fuels and lubricants for construction equipment. However, these impacts would be short-term and temporary, and would be reduced to less than significant levels through compliance with local, state, and federal regulations in addition to standard equipment operating practices. For these reasons, the Project would have a less than significant impact.

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

Less than Significant Impact. As described under criterion a) above, it is not anticipated that the Project itself will involve any operations that would require routine transport, use, or disposal of hazardous materials and therefore is not anticipated to create a significant hazard to the public or the environment through release of hazardous materials. While potential impacts would occur through construction-related transport and disposal of hazardous materials, such impacts would be short-term and temporary, and would be reduced to less than significant levels through

compliance with local, state, and federal regulations in addition to standard equipment operating practices. Therefore, the Project would have a less than significant impact.

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

Less than Significant Impact. The nearest schools within one-quarter miles of the Project site include Sierra Pacific High School and Frontier Elementary School. As described under criteria a) and b) above, the Project is not anticipated to emit hazard emissions or handle hazardous materials, substances, or water that would pose a risk or threat to the school or surrounding area. Therefore, a less than significant impact would occur.

d) *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact. According to Envirostor and Geotracker, the Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the Project would not create a significant hazard to the public of the environment. For these reasons, there would be no impact.

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

No Impact. The nearest public use airport is the Hanford Municipal Airport located more than three (3) miles southeast of the Project site. According to the Kings County Airport Land Use Compatibility Plan (1994), the site is not within the Hanford Municipal Airport Influence Area and is therefore not subject to land use compatibility policies.[22] Thus, the Project would not result in a safety hazard for people residing or working in the Project area and no impact would occur as a result of the Project.

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

Less than Significant Impact. The Project would not involve any new or altered infrastructure associated with evacuation, emergency response, and emergency access routes within the City or

[22] County of Kings. (1994). Kings County Airport Land Use Compatibility Plan. Accessed October 14, 2021, https://www.countyofkings.com/home/showpublisheddocument/3094/635274871108830000

County. Construction of frontage improvements may require lane closure; however, these activities would be short term and access through Grangeville Boulevard and 13th Avenue would be maintained through standard traffic control. Following construction, Grangeville Boulevard and 13th Avenue would continue to provide access to the site. Furthermore, the Project would be subject to compliance with applicable standards for on-site emergency access including turn radii and fire access. Therefore, the Project would have a less than significant impact.

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

Less than Significant Impact. According to the California Department of Forestry and Fire Protection (Cal Fire), the city of Hanford, inclusive of the Project site, is not identified bas a Very High Fire Hazard Severity Zone (VHFHSZ); rather, the site is within an area of local responsibility and is considered an area of low fire risk.[23] Additionally, the Project would be required to be developed and operate in compliance with all regulations of the current California Fire Code. Therefore, the Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. For these reasons, the Project would have a less than significant impact.

4.9.3 Mitigation Measures

None required.

[23] California Department of Forestry and Fire Protection. FHSZ Viewer. Accessed on October 5, 2021, https://egis.fire.ca.gov/FHSZ/.

4.10 HYDROLOGY AND WATER QUALITY

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:			X	
	i. *Result in a substantial erosion or siltation on- or off-site;*			X	
	ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site:*			X	
	iii. *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*			X	

	iv. Impede or redirect flood flows?			X	
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

4.10.1 Environmental Setting

The Project site is within city limits and thus, will be required to connect to water and stormwater services. The City and responsible agencies have reviewed the Project to determine adequate capacity in these systems and ensure compliance with applicable connection and discharge requirements. Overall, the review of the Project by the City and responsible agencies indicates that the Project would not require or result in the relocation or construction of new or expanded facilities and as such, would not cause significant environmental effects.

Water

The City of Hanford's water supply system is a groundwater system. The city is located within the Tulare Lake Hydrologic Region and is within the Tulare Lake Groundwater Subbasin which transmits, filters, and stores water from the main San Joaquin Valley Groundwater Basin. The system consists of 14 groundwater wells, three (3) storage reservoirs, distribution mains, and fire hydrants. The system does not use surface water. Groundwater is recharged by rain and snowfall in addition to percolation from storm water basins, local waterways, and agricultural irrigation. The Project would include installation of a 12-inch water main along Grangeville Boulevard to connect to the existing water main in addition to eight (8)-inch water mains throughout the subdivision. Each unit will connect to the City's water system through installation of meters.

Stormwater

The existing drainage infrastructure within the City of Hanford's Stormwater Management Program include natural drainage channels, retention basins, natural vegetation, piping, and pump stations. There are some areas where storm drainage is controlled by drainage inlets and underground structures. The system consists of 30 pump stations, 57 miles of pipeline, and 220 acres of drainage basins and drainage ditches. The proposed Project includes a 1.53-acre, on-site retention basin to capture stormwater from the subject site. The stormwater will percolate and allow for groundwater recharge.

4.10.2 Impact Assessment

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

Less than Significant Impact. Because the Project site is greater than one (1) acre in size, the developer is required to prepare a SWPPP (Section 4.7) in compliance with the General Permit for Discharges of Storm Water Associated with Construction Activity (i.e., General Permit Order No. 2012-0006-DWQ). The SWPPP estimates the sediment risk associated with construction activities and includes best management practices (BMP) to control erosion. BMPs specific to erosion control cover erosion, sediment, tracking, and waste management controls. Implementation of the SWPPP minimizes the potential for the Project to result in substantial soil erosion or loss of topsoil. These provisions minimize the potential for the Project to violate any waste discharge requirements or otherwise substantially degrade surface or ground water quality. Further, runoff resulting from the Project would be managed by the City in compliance with the Storm Drainage Master Plan in addition to approved grading and drainage plans. Thus, compliance with existing regulations including the General Construction Permit, BMPs, and Storm Drainage Master Plan would reduce potential impacts related to water quality and waste discharge to less than significant levels.

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

Less than Significant Impact. The City's long-term water resource planning for existing and future demand is addressed in the City's 2015 Urban Water Management Plan (UWMP) and 2017 Water System Master Plan (WSMP).[24] [25] These plans are intended to serve as a tool for planning and phasing the construction of future domestic water supply infrastructure for the projected buildout of the city of Hanford, in accordance with the General Plan.

According to these plans, the City uses groundwater wells as the sole source of supply. As such, groundwater should be viewed as a sustainable resource. As of 2017, there are 14 active

[24] City of Hanford (2016). 2015 Urban Water Management Plan. Accessed October 13, 2021, https://cms6.revize.com/revize/hanfordca/document_center/Public%20Works/Water%20Management/2015%20UWMP%20Chapter%201.pdf

[25] City of Hanford (2017). 2017 Water System Master Plan. Accessed October 14, 2021, https://cms6.revize.com/revize/hanfordca/document_center/Public%20Works/2017_Water%20System%20Master%20Plan%20-%20FINAL%20-%20Reduced.pdf

groundwater wells with a rated supply of approximately 34.9 million gallons per day (mgd) that may increase or decrease in efficiency ratings as groundwater levels fluctuate and/or recover. To account for these fluctuations, the plans recommend that the City monitor well efficiencies on a frequent basis to adequately manage the groundwater supply. In the case of persistent droughts, it may therefore be necessary for the City to construct additional wells to maintain adequate supply capacity. Based on the buildout water supply requirements, the plans recommend the construction of 11 new groundwater wells including Main-W2 to be located at Centennial Drive approximately 2,600 ft. north of Grangeville Boulevard, west of the Project site.

Because the Project has been previously accounted for and analyzed within the General Plan, it can be presumed that the existing and planned water distribution system and supplies should be adequate to serve the Project, and the Project would thereby not interfere substantially with groundwater recharge or impede sustainable groundwater management of the basin. In addition, adherence to connection requirements and recommendations pursuant to the City's water supply planning efforts (i.e., compliance with California Plumbing Code, efficient appliances, efficient landscaping, etc.) should not negatively impact the City's water provision. For these reasons, a less than significant impact would occur as a result of the Project.

c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:*

i. Result in substantial erosion or siltation on- or off-site?

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

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

In addition, the Project would increase impervious surfaces by installing paving, concrete pads, and sidewalks. In order to adequately discharge and capture stormwater runoff, the Project has been conditioned by the City to construct [list facilities]. In addition, the proposed drainage pattern is required to be constructed per regulations of the Storm Drainage Master Plan and will be reviewed by the City to ensure proper drainage. Consequently, this review and approval by the City and compliance with standard requirements would mean that the Project would result in a less than significant impact.

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

Less than Significant Impact. The Project includes the construction of a 1.53-acre stormwater basin, which will be required to comply with the Storm Drainage Master Plan and will be reviewed by the City. Compliance with regulations and approval by the City would ensure that surface runoff is controlled in a manner which would not result in flooding on- or off-site. For this reason, the Project would have a less than significant impact.

iii. Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact. As previously mentioned, the Project includes the construction of a 1.53-acre stormwater basin, which will be reviewed by the City. Such facilities are required to comply with the Storm Drainage Master Plan and Project-specific grading and drainage plans are subject to review by the City prior to the final development approval. Therefore, provision of facilities as approved by the City would ensure that surface runoff is controlled in a manner which would not result in the creation or contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage services or provide substantial additional sources of polluted runoff. For this reason, a less than significant impact would occur because of the Project.

iv. Impede or redirect flood flows?

Less than Significant Impact. Although the construction of the proposed Project would increase impervious surfaces, the Project would not alter drainage patterns because Project-specific grading and drainage plans are required to be reviewed by the City before development approval. Further, the Project is subject to construction of master plan facilities in addition to temporary facilities in order to adequately serve the Project. As a result, the Project would not impede or redirect flood flows and a less than significant impact would occur as a result.

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

Less than Significant Impact. The Project site is not in a flood hazard, tsunami, or seiche zone (i.e., standing waves on river, reservoirs, ponds, and lakes); the Project site is approximately 93 miles from the Pacific Ocean and there are no rivers, reservoirs, ponds, or lakes within the site, and the Project site is designated as Zone X on the most recent Flood Insurance Rate Map (FIRM) No. 06031C0180C and No. 06031C0185C dated June 16, 2009. Zone X is an area of minimal flood hazards with a 0.2 percent-annual-chance of flood (i.e., 500-year flood). In addition, the Project area as well as the city as a whole has historically been subject to low to moderate ground shaking and has a relatively low probability of shaking. Seiches are unlikely to form due to the low seismic energy produced the area. Therefore, as a low-risk area, the Project would have a less than significant impact as it relates to the risk release of pollutants due to project inundations.

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

Less than Significant Impact. A groundwater sustainability plan was adopted for the Tulare Lake Sub-basin in January 2020 by the Mid-Kings River Groundwater Sustainability Agency of which the City of Hanford is a member. [26] The proposed Project is required to comply with the adopted plan (Mid-Kings Groundwater) to meet the 2040 sustainability deadline for the basin. As mentioned above, groundwater is and will continue to be the source supply in wet and dry hydrologic periods. Based on the UWMP and WSMP, the City will continue to monitor groundwater supplies as a sustainable resource in order to remain compliant with groundwater sustainability goals. In turn, the Project is subject to compliance with the General Plan, all water quality control plans, and other hydrological requirements established by the City. Therefore, based on compliance with such plans, it can be determined that the Project would not conflict with or obstruct implementation of water quality control plans or sustainable groundwater management plans. For these reasons, a less than significant impact would occur because of the Project.

4.10.3 Mitigation Measures

None Required.

[26] Mid-Kings River Groundwater Sustainability Agency (2020). Tulare Lake Subbasin Groundwater Sustainability Plan. Accessed October 13, 2021, http://www.midkingsrivergsa.org/assets/tulare-lake-subbasin-groundwater-sustainability-plan%2c-january-2020.pdf

4.11 LAND USE PLANNING

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?			X	
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

4.11.1 Environmental Setting

In general, the Project site is within an area of the city that is predominately characterized by residential, educational, and recreational development. The property to the east of the Project site is developed with an existing single-family residential subdivision that would be connected to the proposed Project by two (2) local streets. In addition, the property to the north of the Project site across Grangeville Boulevard is currently undergoing construction to develop a single-family residential subdivision. Regarding educational development, Sierra Pacific High School and the College of the Sequoias are located to the south of the Project site and Frontier Elementary is located to the north. Silver Oaks Park and Hanford Sports Complex and are located less than a quarter mile to the north and south of the site, respectively. As a result, the area is characterized by a mix of development types and uses, as well as typical infrastructure, such as roadways, streetlights, parking lot lights, and ambient light sources typical of residential development.

4.11.2 Impact Assessment

a) Physically divide an established community?

Less than Significant Impact. Typically, physical division of an established community is associated with new, intersecting roadways, or new incompatible uses inconsistent with the planned or existing land uses. The Project site is currently used for agricultural operations but has a planned land use designation for residential uses and is consistent with the surrounding properties in that the area is planned for residential, educational, and recreational development.

While the Project will introduce new roadways, the proposed roadways are local streets that are internal to the residential subdivision. The local streets are necessary to provide for internal circulation. The proposed local streets will be constructed per City Standards and will provide for safe access to Grangeville Boulevard. Therefore, the new roadways are necessary for internal circulation and would not physically divide an established community since they are internal to the subdivision.

As such, the Project does not represent a significant change in the surrounding area as it will develop a site planned for residential uses with a residential development. This development is compatible with the planned land uses within the area. In addition, the new roadways will be internal to the development and are necessary to provide for safe internal circulation and access to Grangeville Boulevard. For these reasons, the Project would have a less than significant impact.

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

Less than Significant Impact. Policy conflicts do not, in and of themselves, constitute a significant environmental impact. Policy conflicts are considered to be environmental impacts only when they would result in direct physical impacts or where those conflicts relate to avoiding or mitigating environmental impacts. As such, associated physical environmental impacts are discussed in this document under specific topical sections, such as Biological Resources, Cultural Resources, and Tribal Cultural Resources. However, a discussion of certain land use plans, policies, and regulations that are applicable to the proposed Project are included in Table 4-1. As discussed below, the Project is generally consistent with the General Plan.

Table 4-1 Discussion on Land Use Policies in the General Plan

General Plan Policy	Project Consistency
Policy L18 Compatibility with Surrounding Neighborhoods. Ensure that new development is compatible with existing and surrounding neighborhoods.	**Consistent.** The Project proposes a use that is consistent with the use type and intensity allowed within the site's planned land use designation and zone district. As such, through compliance with applicable policies and regulations, the Project would be compatible with existing and surrounding neighborhoods.
Policy L19 Minimum and Maximum Residential Densities. Establish minimum and maximum density ranges for each residential zone in the Zoning Ordinance that are consistent with the planned densities of each residential land use designation.	**Consistent.** The Project has a General Plan land use designation of Low-Density Residential which has a density range of two (2) to 10 du/ac and allows for lots to range from 5,000 to 10,000 sf. The Project would allow for the construction of a residential subdivision that consists of 161 single-family lots to occupy approximately 36.48 acres, for a residential density of 4.52 du/ac. The minimum lot size proposed is 5,000 sf. Therefore, the Project is

	consistent with the planned densities and is within the range of permitted lot sizes. The Project is also within the R-L-5 zone district, which is consistent with the Low-Density Residential land use designation.
Policy L24 Availability of Infrastructure. Ensure that new residential developments have sufficient urban infrastructure and public facilities to accommodate the number and type of development being proposed.	**Consistent.** There is existing urban infrastructure, including roadways, water, sewer, and storm drainage facilities, to serve the Project. In particular, the Project proposes a network of local streets that will connect to Grangeville Boulevard. Additionally, the Project will provide street improvements for safer access and connectivity. The Project also proposes installation of water and sewer mains to connect to existing facilities, in addition to an onsite basin to accommodate storm water drainage. Therefore, the Project will have sufficient urban infrastructure and public facilities to accommodate the number and type of development being proposed.
Policy L25 Maintenance Districts. Require new residential subdivisions to form maintenance districts to maintain shared public improvements, such as landscaping, lighting, walls, streets, and other improvements as determined by the City Council.	**Consistent.** The Project is subject to review and approval by the City, which includes conditioning specific requirements such as maintenance districts.
Policy L26 Residential Parking. Residential developments shall provide adequate on-site parking for the specific use.	**Consistent.** According to HMC Section 17.54.040, single-family dwellings require two (2) spaces per dwelling unit with at least one (1) covered space (garage or car port). The Project proposes single-family lots with garages and driveways that will accommodate parking needs for future residents. In addition, the local street network will include a parking lane. Therefore, the Project would provide adequate parking for the proposed use that is consistent with the allowances of the HMC.
Policy L28 Street Trees and Landscaping. Encourage all new residential developments to include shade trees along the street and install landscaping and irrigation systems that meet State requirements for low water use.	**Consistent.** Street trees and landscaping are proposed as part of the Project and will be subject to review and approval by the City.
Policy L31 Purpose of the Low-Density Residential Land Use Designation. Establish the Low-Density Residential land use designation to provide mainly single family development on lot sizes typically found in urban settings.	**Consistent.** The Project site has a planned land use designation of Low Density Residential and proposes the development of a single-family residential subdivision at a size and density permitted by the General Plan and HMC.

Policy L32 Typical Uses in the Low-Density Residential Land Use Designation. Define the uses allowed in the Low Density Residential land use designation to include residential uses in a variety of single-family lot types. Duplexes, second dwelling units, and home occupations can also be allowed when made compatible with the residential nature of the neighborhood.	**Consistent.** The Project site has a planned land use designation of Low Density Residential and proposes the development of a single-family residential subdivision at a size and density permitted by the General Plan and HMC.
Policy L33 Size of Lots in the Low Density Residential Land Use Designation. While it is recognized that existing lot sizes of 10,000 to 40,000 square feet are included in this designation, new individual lot sizes shall range from 5,000 to 10,000 square feet in size. Under Planned Unit Development provisions, smaller lot sizes at higher densities may be permitted when clustered around shared open space amenities or through density bonus policies.	**Consistent.** The Project site has a planned land use designation of Low Density Residential and proposes the development of a single-family residential subdivision at a size and density permitted by the General Plan and HMC.

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

4.11.3 Mitigation Measures

None required.

4.12 MINERAL RESOURCES

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

4.12.1 Environmental Setting

The California Geological Survey (CGS) classifies and designates areas within California that contain or potentially contain significant mineral resources. Lands are classified into Aggregate and Mineral Resource Zones (MRZs), which identify known or inferred significant mineral resources. According to the California Department of Conservation, CGS's Surface Mining and Reclamation Act (SMARA) Mineral Lands Classification (MLC) data portal, the city of Hanford is not within a mineral resource study area.[27] In addition, according to the General Plan, the city of Hanford is not within a Division of Oil, Gas, and Geothermal Resources recognized oil field. Rather, the General Plan identifies sand and gravel for road and building construction as the only likely mineral resources in the area. Lastly, according to the Kings County General Plan, there are no oil fields or areas designated for mineral recovery in the city of Hanford.

4.12.2 Impact Assessment

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

[27] California Department of Conservation. SMARA Mineral Land Classification. Accessed on October 14, 2021, https://www.conservation.ca.gov/cgs/minerals/mineral-land-classification-smara

No Impact. The Project site is not located in an area designated for mineral resource preservation or recovery. Therefore, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Therefore, no impact would occur as a result of the Project.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. As described above, the Project site is not located in an area designated for mineral resource preservation or recovery and as a result, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Further, the site is not delineated on the General Plan, a Specific Plan, or other land use plan as a locally important mineral resource recovery site, thus it would not result in the loss of availability of a locally important mineral resource. Therefore, no impact would occur as a result of the Project.

4.12.3 Mitigation Measures

None required.

4.13 NOISE

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b)	Generation of excessive groundborne vibration or groundborne noise levels?			X	
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

4.13.1 Environmental Setting

In general, there are two (2) types of noise sources: 1) mobile source and 2) stationary sounds. Mobile source noises are typically associated with transportation including automobiles, trains, and aircraft. Stationary sounds are sources that do not move such as machinery or construction sites. Two (2) noise generating activities of the Project would include construction (short-term, temporary) and operational (long-term) noise.

The Hanford General Plan Noise Element and HMC outline policies and regulations to mitigate health effects of noise in the community and prevent exposures to excessive noise levels. In particular, policies in the General Plan regarding new development include:

Policy H41 Interior Noise Exposure. *Adopt State Noise Insulation Standards (California Code of Regulations, Title 24) and Chapter 35 of the Uniform Building Code (UBC) concerning interior noise exposure for new single, multi-family housing, hotels and motels.*

Policy H42 Noise Evaluation for New Development. *Evaluate proposed development proposals against existing and future noise levels from ground transportation noise sources.*

Policy H43 Non-Transportation Noise. *Mitigate noise created by non-transportation noise sources so as not to exceed the maximum allowable interior and exterior noise level standards.*

Policy H48 Noise Mitigation for Construction Activities. *Require all development projects to mitigate noise impacts associated with construction activities.*

Policy H50 Sound Walls. *Utilize sound walls at the perimeter of new residential developments to protect from noise generated by transportation corridors.*

Sensitive land uses include residential, schools, churches, nursing homes, hospitals, and open space/recreation areas. Commercial, farmland, and industrial areas are not considered noise sensitive and generally have higher tolerances for exterior and interior noise levels. The nearest sensitive receptors to the Project site are the two (2) existing single-family residences located on a portion of the Project site (to be excluded through a lot line adjustment), in addition to single-family residences located immediately south of the site.

4.13.2 Impact Assessment

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

Less than Significant Impact. Noise generating activities of the Project would include traffic noise and stationery-source noise, such as operations and construction as described below. Overall, the Project would result in a less than significant impact in regard to noise.

Stationary-Source Noise

Operations: The primary source of on-going noise from the future residential project will be from vehicles traveling to and from the site. The Project will generate an increase in traffic on some roadways in the Project area. However, the relatively low number of new trips associated with the Project is not likely to increase the ambient noise levels by a significant amount as the area is active

with vehicles and the proposed Project will not introduce a new significant source of noise that isn't already occurring in the area.

Construction: Stationary-source noise would result from construction activities through the use of construction equipment for grading the site and building the proposed structures. The Project is anticipated to begin construction in February 2024 with full buildout by July 2024. Construction phases would include standard construction activities such as demolition, site preparation, grading/excavation, draining/utilities/trenching, foundations/concrete pour, building construction, and paving.

The nearest sensitive land uses are single-family residential located approximately ± 70-feet from proposed lots and are located within the Project site (to be excluded through the lot line adjustment). According to the Federal Highway Administration Roadway Construction Noise Model (RCNM), all possible construction equipment at 70-feet from the nearest noise sensitive land use (i.e., single-family residence) would generate a maximum noise level of 98.3 A-weighted decibels (dBA), which is 13.3 dBA over the default noise limit (85 dBA). Although the nearby residential uses would experience elevated noise levels from construction, these activities would be temporary and would generally take place Monday through Friday between 7:00 am and 8:00 pm, as permitted by HMC *Section 9.10.060*:

> ***HMC Section 9.10.060 Noises Prohibited.*** *Construction or Repair of Buildings, Excavation of Streets and Highways. The construction, demolition, alteration or repair of any building or the excavation of streets and highways other than between the hours of 7:00 a.m. and 8:00 p.m. In cases of emergency, construction or repair noises are exempt from this provision. In non-emergency situations, the city manager, or designee, may issue a permit, upon application, if the city manager, or designee, determines that the public health and safety, is affected by loud and raucous noise caused by construction or repair of buildings or excavation of streets and highways between the hours of 8:00 p.m. and 7:00 a.m. will not be impaired, and if the city manager, or designee, further determines that loss or inconvenience would otherwise result. The permit shall grant permission in non-emergency cases for a period of not more than three (3) days. The permit may be renewed once for a period of three (3) days or less.*

Overall, Project construction is not expected to result in a significant impact because the noise would be regulated by the HMC. Noise would thereby be generated during daylight hours and not during evening or more noise-sensitive time periods; and the increase in noise would cease upon completion of the Project. For these reasons, a less than significant impact would occur.

Although the Project would result in increased ambient noise level at the Project site, compliance with the General Plan policies and *Chapter 9.10 Loud or Annoying Noises* of the HMC requirements

would result in the Project's compliance with applicable standards. Overall, the Project would result in a less than significant impact in regard to noise.

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

Less than Significant Impact. Ground borne vibration may result from construction, depending on the use of equipment (e.g., pile drivers, bulldozers, jackhammers, etc.), distance to affected structures, and soil type. Depending on the method, equipment-generated vibrations could spread through the ground and effect nearby buildings. It is not anticipated that the Project would generate excessive ground borne vibration or ground borne noise levels, given the type of improvements associated with the development. Further, construction or operation of the Project would not involve equipment that would generate substantial groundborne vibration of ground borne noise levels. As discussed under criteria a), project-generated stationary noise sources would be regulated by the HMC. Through compliance with the HMC, the Project would result in a less than significant impact.

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

No Impact. The nearest public use airport is the Hanford Municipal Airport located more than three (3) miles southeast of the Project site. According to the Kings County Airport Land Use Compatibility Plan (1994), the site is not within the Hanford Municipal Airport Influence Area and is therefore not subject to land use compatibility policies.[28] Thus, the Project would not result in a expose people residing or working in the Project area and no impact would occur as a result of the Project.

4.13.3 Mitigation Measures

None required.

[28] County of Kings. (1994). Kings County Airport Land Use Compatibility Plan. Accessed October 14, 2021, https://www.countyofkings.com/home/showpublisheddocument/3094/635274871108830000

4.14 POPULATION AND HOUSING

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

4.14.1 Environmental Setting

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

4.14.2 Impact Assessment

a) *Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

Less than Significant Impact. A key consideration in evaluating growth inducement is whether the activity in question constitutes "planned growth." A residential project that is consistent with the

underlying General Plan would generally be considered planned growth because it was previously contemplated by these long-range documents, and, thus, would not be deemed to have a significant growth-inducing effect. The Project does not represent a significant change in the surrounding area as it will facilitate the development of a use that is compatible with the existing and planned land uses within the area. In addition, the Project is consistent with the planned land use designation. In addition, the extension of urban infrastructure to serve the proposed Project may be considered "growth accommodating" because it is intended to facilitate planned growth. However, the anticipated population of 460 will not affect any regional population, housing or employment projections anticipated by City policy documents. Thus, since the proposed Project is considered planned growth, the impact is less than significant.

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

No Impact. The Project site is currently used for agricultural and commercial uses and will not result in the displacement of people or housing. Therefore, the Project would have no impact.

4.14.3 Mitigation Measures

None required.

4.15 PUBLIC SERVICES

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

4.15.1 Environmental Setting

The Project is located within Hanford city limits and thus, would be subject to fees to for the construction, acquisition, and improvements for such services:

Fire Protection Services

Fire Protection Services in the city are provided by the Hanford Fire Department (HFD). The HFD operates a total of three (3) fire stations that serve the city: Fire Station 1 located at 350 W. Grangeville Boulevard, Fire Station 2 located at 10553 Houston Avenue, and Fire Station 3 located at 1070 S. 12th Street. The Project site is in the service area of Fire Station 1, which is 2.1 miles from the site. To address impacts to fire protection services, the City of Hanford has implemented the Fire Protection Development Impact Fee pursuant to *Chapter 15.45* of the HMC, which requires developers to pay the "fair share" of capital improvements related to fire protection

services and facilities. A Fire Protection Development Impact Fee has been assessed for the proposed Project based on the Facility size. Lastly, the Project was reviewed by the HFD and is subject to regulations and standards such as the California Uniform Fire Code (UFC), which includes regulations on construction, maintenance and building use. The UFC addresses fire department access, fire hydrants, sprinklers, fire alarm system, etc., for new buildings.

Consultation Received: Consultation was received from the Hanford Fire Department on October 14, 2021. Comments include the Project's compliance to applicable codes and requirements, permit submittal, installation of fire hydrants and automatic sprinkler systems, access road requirements, etc. Such requirements shall be incorporated in the Project's Conditions of Approval.

Police Protection Services

Police Protection Services in the city are provided by the Hanford Police Department (FPD). The HPD is located at 425 North Irwin Street, which is approximately 2.4-miles from the Project site. According to the Fiscal Year (FY) 2021-2022/2022-2023 City of Hanford Budget, the HPD handled over 60,478 incidents in FY 2019-2020. To address impacts to police protection services, the City of Hanford has implemented the Police Protection Development Impact Fee pursuant to *Chapter 15.46* of the HMC, which requires developers to pay the "fair share" of capital improvements related to police protection services and facilities. A Police Protection Development Impact Fee has been assessed for the proposed Project based on the Facility size.

Schools

Educational services within the Project area are primarily served by Hanford Elementary School District (HESD) and Hanford Joint Union High School District (HJUHSD). Schools within a one (1)-miles radius of the Protect site include Frontier Elementary School, Pioneer Union Elementary School, Simas Elementary School, and Sierra Pacific High School. Funding for schools and school facilities impacts is outlined in Education Code Section 17620 and Government Code Section 65995 et. seq., which governs the amount of fees that can be levied against new development. These fees are used to construct new or expanded school facilities. Payment of fees authorized by the statute is deemed "full and complete mitigation."

Consultation Received: Consultation was received from Renee Creech with the Hanford Joint Union High School District on July 22, 2021 stating the following, *"This project is another housing development in our school boundary that is already impacted. This causes issues for traffic, transportation, and classroom learning of students and staff."* Traffic and transportation impacts are addressed in Section 4.17.

Parks and Recreation

Park and Recreation Facilities are overseen by the Hanford Parks and Community Services Department. According to the 2020 Parks and Recreation Master Plan, the City currently offers 299.70 acres of park land which equates to a total Level of Service (LOS) of 5.06 acres of park land per 1,000 residents based on the City's 2018 population.[29] The 2035 General Plan includes a LOS standard goal of 3.5 acres per 1,000 residents for future growth. Similar to other public services, the City had established the Park Facilities Impact Fee pursuant to *Chapter 15.44* of the HMC, which requires developers to pay for parks and recreational facilities improvements. The Project may also be subject to requirements of the Quimby Act, including park land dedication and/or payment of fees in-lieu thereof (or a combination of both). The nearest parks to the Project site include the Silver Oaks Park and the Hanford Sports Complex.

4.15.2 Impact Assessment

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

i. Fire protection?

Less than Significant Impact with Mitigation Incorporated. The Project site is within the city limits and therefore would be served by the HFD. The Project site is in the service area of Fire Station 1, which is 2.1 miles from the site. The Project's proximity to existing stations would support adequate service ratios, response times, and other performance objectives for fire protection services. In addition, the HFD reviewed the Project for requirements related to water supply, fire hydrants, and fire apparatus access to the building(s) on site. Based on HFD's review, it can be determined that the Project can be served by existing facilities and would not result in the need for new or altered facilities. However, to further reduce potential Project impacts, the Project shall be subject to Fire Protection Department Impact Fees pursuant to *MM PUB-1*. With mitigation incorporated, the Project's impacts would be reduced to less than significant.

MM PUB-1. The Developer shall pay the Fire Protection Department Impact Fees

[29] City of Hanford. (2020) Parks and Recreation Master Plan 2020. Accessed October 13, 2021, https://cms6.revize.com/revize/hanfordca/2020%20Hanford%20Parks%20Master%20Plan.pdf

ii. Police protection?

Less than Significant Impact with Mitigation Incorporated. The Project site is within the city limits and therefore would be served by the HPD. The nearest police station to the proposed Project is located approximately 2.4-miles from the site. Since the Project site is located immediately adjacent to a residential area that is currently served by the Police Department, it can be presumed that the addition of the subdivision within a growing residential area would not cause the Department to significantly expand its existing service area or construct a new facility to serve the Project. However, to further reduce potential Project impacts, the Project shall be subject to Police Protection Development Impact Fees pursuant to *MM PUB-2*. With mitigation incorporated, the Project's impacts would be reduced to less than significant.

MM PUB-2. *The Developer shall pay the Police Protection Development Impact Fees*

iii. Schools?

Less than Significant Impact with Mitigation Incorporated. Educational services for the proposed Project will be provided by the Hanford Elementary School District (HESD) and Hanford Joint Union High School District (HJUHSD). The development and managing of school sites are the responsibility of school districts and elected governing school boards. The General Plan provides policy which focuses on collaboration with school districts to determine new school locations and utilization of school facilities for general public needs. The development is consistent with the General Plan and will be subject to School Impact Fees in order to mitigate the effect of the project on schools. In particular, funding for schools and school facilities impacts is outlined in Education Code Section 17620 and Government Code Section 65995 et. seq., which governs the amount of fees that can be levied against new development. These fees are used to construct new or expanded school facilities. Payment of fees authorized by the statute is deemed "full and complete mitigation." Thus, to offset any potential impacts, the Project shall be subject to School Impact Fees pursuant to *MM PUB-3*. With mitigation incorporated, the Project's impacts would be reduced to less than significant.

MM PUB-3. *The Developer shall pay the School Impact Fees*

iv. Parks?

Less than Significant Impact with Mitigation Incorporated. The Project proposes a residential use and thus, would result in a net increase in the area population. As a new subdivision, the Project is subject to the Park Facilities Impact Fee in addition to the Quimby Act. Thus, to offset any potential impacts, the Project shall be subject to Park Facilities Impact Fees and the Quimby Act pursuant to *MM PUB-4*. With mitigation incorporated, the Project's impacts would be reduced to less than significant.

MM PUB-4. *The Developer shall pay the Park Facilities Impact Fees and comply with the Quimby Act Requirements.*

v. Other public facilities?

Less than Significant Impact. Development of the Project will increase the demand for other public services, such as libraries. However, the City does not have a requirement or standard for the number or size of a library based on the City's population. Therefore, a significant impact or the need for new or altered facilities to provide other public services is not anticipated and thus the project will result in a less than significant impact.

4.15.3 Mitigation Measures

The proposed Project shall implement and incorporate, as applicable, the Public Services related mitigation measures as identified in the Mitigation Monitoring and Reporting Program dated October 18, 2021, including the mitigation measure identified above.

4.16 RECREATION

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

4.16.1 Environmental Setting

Park and Recreation Facilities are overseen by the Hanford Parks and Community Services Department. According to the 2020 Parks and Recreation Master Plan, the City currently offers 299.70 acres of park land which equates to a total Level of Service (LOS) of 5.06 acres of park land per 1,000 residents based on the City's 2018 population.[30] The 2035 General Plan includes a LOS standard goal of 3.5 acres per 1,000 residents for future growth. Similar to other public services, the City had established the Park Facilities Impact Fee pursuant to *Chapter 15.44* of the HMC, which requires developers to pay for parks and recreational facilities improvements. The Project may also be subject to requirements of the Quimby Act, including park land dedication and/or payment of fees in-lieu thereof (or a combination of both). The nearest parks to the Project site include the Silver Oaks Park and the Hanford Sports Complex.

[30] City of Hanford. (2020) Parks and Recreation Master Plan 2020. Accessed October 13, 2021, https://cms6.revize.com/revize/hanfordca/2020%20Hanford%20Parks%20Master%20Plan.pdf

4.16.2 Impact Assessment

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less than Significant Impact. The Project proposes a residential use and thus, would result in a net increase in the area population. As a new subdivision, the Project is subject to the Park Facilities Impact Fee in addition to the Quimby Act. Compliance with these requirements through *MM PUB-4* (See Section 4.15) would offset any impacts that would result in the need for new or physically altered parks. For these reasons, the Project would have a less than significant impact.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

Less than Significant Impact. The Project does not propose recreational facilities. As stated under criterion a) above, the Project is subject to the Park Facilities Impact Fee in addition to the Quimby Act. Through compliance with these requirements, the Project is paying its "fair share" for the future construction of facilities and/or to reimburse the City for such facilities. For these reasons, a less than significant impact would occur as a result of the Project.

4.16.3 Mitigation Measures

None required.

4.17 TRANSPORTATION

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

4.17.1 Environmental Setting

The Project site is bound to the north by Grangeville Boulevard, a two (2)-lane east-west arterial and to the west by 13th Avenue, a two (2)-lane north-south major arterial. The primary access points to the subdivision are proposed on Grangeville Boulevard at "I Street" (future local) and "J Street" (future local). No access is proposed from 13th Avenue.

The portions of Grangeville Boulevard and 13th Avenue will be improved with curb, gutter, sidewalk, landscaping, and streetlights. The Project would also be connected to the existing, adjacent residential subdivision to the east by "Ella Street" and "Malone Street" (existing and future locals). Local streets (60-ft. width) contained within the subdivision will include sidewalk, curb, gutter, landscaping, and parking lanes. At present, no fixed-route transit service, bicycle facilities, or pedestrian facilities serve the Project site.

Consultation Received: Consultation was received from Oscar Gonzalez with Kings Area Rural Transit (KART) on July 29, 2021, which stated, *"KART would like consideration for a bus stop 12'x7'-*

sidewalk 7' wide from curb to sidewalk at 12'x7'. We can fit a Bench and Transit Can." Such requirements shall be incorporated in the Project's Conditions of Approval.

Traffic Study and VMT Analysis

A Traffic Study and VMT Analysis for the Project were conducted by Peters Engineering Group. The study and analysis were amended on January 28, 2022, with an updated VMT analysis that is based upon new substantial evidence. Results of the study and analysis are incorporated herein. The study including the VMT Analysis are provided in Appendix B.

4.17.2 Impact Assessment

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. The Project would be required to comply with all project level requirements implemented by a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Based on Engineering comments prepared for the project, standard frontage improvements are required, which will address the circulation system. The Project is also required to submit improvement plans, including roadway improvements, for review and approval by the City Engineer to ensure improvements will be consistent with City standards. Therefore, through compliance with the programs, plans, ordinances, and policies addressing the circulation system (inclusive of transit, roadway, bicycle, and pedestrian facilities), a less than significant impact would occur because of the Project.

In addition, the State of California does not recognize traffic congestion and delay as an environmental impact per CEQA. However, *Policy T29* of the Hanford General Plan states: *"Maintain a peak hour Level of Service (LOS) E on streets and intersections within the area bounded by Highway 198, 10th Avenue, 11th Avenue, and Florinda Avenue, inclusive of these streets. Maintain a peak hour Level of Service (LOS) D on all other streets and intersections with the Planned Growth Boundary.*" The results of the Traffic Study conducted by Peters Engineering Group indicate that the intersections analyzed near the Project site are currently operating at acceptable LOS and are expected to continue to operate at acceptable LOS with buildout of the Project. Thus, the Project is expected to have a less than significant impact.

Based on the above assessment, it can be determined that the Project will not conflict with the General Plan, policies, or ordinance and the impact is less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant Impact. Under Senate Bill 743 (SB743), traffic impacts are related to Vehicle Miles Traveled (VMT). The VMT metric became mandatory on July 1, 2020. Senate Bill (SB) 743 requires that relevant CEQA analysis of transportation impacts be conducted using a metric known as vehicle miles traveled (VMT) instead of Level of Service (LOS). VMT measures how much actual automobile travel (additional miles driven) a proposed Project would create on California roads. If the project adds excessive automobile travel onto roads, then the project may cause a significant transportations impact.

The State CEQA Guidelines were amended to implement SB 743 by adding Section 15064.3. Among its provisions, Section 15064.3 confirms that, except with respect to transportation projects, a project's effect on automobile delay shall not constitute a significant environmental impact. Therefore, LOS measures of impacts on traffic facilities are no longer a relevant CEQA criteria for transportation impacts. In place of LOS analysis, VMT metrics for thresholds of significance are now required to be utilized to determine if a project promotes reductions in greenhouse gas emissions, multimodal transportation networks, and diversity of land uses.

According to the Governor's Office of Planning and Research's (OPR) Technical Advisory (TA) on Evaluating Transportation Impacts in CEQA, land use projects, residential, office, and retail projects tend to have the greatest influence on VMT. For that reason, OPR recommends the quantified thresholds described above for purposes of analysis and mitigation. In regard to recommended thresholds for residential projects, the OPR advises: *"a proposed Project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capital."* Thus, residential development that would generate vehicle travel that is 15 or more percent below the existing residential VMT per capita, measured against the region or city, may indicate a less-than significant transportation impact.

Based upon the revised VMT analysis contained in Appendix B, which is based on new substantial evidence, OPR's per capita recommendation is a valid threshold for the City of Hanford because it is consistent with CARB's thirteen percent (13%) GHG vehicle emission reduction target to which KCAG's members, including the City, are subject. It is reasonable to conclude that a reduction in VMT directly corresponds to a reduction in GHG emissions from passenger vehicles and that a proposed project that is estimated to generate a per capita or per employee VMT that is more than 15 percent below that of existing development will result in GHG emission reduction consistent with CARB's 13 percent reduction target for the KCAG metropolitan planning organization (MPO). For purposes of the City's VMT evaluation efforts, it is appropriate to utilize

OPR's recommended fifteen-percent-below-existing-development VMT threshold because it is consistent CARB's applicable GHG emission reduction target.

The TA suggests that screening thresholds be utilized to identify projects that are expected to cause a less-than-significant impact. Page 12 of the TA indicates:

> *"Many agencies use 'screening thresholds' to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. (See e.g., CEQA Guidelines, §§ 15063(c)(3)(C), 15128, and Appendix G.) As explained below, this technical advisory suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing."*

With respect to map-based screening, the TA states:

> *"Residential and office projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below threshold VMT (see recommendations below). Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis."*

KCAG created an online VMT mapping tool that identifies VMT per capita and VMT per employee by traffic analysis zone (TAZ).[31] The KCAG mapping tool reflects a VMT per capita of 7.78 for the TAZ in which the Project will be located, which is more than fifteen percent below the County VMT per capita average of 9.6.

KCAG's mapping tool was created utilizing trip-based transportation models created for the eight (8) San Joaquin Valley MPOs to satisfy the requirements of SB 375. The modeling process is described in the Documentation for the EIGHT SAN JOAQUIN VALLEY MPO TRAFFIC MODELS TO MEET THE REQUIREMENTS OF SB 375 (August 30, 2012)4, which is incorporated herein by reference.

[31] Kings County Association of Governments. 2021. "Kings County Online VMT Mapping Tool." Accessed on January 4, 2021, https://www.arcgis.com/apps/webappviewer/index.html?id=84b4b47b08ac41af88779212180ff36c.

According to Appendix VIII of KCAG's 2018 Regional Transportation Plan (RTP), the 2012 transportation model was revalidated for a 2015 base year and is described on Appendix VIII page 26 as:

> *"The KCAG model was revalidated to a 2015 base year for the 2018 RTP. The revalidation included new inventories of base year housing and employment, updates to the road network and transit coverage to reflect recent changes in the transportation system, and updated traffic counts to represent the 2015 base year. The KCAG model traffic validation is based on several criteria, including vehicle-miles of travel, total volume by road type, and percent of links within acceptable limits."*

Revalidation efforts utilized traffic data provided by the City. The RTP and the City's underlying traffic data are incorporated herein by reference. Page 26 of Appendix VIII describes KCAG's VMT projection process as follows:

> *"Vehicle miles of travel (VMT) were estimated from the travel demand model by multiplying link volumes by link distances. The model estimates intrazonal trips (trips remaining within a TAZ) but does not assign these trips to the model road network. The intrazonal trips were multiplied by the estimated intrazonal distances to calculate intrazonal VMT."*

It can be concluded that, based upon KCAG's VMT mapping tool, the Project's VMT impact will be less than significant because VMT associated with the Project will be below the fifteen-percent-below-existing-development threshold. Therefore, the Project may be presumed to cause a less than significant impact pursuant to CEQA Guidelines section 15064.3(b).

c) *Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Less than Significant Impact. The Project design does not contain any geometric design features that would create hazards. Implementation of the Project would require the improvement and expansion of the roadway network serving the Project site. As discussed under criterion a) above, the Project is subject to standard frontage improvements, which would be designed pursuant to applicable federal, state, and local design standards. Compliance with such standards would ensure that any traffic hazards are minimized. Further, the Project proposes the development of a residential site that is in an area generally characterized by existing and planned residential, educational, and recreational uses. Therefore, the Project does not propose an incompatible use as it is consistent with the existing development in the area and is similar in nature to the surrounding uses. As a result, implementation of the Project would result in a less than significant impact related to hazards due to roadway design features or incompatible uses

d) Result in inadequate emergency access?

Less than Significant Impact. The Project does not involve a change to any emergency response plan. In addition, the City's Engineering Department and Fire Department have reviewed the Project and imposed standard conditions to ensure adequate site access including emergency access. In the case that Project construction requires lane closures, access through Grangeville Boulevard and 13th Avenue would be maintained through standard traffic control and therefore, potential lane closures would not affect emergency evacuation plans. Thus, a less than significant impact would occur because of the Project.

4.17.3 Mitigation Measures

None required.

4.18 TRIBAL CULTURAL RESOURCES

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

4.18.1 Environmental Setting

Assembly Bill 52 (AB 52) requires consultation with California Native American tribes during the CEQA process to determine potential effects of proposed projects on a tribal cultural resource. Pursuant to Public Resources Code (PRC) Section 21080.3.1, the lead agency shall begin consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed project. Such significant cultural resources are either sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe which is either on or eligible for inclusion in the California Historic Register or local historic register,

or, the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC Section 21074(a)(1-2)). According to the most recent census data, California is home to 109 currently recognized Indian tribes. Tribes in California currently have nearly 100 separate reservations or Rancherias.

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

Generally, the term 'cultural resources' describes property types such as prehistoric and historical archaeological sites, buildings, bridges, roadways, and tribal cultural resources. As defined by CEQA, historical resources include sites, structures, objects, or districts that may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance. Such resources are eligible for listing in the California Register of Historic Resources by the State Historical Resources Commission. The city of Hanford has three (3) buildings listed on the National Register of Historic Places: Hanford Carnegie Library, Kings County Courthouse, and Taoist Temple.

The City of Hanford conducted tribal consultation pursuant to AB 52 and SB 18. In response, the City received pre-consultation from the Santa Rosa Rancheria Tachi Yokut Tribe. The Tribe requested that an archeological survey be conducted in addition to a California Historical Resources Information System (CHRIS) search and Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). In addition, the Tribe has requested the following Mitigation Measures (MM) to be incorporated with the proposed Project:

> ***MM CR-1.*** *If cultural resources are discovered during construction or related activities, all work shall be halted and a qualified archeologist and the City of Hanford shall be notified. The find shall be properly investigated and appropriate measures shall be taken before construction may continue.*
>
> ***MM CR-2.*** *Prior to ground disturbing activities, construction staff shall receive a cultural presentation by the Santa Rosa Rancheria regarding cultural resources and laws and regulations for the discovery of cultural resources and human remains.*
>
> ***MM CR-3.*** *A Native American monitor shall be present for ground disturbing activities.*

MM CR-4. A Burial Treatment Plan shall be signed by the applicant/property owner prior to any earth disturbing activities.

MM CR-5. A curation agreement shall be signed with the Santa Rosa Rancheria.

CHRIS Record Search

The Southern San Joaquin Information Center (SSJIC) conducted a California Historical Resources Information System (CHRIS) Record Search for the Project site and surrounding area (0.5-mile radius, "Project Area") on September 13, 2021 (Confidential). The results indicate that the Project Area had been partly surveyed previously and that one (1) cultural resource, the historic Last Chance Ditch (CA-KIN-191H) crossed through it. Based on the map provided, the cultural resource is not located on the Project site.

SLF NAHC Record Search

A NAHSC Sacred Lands Files search was conducted on October 4, 2021. The search results were negative and did not indicate any known sacred sites or tribal cultural resources within the Project Area.

Phase I Survey

A Phase I cultural resources survey for the Project area was conducted by ASM Affiliates on September 14. 2021. The report is confidential and is therefore not provided in this initial study; however, results are incorporated herein. No historical or archaeological resources of any kind were discovered within the Project Area. In addition, the previously recorded historical Last Chance Ditch was found to be abandoned and filled-in. Based on the proximity of the Project site to the Last Chance Ditch, the survey considers the site to be archaeologically sensitive. Following the suggestions of the Santa Rosa Rancheria Tachi Yokut Tribe, the survey recommends the aforementioned mitigation measures.

4.18.2 Impact Assessment

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

Less than Significant Impact. As discussed in Section 4.5, the Project site does not contain any property or site features that are eligible for listing in the California Register of Historical Sources, or in a local register of historical resources as defined in PRC Section 5020.1(k). Nevertheless, there is some possibility that a non-visible, buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a significant impact. Hanford General Plan *Policy O49* imposes measures to mitigate when resources are uncovered during construction. In addition, mitigation measures *MM CR-1* to *MM CR-5* requested by Santa Rosa Rancheria are incorporated herein to mitigate for potential subsurface cultural resources and human remains. Therefore, if any human remains were discovered, implementation of related regulations and mitigation measures would reduce the Project's impact to less than significant. Thus, if such resources were discovered, implementation of the required condition would reduce the impact to less than significant with mitigation incorporated.

b) *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*

Less than Significant Impact. The Project site has not been determined by the City to be a significant resource pursuant to Public Resources Code Section 5024.1 and to-date, no substantial information has been provided to the city to indicate otherwise. According to the NAHC records, no sacred sites or tribal cultural resources are known in or near the study area. Further, the Project site, inclusive of site features, is not listed in the California Register of Historical Sources. However, there is some possibility that a non-visible, buried site may exist and may be uncovered during ground disturbing construction activities which would constitute a significant impact. Hanford General Plan *Policy O49* imposes measures to mitigate when resources are uncovered during construction. In addition, mitigation measures *MM CR-1* to *MM CR-5* requested by Santa Rosa Rancheria are incorporated herein to mitigate for potential subsurface cultural resources and human remains. Therefore, if any human remains were discovered, implementation of related regulations and mitigation measures would reduce the Project's impact to less than significant. Thus, if such resources were discovered, implementation of the required condition would reduce the impact to less than significant with mitigation incorporated.

4.18.3 Mitigation Measures

None required.

4.19 UTILITIES AND SERVICE SYSTEMS

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effect?			X	
b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c)	Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d)	Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e)	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

4.19.1 Environmental Setting

The Project site is within city limits and thus, will be required to connect to water, sewer, stormwater, and wastewater services. Natural gas, electricity, and telecommunications are provided by private companies. Each utility system is described below. Overall, the review of the Project by the City and responsible agencies indicates that the Project would not require or result in the relocation or construction of new or expanded facilities and as such, would not cause significant environmental effects.

Water

The City of Hanford's water supply system is a groundwater system. The city is located within the Tulare Lake Hydrologic Region and is within the Tulare Lake Groundwater Subbasin which transmits, filters, and stores water from the main San Joaquin Valley Groundwater Basin. The system consists of 14 groundwater wells, three (3) storage reservoirs, distribution mains, and fire hydrants. The system does not use surface water. Groundwater is recharged by rain and snowfall in addition to percolation from storm water basins, local waterways, and agricultural irrigation. The Project would include installation of a 12-inch water main along Grangeville Boulevard to connect to the existing water main in addition to eight (8)-inch water mains throughout the subdivision. Each unit will connect to the City's water system through installation of meters.

Wastewater

The City of Hanford wastewater system provides for treatment, disposal, and reuse of effluent, which meets all of the state's discharge requirements for the city. The wastewater system consists of a treatment plant and 21 sanitary sewer lift stations located throughout the city. The treatment facility has a capacity of 8.0 million gallons per day and is located south of Houston Avenue and east of 11th Avenue. The City's wastewater system also pursues water conservation strategies to ensure long-term reuse of treated disinfected wastewater to reduce the need for groundwater.

Solid Waste

Solid waste in the city is collected by a private contractor, Kings Waste Recycling Authority (KWRA). Refuse is sorted at the KWRA facility to recover recyclable materials before being hauled to the landfills in Kettleman Hills. For single-family residential customers, the City has instituted a greenwaste collection mixed recycle collection program.

Stormwater

The existing drainage infrastructure within the City of Hanford's Stormwater Management Program include natural drainage channels, retention basins, natural vegetation, piping, and pump

stations. There are some areas where storm drainage is controlled by drainage inlets and underground structures. The system consists of 30 pump stations, 57 miles of pipeline, and 220 acres of drainage basins and drainage ditches.

Natural Gas and Electricity

PG&E and Southern California Edison Company are the natural gas and electric service providers for the area, incrementally expands and updates its service system as needed to serve its users.

Consultation Received: Consultation was received from PG&E on July 27, 2021 with information and requirements as it related to Gas facilities and Electric facilities. Such requirements shall be incorporated in the Project's Conditions of Approval.

Telecommunications

Accordingly, telecommunications providers in the area (AT&T and Comcast) incrementally expand and update their service systems in response to usage and demand.

Consultation Received: Consultation was received from Michael Wilson with AT&T on July 23, 2021, which stated, *"new subdivision to feed fiber in joint trench. AT&T will provide redlines to developer. Any relocation conditions should be relayed to me by developer or city (Grangeville aerial-to-aerial, I expect)."* Such requirements shall be incorporated in the Project's Conditions of Approval.

4.19.2 Impact Assessment

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant Impact. The Project site is within city limits and thus, will be required to connect to water, stormwater, solid waste, and wastewater services. Natural gas, electricity, and telecommunications are provided by private companies. The City and responsible agencies have reviewed the Project to determine adequate capacity in these systems and ensure compliance with applicable connection requirements. In addition to connections to water, stormwater, solid waste, and wastewater services, the Project will be served by the appropriate natural gas, electricity, and telecommunications providers for the Project area. Overall, the review of the Project by the City and responsible agencies indicates that the Project would not require or result in the relocation or construction of new or expanded facilities and as such, would not cause

significant environmental effects. Through compliance with the applicable connection requirements, a less than significant impact would occur as a result of the Project.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact. As discussed in detail in Section 4.10, the City's long-term water resource planning is addressed in the City's 2015 UWMP and the 2017 WSMP. According to these plans, the City's per capita consumption has generally remained unchanged in recent history (2000 to 2015), with a slight decrease from 2012-2015 due to the drought and water shortage measures. The City predicts that the water shortage contingency measures and continued installation of water service meters will result in a continued downward trend in water use.

In addition, the plans indicate the City uses groundwater wells as the sole source of supply. As such, groundwater should be viewed as a sustainable resource. As of 2017, there are 14 active groundwater wells with a rated supply of approximately 34.9 million gallons per day (mgd) that may increase or decrease in efficiency ratings as groundwater levels fluctuate and/or recover. To account for these fluctuations, the plans recommend that the City monitor well efficiencies on a frequent basis to adequately manage the groundwater supply. In the case of persistent droughts, it may therefore be necessary for the City to construct additional wells to maintain adequate supply capacity. Based on the buildout water supply requirements, the plans recommend the construction of 11 new groundwater wells including Main-W2 to be located at Centennial Drive approximately 2,600 ft. north of Grangeville Boulevard, west of the Project site.

Because the Project has been previously accounted for and analyzed within the General Plan, it can be presumed that the existing and planned water distribution system and supplies should be adequate to serve the Project during normal, dry, and multiple dry years. In addition, adherence to connection requirements and recommendations pursuant to the City's water supply planning efforts (i.e., compliance with California Plumbing Code, efficient appliances, efficient landscaping, etc.) should not negatively impact the City's water provision. For these reasons, a less than significant impact would occur as a result of the Project.

c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. The City of Hanford Wastewater Treatment Plant (WWTP) is the city's facility for treatment, disposal, and reuse of wastewater for residential, commercial, and industrial accounts. As previously mentioned, the Project is consistent with the planned land use designation previously accounted for in the General Plan. The wastewater impacts for the Project were evaluated by the City Engineer to ensure compliance with the City's wastewater treatment

requirements and capacity. Based on the City's review, the Project has adequate capacity based on the estimated sewage collection and treatment demand. In particular, the Project will install eight (8)-inch sewer main along "A Street" to "L Street" and Malone Street. For these reasons, the Project would not exceed wastewater treatment requirements such that a new facility would be required, nor would the existing WWTP Facility need to be expanded. As such, the Project would have a less than significant impact.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact. Project construction as well as future residences will be served by the City's contracted waste hauler and would be required to comply with HMC *Chapter 13.12 Solid Waste Collection and Disposal,* which outlines requirements and specifications for solid waste collection. In addition, the General Plan outlines goals and policies for source reduction and recycling:

Goal P5: Adequate solid waste disposal capacity to meet existing and future demands.

Goal P6: Continued waste stream reduction through education, recycling and other means.

> *Policy P27 Recycling Programs. Participate in and encourage waste diversion and recycling programs and efforts.*
>
> *Policy P28 Kings Waster Recycling Authority. Participate as a member and support the Kings Waste Recycling Authority.*

Compliance with these measures and policies would serve to reduce impacts of solid waste by promoting regular collection and encouraging the recycling of materials. For this reason, the Project would have a less than significant impact.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. As described under criterion d) above, Project activities that generate solid waste would be handled, transported, and disposed of in accordance with all applicable statutes and regulations related to solid waste. Therefore, a less than significant impact would occur as a result of the Project.

4.19.3 Mitigation Measures

None required.

4.20 WILDFIRE

If located in or near state responsibility or lands classified as very high fire hazard severity zones, **Would the project:**	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

4.20.1 Environmental Setting

The Hanford Fire Department provides emergency and fire protection services within the city limits of Hanford. Emergency services provided by the Fire Department include technical rescue, hazardous materials response, emergency medical services, and emergency disaster management. Station 1, located at 350 W. Grangeville Boulevard provides service north of SR 198, while Station 2 at 10553 Houston Avenue provides south of SR 198. The Project site is located north of SR 198 and therefore would be served by Station 1.

The Project site is located on a relatively flat property within the city limits planned for residential use. Further, the Project site is not identified by the California Department of Forestry and Fire Protection (Cal Fire) or the City of Hanford as a Very High Fire Hazard Severity Zone (VHFHSZ); rather, the site is within a Local Responsibility Area (LRA) as defined by Cal Fire and is considered an area of low fire risk.[32] Lastly, the Project has been reviewed by the City and the Hanford Fire Department and is required to be developed and operate in compliance with all regulations of the current California Fire Code.

4.20.2 Impact Assessment

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The Project would not substantially impair access to the existing roadway network. Safe and convenient vehicular and pedestrian circulation would be provided in addition to adequate access for emergency vehicles. Circulation and emergency vehicle access have been reviewed by the City and it has been determined that the Project would be suitable for such circulation and access. Therefore, the Project would not substantially impair any emergency response plan and no impact would occur as a result of the Project.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The Project site is located on a relatively flat property with minimal slope and is not in an area that is subject to strong prevailing winds or other factors that would exacerbate wildfire risks. Further, the site is not identified by Cal Fire or the City as a VHFHSZ. Therefore, no impact would occur because of the Project.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The Project is located within city limits in an area with existing and planned development, including residential, educational, and recreational uses. As a result of ongoing development, infrastructure such as roads and utilities has been installed and maintained

[32] Cal Fire, "FHSZ Viewer." Accessed on October 12, 2021, https://egis.fire.ca.gov/FHSZ/

accordingly. The Project itself will result in further installation and maintenance of new infrastructure that has been reviewed and/or conditioned by the City. Through compliance with City standards and regulations for public health, safety, and welfare, such infrastructure would not exacerbate fire risk or result in temporary or ongoing impacts to the environment and no impact would occur as a result of the Project.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The Project site is located on a relatively flat property with minimal slope and is not subject to downslope, downstream flooding, or landslides. Therefore, the Project would not expose people or structures to significant risks and no impact would occur as a result of the Project.

4.20.3 Mitigation Measures

None required.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

4.21.1 Impact Assessment

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact with Mitigation Incorporated. The analyses of environmental issues contained in this Initial Study indicate that the Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Standard requirements that will be implemented through the tentative subdivision map and lot line adjustment review process and the various mitigation measures have been incorporated herein reduce all potentially significant impacts to less than significant. Therefore, the Project would have a less than significant impact.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less than Significant Impact. CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. All project-related impacts were determined to be less than significant. The Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increased need for housing, increase in traffic, air pollutants, etc.). As such, Project impacts are not considered to be cumulatively considerable given the insignificance of project-induced impacts. The impact is therefore less than significant.

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

Less than Significant Impact. The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have substantial impact on human beings, either directly or indirectly. Standard requirements and conditions have been incorporated in the project

to reduce all potentially significant impacts to less than significant. Therefore, the Project would have a less than significant impact.

5 MITIGATION MONITORING AND REPORTING PROGRAM

This mitigation measure monitoring and reporting checklist was prepared pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15097 and Section 21081.6 of the Public Resources Code (PRC). The Mitigation Monitoring and Reporting Program includes project-specific mitigation measures in the 2035 Hanford General Plan Update EIR ("EIR" noted before each mitigation measure) and mitigation measures identified in the Initial Study.

The timing of implementing each mitigation measure is identified in in the checklist, as well as identifies the entity responsible for verifying that the mitigation measures applied to a project are performed. Project applicants are responsible for providing evidence that mitigation measures are implemented. As lead agency, the City of Hanford is responsible for verifying that mitigation is performed/completed.

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initials
Agriculture					
MM AG-1. The Project shall comply with HMC Section 16.40.110 Right to Farm, sub-section (E) Disclosure and Recordation Requirements, "all approvals for improvement or development of property including without limitation application for rezonings, land divisions, zoning permits, and residential building permits, on property in the city of Hanford within one (1) mile of the city's urban limit line, shall include a condition that notice and disclosure of this agricultural land use policy be given by the applicant, or the owner if different from the applicant. The applicant, or owner if different from the applicant, shall also acknowledge the contents of the notice and disclosure, which includes a description	Verify compliance	During site plan review process	Developer to provide (or comply), City of Hanford to verify.		

<table>
<tr><td>of the property the notice and disclosure pertains to, in the Official Records of the Kings County Recorder, and recorded at the applicant's own expense." The Hanford Community Development Department is responsible for carrying out the notice, disclosure, and recordation required by the HMC.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">Air Quality</td></tr>
<tr><td>EIR MM 4.3-1: Appropriate Siting of Sensitive Receptors
The City of Hanford shall require residential development projects and projects categorized as sensitive receptors to be located an adequate distance from existing and potential sources of toxic emissions such as freeways, major arterials, industrial sites, and hazardous material locations. In addition, the City of Hanford should require new air pollution point sources such as, but not limited to, industrial, manufacturing, and processing facilities to be located an adequate distance from residential areas and other sensitive receptors (see table below).
Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities
<table>
<tr><th>Source Category</th><th>Advisory Recommendations</th></tr>
<tr><td>Freeways and High-Traffic Roads</td><td>- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with</td></tr>
</table></td><td>Verify compliance</td><td>During site plan review process</td><td>Developer to provide (or comply), City of Hanford to verify.</td><td></td><td></td></tr>
</table>

	100,000 vehicles/day, or rural roads with 50,000 vehicles/day					
Distribution Centers	- Avoid siting new sensitive land uses within 1,000 feet of a distribution center that accommodates more than 100 truck/day, more than 40 trucks with operating transport refrigeration units (TRU)/day, or where TRU operations exceed 300 hours/week. - Take into account the configuration of existing distribution centers and avoid located residences and other sensitive land uses near entry and exit points.					
Rail Yards	- Avoid siting sensitive land uses within 1,000 feet of a major service and maintenance rail yard. - Within 1 mile of a rail yard, consider possible siting limitations and mitigation approaches					

Ports	- Avoid siting new sensitive land uses immediately downwind of ports in the most heavily affected zones. Consult local air districts or California Air Resources Board on the status of pending analyses of health risks.					
Refineries	- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult local air districts or other agencies to determine appropriate separation.					
Chrome Platers	- Avoid siting new sensitive land uses within 1,000 feet of chrome platers.					
Dry Cleaners Using Perchroloethylene	- Avoid siting new land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult local air district.					

	- Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.					
Gasoline Dispensing Facilities	- Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons/year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.					
EIR MM 4.3-2: Appropriate Siting of Sensitive Receptors The table in Mitigation Measure MM 4.3-1 depicts the California Air Resources Board recommended buffer distances associated with various types of toxic air contaminants (TACs). Future development and infrastructure projects that are similar in nature to freeways and high-traffic roads, distribution centers, rail yards, refineries, chrome platers, dry cleaners, and gasoline dispensing facilities shall require assessment to determine whether sensitive receptors would be exposed to TACs. The City of Hanford shall require or perform air toxic risk assessments to determine air toxic impacts on an as-needed basis.		Verify Compliance	Prior to approval	Developer to provide (or comply), City of Hanford to verify.		

EIR MM 4.3-3: Odors Assessment The City of Hanford shall require an assessment of new and existing odor sources for future land use development projects to determine whether sensitive receptors would be exposed to objectionable odors and apply recommended applicable mitigation measures as defined by the San Joaquin Valley Air Pollution Control District and best practices. Additionally, the City shall require conditions related to Conditional Use Permit approval associated with odors when necessary and on a case-by-case basis.	Verify Compliance	Prior to approval	Developer to provide (or comply), City of Hanford to verify.		
Biological Resources					
EIR MM 4.4-1: Mitigation Recommendations to Reduce Impacts to Special-status Species and Habitat(s) New development shall implement all reasonable and feasible mitigation imposed by the City of Hanford in order to reduce impacts to special-status species and their habitat(s). The following is a list of possible mitigation that the City of Hanford could impose on new development on a case-by-case basis, as needed: • Prepare biological assessment(s) that include recommendations to reduce impacts to special status species and habitat(s), including avoidance, minimization, and/or mitigation measures.	Identify necessary measures and verify compliance	Prior to approval	Developer to provide (or comply), City of Hanford to verify.		

• Perform preconstruction survey(s) for special status species to identify the potential for construction-related impacts and need for avoidance, minimization, and/or mitigation measures. • If, after all avoidance, minimization, and/or mitigation measures have been exhausted or are determined to not be feasible, then new development would have to consult with the applicable wildlife agencies in order to determine how to compensate for direct impacts to special status species, including, but not necessarily limited to, the possibility of acquiring incidental take permits, developing conservation plans, agree upon phasing of new development to avoid certain sensitive breeding seasons, and/or compensating for the loss of habitat at an agreed upon ratio with the applicable wildlife agency.					
EIR MM 4.4-2: Mitigation Recommendations to Reduce Impacts to Riparian Habitat, Sensitive Natural Communities and/or Wetlands New development shall implement all reasonable and feasible mitigation imposed by the City of Hanford in order to reduce impacts to riparian habitat, sensitive natural communities, and/or wetlands. The following is a list of possible mitigation that the City of Hanford could	Identify necessary measures and verify compliance	Prior to approval	Developer to provide (or comply), City of Hanford to verify.		

impose on new development on a case-by-case basis, as needed: • As part of the biological assessment(s) preparation, include analysis of, and recommendations to reduce impacts to, riparian habitat, sensitive natural communities, and/or wetlands, including avoidance, minimization, and/or mitigation measures. • Perform wetland delineation(s) in compliance with current wildlife agency standards. • If, after all avoidance, minimization, and/or mitigation measures have been exhausted or are determined to not be feasible, then new development would have to consult with the applicable wildlife agencies in order to determine how to compensate for direct impacts to riparian habitat, sensitive natural communities, and/or wetlands including, but not necessarily limited to, obtaining Clean Water Act 401 and 404 permits, acquiring Lake and Streambed Alteration Agreement(s), and compensating for the loss of riparian habitat, sensitive natural communities, and/or wetlands at an agreed upon ratio with the applicable wildlife agency.					
Cultural Resources					

MM CR-1. If cultural resources are discovered during construction or related activities, all work shall be halted, and a qualified archeologist and the City of Hanford shall be notified. The find shall be properly investigated, and appropriate measures shall be taken before construction may continue.	Submittal of Documentation and/or Onsite Verification	During Project Construction	Developer to provide (or comply), City of Hanford to verify.		
MM CR-2. Prior to ground disturbing activities, construction staff shall receive a cultural presentation by the Santa Rosa Rancheria regarding cultural resources and laws and regulations for the discovery of cultural resources and human remains.	Presentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		
MM CR-3. A Native American monitor shall be present for ground disturbing activities.	Onsite Verification	During Project Construction	Developer to provide (or comply), City of Hanford to verify.		
MM CR-4. A Burial Treatment Plan shall be signed by the applicant/property owner prior to any earth disturbing activities.	Submittal of Documentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		
MM CR-5. A curation agreement shall be signed with the Santa Rosa Rancheria.	Submittal of Documentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		
Greenhouse Gas Emissions					

MM 4.7-1: Quantifying Individual Project Emissions The City of Hanford shall quantify greenhouse gas emissions as needed on a project-by-project basis as part of the environmental review process. At that time, appropriate mitigation measures shall be identified and applied to each prior to construction in adherence to San Joaquin Valley Air Pollution Control District and California Air Resources Board guidelines in order to reduce emissions.	Submittal of Documentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		
Public Services					
MM PUB-1. The Developer shall pay the Fire Protection Department Impact Fees.	Submittal of Documentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		
MM PUB-2. The Developer shall pay the Police Protection Development Impact Fees.	Submittal of Documentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		
MM PUB-3. *The Developer shall pay the School Impact Fees.*	Submittal of Documentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		

MM PUB-4. The Developer shall pay the Park Facilities Impact Fees and comply with the Quimby Act Requirements.	Submittal of Documentation	Prior to Project Construction	Developer to provide (or comply), City of Hanford to verify.		

6 REPORT PREPARATION

Names of Persons Who Prepared or Participated in the Initial Study:

Lead Agency		
Lead Agency	City of Hanford 317 N. Douty Street Hanford, CA 93230 (559) 585-2578	Gabrielle de Silva Myers, Senior Planner
Initial Study Consultant		
Initial Study	Precision Civil Engineering 1234 O Street Fresno, CA 93721 (559) 449-4500	Bonique Emerson, AICP, VP of Planning Jenna Chilingerian, Senior Associate Planner Shin Tu, Associate Planner
Technical Studies		
Air Quality and Greenhouse Gas Impact Assessment	VRPA Technologies, Inc. 4630 W. Jennifer, Suite 105 Fresno, CA 93722 (559) 259-9257	Georgiena Vivian, Project Manager
Phase I Cultural Resources Survey	ASM Affiliates, Inc. 20424 West Valley Blvd., Suite A Tehachapi, California 93651	David S. Whitley, Ph.D., RPA Robert Azpitarte, B.A.
Traffic Study and VMT Analysis	Peters Engineering Group 862 Pollasky Avenue Clovis, CA 93612	John Rowland, PE, TE, Traffic Engineer

7 APPENDICES

Appendix A: Air Quality & Greenhouse Gas Impact Assessment

Prepared by VRPA Technologies, Inc. dated September 30, 2021.

Hanford Residential Project – Tract 934

Air Quality & Greenhouse Gas Impact Assessment

September 30, 2021

Prepared for:
Walter Diamond
Land Development Manager
Lennar Central Valley
8080 N Palm, Suite 110
Fresno, CA 93711
Cell Phone: 559-240-5053

Prepared by:
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722
Project Manager: Georgiena Vivian
Cell Phone: 559-259-9257

Table of Contents

Appendices

List of Tables

List of Figures

Executive Summary

This Air Quality & Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential air quality impacts that may result from the proposed 161-unit single-family residential tract (Tract 934) via tentative tract map (Project). The Project is located at the southeast corner of 13th Avenue and West Grangeville Boulevard on APNs 009-050-001 through -005 in the City of Hanford, CA. The parcels are zoned R-L-5 Low-Density Residential with a General Plan Designation of Low Density Residential.

CEQA IMPACTS

1. Air Quality

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. The significance criteria established by the SJVAPCD is relied upon to make the following determinations. Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan?

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. KCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Hanford 2035 General Plan. The Project is consistent with the currently adopted General Plan for the City of Hanford and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Kings County area is nonattainment for Federal and State air quality standards for ozone, in attainment of Federal standards and nonattainment for State standards for PM10, and nonattainment for Federal and State standards for PM2.5. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed above, the Project is consistent with the currently adopted General Plan for the City of Hanford and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2016 and 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project is not characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

As discussed above in Section 3.2 and 3.3, results of the analysis show that emissions generated from construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, no mitigation is needed.

- Expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the Project is a Type B Project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. As noted above, the proposed Project is not a Type A project and would not place new toxic sources in the vicinity of existing sources. Therefore, the Project will not expose sensitive receptors to substantial pollutant concentrations and any impacts would

be less than significant.

Short-Term Impacts

The annual emissions from the construction phase of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown in Table 7. Therefore, construction emissions associated with the Project are considered less than significant.

Long-Term Impacts

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Table 8 summarizes the Project's operational impacts by pollutant. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants. Therefore, operational emissions associated with the Project are considered less than significant.

- Result in other emissions such as those leading to odors adversely affecting a substantial number of people?

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

✓ Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

✓ Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. The Project will not generate odorous emissions given the nature or characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

2. *Greenhouse Gas Emissions*

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. The significance criteria established by the SJVAPCD is relied upon to make the following determinations. Would the project:

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

The SJVAPCD acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 9 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is approximately 79% less than the threshold identified by the SCAQMD.

The KCAG Regional Climate Action Plan identifies a baseline (2005) GHG emissions inventory for all countywide sectors (transportation, waste management, etc.). Kings County's baseline GHG emissions is approximately 1,046,804 MTCO2eq./year. The proposed Project's GHG emissions represents 0.2% of the total GHG emissions for Kings County's baseline GHG emissions.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, any impacts would be less than significant.

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

California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the KCAG region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. KCAG's 2018 RTP/SCS, which was adopted in August 2018, projects that the Kings County region would achieve the prescribed emissions targets.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. KCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is City of Hanford 2035 General Plan Update, which was adopted in 2018.

The Project is consistent with the currently adopted General Plan for the City of Hanford and the adopted KCAG 2018 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project (Table 9) are approximately 79% less than the threshold identified by the SCAQMD.

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit. Below is a list of applicable strategies in the Scoping Plan and the Project's consistency with those strategies.

- ✓ California Light-Duty Vehicle GHG Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs for long-term climate change goals.
  - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to light-duty vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.
- ✓ Energy Efficiency – Pursuit of comparable investment in energy efficiency from all retail providers of electricity in California. Maximize energy efficiency building and appliance standards.
  - The Project is consistent with this reduction measure. Though this measure applies to the State to increase its energy standards, the Project would comply with this measure through existing regulation. The Project would not conflict or obstruct this reduction measure.
- ✓ Low Carbon Fuel – Development and adoption of the low carbon fuel standard.
  - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, any impacts would be less than significant.

1.0 Introduction

This Air Quality & Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential air quality impacts that may result from the proposed 161-unit single-family residential tract (Tract 934) via tentative tract map (Project). The Project is located at the southeast corner of 13th Avenue and West Grangeville Boulevard on APNs 009-050-001 through -005 in the City of Hanford, CA. The parcels are zoned R-L-5 Low-Density Residential with a General Plan Designation of Low Density Residential.

1.1 Description of the Region/Project

The Project Applicant proposes to subdivide the 35.64 acres that comprise the APNs noted above into 161 single-family residential lots in the City's R-L-5 Low-Density Residential zoning district via Tentative Tract Map 934. Figures 1 and 2 show the location of the Project along with major roadways and highways.

The City of Hanford is located in one of the most polluted air basins in the country – the San Joaquin Valley Air Basin (SJVAB). The surrounding topography includes foothills and mountains to the east and west. These mountain ranges direct air circulation and dispersion patterns. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Hanford is characterized by hot, dry summers and cool winters with the notable presence of Tule fog.

1.2 Regulatory

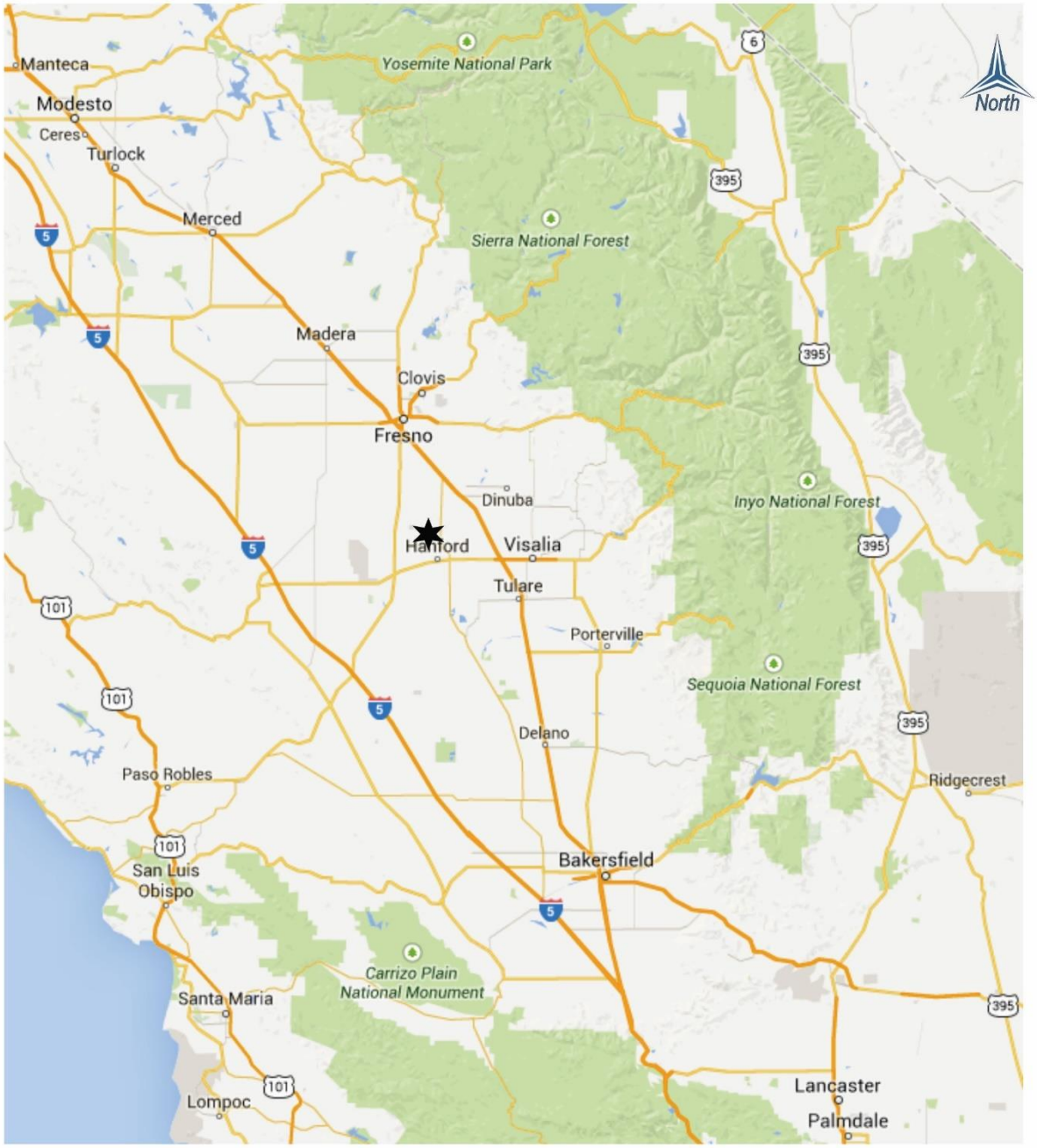
Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of programs. The agencies primarily responsible for improving the air quality within the City of Hanford and Kings County are discussed below along with their individual responsibilities.

1.2.1 *Federal Agencies*

- ✓ **U.S. Environmental Protection Agency (EPA)**

  The Federal Clean Air Bill first adopted in 1967 and periodically amended since then, established federal ambient air quality standards. A 1987 amendment to the Bill set a deadline for the attainment of these standards. That deadline has since passed. The other Clean Air Act (CAA) Bill Amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources. The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the 1990 amendments.

Hanford Residential Project – Tract 934 **Figure 1**
Regional Location

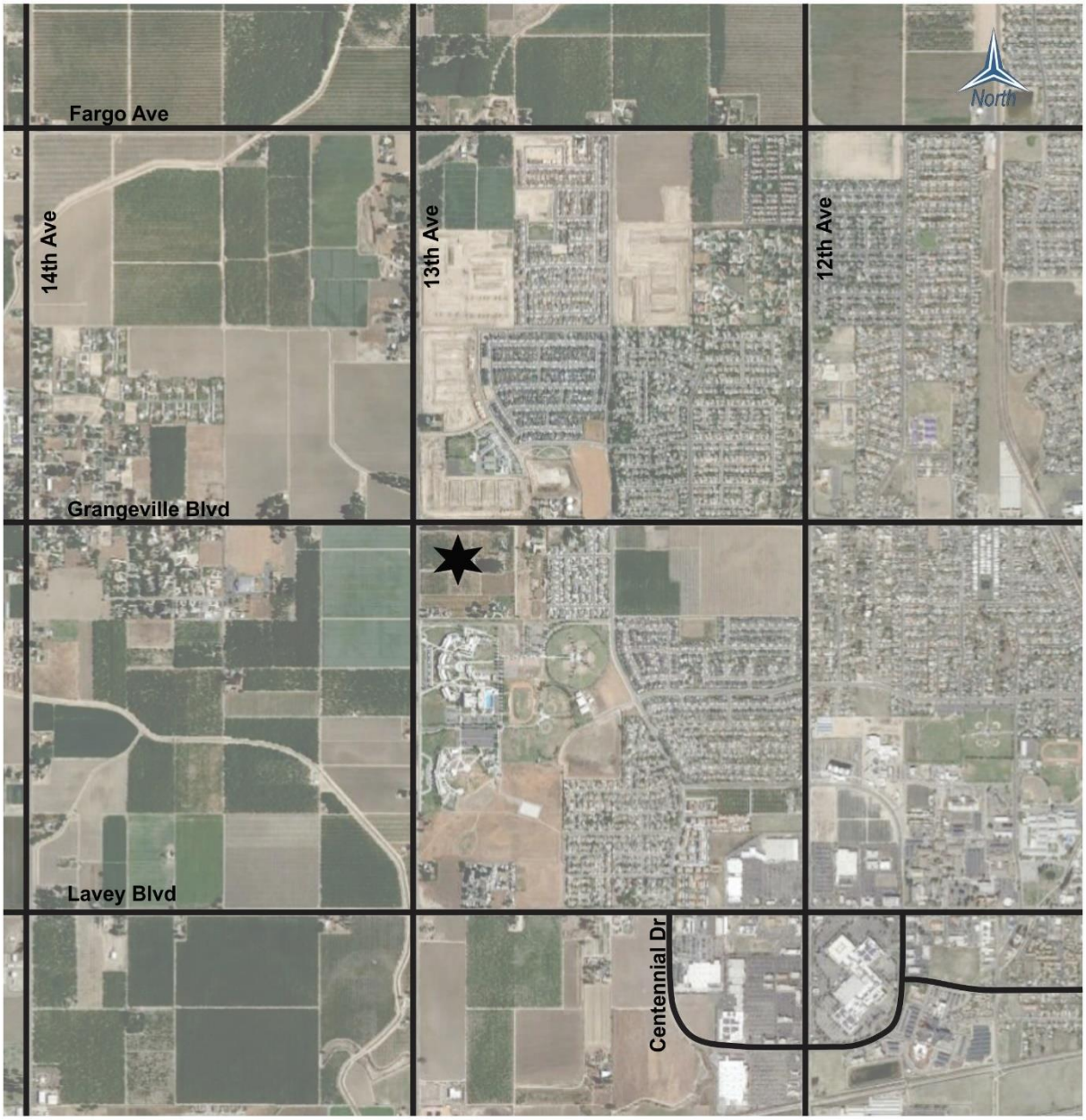


LEGEND

★ Project Location

VRPA TECHNOLOGIES, INC.

Hanford Residential Project – Tract 934 **Figure 2**
Project Location



The CAA and the national ambient air quality standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter, and lead.

CAA Section 176(c) (42 U.S.C. 7506(c)) and EPA transportation conformity regulations (40 CFR 93 Subpart A) require that each new RTP and Transportation Improvement Program (TIP) be demonstrated to conform to the State Implementation Plan (SIP) before the RTP and TIP are approved by the Metropolitan planning organization (MPO) or accepted by the U.S. Department of Transportation (DOT). The conformity analysis is a federal requirement designed to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). However, because the State Implementation Plan (SIP) for particulate matter 10 microns or less in diameter (PM10), particulate matter 2.5 microns or less in diameter (PM2.5), and Ozone address attainment of both the State and federal standards, for these pollutants, demonstrating conformity to the federal standards is also an indication of progress toward attainment of the State standards. Compliance with the State air quality standards is provided on the pages following this federal conformity discussion.

The EPA approved San Joaquin Valley reclassification of the ozone (8-hour) designation to extreme nonattainment in the Federal Register on May 5, 2010, even though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard. In accordance with the CAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. In the Federal Register on October 26, 2015, the EPA revised the primary and secondary standard to 0.070 parts per million (ppm) to provide increased public health protection against health effects associated with long- and short-term exposures. The previous ozone standard was set in 2010 at 0.075 ppm.

Kings County is located in a nonattainment area for the 8-hour ozone standard, PM2.5 standard, and PM10 standard.

1.2.2 *Federal Regulations*

✓ **State Implementation Plan (SIP)/ Air Quality Management Plans (AQMPs)**

To ensure compliance with the NAAQS, EPA requires states to adopt SIP aimed at improving air quality in areas of nonattainment or a Maintenance Plan aimed at maintaining air quality in areas that have attained a given standard. New and previously submitted plans, programs, district rules, state regulations, and federal controls are included in the SIPs. Amendments made in 1990 to the federal CAA established deadlines for attainment based on an area's current air pollution levels. States must enact additional regulatory programs for nonattainment's areas in order to adhere with the CAA Section 172. In California, the SIPs

must adhere to both the NAAQS and the California Ambient Air Quality Standards (CAAQS).

To ensure that State and federal air quality regulations are being met, Air Quality Management Plans (AQMPs) are required. AQMPs present scientific information and use analytical tools to identify a pathway towards attainment of NAAQS and CAAQS. The San Joaquin Valley Air Pollution Control District (SJVAPCD) develops the AQMPs for the region where the Kings County Association of Governments (KCAG) operates. The regional air districts begin the SIP process by submitting their AQMPs to the California Air Resources Board (CARB). CARB is responsible for revising the SIP and submitting it to EPA for approval. EPA then acts on the SIP in the Federal Register. The items included in the California SIP are listed in the Code of Federal Regulations Title 40, Chapter 1, Part 52, Subpart 7, Section 52.220.

✓ **Transportation Control Measures**

One particular aspect of the SIP development process is the assessment of available transportation control measures (TCMs) as a part of making progress towards clean air goals. TCMs are defined in Section 108(f)(1) of the CAA and are strategies designed to reduce vehicle miles traveled, vehicle idling, and associated air pollution. These goals are generally achieved by developing attractive and convenient alternatives to single-occupant vehicle use. Examples of TCMs include ridesharing programs, transportation infrastructure improvements such as adding bicycle and carpool lanes, and expansion of public transit.

✓ **Energy Policy Act of 1992 (EPAct)**

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of alternative fueled vehicles (AFVs). States are also required by the act to consider a variety of incentive programs to help promote AFVs.

1.2.3 *State Agencies*

✓ **California Air Resources Board (CARB)**

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing its own air quality legislation called the California Clean Air Act (CCAA), adopted in 1988. CARB was created in 1967 from the merging of the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation and its Laboratory.

CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Whereas CARB has primary responsibility and produces a major part of the SIP for pollution sources that are statewide in scope, it relies on the local air districts to provide additional strategies for sources under their jurisdiction. CARB combines its data with all local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by CARB, and attainment plans adopted by the Air Pollution Control Districts (APCDs) and Air Quality Management District's (AQMDs) and approved by CARB.

States may establish their own standards, provided the State standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to California Health and Safety Code (CH&SC) [§39606(b)] and its predecessor statutes.

The CH&SC [§39608] requires CARB to "identify" and "classify" each air basin in the State on a pollutant-by-pollutant basis. Subsequently, CARB designated areas in California as nonattainment based on violations of the CAAQSs. Designations and classifications specific to the SJVAB can be found in the next section of this document. Areas in the State were also classified based on severity of air pollution problems. For each nonattainment class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. In addition, air districts in violation of CAAQS are required to prepare an Air Quality Attainment Plan (AQAP) that lays out a program to attain and maintain the CCAA mandates.

CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the Kings County Association of Governments (KCAG) region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. KCAG's 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which was adopted in August 2018, projects that the Kings County region would achieve the prescribed emissions targets.

Other CARB duties include monitoring air quality. CARB has established and maintains, in conjunction with local APCDs and AQMDs, a network of sampling stations (called the State and Local Air Monitoring [SLAMS] network), which monitor the present pollutant levels in the ambient air.

Kings County is in the CARB-designated, SJVAB. A map of the SJVAB is provided in Figure 3. In addition to Kings County, the SJVAB includes Fresno, Kern, Madera, Merced, San Joaquin, Stanislaus, and Tulare Counties. Federal and State standards for criteria pollutants are provided in Table 1.

Hanford Residential Project – Tract 934 **Figure 3**
San Joaquin Valley Air Basin

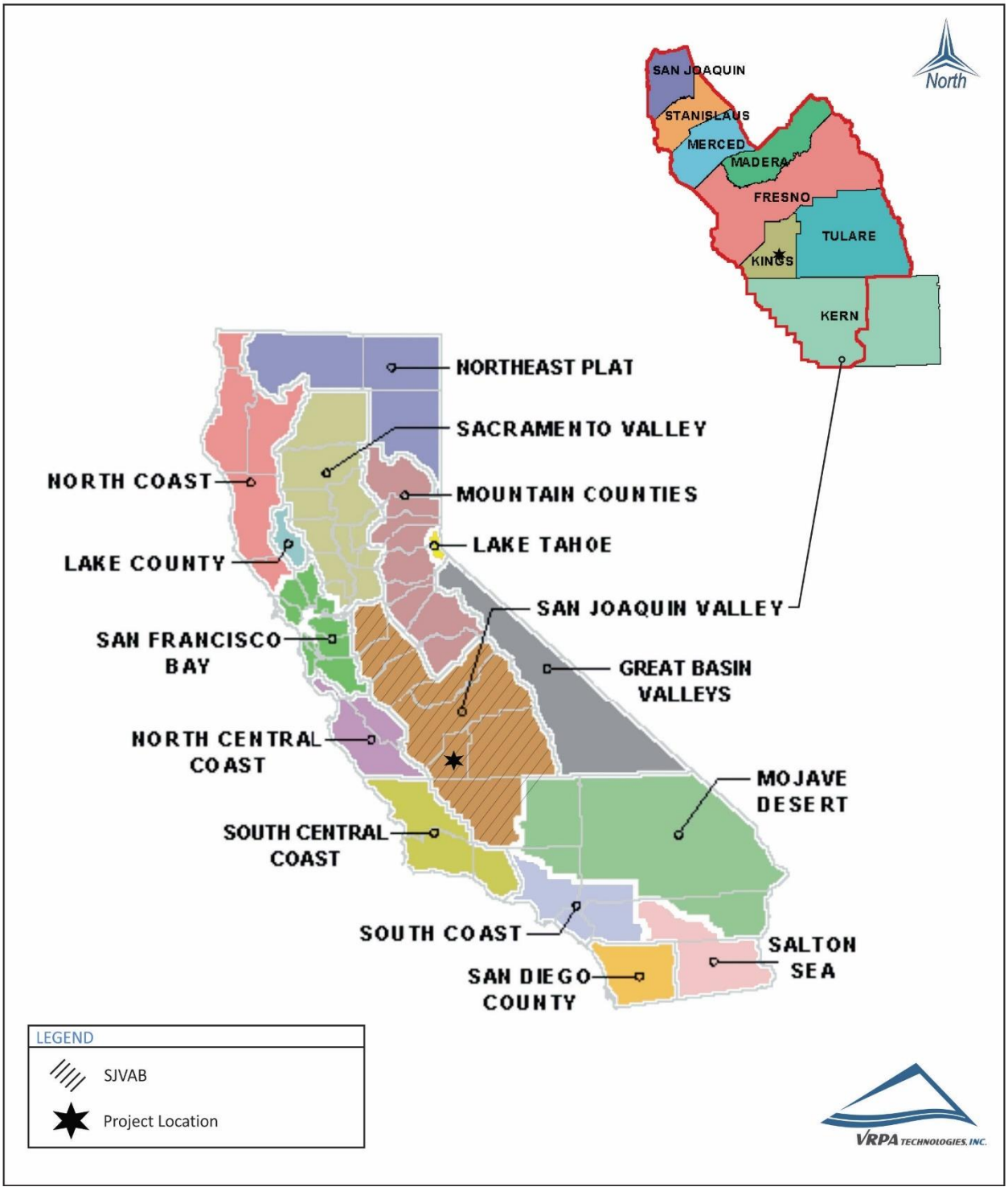


Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3) [8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10) [9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--		
Fine Particulate Matter (PM2.5) [9]	24 Hour	--	--	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	--	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	--	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	
Nitrogen Dioxide (NO_2) [10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2) [11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for cetain areas) [11]	--	
	Annual Arithmetic Mean	--		0.030 ppm (for cetain areas) [11]	--	
Lead [12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3 (for certain areas) [11]	Same as Primary Standard	
	Rolling 3-Month Average	--		0.15 µg/m^3		
Visibility Reducing Particles [14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

Footnotes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: CARB, 2021

1.2.4 *State Regulations*

✓ **CARB Mobile-Source Regulation**

The State of California is responsible for controlling emissions from the operation of motor vehicles in the State. Rather than mandating the use of specific technology or the reliance on a specific fuel, CARB's motor vehicle standards specify the allowable grams of pollutant per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved.

✓ **California Clean Air Act**

The CCAA was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. The CCAA establishes more stringent ambient air quality standards than those included in the Federal CAA. CARB is the agency responsible for administering the CCAA. CARB established ambient air quality standards pursuant to the CH&SC [§39606(b)], which are similar to the federal standards. The SJVAPCD is one of 35 AQMDs that have prepared air quality management plans to accomplish a five percent (5%) annual reduction in emissions documenting progress toward the State ambient air quality standards.

✓ **Tanner Air Toxics Act**

California regulates Toxic Air Contaminants (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted EPA's list of Hazardous Air Pollutants (HAPs) as TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

These rules and standards provide for:

- More stringent emission standards for some new urban bus engines, beginning with 2002 model year engines.
- Zero-emission bus demonstration and purchase requirements applicable to transit agencies
- Reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule.

✓ **AB 1493 (Pavley)**

AB 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB would apply to 2009 and later model year vehicles. CARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicles by an estimated 18 percent in 2020 and by 27 percent in 2030 [Association of Environmental Professionals (AEP) 2007)]. In 2005, the CARB requested a waiver from U.S. EPA to enforce the regulation, as required under the CAA. Despite the fact that no waiver had ever been denied over a 40-year period, the then Administrator of the EPA sent Governor Schwarzenegger a letter in December 2007, indicating he had denied the waiver. On March 6, 2008, the waiver denial was formally issued in the Federal Register. Governor Schwarzenegger and several other states immediately filed suit against the federal government to reverse that decision. On January 21, 2009, CARB requested that EPA reconsider denial of the waiver. EPA scheduled a re-hearing on March 5, 2009. On June 30, 2009, EPA granted a waiver of CAA preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year.

✓ **Assembly Bill 32 (California Global Warming Solutions Act of 2006)**

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. December 31, 2020 is the deadline for achieving the 2020 GHG emissions cap. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that

the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions.

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan adopted in December of 2008. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit.

✓ **Senate Bill 375**

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the Kings County Association of Government (KCAG), CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. KCAG 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which was adopted in August 2018, projects that the Kings County region would achieve the prescribed emissions targets.

This law also extends the minimum time period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

✓ **Executive Order B-30-15**

Executive Order B-30-15, which was signed by Governor Brown in 2016, establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

✓ **California Global Warming Solutions Act of 2006: emissions limit, or SB 32**

SB 32 is a California Senate bill expanding upon AB 32 to reduce greenhouse gas (GHG) emissions. The lead author is Senator Fran Pavley and the principal co-author is Assembly member Eduardo Garcia. SB 32 was signed into law on September 8, 2016, by Governor Brown. SB 32 sets into law the mandated reduction target in GHG emissions as written into Executive Order B-30-15. SB 32 requires that there be a reduction in GHG emissions to 40% below the 1990 levels by 2030. Greenhouse gas emissions include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. The California Air Resources Board (CARB) is responsible for ensuring that California meets this goal. The provisions of SB 32 were added to Section 38566 of the Health and Safety Code subsequent to the bill's approval. The bill went into effect January 1, 2017. SB 32 builds onto Assembly Bill (AB) 32 written by Senator Fran Pavley and Assembly Speaker Fabian Nunez passed into law on September 27, 2006. AB 32 required California to reduce greenhouse gas emissions to 1990 levels by 2020 and SB 32 continues that timeline to reach the targets set in Executive Order B-30-15. SB 32 provides another intermediate target between the 2020 and 2050 targets set in Executive Order S-3-05.

1.2.5 *Regional Agencies*

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

The SJVAPCD is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within Kings County and throughout the SJVAB. The District also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. CARB is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under State law.

The District was formed in mid-1991 and prepared and adopted the San Joaquin Valley Air Quality Attainment Plan (AQAP), dated January 30, 1992, in response to the requirements of the State CCAA. The CCAA requires each non-attainment district to reduce pertinent air contaminants by at least five percent (5%) per year until new, more stringent, 1988 State air quality standards are met.

Activities of the SJVAPCD include the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the FCAA and CCAA.

The SJVAPCD has prepared the following State Implementation Plans to address ozone, PM-10 and PM2.5 that currently apply to non-attainment areas:

- The 2016 Ozone Plan (2008 standard) was adopted by SJVAPCD on June 16, 2016 and subsequently adopted by ARB on July 21, 2016.
- The 2013 1-Hour Ozone Plan (revoked 1997 standard) was adopted by the SJVAPCD on September 19, 2013. EPA withdrew its approval of the plan due to litigation. The District plans to submit a "redesignation substitute" to EPA to maintain its attainment status for this revoked ozone standard.
- The 2007 PM-10 Maintenance Plan (as revised in 2015) was approved by EPA on July 8, 2016 (effective September 30, 2016).
- The 2012 PM2.5 Plan (as revised in 2015) was approved by EPA on August 16, 2016 (effective September 30, 2016).

The SJVAPCD Plans identified above represent SJVAPCD's plan to achieve both state and federal air quality standards. The regulations and incentives contained in these documents must be legally enforceable and permanent. These plans break emissions reductions and compliance into different emissions source categories.

The SJVAPCD also prepared the *Guide for Assessing and Mitigation Air Quality Impacts* (GAMAQI), dated March 19, 2015. The GAMAQI is an advisory document that provides Lead Agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality impacts in environmental documents. Local jurisdictions are not required to utilize the methodology outlined therein. This document describes the criteria that SJVAPCD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for determining whether or not projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

1.2.6 *Regional Regulations*

The SJVAPCD has adopted numerous rules and regulations to implement its air quality plans. Following, are significant rules that will apply to the Project.

✓ **Regulation VIII – Fugitive PM10 Prohibitions**

Regulation VIII is comprised of District Rules 8011 through 8081, which are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc. The proposed Project will be required to comply with this regulation. Regulation VIII control measures are provided below:

1. *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative*

ground cover.

2. *All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
3. *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
4. *When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.*
5. *All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.*
6. *Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.*
7. *Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.*

✓ **Rule 8021 – Construction, Demolition, Excavation, and Other Earthmoving Activities**

District Rule 8021 requires owners or operators of construction projects to submit a Dust Control Plan to the District if at any time the project involves non-residential developments of five or more acres of disturbed surface area or moving, depositing, or relocating of more than 2,500 cubic yards per day of bulk materials on at least three days of the project. The proposed Project will meet these criteria and will be required to submit a Dust Control Plan to the District in order to comply with this rule.

✓ **Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations**

If asphalt paving will be used, then paving operations of the proposed Project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

✓ **Rule 9510 – Indirect Source Review (ISR)**

The purpose of this rule is to fulfill the District's emission reduction commitments in the PM10 and Ozone Attainment Plans, achieve emission reductions from construction activities, and to provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures. The rule is expected to reduce nitrogen oxides and particulates throughout the San Joaquin Valley by more than 10 tons per day.

1.2.7 *Local Plans*

✓ **City of Hanford General Plan**

California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The General Plan essentially serves as a "constitution for development"— the document that serves as the foundation for all land use decisions. The City of Hanford 2035 General Plan includes various elements, including air quality and greenhouse gases, that address local concerns and provides goals and policies to achieve its development goals.

2.0 Environmental Setting

This section describes existing air quality within the San Joaquin Valley Air Basin and in Kings County, including the identification of air pollutant standards, meteorological and topological conditions affecting air quality, and current air quality conditions. Air quality is described in relation to ambient air quality standards for criteria pollutants such as, ozone, carbon monoxide, and particulate matter. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas.

2.1 Geographical Location

The SJVAB is comprised of eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Encompassing 24,840 square miles, the San Joaquin Valley is the second largest air basin in California. Cumulatively, counties within the Air Basin represent approximately 16 percent of the State's geographic area. The Air Basin is bordered by the Sierra Nevada Mountains on the east (8,000 to 14,492 feet in elevation), the Coastal Range on the west (4,500 feet in elevation), and the Tehachapi Mountains on the south (9,000 feet elevation). The San Joaquin Valley is open to the north extending to the Sacramento Valley Air Basin.

2.2 Topographic Conditions

Kings County is located within the San Joaquin Valley Air Basin [as determined by the California Air Resources Board (CARB)]. Air basins are geographic areas sharing a common "air shed." A description of the Air Basin in the County, as designated by CARB, is provided in the paragraph below. Air pollution is directly related to the region's topographic features, which impact air movement within the Basin.

Wind patterns within the SJVAB result from marine air that generally flows into the Basin from the San Joaquin River Delta. The Coastal Range hinders wind access into the Valley from the west, the Tehachapi's prevent southerly passage of airflow, and the high Sierra Nevada Mountain Range provides a significant barrier to the east. These topographic features result in weak airflow that becomes restricted vertically by high barometric pressure over the Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500-3,000 feet).

2.3 Climate Conditions

Hanford is located in one of the most polluted air basins in the country. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Hanford is characterized by warm, dry summers and cool winters with significant Tule fog.

Ozone, classified as a "regional" pollutant, often afflicts areas downwind of the original source of precursor emissions. Ozone can be easily transported by winds from a source area. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas before concentrations peak. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions.

Other primary pollutants, carbon monoxide (CO), for example, may form high concentrations when wind speed is low. During the winter, Hanford experiences cold temperatures and calm conditions that increase the likelihood of a climate conducive to high CO concentrations.

Precipitation and fog tend to reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water-soluble, so precipitation and fog tends to "reduce" CO concentrations in the atmosphere. PM10 is somewhat "washed" from the atmosphere with precipitation. Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high-pressure belt located off the Pacific coast. In the winter, this high- pressure system moves southward, allowing Pacific storms to move through the San Joaquin Valley. These storms bring in moist, maritime air that produces considerable precipitation on the western, upslope side of the Coast Ranges. Significant precipitation also occurs on the western side of the Sierra Nevada. On the valley floor, however, there is some down slope flow from the Coast Ranges and the resultant evaporation of moisture from associated warming results in a minimum of precipitation. Nevertheless, the majority of the precipitation falling in the San Joaquin Valley is produced by those storms during the winter. Precipitation during the summer months is in the form of convective rain showers and is rare. It is usually associated with an influx of moisture into the San Joaquin Valley through the San Francisco area during an anomalous flow pattern in the lower layers of the atmosphere. Although the hourly rates of precipitation from these storms may be high, their rarity keeps monthly totals low.

Precipitation on the San Joaquin Valley floor and in the Sierra Nevada decreases from north to south. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center, receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. This is primarily because the Pacific storm track often passes through the northern part of the state while the southern part of the state remains protected by the Pacific High. Precipitation in the San Joaquin Valley Air Basin (SJVAB) is confined primarily to the winter months with some also occurring in late summer and fall. Average annual rainfall for the entire San Joaquin Valley is approximately 5 to 16 inches. Snowstorms, hailstorms, and ice storms occur infrequently in the San Joaquin Valley and severe occurrences of any of these are very rare.

The winds and unstable air conditions experienced during the passage of storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong

low-level temperature inversions and very stable air conditions. This situation leads to the San Joaquin Valley's famous Tule Fogs. The formation of natural fog is caused by local cooling of the atmosphere until it is saturated (dew point temperature). This type of fog, known as radiation fog is more likely to occur inland. Cooling may also be accomplished by heat radiation losses or by horizontal movement of a mass of air over a colder surface. This second type of fog, known as advection fog, generally occurs along the coast.

Conditions favorable to fog formation are also conditions favorable to high concentrations of CO and PM10. Ozone levels are low during these periods because of the lack of sunlight to drive the photochemical reaction. Maximum CO concentrations tend to occur on clear, cold nights when a strong surface inversion is present and large numbers of fireplaces are in use. A secondary peak in CO concentrations occurs during morning commute hours when a large number of motorists are on the road and the surface inversion has not yet broken.

The water droplets in fog, however, can act as a sink for CO and nitrogen oxides (NOx), lowering pollutant concentrations. At the same time, fog could help in the formation of secondary particulates such as ammonium sulfate. These secondary particulates are believed to be a significant contributor of winter season violations of the PM10 and PM2.5 standards.

2.4 Anthropogenic (Man-made) Sources

In addition to climatic conditions (wind, lack of rain, etc.), air pollution can be caused by anthropogenic or man-made sources. Air pollution in the SJVAB can be directly attributed to human activities, which cause air pollutant emissions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, agriculture, and other socioeconomic activities. The most significant factors, which are accelerating the decline of air quality in the SJVAB, are the Valley's rapid population growth and its associated increases in traffic, urbanization, and industrial activity.

Carbon monoxide emissions overwhelmingly come from mobile sources in the San Joaquin Valley; on-road vehicles contributed 34 percent, while other mobile vehicles, such as trains, planes, and off-road vehicles, contribute another 20 percent in 2012 according to emission projections from the CARB. Motor vehicles account for significant portions of regional gaseous and particulate emissions. Local large employers such as industrial plants can also generate substantial regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Ozone is the result of a photochemical reaction between Oxides of nitrogen (NOx) and Reactive Organic Gases (ROG). Mobile sources contribute 84 percent of all NOx emitted from anthropogenic sources based on data provided in Appendix B of the Air District's 2016 Ozone

Plan. In addition, mobile sources contribute 26 percent of all the ROG emitted from sources within the San Joaquin Valley.

The principal factors that affect air quality in and around Hanford are:

1. The sink effect, climatic subsidence and temperature inversions and low wind speeds
2. Automobile and truck travel
3. Increases in mobile and stationary pollutants generated by local urban growth

Automobiles, trucks, buses and other vehicles using hydrocarbon (HC) fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters; animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Kings County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities. Finally, industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Kings County consist of agricultural production and processing operations.

The primary contributors of PM10 emissions in the San Joaquin Valley are farming activities (22%) and road dust, both paved and unpaved (35%) in 2020 according to emission projections from the CARB. Fugitive windblown dust from “open” fields contributed 14 percent of the PM10.

The four major sources of air pollutant emissions in the SJVAB include industrial plants, motor vehicles, construction activities, and agricultural activities. Industrial plants account for significant portions of regional gaseous and particulate emissions. Motor vehicles, including those from large employers, generate substantial regional gaseous and particulate emissions. Finally, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.). In addition to these primary sources of air pollution, urban areas upwind from Kings County including areas north and west of the San Joaquin Valley, can cause or generate emissions that are transported into Kings County. All four of the major pollutant sources affect ambient air quality throughout the Air Basin.

2.4.1 *Motor Vehicles*

Automobiles, trucks, buses and other vehicles using hydrocarbon fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

2.4.2 *Agricultural and Other Miscellaneous Activities*

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters, animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Hanford, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities.

2.4.3 *Industrial Plants*

Industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Kings County consist of agricultural production and processing operations.

2.5 San Joaquin Valley Air Basin Monitoring

SJVAPCD and the CARB maintain numerous air quality monitoring sites throughout each County in the Air Basin to measure ozone, PM2.5, and PM10. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. The closest monitoring station to the Project is located at the Hanford's S Irwin Street Monitoring Station. The station monitors particulates, ozone, carbon monoxide, and nitrogen dioxide. Monitoring data for the past three years is summarized in Table 2.

Table 3 identifies the Kings County's attainment status. As indicated, the SJVAB is nonattainment for Ozone (1 hour and 8 hour) and PM. In accordance with the FCAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. The FCAA contains provisions for changing the classifications using factors such as clean air progress rates and requests from States to move areas to a higher classification.

On April 16, 2004 EPA issued a final rule classifying the SJVAB as extreme nonattainment for Ozone, effective May 17, 2004 (69 FR 20550). The (federal) 1-hour ozone standard was revoked on June 6, 2005. However, many of the requirements in the 1-hour attainment plan (SIP) continue to apply to the SJVAB. The current ozone plan is the (federal) 8-hour ozone plan adopted in 2007. The SJVAB was reclassified from a "serious" nonattainment area for the 8-hour ozone standard to "extreme" effective June 4, 2010.

Table 2
Maximum Pollutant Levels at the Hanford-Irwin Monitoring Station

Pollutant	Time Averaging	2018 Maximums	2019 Maximums	2020 Maximums	Standards National	Standards State
Ozone (O_3)	1 hour	0.108 ppm	0.093 ppm	0.103 ppm	-	0.09 ppm
Ozone (O_3)	8 hour	0.082 ppm	0.076 ppm	0.088 ppm	0.070 ppm	0.070 ppm
Nitrogen Dioxide (NO_2)	1 hour	56.3 ppb	62.9 ppb	51.9 ppb	100 ppb	0.18 ppm
Nitrogen Dioxide (NO_2)	Annual Average	8.0 ppb	8.0 ppb	8.0 ppb	0.053 ppm	0.030 ppm
Particulates (PM_{10})	24 hour	181.1 µg/m^3	220.5 µg/m^3	180.9 µg/m3	150 µg/m^3	50 µg/m^3
Particulates (PM_{10})	Federal Annual Arithmetic Mean	47.3 µg/m^3	44.8 µg/m^3	51.5 µg/m^3	-	20 µg/m^3
Particulates ($PM_{2.5}$)	24 hour	107.8 µg/m^3	48.2 µg/m^3	147.0 µg/m^3	35 µg/m^3	-
Particulates ($PM_{2.5}$)	Federal Annual Arithmetic Mean	17.7 µg/m^3	12.1 µg/m^3	19.8 µg/m^3	12 µg/m^3	12 µg/m^3

Source: California Air Resources Board (ADAM) Air Pollution Summaries, 2021

Table 3
Kings County Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone - 1 Hour	Revoked in 2005	Nonattainment/Severe
Ozone - 8 Hour	Nonattainment/Extreme [a]	No State Standard
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Unclassified/Attainment	Unclassified
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment
Lead (Particulate)	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

Source: CARB Website, 2021

a. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

Notes:

National Designation Categories

Non-Attainment Area: Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Unclassified/Attainment Area: Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant or meets the national primary or secondary ambient air quality standard for the pollutant.

State Designation Categories

Unclassified: A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or non-attainment.

Attainment: A pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a three-year period.

Non-attainment: A pollutant is designated non-attainment if there was at least one violation of a State standard for that pollutant in the area.

Non-Attainment/Transitional: A subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for the pollutant.

2.6 Air Quality Standards

The FCAA, first adopted in 1963, and periodically amended since then, established National Ambient Air Quality Standards (NAAQS). A set of 1977 amendments determined a deadline for the attainment of these standards. That deadline has since passed. Other CAA amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources.

In 1988, the State of California passed the CCAA (State 1988 Statutes, Chapter 568), which set forth a program for achieving more stringent California Ambient Air Quality Standards. The CARB implements State ambient air quality standards, as required in the CCAA, and cooperates with the federal government in implementing pertinent sections of the FCAA Amendments (FCAAA). Further, CARB regulates vehicular emissions throughout the State. The SJVAPCD regulates stationary sources, as well as some mobile sources. Attainment of the more stringent State PM10 Air Quality Standards is not currently required.

The EPA uses six "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called the NAAQS.

The SJVAPCD operates regional air quality monitoring networks that provide information on average concentrations of pollutants for which State or federal agencies have established ambient air quality standards. Descriptions of nine pollutants of importance in Kings County follow.

2.6.1 *Ozone (1-hour and 8-hour)*

The most severe air quality problem in the Air Basin is the high level of ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level, or "bad" ozone, is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up, where it meets the second layer, the stratosphere. The stratospheric, or "good" ozone layer, extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), NOx, and sunlight. ROG and NOx are emitted from various sources throughout Kings County. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. Ozone, the primary constituent of smog, is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on other air pollutants (called precursors), specifically NOx and ROG. Sources of precursor gases to the photochemical reaction that form ozone number in the thousands. Common sources include consumer products, gasoline vapors, chemical solvents, and combustion products of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Approximately 50 million people lived in counties with air quality levels above the EPA's health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles, closely followed by the San Joaquin Valley. High levels also persist in other heavily populated areas, including the Texas Gulf Coast and much of the Northeast.

While the ozone in the upper atmosphere absorbs harmful ultraviolet light, ground-level ozone is damaging to the tissues of plants, animals, and humans, as well as to a wide variety of inanimate materials such as plastics, metals, fabrics, rubber, and paints. Societal costs from ozone damage include increased medical costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

✓ ***Health Effects***

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as: forests and foothill communities; agricultural crops; and some man-made materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone accelerates aging and exacerbates pre-existing asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. In addition, children

inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs.

The CARB found ozone standards in Kings County nonattainment of Federal and State standards.

2.6.2 *Suspended PM (PM10 and PM2.5)*

Particulate matter pollution consists of very small liquid and solid particles that remain suspended in the air for long periods. Some particles are large or concentrated enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter is emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. PM10 refers to particles less than or equal to 10 microns in aerodynamic diameter. PM2.5 refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM10. Particulates of concern are those that are 10 microns or less in diameter. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

In the western United States, there are sources of PM10 in both urban and rural areas. Because particles originate from a variety of sources, their chemical and physical compositions vary widely. The composition of PM10 and PM2.5 can also vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM10 and PM2.5. In addition to those listed previously, secondary particles can also be formed as precipitates from chemical and photochemical reactions of gaseous sulfur dioxide (SO2) and NOx in the atmosphere to create sulfates (SO4) and nitrates (NO3). Secondary particles are of greatest concern during the winter months where low inversion layers tend to trap the precursors of secondary particulates.

The District's 2008 PM2.5 Plan built upon the aggressive emission reduction strategy adopted in

the 2007 Ozone Plan and strives to bring the valley into attainment status for the 1997 NAAQS for PM2.5. The District's 2012 PM2.5 Plan provides multiple control strategies to reduce emissions of PM2.5 and other pollutants that form PM2.5. The plan's comprehensive control strategy includes regulatory actions, incentive programs, technology advancement, policy and legislative positions, public outreach, participation and communication, and additional strategies.

✓ ***Health Effects***

PM10 and PM2.5 particles are small enough—about one-seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. PM10 and PM2.5 can aggravate respiratory disease and cause lung damage, cancer, and premature death.

Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM10. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM10 exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM10 can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States.

The CARB found PM10 standards in Kings County in attainment of Federal standards and nonattainment for State standards. The CARB found PM2.5 standards in Kings County nonattainment of Federal and State standards.

2.6.3 *Carbon Monoxide (CO)*

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, contributes more than two thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall

downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

✓ ***Health Effects***

CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood and thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin (COHb) in the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome (SIDS); and increased daily mortality rate.

Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

The CARB found CO standards in Kings County as unclassified/attainment of Federal standards and unclassified for State standards.

2.6.4 *Nitrogen Dioxide (NO2)*

Nitrogen oxides (NOx) is a family of highly reactive gases that are primary precursors to the formation of ground-level ozone and react in the atmosphere to form acid rain. NOx is emitted from combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, NOx is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates. EPA regulates only nitrogen dioxide (NO2) as a surrogate for this family of compounds because it is the most prevalent form of NOx in the atmosphere that is generated by anthropogenic (human) activities.[1]

✓ ***Health Effects***

NOx is an ozone precursor that combines with Reactive Organic Gases (ROG) to form ozone.

1 United States Environmental Protection Agency (EPA), Nitrogen Oxides (NOx). Why and How They Are Controlled, 456/F-99-006R, November 2019

See the ozone section above for a discussion of the health effects of ozone.

Direct inhalation of NOx can also cause a wide range of health effects. NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO2) may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NOx in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

NO2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies.

In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO2, can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NOx contributes to a wide range of environmental effects both directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication as discussed above. Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms.

The CARB found NO2 standards in Kings County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.5 *Sulfur Dioxide (SO2)*

The major source of sulfur dioxide (SO2) is the combustion of high-sulfur fuels for electricity generation, petroleum refining and shipping. High concentrations of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO2 also is a major precursor to PM2.5, which is a significant health concern and a main contributor to poor visibility. In humid atmospheres, sulfur oxides can react with vapor to produce sulfuric acid, a component of acid rain.

The CARB found SO2 standards in the Kings County as unclassified/attainment for Federal standards and attainment for State standards.

2.6.6 *Lead (Pb)*

Lead, a naturally occurring metal, can be a constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in automobile fuel. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels; however, the use of leaded fuel has been mostly phased out. Since this has occurred the ambient concentrations of lead have dropped dramatically.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

The CARB found Lead standards in Kings County as unclassified/attainment of Federal standards and attainment for State standards.

2.6.7 *Toxic Air Contaminants (TAC)*

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are another

group of pollutants of concern. TAC are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TAC is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TAC are regulated on the basis of risk rather than specification of safe levels of contamination. The ten TAC are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Caltrans' guidance for transportation studies references the Federal Highway Administration (FHWA) memorandum titled "Interim Guidance on Air Toxic Analysis in NEPA Documents" which discusses emissions quantification of six "priority" compounds of 21 Mobile Source Air Toxics (MSAT) identified by the United States Environmental Protection Agency (USEPA). The six "priority" compounds are diesel exhaust (particulate matter and organic gases), benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and acrolein.

Some studies indicate that diesel PM poses the greatest health risk among the TAC listed above. A 10-year research program (California Air Resources Board 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TAC in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TAC, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM10 database, ambient PM10 monitoring data, and the results from several studies to estimate concentrations of diesel PM. Table 4 depicts the CARB Handbook's recommended buffer distances associated with various types of common sources.

Existing air quality concerns within Hanford and the entire SJVAB are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

TABLE 4

Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

SOURCE CATEGORY	ADVISORY RECOMMENDATIONS
Freeways and High-Traffic Roads [1]	- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). - Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. - Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	- Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. - Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	- Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

1: The recommendation to avoid siting new sensitive land uses within 500 feet of a freeway was identified in CARB's Air Quality and Land Use Handbook published in 2005. CARB recently published a technical advisory to the Air Quality and Land Use Handbook indicating that new research has demonstrated promising strategies to reduce pollution exposure along transportation corridors.

*Notes:
• These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.
• Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
• The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
• These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
• Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
• This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
• A summary of the basis for the distance recommendations can be found in the ARB Handbook: Air Quality and Land Use Handbook: A Community Health Perspective.

Source: SJVAPCD 2021

2.6.8 *Odors*

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB. The types of facilities that are known to produce odors are shown in Table 5 along with a reasonable distance from the source within which, the degree of odors could possibly be significant. The Project does not propose any uses that would be potential odor sources; however, the information presented in Table 5 will be used as a screening level analysis to determine if the Project would be impacted by existing odor sources in the study area. Such information is presented for informational purposes, but it is noted that the environment's effect on the Project, including exposure to potential odors, would not be an impact for CEQA purposes.

TABLE 5
Screening Levels for Potential Odor Sources

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Compositing Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

Source: SJVAPCD 2021

2.6.9 *Naturally Occurring Asbestos (NOA)*

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Asbestos is commonly found in ultramafic rock and near fault zones. The amount of asbestos that is typically present in these rocks' ranges from less than 1% up to approximately 25% and sometimes more. It is released from ultramafic rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways, which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. Asbestos is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time. Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem.

The proposed Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021.

2.6.10 *Greenhouse Gas Emissions*

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the

atmosphere because of human activities are:

- ✓ **Carbon Dioxide (CO2):** Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement, asphalt paving, truck trips). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- ✓ **Methane (CH4):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- ✓ **Nitrous Oxide (N2O):** Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- ✓ **Fluorinated Gases:** Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

3.0 Air-Quality Impacts

3.1 Methodology

The impact assessment for air quality focuses on potential effects the Project might have on air quality within the Hanford region. The SJVAPCD has established thresholds of significance for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to the activities that will occur indefinitely as a result of Project operations. Impacts will be evaluated both on the basis of CEQA Appendix G criteria and SJVAPCD significance criteria. The impacts to be evaluated will be those involving construction and operational emissions of criteria pollutants. The SJVAPCD has established thresholds for certain pollutants shown in Table 6.

Table 6
SJVAPCD Air Quality Thresholds of Significance

Project Type	Ozone Precursor Emissions (tons/year)					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions	100	10	10	27	15	15
Operational Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operational Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD 2020

3.1.1 *CalEEMod*

CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA and NEPA documents, pre-project planning, compliance with local air quality rules and regulations, etc.

3.2 Short-Term Impacts

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust and exhaust pollutants generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture. Exhaust pollutants are the non-useable gaseous waste products produced during the combustion process. Engine exhaust contains CO, HC, and NOx pollutants which are harmful to the environment.

Adverse effects of construction activities cause increased dust-fall and locally elevated levels of total suspended particulate. Dust-fall can be a nuisance to neighboring properties or previously completed developments surrounding or within the Project area and may require frequent washing during the construction period.

PM10 emissions can result from construction activities of the Project. The SJVAPCD has determined that compliance with Regulation VIII and other control measures will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than significant for most development projects. Even with implementation of District Regulation VIII and District Rule 9510, large development projects may not be able to reduce project specific construction impacts below District thresholds of significance.

Ozone precursor emissions are also an impact of construction activities and can be quantified through calculations. Numerous variables factored into estimating total construction emission include: level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and amount of materials to be transported onsite or offsite. Additional exhaust emissions would be associated with the transport of workers and materials. Because the specific mix of construction equipment is not presently known for this Project, construction emissions were estimated using CalEEMod Model defaults for construction equipment.

Table 7 shows the CalEEMod estimated construction emissions that would be generated from construction of the Project. Results of the analysis show that emissions generated from construction of the Project will not exceed the SJVAPCD emission thresholds.

Table 7
Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Construction Emissions (tons)	2.81	3.09	2.79	0.01	0.66	0.34	497.88
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

3.3 Long-Term Emissions

Long-Term emissions from the Project would be generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment.

3.3.1 *Localized Operational Emissions – Ozone/Particulate Matter*

Significance criteria have been established for criteria pollutant emissions as documented in Section 3.1. Operational emissions have been estimated for the Project using the CalEEMod Model and detailed results are included in Appendix A of this report.

Results of the CalEEMod analysis are shown in Table 8. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants.

Table 8
Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Project Opeational Emissions	7.89	1.63	2.17	0.02	1.66	0.47	2063.63
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod, VRPA 2021

As noted previously, the Project will be subject to the SJVAPCD's Regulation VIII-Fugitive PM10 Prohibitions. Regulation VIII is comprised of District Rules 8011 through 8081, which are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc.

3.3.2 *Localized Operational Emissions*

✓ **Carbon Monoxide**

The SJVAPCD is currently in unclassified/attainment for Federal standards and attainment for

State standards for CO. An analysis of localized CO concentrations is typically warranted to ensure that standards are maintained. Segment counts in the immediate vicinity of the Project site along 13th Avenue and Grangeville Boulevard were obtained from the City of Hanford traffic counts which are typically updated every three years. Daily traffic counts along 13th Avenue and Grangeville Boulevard (see appendices) were adjusted to reflect 2021 and 2042 traffic and conditions. Adjusted counts were then compared to the Modified HCM-Based Level of Service (LOS) Tables (Florida Tables). Results of this analysis demonstrates that adjacent roadway segment will operate at LOS 'D' or better through the Year 2042. As a result, the overall CO concentrations at roadways and intersections in the study area would be less than significant.

✓ **Toxic Air Contaminants (TAC)**

The SJVAPCD's Guidance Document, Guidance for Assessing and Mitigating Air Quality Impacts – 2015, identifies the need for projects to analyze the potential for adverse air quality impacts to sensitive receptors. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the proposed Project is a Type B project in that it may potentially place sensitive receptors in the vicinity of existing sources. Type A projects would potentially place new toxic sources in the vicinity of existing receptors. Considering the components of the Project and the Source Categories provided in Table 4, the proposed Project is not a Type A project and would not place new toxic sources in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Since the Project is not located within the recommended buffer distances associated with the sources found in Table 4, a health risk assessment is not needed at this time. As noted above, the proposed Project is not a Type A project and would not place new toxic sources in the vicinity of existing sources.

✓ **Odors**

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact.

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The Project will not generate odorous emissions given the nature or characteristics of the Project. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant.

✓ **Naturally Occurring Asbestos (NOA)**

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Construction of the Project may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021. Compliance with Rule 8021 would limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities associated with the Project.

✓ **Greenhouse Gas Emissions**

CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the Kings County Association of Governments (KCAG) region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. KCAG's 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which was adopted in August 2018, projects that the Kings County region would achieve the prescribed emissions targets.

In 2009, the SJVAPCD adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- ✓ Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009), and
- ✓ District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009).

This guidance and policy are the reference documents referenced in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD (2015) acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC

2015)[2]. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 9 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is approximately 79% less than the threshold identified by the SCAQMD.

Table 9
Project Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Project Operational Emissions Per Year	2,080 MT/yr

Source: CalEEMod, VRPA 2021

3.3.3 *Indirect Source Review*

The Project is subject to the SJVAPCD's ISR program, which is also known as Rule 9510. Rule 9510 and the Administrative ISR Fee Rule (Rule 3180) are the result of state requirements outlined in the California Health and Safety Code, Section 40604 and the State Implementation Plan (SIP). The purpose of the SJVAPCD's ISR program is to reduce emissions of NOx and PM10 from new projects. In general, new development contributes to the air-pollution problem in the Valley by increasing the number of vehicles and vehicle miles traveled.

Utilizing the ISR Fee Estimator calculator available on the SJVAPCD website, it was determined that the Project's total cost for emission reductions is $126,272.64 without implementation of emission reduction measures. The ISR Fee Estimator worksheets are included in the appendices. The fee noted above may be reduced dependent upon the formal ISR review process.

2 California Public Utilities Commission (CPUC). 2015. Section 4.7, "Greenhouse Gases." Final Environmental Impact Report for the Santa Barbara County Reliability Project. May 2015. Accessed January 18, 2018. http://www.cpuc.ca.gov/environment/info/ene/sbcrp/SBCRP_FEIR.html.

4.0 Impact Determinations and Recommended Mitigation

In accordance with CEQA, when a proposed project is consistent with a General Plan for which an EIR has been certified, the effects of that project are evaluated to determine if they will result in project-specific significant adverse impacts on the environment. The criteria used to determine the significance of an air quality or greenhouse gas impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines and the General Plan EIR. Accordingly, air quality or greenhouse gas impacts resulting from the Project are considered significant if the Project would:

Air Quality

a) Conflict with or obstruct implementation of the applicable air quality plan?
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
c) Expose sensitive receptors to substantial pollutant concentrations?
d) Result in other emissions such as those leading to odors adversely affecting a substantial number of people?

Greenhouse Gas Emissions

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

4.1 Air Quality

4.1.1 *Conflict with or obstruct implementation of the applicable air quality plan*

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. KCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in

the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Hanford 2035 General Plan. The Project is consistent with the currently adopted General Plan for the City of Hanford and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

4.1.2 *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard*

The Kings County area is nonattainment for Federal and State air quality standards for ozone, in attainment of Federal standards and nonattainment for State standards for PM10, and nonattainment for Federal and State standards for PM2.5. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in Section 4.1.1, the Project is consistent with the currently adopted General Plan for the City of Hanford and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2016 and 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project is not characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

As discussed above in Section 3.2 and 3.3, results of the analysis show that emissions generated from construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, no mitigation is needed.

4.1.3 *Expose sensitive receptors to substantial pollutant concentrations*

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors

include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the Project is a Type B Project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. As noted above, the proposed Project is not a Type A project and would not place new toxic sources in the vicinity of existing sources. Therefore, the Project will not expose sensitive receptors to substantial pollutant concentrations and any impacts would be less than significant.

Short-Term Impacts

The annual emissions from the construction phase of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown in Table 7. Therefore, construction emissions associated with the Project are considered less than significant.

Long-Term Impacts

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Table 8 summarizes the Project's operational impacts by pollutant. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants. Therefore, operational emissions associated with the Project are considered less than significant.

4.1.4 *Result in other emissions such as those leading to odors adversely affecting a substantial number of people*

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- ✓ Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

- ✓ Receivers – residential or other sensitive receptor projects or other projects built for the

intent of attracting people located near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. The Project will not generate odorous emissions given the nature or characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

4.2 Greenhouse Gas Emissions

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

The SJVAPCD acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 9 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model, which is approximately 79% less than the threshold identified by the SCAQMD.

The KCAG Regional Climate Action Plan identifies a baseline (2005) GHG emissions inventory for

all countywide sectors (transportation, waste management, etc.). Kings County's baseline GHG emissions is approximately 1,046,804 MTCO2eq./year. The proposed Project's GHG emissions represents 0.2% of the total GHG emissions for Kings County's baseline GHG emissions.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, any impacts would be less than significant.

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

California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the KCAG region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005. KCAG's 2018 RTP/SCS, which was adopted in August 2018, projects that the Kings County region would achieve the prescribed emissions targets.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. KCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is City of Hanford 2035 General Plan Update, which was adopted in 2018.

The Project is consistent with the currently adopted General Plan for the City of Hanford and the adopted KCAG 2018 RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth

assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project (Table 9) are approximately 79% less than the threshold identified by the SCAQMD (see the discussion for Impact 4.2.1 above).

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit. Below is a list of applicable strategies in the Scoping Plan and the Project's consistency with those strategies.

- ✓ California Light-Duty Vehicle GHG Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs for long-term climate change goals.
  - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to light-duty vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.
- ✓ Energy Efficiency – Pursuit of comparable investment in energy efficiency from all retail providers of electricity in California. Maximize energy efficiency building and appliance standards.
  - The Project is consistent with this reduction measure. Though this measure applies to the State to increase its energy standards, the Project would comply with this measure through existing regulation. The Project would not conflict or obstruct this reduction measure.
- ✓ Low Carbon Fuel – Development and adoption of the low carbon fuel standard.
  - The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, any impacts would be less than significant.

APPENDIX A

CalEEMod/Road Construction Emissions Worksheets

Tract 934 - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Tract 934

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	161.00	Dwelling Unit	35.64	289,800.00	460

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	37
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage adjusted for project characteristics

Construction Phase - Adjustment for Project Characteristics

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	740.00	475.00
tblConstructionPhase	PhaseEndDate	8/1/2025	7/26/2024
tblConstructionPhase	PhaseEndDate	2/28/2025	2/25/2024
tblConstructionPhase	PhaseEndDate	5/16/2025	5/10/2024
tblConstructionPhase	PhaseStartDate	5/17/2025	5/11/2024
tblConstructionPhase	PhaseStartDate	3/1/2025	2/26/2024
tblLandUse	LotAcreage	52.27	35.64

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblWoodstoves	NumberCatalytic	35.64	0.00
tblWoodstoves	NumberNoncatalytic	35.64	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1200	1.1925	0.7673	1.3900e-003	0.2090	0.0593	0.2682	0.1031	0.0549	0.1579	0.0000	122.1789	122.1789	0.0349	1.2000e-004	123.0872
2022	0.3241	3.0857	2.8053	5.6200e-003	0.5168	0.1414	0.6581	0.2047	0.1316	0.3363	0.0000	493.1638	493.1638	0.1216	5.6300e-003	497.8826
2023	0.2300	1.9847	2.3308	4.4800e-003	0.0753	0.0919	0.1672	0.0203	0.0865	0.1069	0.0000	392.7946	392.7946	0.0733	7.7300e-003	396.9310
2024	2.7873	0.5830	0.8237	1.4400e-003	0.0176	0.0270	0.0446	4.7100e-003	0.0252	0.0300	0.0000	126.7441	126.7441	0.0295	1.2800e-003	127.8648
Maximum	**2.7873**	**3.0857**	**2.8053**	**5.6200e-003**	**0.5168**	**0.1414**	**0.6581**	**0.2047**	**0.1316**	**0.3363**	**0.0000**	**493.1638**	**493.1638**	**0.1216**	**7.7300e-003**	**497.8826**

Tract 934 - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1200	1.1925	0.7673	1.3900e-003	0.2090	0.0593	0.2682	0.1031	0.0549	0.1579	0.0000	122.1787	122.1787	0.0349	1.2000e-004	123.0871
2022	0.3241	3.0857	2.8053	5.6200e-003	0.5168	0.1414	0.6581	0.2047	0.1316	0.3363	0.0000	493.1633	493.1633	0.1216	5.6300e-003	497.8821
2023	0.2300	1.9847	2.3308	4.4800e-003	0.0753	0.0919	0.1672	0.0203	0.0865	0.1069	0.0000	392.7943	392.7943	0.0733	7.7300e-003	396.9306
2024	2.7873	0.5830	0.8237	1.4400e-003	0.0176	0.0270	0.0446	4.7100e-003	0.0252	0.0300	0.0000	126.7440	126.7440	0.0295	1.2800e-003	127.8647
Maximum	**2.7873**	**3.0857**	**2.8053**	**5.6200e-003**	**0.5168**	**0.1414**	**0.6581**	**0.2047**	**0.1316**	**0.3363**	**0.0000**	**493.1633**	**493.1633**	**0.1216**	**7.7300e-003**	**497.8821**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	9-27-2021	12-26-2021	1.2084	1.2084
2	12-27-2021	3-26-2022	1.3412	1.3412
3	3-27-2022	6-26-2022	0.9029	0.9029
4	6-27-2022	9-26-2022	0.6119	0.6119
5	9-27-2022	12-26-2022	0.6071	0.6071
6	12-27-2022	3-26-2023	0.5516	0.5516
7	3-27-2023	6-26-2023	0.5594	0.5594
8	6-27-2023	9-26-2023	0.5593	0.5593

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9	**9-27-2023**	**12-26-2023**	0.5548	0.5548
10	**12-27-2023**	**3-26-2024**	0.4639	0.4639
11	**3-27-2024**	**6-26-2024**	1.8549	1.8549
12	**6-27-2024**	**9-26-2024**	1.0754	1.0754
		Highest	1.8549	1.8549

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4467	0.0740	1.2199	4.5000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	71.6991	71.6991	3.2100e-003	1.2800e-003	72.1603
Energy	0.0209	0.1783	0.0759	1.1400e-003		0.0144	0.0144		0.0144	0.0144	0.0000	325.3031	325.3031	0.0232	6.1200e-003	327.7049
Mobile	0.7059	1.3796	6.5953	0.0165	1.6196	0.0154	1.6350	0.4329	0.0145	0.4474	0.0000	1,529.8093	1,529.8093	0.0754	0.0908	1,558.7383
Waste						0.0000	0.0000		0.0000	0.0000	33.6153	0.0000	33.6153	1.9866	0.0000	83.2805
Water						0.0000	0.0000		0.0000	0.0000	3.3279	7.3932	10.7212	0.3430	8.2200e-003	21.7446
Total	**2.1735**	**1.6319**	**7.8911**	**0.0181**	**1.6196**	**0.0413**	**1.6609**	**0.4329**	**0.0404**	**0.4733**	**36.9432**	**1,934.2048**	**1,971.1480**	**2.4314**	**0.1064**	**2,063.6286**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4467	0.0740	1.2199	4.5000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	71.6991	71.6991	3.2100e-003	1.2800e-003	72.1603
Energy	0.0209	0.1783	0.0759	1.1400e-003		0.0144	0.0144		0.0144	0.0144	0.0000	325.3031	325.3031	0.0232	6.1200e-003	327.7049
Mobile	0.7059	1.3796	6.5953	0.0165	1.6196	0.0154	1.6350	0.4329	0.0145	0.4474	0.0000	1,529.8093	1,529.8093	0.0754	0.0908	1,558.7383
Waste						0.0000	0.0000		0.0000	0.0000	33.6153	0.0000	33.6153	1.9866	0.0000	83.2805
Water						0.0000	0.0000		0.0000	0.0000	3.3279	7.3932	10.7212	0.3430	8.2200e-003	21.7446
Total	**2.1735**	**1.6319**	**7.8911**	**0.0181**	**1.6196**	**0.0413**	**1.6609**	**0.4329**	**0.0404**	**0.4733**	**36.9432**	**1,934.2048**	**1,971.1480**	**2.4314**	**0.1064**	**2,063.6286**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/27/2021	12/3/2021	5	50	
2	Site Preparation	Site Preparation	12/4/2021	1/14/2022	5	30	
3	Grading	Grading	1/15/2022	4/29/2022	5	75	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Building Construction	Building Construction	4/30/2022	2/25/2024	5	475	
5	Paving	Paving	2/26/2024	5/10/2024	5	55	
6	Architectural Coating	Architectural Coating	5/11/2024	7/26/2024	5	55	

Acres of Grading (Site Preparation Phase): 45

Acres of Grading (Grading Phase): 225

Acres of Paving: 0

Residential Indoor: 586,845; Residential Outdoor: 195,615; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0791	0.7860	0.5391	9.7000e-004		0.0388	0.0388		0.0360	0.0360	0.0000	85.0020	85.0020	0.0239	0.0000	85.6001
Total	**0.0791**	**0.7860**	**0.5391**	**9.7000e-004**		**0.0388**	**0.0388**		**0.0360**	**0.0360**	**0.0000**	**85.0020**	**85.0020**	**0.0239**	**0.0000**	**85.6001**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	1.0200e-003	0.0112	3.0000e-005	3.0100e-003	2.0000e-005	3.0300e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.5278	2.5278	9.0000e-005	8.0000e-005	2.5548
Total	**1.3500e-003**	**1.0200e-003**	**0.0112**	**3.0000e-005**	**3.0100e-003**	**2.0000e-005**	**3.0300e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.5278**	**2.5278**	**9.0000e-005**	**8.0000e-005**	**2.5548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0791	0.7860	0.5391	9.7000e-004		0.0388	0.0388		0.0360	0.0360	0.0000	85.0019	85.0019	0.0239	0.0000	85.6000
Total	**0.0791**	**0.7860**	**0.5391**	**9.7000e-004**		**0.0388**	**0.0388**		**0.0360**	**0.0360**	**0.0000**	**85.0019**	**85.0019**	**0.0239**	**0.0000**	**85.6000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3500e-003	1.0200e-003	0.0112	3.0000e-005	3.0100e-003	2.0000e-005	3.0300e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.5278	2.5278	9.0000e-005	8.0000e-005	2.5548
Total	**1.3500e-003**	**1.0200e-003**	**0.0112**	**3.0000e-005**	**3.0100e-003**	**2.0000e-005**	**3.0300e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.5278**	**2.5278**	**9.0000e-005**	**8.0000e-005**	**2.5548**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2045	0.0000	0.2045	0.1019	0.0000	0.1019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.2045**	**0.0204**	**0.2250**	**0.1019**	**0.0188**	**0.1207**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

Tract 934 - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.9000e-004	5.3800e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2134	1.2134	4.0000e-005	4.0000e-005	1.2263
Total	**6.5000e-004**	**4.9000e-004**	**5.3800e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2134**	**1.2134**	**4.0000e-005**	**4.0000e-005**	**1.2263**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2045	0.0000	0.2045	0.1019	0.0000	0.1019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.2045**	**0.0204**	**0.2250**	**0.1019**	**0.0188**	**0.1207**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.9000e-004	5.3800e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2134	1.2134	4.0000e-005	4.0000e-005	1.2263
Total	**6.5000e-004**	**4.9000e-004**	**5.3800e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2134**	**1.2134**	**4.0000e-005**	**4.0000e-005**	**1.2263**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1142	0.0000	0.1142	0.0522	0.0000	0.0522	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.1142**	**8.0600e-003**	**0.1223**	**0.0522**	**7.4200e-003**	**0.0597**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.2000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5877	0.5877	2.0000e-005	2.0000e-005	0.5936
Total	**3.0000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5877**	**0.5877**	**2.0000e-005**	**2.0000e-005**	**0.5936**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1142	0.0000	0.1142	0.0522	0.0000	0.0522	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.1142**	**8.0600e-003**	**0.1223**	**0.0522**	**7.4200e-003**	**0.0597**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.2000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5877	0.5877	2.0000e-005	2.0000e-005	0.5936
Total	**3.0000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5877**	**0.5877**	**2.0000e-005**	**2.0000e-005**	**0.5936**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3451	0.0000	0.3451	0.1370	0.0000	0.1370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1359	1.4566	1.0891	2.3300e-003		0.0613	0.0613		0.0564	0.0564	0.0000	204.5048	204.5048	0.0661	0.0000	206.1583
Total	**0.1359**	**1.4566**	**1.0891**	**2.3300e-003**	**0.3451**	**0.0613**	**0.4064**	**0.1370**	**0.0564**	**0.1934**	**0.0000**	**204.5048**	**204.5048**	**0.0661**	**0.0000**	**206.1583**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4700e-003	1.7800e-003	0.0203	5.0000e-005	6.0300e-003	3.0000e-005	6.0600e-003	1.6000e-003	3.0000e-005	1.6300e-003	0.0000	4.8976	4.8976	1.6000e-004	1.5000e-004	4.9468
Total	**2.4700e-003**	**1.7800e-003**	**0.0203**	**5.0000e-005**	**6.0300e-003**	**3.0000e-005**	**6.0600e-003**	**1.6000e-003**	**3.0000e-005**	**1.6300e-003**	**0.0000**	**4.8976**	**4.8976**	**1.6000e-004**	**1.5000e-004**	**4.9468**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3451	0.0000	0.3451	0.1370	0.0000	0.1370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1359	1.4566	1.0891	2.3300e-003		0.0613	0.0613		0.0564	0.0564	0.0000	204.5045	204.5045	0.0661	0.0000	206.1580
Total	**0.1359**	**1.4566**	**1.0891**	**2.3300e-003**	**0.3451**	**0.0613**	**0.4064**	**0.1370**	**0.0564**	**0.1934**	**0.0000**	**204.5045**	**204.5045**	**0.0661**	**0.0000**	**206.1580**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4700e-003	1.7800e-003	0.0203	5.0000e-005	6.0300e-003	3.0000e-005	6.0600e-003	1.6000e-003	3.0000e-005	1.6300e-003	0.0000	4.8976	4.8976	1.6000e-004	1.5000e-004	4.9468
Total	**2.4700e-003**	**1.7800e-003**	**0.0203**	**5.0000e-005**	**6.0300e-003**	**3.0000e-005**	**6.0600e-003**	**1.6000e-003**	**3.0000e-005**	**1.6300e-003**	**0.0000**	**4.8976**	**4.8976**	**1.6000e-004**	**1.5000e-004**	**4.9468**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1493	1.3664	1.4318	2.3600e-003		0.0708	0.0708		0.0666	0.0666	0.0000	202.7596	202.7596	0.0486	0.0000	203.9740
Total	**0.1493**	**1.3664**	**1.4318**	**2.3600e-003**		**0.0708**	**0.0708**		**0.0666**	**0.0666**	**0.0000**	**202.7596**	**202.7596**	**0.0486**	**0.0000**	**203.9740**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5100e-003	0.0833	0.0256	3.2000e-004	9.9100e-003	9.4000e-004	0.0108	2.8600e-003	9.0000e-004	3.7600e-003	0.0000	30.5537	30.5537	1.9000e-004	4.4400e-003	31.8820
Worker	0.0167	0.0120	0.1376	3.6000e-004	0.0408	2.2000e-004	0.0410	0.0108	2.0000e-004	0.0110	0.0000	33.1407	33.1407	1.1000e-003	1.0200e-003	33.4731
Total	**0.0202**	**0.0953**	**0.1632**	**6.8000e-004**	**0.0507**	**1.1600e-003**	**0.0518**	**0.0137**	**1.1000e-003**	**0.0148**	**0.0000**	**63.6944**	**63.6944**	**1.2900e-003**	**5.4600e-003**	**65.3551**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1493	1.3664	1.4318	2.3600e-003		0.0708	0.0708		0.0666	0.0666	0.0000	202.7594	202.7594	0.0486	0.0000	203.9737
Total	**0.1493**	**1.3664**	**1.4318**	**2.3600e-003**		**0.0708**	**0.0708**		**0.0666**	**0.0666**	**0.0000**	**202.7594**	**202.7594**	**0.0486**	**0.0000**	**203.9737**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5100e-003	0.0833	0.0256	3.2000e-004	9.9100e-003	9.4000e-004	0.0108	2.8600e-003	9.0000e-004	3.7600e-003	0.0000	30.5537	30.5537	1.9000e-004	4.4400e-003	31.8820
Worker	0.0167	0.0120	0.1376	3.6000e-004	0.0408	2.2000e-004	0.0410	0.0108	2.0000e-004	0.0110	0.0000	33.1407	33.1407	1.1000e-003	1.0200e-003	33.4731
Total	**0.0202**	**0.0953**	**0.1632**	**6.8000e-004**	**0.0507**	**1.1600e-003**	**0.0518**	**0.0137**	**1.1000e-003**	**0.0148**	**0.0000**	**63.6944**	**63.6944**	**1.2900e-003**	**5.4600e-003**	**65.3551**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

Tract 934 - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7100e-003	0.0991	0.0327	4.6000e-004	0.0147	6.5000e-004	0.0154	4.2500e-003	6.2000e-004	4.8700e-003	0.0000	43.7946	43.7946	1.7000e-004	6.3300e-003	45.6865
Worker	0.0228	0.0156	0.1864	5.2000e-004	0.0606	3.1000e-004	0.0609	0.0161	2.9000e-004	0.0164	0.0000	47.6538	47.6538	1.4700e-003	1.3900e-003	48.1062
Total	**0.0255**	**0.1147**	**0.2191**	**9.8000e-004**	**0.0753**	**9.6000e-004**	**0.0763**	**0.0203**	**9.1000e-004**	**0.0213**	**0.0000**	**91.4485**	**91.4485**	**1.6400e-003**	**7.7200e-003**	**93.7927**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7100e-003	0.0991	0.0327	4.6000e-004	0.0147	6.5000e-004	0.0154	4.2500e-003	6.2000e-004	4.8700e-003	0.0000	43.7946	43.7946	1.7000e-004	6.3300e-003	45.6865
Worker	0.0228	0.0156	0.1864	5.2000e-004	0.0606	3.1000e-004	0.0609	0.0161	2.9000e-004	0.0164	0.0000	47.6538	47.6538	1.4700e-003	1.3900e-003	48.1062
Total	**0.0255**	**0.1147**	**0.2191**	**9.8000e-004**	**0.0753**	**9.6000e-004**	**0.0763**	**0.0203**	**9.1000e-004**	**0.0213**	**0.0000**	**91.4485**	**91.4485**	**1.6400e-003**	**7.7200e-003**	**93.7927**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0294	0.2689	0.3233	5.4000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	46.3698	46.3698	0.0110	0.0000	46.6440
Total	**0.0294**	**0.2689**	**0.3233**	**5.4000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**46.3698**	**46.3698**	**0.0110**	**0.0000**	**46.6440**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1000e-004	0.0152	4.8900e-003	7.0000e-005	2.2600e-003	1.0000e-004	2.3700e-003	6.5000e-004	1.0000e-004	7.5000e-004	0.0000	6.6391	6.6391	2.0000e-005	9.6000e-004	6.9252
Worker	3.2400e-003	2.1200e-003	0.0265	8.0000e-005	9.3200e-003	5.0000e-005	9.3600e-003	2.4800e-003	4.0000e-005	2.5200e-003	0.0000	7.0977	7.0977	2.0000e-004	2.0000e-004	7.1619
Total	**3.6500e-003**	**0.0174**	**0.0314**	**1.5000e-004**	**0.0116**	**1.5000e-004**	**0.0117**	**3.1300e-003**	**1.4000e-004**	**3.2700e-003**	**0.0000**	**13.7368**	**13.7368**	**2.2000e-004**	**1.1600e-003**	**14.0870**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0294	0.2689	0.3233	5.4000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	46.3698	46.3698	0.0110	0.0000	46.6439
Total	**0.0294**	**0.2689**	**0.3233**	**5.4000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**46.3698**	**46.3698**	**0.0110**	**0.0000**	**46.6439**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1000e-004	0.0152	4.8900e-003	7.0000e-005	2.2600e-003	1.0000e-004	2.3700e-003	6.5000e-004	1.0000e-004	7.5000e-004	0.0000	6.6391	6.6391	2.0000e-005	9.6000e-004	6.9252
Worker	3.2400e-003	2.1200e-003	0.0265	8.0000e-005	9.3200e-003	5.0000e-005	9.3600e-003	2.4800e-003	4.0000e-005	2.5200e-003	0.0000	7.0977	7.0977	2.0000e-004	2.0000e-004	7.1619
Total	**3.6500e-003**	**0.0174**	**0.0314**	**1.5000e-004**	**0.0116**	**1.5000e-004**	**0.0117**	**3.1300e-003**	**1.4000e-004**	**3.2700e-003**	**0.0000**	**13.7368**	**13.7368**	**2.2000e-004**	**1.1600e-003**	**14.0870**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0272	0.2619	0.4022	6.3000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	55.0730	55.0730	0.0178	0.0000	55.5183
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0272**	**0.2619**	**0.4022**	**6.3000e-004**		**0.0129**	**0.0129**		**0.0119**	**0.0119**	**0.0000**	**55.0730**	**55.0730**	**0.0178**	**0.0000**	**55.5183**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	7.5000e-004	9.4200e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	1.0000e-005	9.0000e-004	0.0000	2.5240	2.5240	7.0000e-005	7.0000e-005	2.5468
Total	**1.1500e-003**	**7.5000e-004**	**9.4200e-003**	**3.0000e-005**	**3.3100e-003**	**2.0000e-005**	**3.3300e-003**	**8.8000e-004**	**1.0000e-005**	**9.0000e-004**	**0.0000**	**2.5240**	**2.5240**	**7.0000e-005**	**7.0000e-005**	**2.5468**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0272	0.2619	0.4022	6.3000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	55.0729	55.0729	0.0178	0.0000	55.5182
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0272**	**0.2619**	**0.4022**	**6.3000e-004**		**0.0129**	**0.0129**		**0.0119**	**0.0119**	**0.0000**	**55.0729**	**55.0729**	**0.0178**	**0.0000**	**55.5182**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	7.5000e-004	9.4200e-003	3.0000e-005	3.3100e-003	2.0000e-005	3.3300e-003	8.8000e-004	1.0000e-005	9.0000e-004	0.0000	2.5240	2.5240	7.0000e-005	7.0000e-005	2.5468
Total	**1.1500e-003**	**7.5000e-004**	**9.4200e-003**	**3.0000e-005**	**3.3100e-003**	**2.0000e-005**	**3.3300e-003**	**8.8000e-004**	**1.0000e-005**	**9.0000e-004**	**0.0000**	**2.5240**	**2.5240**	**7.0000e-005**	**7.0000e-005**	**2.5468**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.7200					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9700e-003	0.0335	0.0498	8.0000e-005		1.6800e-003	1.6800e-003		1.6800e-003	1.6800e-003	0.0000	7.0215	7.0215	4.0000e-004	0.0000	7.0313
Total	**2.7250**	**0.0335**	**0.0498**	**8.0000e-005**		**1.6800e-003**	**1.6800e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**7.0215**	**7.0215**	**4.0000e-004**	**0.0000**	**7.0313**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.0000e-004	7.5300e-003	2.0000e-005	2.6500e-003	1.0000e-005	2.6600e-003	7.0000e-004	1.0000e-005	7.2000e-004	0.0000	2.0192	2.0192	6.0000e-005	6.0000e-005	2.0374
Total	**9.2000e-004**	**6.0000e-004**	**7.5300e-003**	**2.0000e-005**	**2.6500e-003**	**1.0000e-005**	**2.6600e-003**	**7.0000e-004**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**2.0192**	**2.0192**	**6.0000e-005**	**6.0000e-005**	**2.0374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.7200					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9700e-003	0.0335	0.0498	8.0000e-005		1.6800e-003	1.6800e-003		1.6800e-003	1.6800e-003	0.0000	7.0214	7.0214	4.0000e-004	0.0000	7.0313
Total	**2.7250**	**0.0335**	**0.0498**	**8.0000e-005**		**1.6800e-003**	**1.6800e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**7.0214**	**7.0214**	**4.0000e-004**	**0.0000**	**7.0313**

Tract 934 - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.0000e-004	7.5300e-003	2.0000e-005	2.6500e-003	1.0000e-005	2.6600e-003	7.0000e-004	1.0000e-005	7.2000e-004	0.0000	2.0192	2.0192	6.0000e-005	6.0000e-005	2.0374
Total	**9.2000e-004**	**6.0000e-004**	**7.5300e-003**	**2.0000e-005**	**2.6500e-003**	**1.0000e-005**	**2.6600e-003**	**7.0000e-004**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**2.0192**	**2.0192**	**6.0000e-005**	**6.0000e-005**	**2.0374**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7059	1.3796	6.5953	0.0165	1.6196	0.0154	1.6350	0.4329	0.0145	0.4474	0.0000	1,529.8093	1,529.8093	0.0754	0.0908	1,558.7383
Unmitigated	0.7059	1.3796	6.5953	0.0165	1.6196	0.0154	1.6350	0.4329	0.0145	0.4474	0.0000	1,529.8093	1,529.8093	0.0754	0.0908	1,558.7383

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,519.84	1,535.94	1376.55	4,298,153	4,298,153
Total	1,519.84	1,535.94	1,376.55	4,298,153	4,298,153

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	42.30	19.60	38.10	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.509079	0.051904	0.169516	0.159109	0.028747	0.006626	0.008281	0.037038	0.000603	0.000188	0.024404	0.001123	0.003381

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	118.7827	118.7827	0.0192	2.3300e-003	119.9573
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	118.7827	118.7827	0.0192	2.3300e-003	119.9573
NaturalGas Mitigated	0.0209	0.1783	0.0759	1.1400e-003		0.0144	0.0144		0.0144	0.0144	0.0000	206.5204	206.5204	3.9600e-003	3.7900e-003	207.7476
NaturalGas Unmitigated	0.0209	0.1783	0.0759	1.1400e-003		0.0144	0.0144		0.0144	0.0144	0.0000	206.5204	206.5204	3.9600e-003	3.7900e-003	207.7476

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	3.87005e+006	0.0209	0.1783	0.0759	1.1400e-003		0.0144	0.0144		0.0144	0.0144	0.0000	206.5204	206.5204	3.9600e-003	3.7900e-003	207.7476
Total		**0.0209**	**0.1783**	**0.0759**	**1.1400e-003**		**0.0144**	**0.0144**		**0.0144**	**0.0144**	**0.0000**	**206.5204**	**206.5204**	**3.9600e-003**	**3.7900e-003**	**207.7476**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	3.87005e+006	0.0209	0.1783	0.0759	1.1400e-003		0.0144	0.0144		0.0144	0.0144	0.0000	206.5204	206.5204	3.9600e-003	3.7900e-003	207.7476
Total		**0.0209**	**0.1783**	**0.0759**	**1.1400e-003**		**0.0144**	**0.0144**		**0.0144**	**0.0144**	**0.0000**	**206.5204**	**206.5204**	**3.9600e-003**	**3.7900e-003**	**207.7476**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.28381e+006	118.7827	0.0192	2.3300e-003	119.9573
Total		**118.7827**	**0.0192**	**2.3300e-003**	**119.9573**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.28381e+006	118.7827	0.0192	2.3300e-003	119.9573
Total		**118.7827**	**0.0192**	**2.3300e-003**	**119.9573**

6.0 Area Detail

6.1 Mitigation Measures Area

Tract 934 - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4467	0.0740	1.2199	4.5000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	71.6991	71.6991	3.2100e-003	1.2800e-003	72.1603
Unmitigated	1.4467	0.0740	1.2199	4.5000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	71.6991	71.6991	3.2100e-003	1.2800e-003	72.1603

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2720					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.0500e-003	0.0602	0.0256	3.8000e-004		4.8700e-003	4.8700e-003		4.8700e-003	4.8700e-003	0.0000	69.7464	69.7464	1.3400e-003	1.2800e-003	70.1609
Landscaping	0.0359	0.0138	1.1943	6.0000e-005		6.6300e-003	6.6300e-003		6.6300e-003	6.6300e-003	0.0000	1.9527	1.9527	1.8700e-003	0.0000	1.9995
Total	**1.4467**	**0.0740**	**1.2199**	**4.4000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**71.6991**	**71.6991**	**3.2100e-003**	**1.2800e-003**	**72.1604**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2720					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.0500e-003	0.0602	0.0256	3.8000e-004		4.8700e-003	4.8700e-003		4.8700e-003	4.8700e-003	0.0000	69.7464	69.7464	1.3400e-003	1.2800e-003	70.1609
Landscaping	0.0359	0.0138	1.1943	6.0000e-005		6.6300e-003	6.6300e-003		6.6300e-003	6.6300e-003	0.0000	1.9527	1.9527	1.8700e-003	0.0000	1.9995
Total	**1.4467**	**0.0740**	**1.2199**	**4.4000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**71.6991**	**71.6991**	**3.2100e-003**	**1.2800e-003**	**72.1604**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.7212	0.3430	8.2200e-003	21.7446
Unmitigated	10.7212	0.3430	8.2200e-003	21.7446

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	10.4898 / 6.61313	10.7212	0.3430	8.2200e-003	21.7446
Total		**10.7212**	**0.3430**	**8.2200e-003**	**21.7446**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	10.4898 / 6.61313	10.7212	0.3430	8.2200e-003	21.7446
Total		**10.7212**	**0.3430**	**8.2200e-003**	**21.7446**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	33.6153	1.9866	0.0000	83.2805
Unmitigated	33.6153	1.9866	0.0000	83.2805

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	165.6	33.6153	1.9866	0.0000	83.2805
Total		**33.6153**	**1.9866**	**0.0000**	**83.2805**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	165.6	33.6153	1.9866	0.0000	83.2805
Total		**33.6153**	**1.9866**	**0.0000**	**83.2805**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

City of Hanford Traffic Counts / Capacity Tables

Traffic Counts
****

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
9th Ave.	south of Lacey	**112**			2,179			2,110	
	south of Third	**113**			1,401			1,512	
	south of Han/Arm	**136**			1,020			1,186	
9 1/4 Ave.	north of Grangeville	**157**	2,101		1,996			2,235	
	north of Florinda	**56**			3,362			3,482	
	south of Myrtle	**70**			3,591			3,868	
10th Ave.	south of Encore	**10**	6,320			6,993			7,969
	south of Greenwood	**23**	11,731			10,777			12,412
	south of Terrace	**33**		15,802				17,509	
	south of Bass	**55**		18,683				14,403	
	south of Ivy	**69**		18,446				16,230	
	south of Fifth	**97**						19,311	
	north of Han/Arm	**119**	8,339			8,513			9,997
	south of Garden	**140**		4,079				4,412	
	south of Houston	**138**		2,983				2,988	
	south of Iona	**142**		2,227	2,075			2,293	
11th Ave.	north of Flint	**22**		2,572				2,644	
	south of Furlong	**2**		5,696				5,559	
	south of Pepper	**1**		8,459				8,448	
	south of Magnolia	**18**		13,158				12,248	
	north of Terrace	**29**						15,529	

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
11th Ave.	south of Neville	**50**						18,285	
	north of Lacey	**73**		18,891				19,322	
	south of Seventh	**99**		18,886				27,636	
	south of Washington	**116**						15,087	
	north of Thompson	**128**						9,918	
	north of Buena Vista	**132**						6,238	
	south of Houston	**137**	4,122		3,776			4,059	
	south of Industry	**141**		2,798				2,893	
12th Ave.	north of Fargo	**156**	4,609		4,225			5,366	
	north of Vineyard	**36**			8,926			11,845	
	south of Muscat	**17**			11,770			14,530	
	south of Glenn	**54**			16,280			17,132	
	south of Liberty	**47**			16,658			16,622	
	north of Mall	**87**			14,643			17,874	
	south of Mall	**158**						32,161	
	north of Han/Arm	**114**			12,301			16,622	
	south of Oriole	**127**			6,193			6,647	
	south of Hume	**153**			3,541			3,721	
13th Ave.	north of Grangeville	**154**	3,041		3,149			3,461	
	south of Grangeville	**95**	4,342		4,769			5,064	
	north of Lacey	**85**			5,925			5,408	
	south of Lacey	**101**		6,298				7,211	

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Aspen St.	north of Trinity	**7**		1,578			1,667		
Campus Dr.	north of Forum	**58**	5,227		5,263			4,414	
	south of Lacey	**88**	3,880		4,231			3,867	
Centennial Dr.	south of Berkshire	**37**	1,198		1,317			1,827	
	south of Grangeville	**46**	3,363		3,298			4,323	
	north of Charlie Chambers	**71**		3,318			4,989		
	south of Lacey	**161**			4,410			6,650	
	west of 12th	**90**					6,019		
Cortner St.	east of Pine	**21**	2,208			2,509			2,539
	west of Yosemite	**148**		1,760			1,455		
Davis St.	east of Kimball	**115**			3,218			3,448	
Douty St.	south of White Oak	**8**			2,160			2,444	
	south of Encore	**9**			3,590			3,885	
	north of Magnolia	**19**	4,403	4,956			4,783		
	south of Leland	**27**	5,429	5,993			5,529		
	south of Lorita	**32**	6,354			6,296			6,756
	north of Malone	**53**	5,765	5,831			5,702		
	north of Center/Tenth	**76**	6,316				5,778		
	north of Seventh	**94**	6,510				5,811		

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Douty St.	south of Lang	**109**	5,839			2,766			2,828
Elm St.	west of 11th	**65**							6,831
Fargo Ave.	west of 12th	**155**	3,222		3,381			3,587	
	east of 12th	**35**	7,657		7,868			8,977	
	west of Fountain Plaza	**12**		9,459			10,502		
	east of Aspen	**13**	9,075			9,314			9,961
	east of Kensington	**14**			8,216			8,187	
	west of Encore	**15**			4,732			4,661	
	west of 9 1/4	**16**	2,602			2,743			3,068
Fifth St.	east of Brown	**104**		765				977	
Fitzgerald Ln	south of Castoro	**163**		2,334				1,980	
	south of Bristol	**30**			3,713			3,204	
Flint Ave	west of 11th	**28**			1,968			3,138	
	west of Douty	**3**		3,770				4,568	
	west of Hwy 43	**11**	3,687		3,889			5,020	
Florinda St.	west of Kaweah	**61**	5,409			4,922			5,282
	east of Brown	**62**	4,902			4,768			5,115
	west of Gladys	**63**		3,199				4,684	

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Florinda St.	east of Lassen	**64**	2,397		2,313			2,401	
Fourth St.	west of Phillips	**106**				4,281			4,705
	east of Brown	**107**				4,607			4,333
Garner Ave.	south of Goleta	**89**			2,595			2,531	
Glacier Wy	north of Pebble	**20**			1,862			2,219	
	south of Fargo	**160**			1,202			1,338	
Glendale Ave	east of 13th	**162**	776		885			1,057	
	west of 12th	**166**			3,842			4,618	
Grangeville Bl.	west of 13th	**83**	5,835			5,726			6,347
	west of Centennial	**38**	7,466			6,752			8,150
	west of 12th	**39**				9,268			11,331
	west of University	**40**				11,212			13,568
	east of Rodgers	**42**				14,257			14,992
	west of Kaweah	**43**		14,476				15,392	
	west of Kensington	**44**		13,650			11,902		
	west of Harding	**45**				7,205			8,340
	east of 9 1/4	**49**	4,343			3,541			3,781
Greenfield Ave.	east of Centennial	**167**					1,441		

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Greenfield Ave.	west of 12th	**168**						2,540	
	east of University	**169**						6,169	
	east of Della	**60**	2,151		3,051			4,128	
	east of Hansen	**59**	3,637	3,901				4,870	
	north of Lacey	**72**	5,996		5,400			5,353	
Han/Arm Rd.	east of 13th	**118**	5,257		5,470			6,287	
	west of 12th	**165**	5,850			6,225		7,357	
	east of Greenbrier	**120**			5,925			9,717	
	west of Bengston	**121**			9,763			10,624	
	east of Anacapa	**122**			8,572			9,320	
	east of Williams	**123**			9,768			9,647	
	east of Harris	**124**			7,038			7,410	
	west of 9 3/4	**125**			521		604		
	west of 9 1/8	**126**			195		184		
Houston Ave.	west of 12th	**164**		2,106				2,885	
	east of 12th	**150**			2,895			3,622	
	west of 11th	**134**			2,998			3,771	
	east of 11th	**135**	3,356		3,507			4,273	
	west of Elvira	**144**			3,499			4,090	
	east of Shaw	**145**			2,466			2,800	
Hume Ave.	east of 12th	**130**		2,581				3,037	

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Hume Ave.	west of Dawn	**131**		2,651				3,083	
	east of Santa Rosa	**147**		2,270				1,072	
Idaho Ave.	east of 11th	**143**		512				658	
Iona Ave.	east of 11th	**139**		723				1,041	
Irwin St.	north of Katherine	**52**		2,038			1,865		
	north of Myrtle	**75**		3,789			3,249		
	north of Seventh	**93**			2,886			2,885	
	south of Han/Arm	**129**			1,402			949	
Ivy St.	west of Kaweah	**67**			2,333			2,605	
	east of Brown	**68**			1,843			1,853	
Kings Co. Dr	south of Forum	**82**				3,370			3,373
Lacey Blvd.	west of 13th	**98**				7,221			7,634
	east of Magna Carta	**77**				12,246			11,535
	west of 12th	**78**				13,105			11,772
	east of Mall	**79**				15,829			15,648
	west of Greenfield	**80**				16,211			17,448
	west of Phillips	**81**				9,075			11,391
	west of 9 1/2	**84**		4,753		7,003			6,982

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Lacey Blvd.	west of Hwy 43	**86**				3,565			6,642
Leland Way	east of Fairmont	**25**				2,279			2,378
	east of Oakwood	**26**				2,361			2,579
Liberty St	east of Centennial	**66**				772			847
Mall Dr.	south of Lacey	**146**				9,395			8,564
	east of 12th	**149**	11,704			11,690			11,521
Manor Ave	south of Davis	**117**		615			653		
	north of State	**133**		1,160			1,366		
McCreary Ave.	east of Short	**34**		1,400			1,579		
Pepper Dr.	east of Zion	**24**		665			617		
	east of 11th	**4**				1,203			1,591
Redington St.	north of Malone	**51**	3,285		3,252			3,525	
	north of Center	**74**	5,290			5,006			6,125
	north of Seventh	**92**	5,222		4,467				5,881
	north of Fourth	**105**			2,836			3,583	
Rodgers Rd.	south of Terrace	**41**			1,613			1,521	

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Rodgers Rd.	north of Cameron	**57**	2,371			2,224			2,415
Seventh St.	east of Mall	**152**		6,496				7,650	
	west of 11th	**151**			6,905			7,172	
	east of Williams	**103**			8,736			10,465	
	east of Phillips	**91**						7,527	
	east of Brown	**96**		6,302				6,118	
Sixth St.	west of Phillips	**100**		3,766				3,929	
	east of Brown	**102**		4,241				4,116	
	west of 11th	**6**						2,101	
Third St.	west of Phillips	**108**			3,895			4,348	
	east of Brown	**110**			3,165			3,372	
	east of 10th	**111**			4,116			2,807	
University Ave.	south of Berkshire	**31**			2,713			2,774	
	south of Malone	**48**			3,290			3,228	
Vintage Ave.	south of Berkshire	**159**			2,054			2,093	

STATE HIGHWAYS

		2011	2012	2013	2014	2015	2016	2017
Hwy 43	south of Houston	7,400	7,400	7,400	7,200	7,000	7,100	

CITY OF HANFORD

(update counts every 3 years)

Street	Location	Station	2011 Traffic Count	2012 Traffic Count	2013 Traffic Count	2014 Traffic Count	2015 Traffic Count	2016 Traffic Count	2017 Traffic Count
Hwy 43	north of Houston		8,300	8,300	7,600	6,900	7,300	7,400	
	south of Hwy 198		8,300	8,300	7,600	7,200	7,400	7,500	
	north of Hwy 198		15,200	15,200	15,200	11,000	11,500	11,600	
	south of Lacey		15,200	15,200	15,200	11,000	11,500	11,600	
	north of Lacey		13,300	13,300	13,300	10,500	11,000	11,100	
	south of Grangeville		13,300	13,300	13,300	10,500	11,000	11,100	
	north of Grangeville		11,900	11,900	11,900	8,100	8,200	8,300	
	south of 10th		5,700	5,700	5,700	5,500	5,700	5,800	
	north of 10th		9,800	9,800	9,400	9,400	9,800	10,300	
Hwy 198	west of 12th		30,500	30,500	30,500	32,000	32,000	36,000	
	east of 12th		28,000	28,000	28,000	29,500	29,500	33,500	
	west of 11th		28,000	28,000	28,000	29,500	29,500	33,500	
	east of 11th		22,200	22,200	22,200	23,700	23,700	28,000	
	west of 10th		17,000	17,000	17,000	19,500	19,500	23,500	
	east of 10th		19,500	19,500	19,500	22,500	22,500	26,500	
	west of Hwy 43		19,500	19,500	19,500	22,500	22,500	26,500	
	east of Hwy 43		19,000	19,000	19,000	25,000	25,000	27,000	

APPENDIX C

ISR Fee Estimator Worksheets

Emissions Estimator Worksheet

9/27/2021

Applicant/Business Name:	**Tract 934**
Project Name:	**Tract 934**
Project Location:	**Hanford, CA**
District Project ID No.:	

Project Construction Emissions

If applicant selected Construction Clean Fleet Mitigation Measure - Please select "Yes" from dropdown menu: No

			NOx					PM10					Total Achieved On-Site Reductions (tons)		
Project Phase Name	ISR Phase	Construction Start Date	Unmitigated Baseline[1] (TPY)	Mitigated Baseline[2] (TPY)	Achieved On-site Reductions[3] (tons)	Required Off-site Reductions[4] (tons)	Emission Reductions Required by Rule[5]	Unmitigated Baseline[1] (TPY)	Mitigated Baseline[2] (TPY)	Achieved On-site Reductions[3] (tons)	Required Off-site Reductions[4] (tons)	Emission Reductions Required by Rule[5]	ISR Phase	NOx	PM10
1	1	12/1/2021	3.0857	3.0857	0.0000	0.6171	0.6171	0.6581	0.6581	0.0000	0.2961	0.2961	1	0.0000	0.0000
	2				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	2	0.0000	0.0000
	3				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	3	0.0000	0.0000
	4				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	4	0.0000	0.0000
	5				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	5	0.0000	0.0000
	6				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	6	0.0000	0.0000
	7				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	7	0.0000	0.0000
	8				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	8	0.0000	0.0000
	9				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	9	0.0000	0.0000
	10				0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	10	0.0000	0.0000
		Total	**3.0857**	**3.0857**	**0.0000**	**0.6171**	0.6171	**0.6581**	**0.6581**	**0.0000**	**0.2961**	0.2961	**Total**	**0.0000**	**0.0000**

Project Operations Emissions (Area + Mobile)

			NOx						PM10						Total Required Off-Site Reductions (tons)		
Project Phase Name	ISR Phase	Operation Start Date	Unmitigated Baseline[1] (TPY)	Mitigated Baseline[2] (TPY)	Achieved On-site Reductions[3] (tons)	Required Off-site Reductions[4] (tons)	Total Emission Reductions Required by Rule[6]	Average Annual Emission Reductions Required by Rule[7]	Unmitigated Baseline[1] (TPY)	Mitigated Baseline[2] (TPY)	Achieved On-site Reductions[3] (tons)	Required Off-site Reductions[4] (tons)	Total Emission Reductions Required by Rule[6]	Average Annual Emission Reductions Required by Rule[7]	ISR Phase	NOx	PM10
1	1	1/1/2025	1.6319	1.6319	0.0000	4.0798	4.0798	0.4080	1.6609	1.6609	0.0000	8.3045	8.3045	0.8305	1	4.6969	8.6006
	2				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	2	0.0000	0.0000
	3				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	3	0.0000	0.0000
	4				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	4	0.0000	0.0000
	5				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	5	0.0000	0.0000
	6				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	6	0.0000	0.0000
	7				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	7	0.0000	0.0000
	8				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	8	0.0000	0.0000
	9				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	9	0.0000	0.0000
	10				0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	10	0.0000	0.0000
		Total	**1.6319**	**1.6319**	**0.0000**	**4.0798**	**4.0798**	**0.4080**	**1.6609**	**1.6609**	**0.0000**	**8.3045**	**8.3045**	**0.8305**	**Total**	**4.6969**	**8.6006**

Notes:

TPY: Tons Per Year

[1] **Unmitigated Baseline:** The project's baseline emissions generated with no on-site emission reduction measures.

[2] **Mitigated Baseline:** The project's baseline emissions generated after on-site emisison reduction measures have been applied.

[3] **Achieved On-site Reductions:** The project's emission reductions achieved after on-site emission reduction measures have been applied.

[4] **Required Off-site Reductions:** The project's remaining emission reductions required by Rule 9510 if on-site emission reduction measures did not achieive the required rule reductions.

[5] **Emission Reductions Required by Rule:** The project's emission reductions required (20% NOx and 45% PM10) for construction from the unmitigated baseline.

[6] **Total Emission Reductions Required by Rule:** The project's emission reductions required (33.3% NOx and 50% PM10) for operations from the unmitigated baseline over a 10-year period.

[7] **Average Annual Emission Reductions Required by Rule:** The project's total emission reduction for operations required by Rule 9510 divided by 10 years.

Fee Estimator Worksheet

9/27/2021

Applicant/Business Name:	**Tract 934**
Project Name:	**Tract 934**
Project Location:	**Hanford, CA**
District Project ID No.:	

NOTES:
(1) The start date for each ISR phase is shown in TABLE 1.
(2) If you have chosen a **ONE-TIME** payment for the project, then the total amount due for ALL PHASES is shown under TABLE 2.
(3) If you have chosen a **DEFERRED** payment schedule or would like to propose a **DEFERRED** payment schedule for the project, the total amount due for a specific year is shown in TABLE 3 according to the schedule in TABLE 1.
* If you have not provided a proposed payment date, the District sets a default invoice date of 60 days prior to start of the ISR phase.

If applicant selected Fee Deferral Schedule - Please select "Yes" from dropdown menu	No ▼

TABLE 1 - PROJECT INFORMATION

Project Phase Name	ISR Phase	Start Date per Phase	Scheduled Payment Date*
1	1	12/1/21	FALSE
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
TOTAL (tons)			

TABLE 2 - No Fee Deferral Schedule (FDS)

Pollutant	Required Offsite Reductions (tons)
NOx	4.6969
PM10	8.6006
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	0.0000
PM10	0.0000
NOx	4.6969
PM10	8.6006

TABLE 2 - NO FDS

2021
4.6969
8.6006
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
4.6969
8.6006

TABLE 3 - APPROVED FEE DEFERRAL SCHEDULE (FDS) BY PAYMENT YEAR

2021	2022	2023	2024	2025	2026	2027	2028	2029
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0
$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
			$0.00					

Offsite Fee by Pollutant ($)	NOx	$43,916
	PM10	$77,500
Administrative Fee ($)		$4,856.64
Offsite Fee ($)		$121,416.00
Total Project Offsite Fee ($)		$126,272.64

Rule 9510 Fee Schedule ($/ton)		
Year	Nox	PM10
2021 and Beyond	$9,350	$9,011

Appendix B: Traffic Impact Study and VMT Analysis **(AMENDED)**

Prepared by Peters Engineering Group dated January 28, 2022.

TRAFFIC STUDY

Proposed Tract 934

Southeast of the Intersection of
Grangeville Boulevard and 13th Avenue

Hanford, California

Prepared For:

Lennar Homes, Inc.
8080 North Palm Avenue, Suite 110
Fresno, California 93711

Date:

January 28, 2022

Job No.:

21-047.01

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

Mr. Walter Diamond
Lennar Homes, Inc.
8080 North Palm Avenue, Suite 110
Fresno, California 93711

January 28, 2022

Subject: Traffic Study
Proposed Tract 934
Southeast of the Intersection of Grangeville Boulevard and 13th Avenue
Hanford, California

Dear Mr. Diamond:

1.0 INTRODUCTION

This report presents the results of a traffic study for a single-family residential project in Hanford, California. This analysis focuses on the anticipated effect of vehicle traffic resulting from the project and traffic operations in the vicinity of the project site. This report also presents the results of traffic modeling estimating the CEQA transportation impacts of the project based on vehicle miles traveled (VMT).

2.0 PROJECT DESCRIPTION

The proposed project is a 161-lot single-family residential subdivision on approximately 35.64 acres located southeast of the intersection of Grangeville Boulevard and 13th Avenue in Hanford, California. Site access will be via two local streets connecting to Grangeville Boulevard and local streets connecting to Ella Street and Malone Street on the east side of the site.

A vicinity map is presented in the attached Figure 1, Site Vicinity Map, and a site plan is presented Figure 2, Site Plan, following the text of this report.

3.0 STUDY AREA AND TIME PERIOD

The study locations were determined in consultation with City of Hanford staff. This report includes analysis of the following intersections:

1. Grangeville Boulevard / 13th Avenue
2. Grangeville Boulevard / Centennial Avenue
3. Malone Street / Centennial Avenue
4. Devon Street / 13th Avenue

The study time periods are the weekday a.m. and p.m. peak hours determined between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. The peak hours are analyzed for the following conditions:

- Existing Conditions;
- Existing-Plus-Project Conditions;
- Near-Term With-Project Conditions (includes pending projects), and;
- Cumulative Year 2042 Conditions.

4.0 LANE CONFIGURATIONS AND INTERSECTION CONTROL

The existing lane configurations and intersection control at the study intersections are illustrated in Figure 3, Lane Configurations.

Devon Street will be constructed by the previously-approved Tract 922 approximately ¼ mile north of Stagecoach Drive and will create a three-legged intersection with 13th Avenue. Tract 922 will construct a left-turn lane on the southbound approach to the intersection and the westbound approach will consist of a left-turn lane and a right-turn lane. The assumed lane configurations for the intersection of 13th Avenue and Devon Street are also illustrated on Figure 3.

The year 2042 analyses assume that the existing lane configurations and control will be maintained through the year 2042.

5.0 GENERAL PLAN ROADWAY DESIGNATIONS

The City of Hanford 2035 General Plan designates the roadways at the study intersections as follows:

Grangeville Boulevard: arterial

13th Avenue: major arterial

Centennial Avenue: collector

Malone Street: not designated (local street)

Devon Street: collector

6.0 EXISTING TRAFFIC VOLUMES

Existing traffic volumes were determined by performing manual turning movement counts at the study intersections between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. The counts also included determination of truck percentages. The intersection of 13th Avenue and Devon Street does not yet exist, so counts were performed at the intersection of 13th Avenue and Stagecoach Drive to determine the volumes on 13th Avenue.

The traffic count data sheets are presented in Appendix A and include the dates the counts were performed. The existing peak-hour turning movement volumes are presented in Figure 4, Existing Peak Hour Traffic Volumes.

7.0 PROJECT TRIP GENERATION

Data provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*, are typically used to estimate the number of trips anticipated to be generated by proposed projects. Table 1 presents trip generation estimates for the project.

Table 1
Project Trip Generation Estimate

Land Use	Units	Daily		A.M. Peak Hour					P.M. Peak Hour				
		Rate	Total	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total
Single Family Detached Housing (210)	161	9.44	1,520	0.74	25:75	30	90	120	0.99	63:37	101	59	160

Reference: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers 2017
Rates are reported in trips per dwelling unit.

8.0 PROJECT-SPECIFIC TRAFFIC MODELING

The regional distribution of Project trips can be estimated by performing a select zone analysis using an available travel model. The relevant Project data were provided to the Kittelson & Associates, Inc. to perform Project-specific traffic modeling using the Kings County travel model maintained by the Kings County Association of Governments (KCAG). Details of the travel model can be found on the KCAG web site: www.kingscog.org. The results of the traffic modeling are presented in Appendix B.

9.0 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The regional distribution of Project traffic based on the traffic modeling is presented in Figure 5, Project Trip Distribution Percentages. Project traffic volumes at the study intersections are presented in Figure 6, Peak-Hour Project Traffic Volumes.

10.0 EXISTING-PLUS-PROJECT TRAFFIC VOLUMES

Peak-hour existing-plus-Project traffic volumes are presented in Figure 7, Existing-Plus-Project Peak-Hour Traffic Volumes.

11.0 PENDING AND APPROVED PROJECTS

The traffic analyses for the near-term and long-term conditions consider the effects of traffic expected to be generated by pending and approved projects in the study area. The City of Hanford provided a list of projects and the project status that were considered in the near-term and long-term conditions analysis scenarios. The following projects were considered:

1. Tract 927: 133 single-family homes northeast of the intersection of 13th Avenue and Grangeville Boulevard
2. Tract 922: 194 single family homes northeast of the intersection of 13th Avenue and Stagecoach Drive (mostly built out)
3. Tract 929: 158 single-family homes northeast of the intersection of 13th Avenue and Devon Street
4. Tract 918: 142 single-family homes northwest of the intersection of Centennial Avenue and Devon Street (mostly built out)
5. Tract 919: 125 single-family homes southwest of the intersection of Centennial and Fargo Avenues (mostly built out)
6. Tract 928: 283 single-family lots southeast of the intersection of Centennial and Fargo Avenues

12.0 NEAR-TERM WITH-PROJECT TRAFFIC VOLUMES

The near-term with-Project peak-hour turning movement volumes are presented in Figure 8, Near-Term With-Project Peak-Hour Traffic Volumes. The near-term volumes include the existing traffic volumes, trips expected to be generated by the pending and approved projects, and Project trips.

13.0 CUMULATIVE TRAFFIC VOLUMES (YEAR 2042)

Cumulative traffic volumes for the year 2042 were projected based on information obtained from the Kings County travel model maintained by KCAG. The KCAG travel model output is presented in Appendix B. The future traffic volumes were projected utilizing an Increment Method where possible. The Increment Method is applied by taking the difference between the base year and horizon year traffic volumes obtained from the travel model and adding it to the existing traffic volumes. Where the Increment Method projected less than one percent annual growth, a minimum annual growth rate of one percent was maintained to project future traffic volumes. Where an increment method was used, future turning movements were forecast based on the methods presented in Chapter 8 of the Transportation Research Board National Cooperative Highway Research Program Report 255 entitled *"Highway Traffic Data for Urbanized Area Project Planning and Design."*

The year 2042 cumulative traffic volumes are presented in Figure 9, Cumulative (Year 2042) Peak Hour Traffic Volumes.

14.0 SIGNIFICANCE CRITERIA

14.1 Vehicle Miles Traveled - California Environmental Quality Act (CEQA)

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.

For residential projects, the Technical Advisory states: "*A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita.*" The Technical Advisory indicates screening maps can be used to screen out projects from a requirement to prepare a detailed VMT analysis.

14.2 Operational Analyses - City of Hanford

The State of California does not recognize traffic congestion and delay as an environmental impact per CEQA. However, Policy T29 of the City of Hanford 2035 General Plan states: "*Maintain a peak hour Level of Service E on streets and intersections within the area bounded by Highway 198, 10th Avenue, 11th Avenue, and Florinda Avenue, inclusive of these streets. Maintain a peak hour Level of Service D on all other streets and intersections with the Planned Growth Boundary.*" In addition, the County of Kings 2035 General Plan Policy C A1.3.1 states: "*Maintain and manage County roadway systems to maintain a minimum Level of Service Standard "D" or better on all major roadways and arterial intersections."*

The Transportation Research Board *Highway Capacity Manual, 6th Edition,* (HCM) defines level of service (LOS) as, "A quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst." Automobile mode LOS characteristics for both unsignalized and signalized intersections are presented in Tables 2 and 3.

Table 2
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Average Vehicle Delay (seconds)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Table 3
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Volume-to-capacity ratio is no greater than 1.0. Progression is exceptionally favorable or the cycle length is very short.	<10
B	Volume-to-capacity ratio is no greater than 1.0. Progression is highly favorable or the cycle length is very short.	>10-20
C	Volume-to-capacity ratio is no greater than 1.0. Progression is favorable or cycle length is moderate.	>20-35
D	Volume-to-capacity ratio is high but no greater than 1.0. Progression is ineffective or cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35-55
E	Volume-to-capacity ratio is high but no greater than 1.0. Progression is unfavorable and cycle length is long. Individual cycle failures are frequent.	>55-80
F	Volume-to-capacity ratio is greater than 1.0. Progression is very poor and cycle length is long. Most cycles fail to clear the queue.	>80

Reference for Tables 1 and 2: *Highway Capacity Manual, 6th Edition,* Transportation Research Board, 2016

For purposes of this study, a traffic issue will be recognized if the Project will:

- decrease the LOS below D at an intersection; or
- exacerbate the delay at an intersection already operating at a substandard LOS (i.e., LOS E or LOS F) by increasing the average delay by 5.0 seconds or more.

Queues will be considered in the analysis of signalized intersections, particularly to determine if excessive queues are expected to block adjacent lanes operating on a different traffic signal phase. Blocking typically results in congested conditions that may cause worse conditions at the blocked location than those identified by the LOS analyses alone. Since stop-sign-controlled intersections do not have different phases on adjacent lanes, the LOS analyses provide a good indication of the intersection operations and a separate queuing analysis is not performed.

15.0 VEHICLE MILES TRAVELED (VMT) ANALYSES

Senate Bill 743 (Steinberg, 2013), which was codified in California Public Resources Code § 21099, required changes to the guidelines implementing the California Environmental Quality Act (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 1500, et seq.) as to the analysis of transportation impacts. Per Public Resources Code § 21099(b)(1):

> "The Office of Planning and Research shall prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed revisions to the guidelines adopted pursuant to Section 21083 establishing criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, the office shall recommend potential

> metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

In January 2019, the Natural Resources Agency certified the Office of Planning and Research's (OPR) proposed revisions, which resulted in the creation of Section 15064.3 of the CEQA Guidelines. Section 15064.3(a) describes its purpose as:

> "This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact."

OPR created a Technical Advisory (December 2018) (TA)[1] as guidance for evaluating vehicle miles traveled (VMT) impacts. The TA is incorporated herein by reference. VMT significance thresholds are recommended by OPR beginning on page 8 of the TA. Beginning on page 10 of the TA, OPR states:

> "Public Resources Code section 21099 directs OPR to propose criteria for determining the significance of transportation impacts. In this Technical Advisory, OPR provides its recommendations to assist lead agencies in selecting a significance threshold that may be appropriate for their particular projects. While OPR's Technical Advisory is not binding on public agencies, CEQA allows lead agencies to 'consider thresholds of significance . . . recommended by other public agencies, provided the decision to adopt those thresholds is supported by substantial evidence.' (CEQA Guidelines, § 15064.7, subd. (c).) Based on OPR's extensive review of the applicable research, and in light of an assessment by the California Air Resources Board quantifying the need for VMT reduction in order to meet the State's long-term climate goals, OPR recommends that a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold.
>
> "Fifteen percent reductions in VMT are achievable at the project level in a variety of place types. [citing CAPCOA (2010) *Quantifying Greenhouse Gas Mitigation Measures*, p. 55, available at http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf]
>
> "Moreover, a fifteen percent reduction is consistent with SB 743's direction to OPR to select a threshold that will help the State achieve its

[1] https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

> climate goals. As described above, section 21099 states that the criteria for determining significance must 'promote the reduction in greenhouse gas emissions.' In its document *California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals15,* CARB assesses VMT reduction per capita consistent with its evidence-based modeling scenario that would achieve State climate goals of 40 percent GHG emissions reduction from 1990 levels by 2030 and 80 percent GHG emissions reduction levels from 1990 by 2050. Applying California Department of Finance population forecasts, CARB finds per-capita light-duty vehicle travel would need to be approximately 16.8 percent lower than existing, and overall per-capita vehicle travel would need to be approximately 14.3 percent lower than existing levels under that scenario. Below these levels, a project could be considered low VMT and would, on that metric, be consistent with 2017 Scoping Plan Update assumptions that achieve climate state climate goals."

According to the California Air Resources Board's (CARB) webpage[2]:

> "Senate Bill 375 requires CARB to develop and set regional targets for greenhouse gas (GHG) emission reductions from passenger vehicles. CARB has set regional targets, indexed to years 2020 and 2035, to help achieve significant additional GHG emission reductions from changed land use patterns and improved transportation in support of the State's climate goals, as well as in support of statewide public health and air quality objectives. Metropolitan planning organizations (MPOs) must prepare a sustainable communities strategy (SCS) that will reduce GHG emissions to achieve these regional targets, if feasible to do so."

The same CARB webpage identifies a thirteen percent (13%) target for GHG emission reduction from passenger vehicles (indexed to year 2035)[3] for the Kings County Association of Governments (KCAG) MPO.

OPR's recommendation "that a per capita or per employee VMT that is fifteen percent below that of existing development" is a valid threshold for the City of Hanford (City) because it is consistent with CARB's thirteen percent (13%) GHG vehicle emission reduction target to which KCAG's members, including the City, are subject. It is reasonable to conclude that a reduction in VMT directly corresponds to a reduction in GHG emissions from passenger vehicles and that a proposed project that is estimated to generate a per capita or per employee VMT that is more than fifteen percent (15%) below that of existing development will result in GHG emission reduction consistent with CARB's thirteen percent (13%) reduction target for the KCAG metropolitan planning organization (MPO). For purposes of the City's VMT evaluation efforts, it is appropriate to utilize OPR's recommended fifteen-percent-below-existing-development VMT threshold because it is consistent CARB's applicable GHG emission reduction target.

[2] https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets
[3] https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets

The TA suggests that screening thresholds be utilized to identify projects that are expected to cause a less-than-significant impact. Page 12 of the TA indicates:

> "Many agencies use 'screening thresholds' to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. (See e.g., CEQA Guidelines, §§ 15063(c)(3)(C), 15128, and Appendix G.) As explained below, this technical advisory suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing."

With respect to map-based screening, the TA states:

> "Residential and office projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below threshold VMT (see recommendations below). Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis."

KCAG created an online VMT mapping tool that identifies VMT per capita and VMT per employee by traffic analysis zone (TAZ). The mapping tool is available at: https://www.arcgis.com/apps/webappviewer/index.html?id=84b4b47b08ac41af88779212180ff36c. A print generated using the mapping tool is included in Appendix B.

The KCAG mapping tool reflects a VMT per capita of 7.78 for the TAZ in which the Project will be located, which is more than fifteen percent (15%) below the County VMT per capita average of 9.6.

KCAG's mapping tool was created utilizing trip-based transportation models created for the eight (8) San Joaquin Valley MPOs to satisfy the requirements of SB 375. The modeling process is described in the *Documentation for the EIGHT SAN JOAQUIN VALLEY MPO TRAFFIC MODELS TO MEET THE REQUIREMENTS OF SB 375* (August 30, 2012)[4], which is incorporated herein by reference.

According to Appendix VIII of KCAG's 2018 Regional Transportation Plan (RTP), the 2012 transportation model was revalidated for a 2015 base year and is described on Appendix VIII page 26 as:

> "The KCAG model was revalidated to a 2015 base year for the 2018 RTP. The revalidation included new inventories of base year housing and employment, updates to the road network and transit coverage to reflect recent changes in the transportation system, and updated traffic counts to represent the 2015 base year. The KCAG model traffic validation is based on several criteria, including vehicle-miles of travel, total volume by road type, and percent of links within acceptable limits."

[4] https://www.mcagov.org/DocumentCenter/View/195/Traffic-Model

Revalidation efforts utilized traffic data provided by the City. The RTP, which was adopted by KCAG and can be found at:

https://www.kingscog.org/vertical/Sites/%7BC427AE30-9936-4733-B9D4-140709AD3BBF%7D/uploads/KCAG_2018_RTPSCS_Full_Document.pdf,

and the City's underlying traffic data are incorporated herein by reference.

Page 26 of Appendix VIII describes KCAG's VMT projection process as follows:

> "Vehicle miles of travel (VMT) were estimated from the travel demand model by multiplying link volumes by link distances. The model estimates intrazonal trips (trips remaining within a TAZ) but does not assign these trips to the model road network. The intrazonal trips were multiplied by the estimated intrazonal distances to calculate intrazonal VMT."

It can be concluded that, based upon KCAG's VMT mapping tool, the Project's VMT impact will be less than significant because VMT associated with the Project will be below the fifteen-percent-below-existing-development threshold.

16.0 INTERSECTION OPERATIONAL ANALYSES

The intersection LOS was determined using the computer program Synchro 11, which is based on HCM procedures for calculating levels of service. The intersection analysis sheets are presented in Appendix C.

Tables 4 through 6 present the results of the intersection analyses. For signalized intersections the overall intersection level of service and the average delay per vehicle are presented. For one-way and two-way stop-controlled intersections an overall intersection level of service is not defined by HCM. Therefore, for one-way and two-way stop-controlled intersections the level of service and average delay per vehicle for the approach with the greatest delay is reported.

Table 4
Intersection LOS Summary - Existing and Existing-Plus-Project Conditions

Intersection	Control	Existing				Existing Plus Project			
		A.M.		P.M.		A.M.		P.M.	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Grangeville / 13th Ave	Signals	18.2	B	14.9	B	18.4	B	15.2	B
Grangeville / Centennial	Signals	22.9	C	17.4	B	24.2	C	18.0	B
Malone / Centennial	OWS	15.0	C	11.1	B	15.2	C	11.6	B
Devon / 13th Ave	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE

Table 5
Intersection LOS Summary - Existing and Near-Term With-Project Conditions

Intersection	Control	Existing				Near-Term With Project			
		A.M.		P.M.		A.M.		P.M.	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Grangeville / 13th Ave	Signals	18.2	B	14.9	B	20.7	C	16.6	B
Grangeville / Centennial	Signals	22.9	C	17.4	B	31.6	C	19.4	B
Malone / Centennial	OWS	15.0	C	11.1	B	16.6	C	12.1	B
Devon / 13th Ave	OWS	DNE	DNE	DNE	DNE	13.3	B	13.7	B

Table 6
Intersection LOS Summary - Existing and Year 2042 Conditions

Intersection	Control	Existing				Year 2042			
		A.M.		P.M.		A.M.		P.M.	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Grangeville / 13th Ave	Signals	18.2	B	14.9	B	23.3	C	18.5	B
Grangeville / Centennial	Signals	22.9	C	17.4	B	36.7	D	21.8	C
Malone / Centennial	OWS	15.0	C	11.1	B	18.5	C	12.5	B
Devon / 13th Ave	OWS	DNE	DNE	DNE	DNE	14.1	B	14.4	B

Note for Tables 4 through 6:
DNE: does not exist OWS: one-way stop

The results of the intersection operational analyses include an estimate of the 95th-percentile queue lengths at the study intersections. The calculated 95th-percentile queue lengths are presented in Tables 7 and 8.

Table 8
Intersection Queuing Summary – A.M. Peak Hour

Intersection	Existing Storage Capacity (feet)	95th-Percentile Queue Length (feet)			
Approach		Existing	Existing Plus Project	Near-Term With Project	2042 With Project
Grangeville / 13th					
Eastbound L	300	23	25	38	43
Eastbound T	>1,000	100	105	140	188
Eastbound R	270	8	8	10	15
Westbound L	270	70	75	100	135
Westbound T	>1,000	78	80	108	128
Westbound R	225	3	3	8	8
Northbound L	200	40	40	48	70
Northbound T	>1,000	40	40	68	78
Northbound R	290	25	28	38	50
Southbound L	230	13	13	20	23
Southbound T	>1,000	73	75	125	143
Southbound R	190	8	10	18	23
Grangeville / Centennial					
Eastbound L	245	25	28	38	48
Eastbound T	>1,000	170	198	298	355
Eastbound R	100+	40	43	55	75
Westbound L	240	123	135	165	238
Westbound T	>1,000	120	128	193	220
Westbound R	150+	20	20	30	38
Northbound L	150	48	50	75	100
Northbound TR	>1,000	90	103	130	185
Southbound L	150	60	63	98	110
Southbound TR	930	180	193	288	353

+ Additional storage capacity exists beyond the striped turn lane.

Table 9
Intersection Queuing Summary – P.M. Peak Hour

Intersection	Existing Storage Capacity (feet)	95th-Percentile Queue Length (feet)			
Approach		Existing	Existing Plus Project	Near-Term With Project	2042 With Project
Grangeville / 13th					
Eastbound L	300	18	20	30	45
Eastbound T	>1,000	73	78	103	138
Eastbound R	270	3	3	5	8
Westbound L	270	23	25	30	38
Westbound T	>1,000	45	48	63	85
Westbound R	225	3	3	5	5
Northbound L	200	18	18	20	28
Northbound T	>1,000	45	48	75	115
Northbound R	290	15	20	25	33
Southbound L	230	10	10	15	20
Southbound T	>1,000	28	28	53	60
Southbound R	190	3	5	8	10
Grangeville / Centennial					
Eastbound L	245	18	18	23	43
Eastbound T	>1,000	73	80	110	130
Eastbound R	100+	18	20	25	40
Westbound L	240	53	63	70	95
Westbound T	>1,000	60	68	90	105
Westbound R	150+	10	10	15	18
Northbound L	150	28	30	40	60
Northbound TR	>1,000	88	95	125	168
Southbound L	150	23	25	33	35
Southbound TR	930	50	55	75	93

\+ Additional storage capacity exists beyond the striped turn lane.

17.0 DISCUSSION OF OPERATIONAL ANALYSES

The results of the intersection operational analyses indicate that the study locations are currently operating at acceptable levels of service and are expected to continue to operate at acceptable levels of service through the year 2042 with construction of the Project. Calculated 95th-percentile queues are contained within the available storage length.

18.0 CONCLUSIONS

Standard traffic engineering principles and methods were employed to establish the existing conditions, to estimate the number of trips expected to be generated by the Project, and to analyze the traffic conditions that may occur in the future. The conclusion of this traffic study is that the Project will not cause traffic issues requiring improvements. The study locations are currently operating at acceptable levels of service and are expected to continue

to operate at acceptable levels of service through the year 2042 with construction of the Project.

The Project may be presumed to cause a less-than-significant transportation impact based on the Kings County VMT screening map.

Thank you for the opportunity to perform this traffic study. Please feel free to call our office if you have any questions.

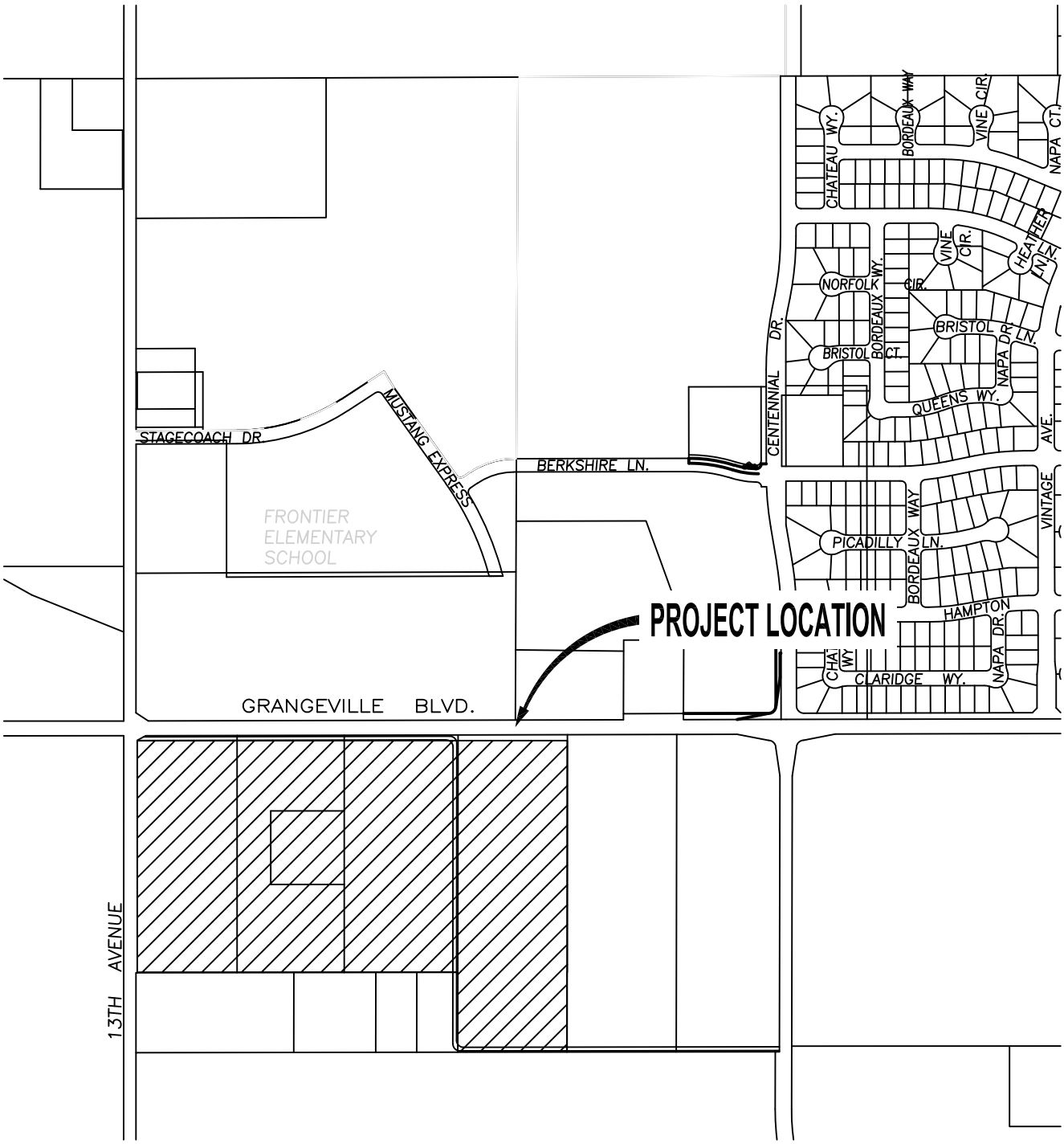
PETERS ENGINEERING GROUP

John Rowland, PE, TE

Attachments: Figures
Appendix A - Traffic Count Data Sheets
Appendix B - Kings County Travel Model Output
Appendix C - Intersection Analyses

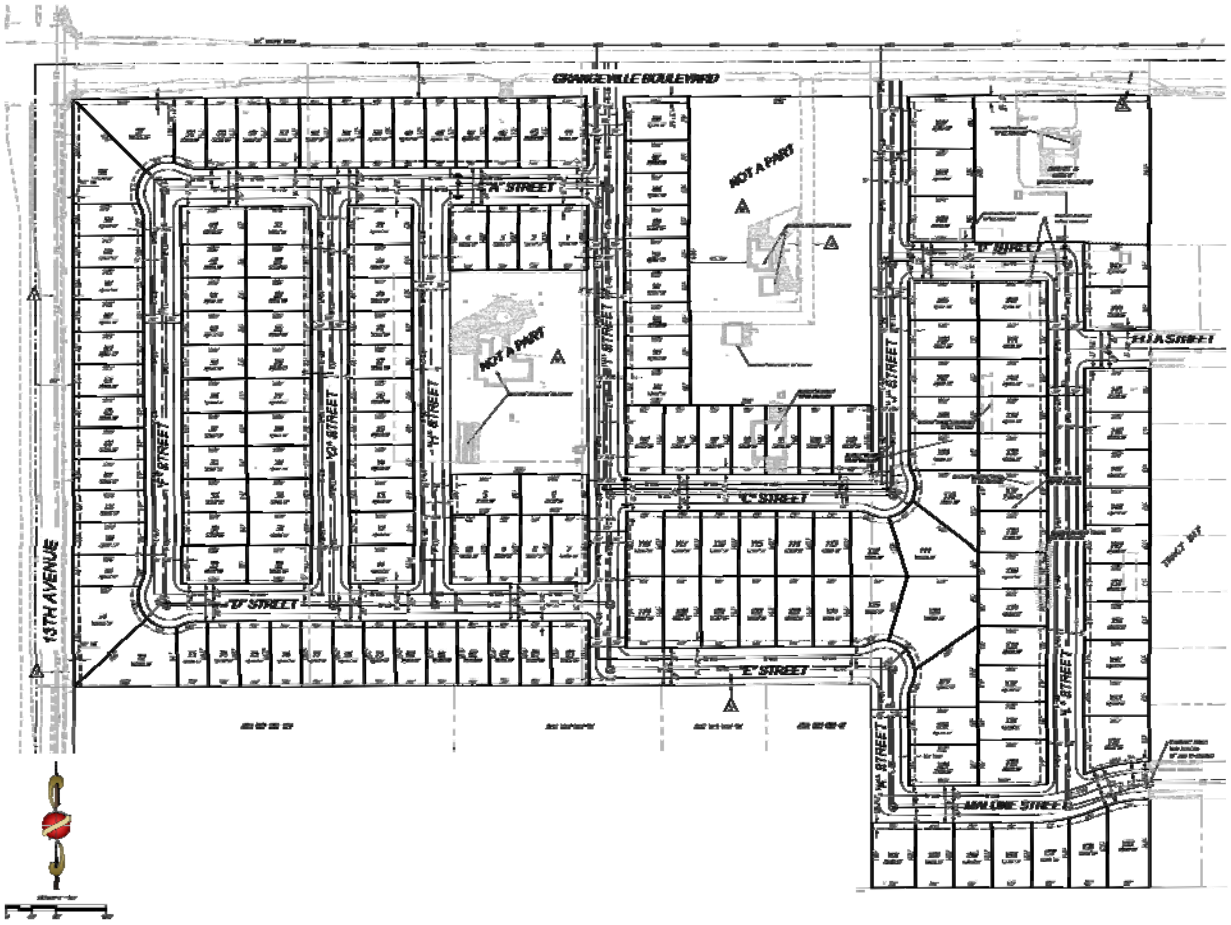
FIGURES

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION



Proposed Tract 934
Hanford, California

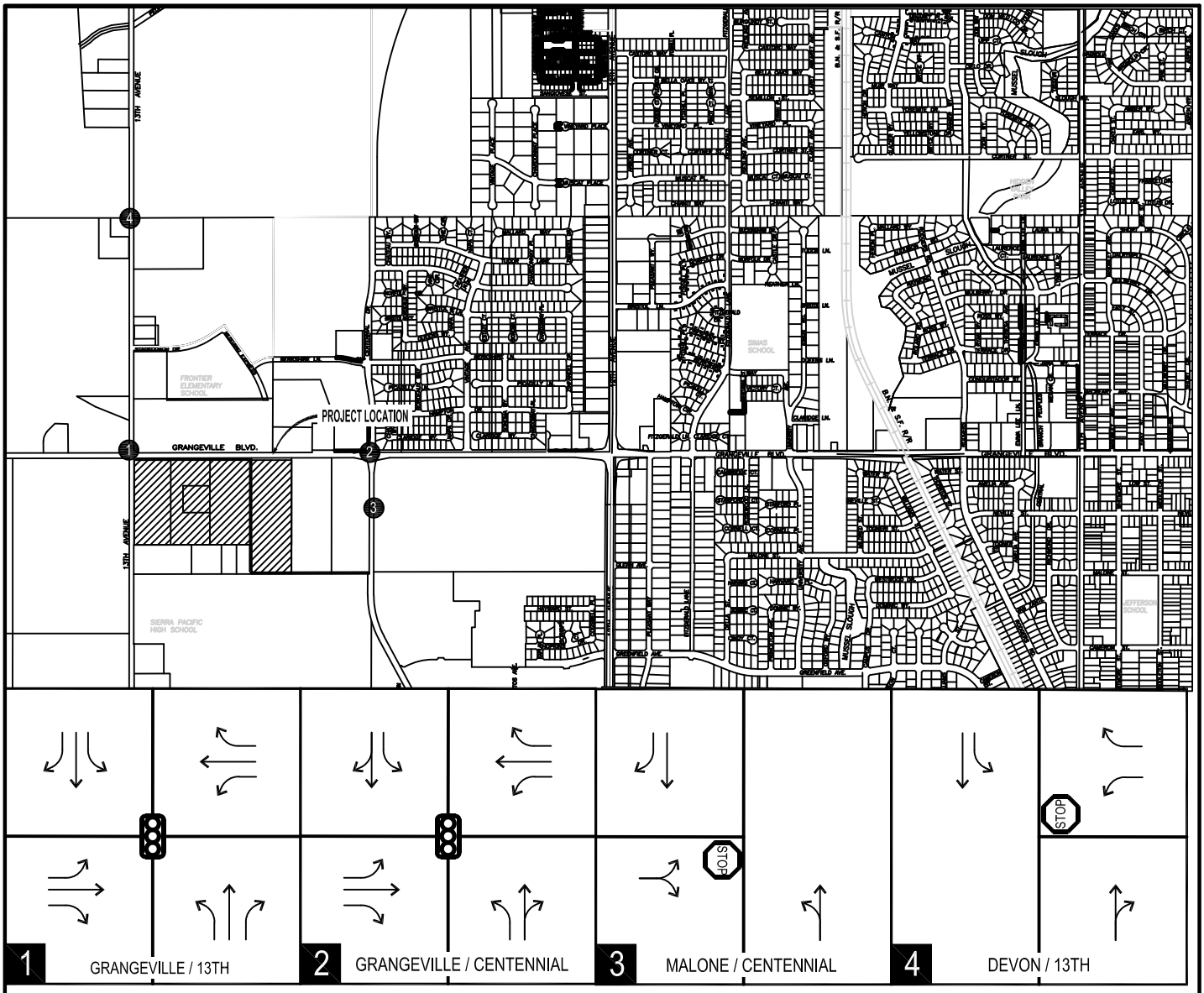
SITE VICINITY MAP



Proposed Tract 934
Hanford, California

SITE PLAN

Not to Scale



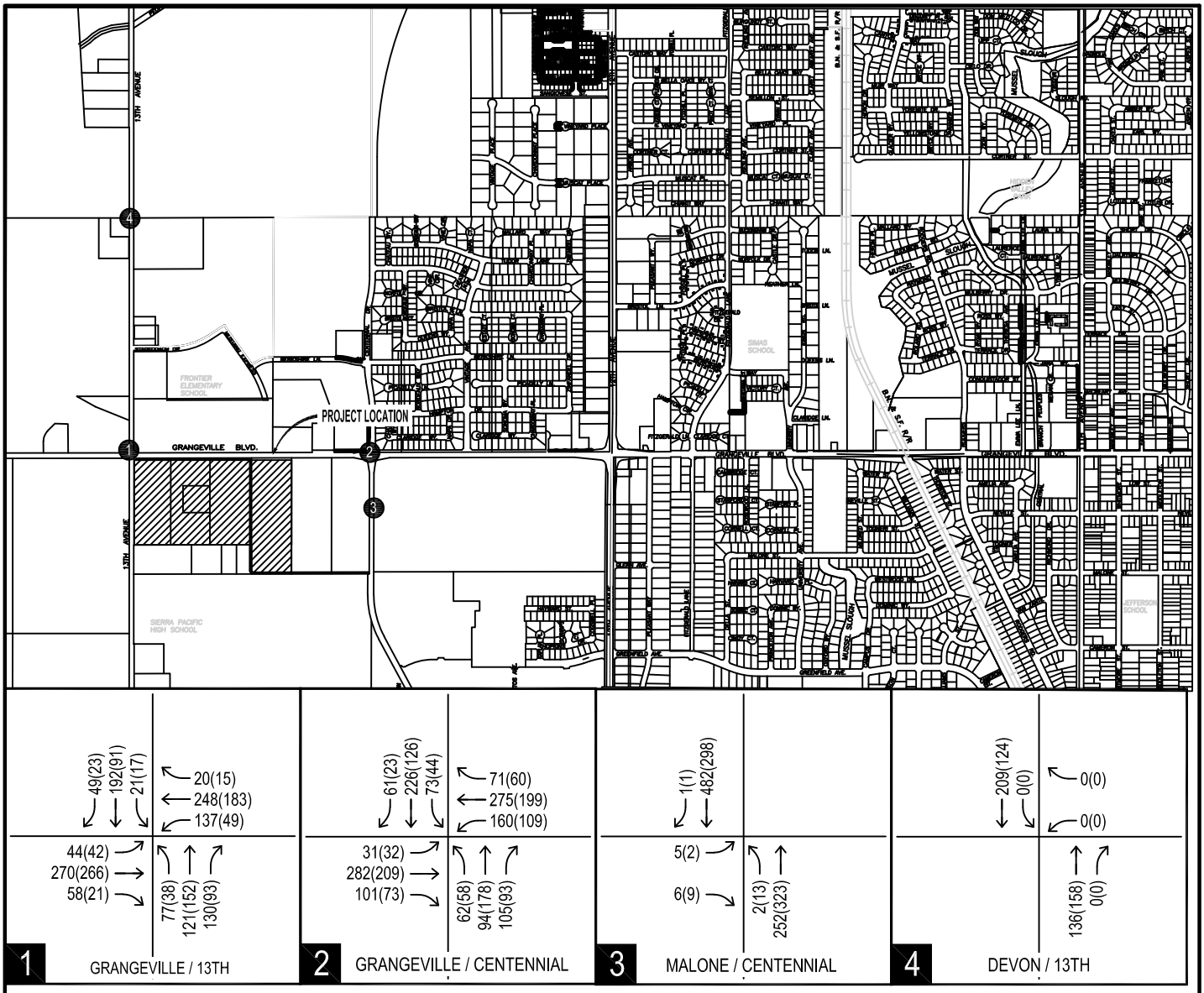
LEGEND

- XX STUDY AREA INTERSECTIONS
- PROJECT SITE
- SIGNALIZED INTERSECTION
- STOP STOP SIGN
- DIRECTION OF TRAVEL

Proposed Tract 934
Hanford, California

LANE CONFIGURATIONS

Not to Scale



LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

Proposed Tract 934
Hanford, California

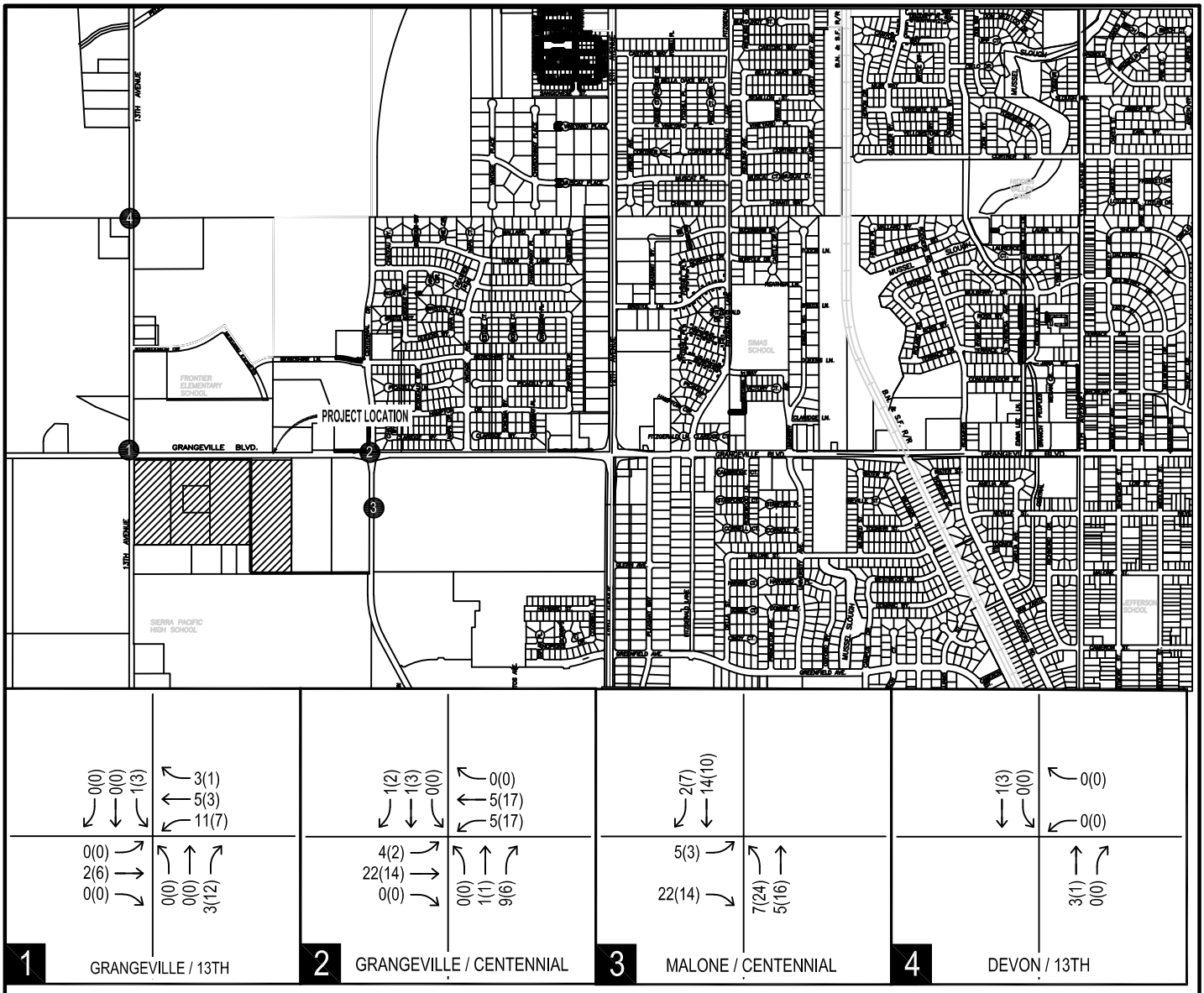
EXISTING PEAK-HOUR TRAFFIC VOLUMES

Not to Scale

Not to Scale

Proposed Tract 934
Hanford, California

PROJECT TRIP DISTRIBUTION PERCENTAGES



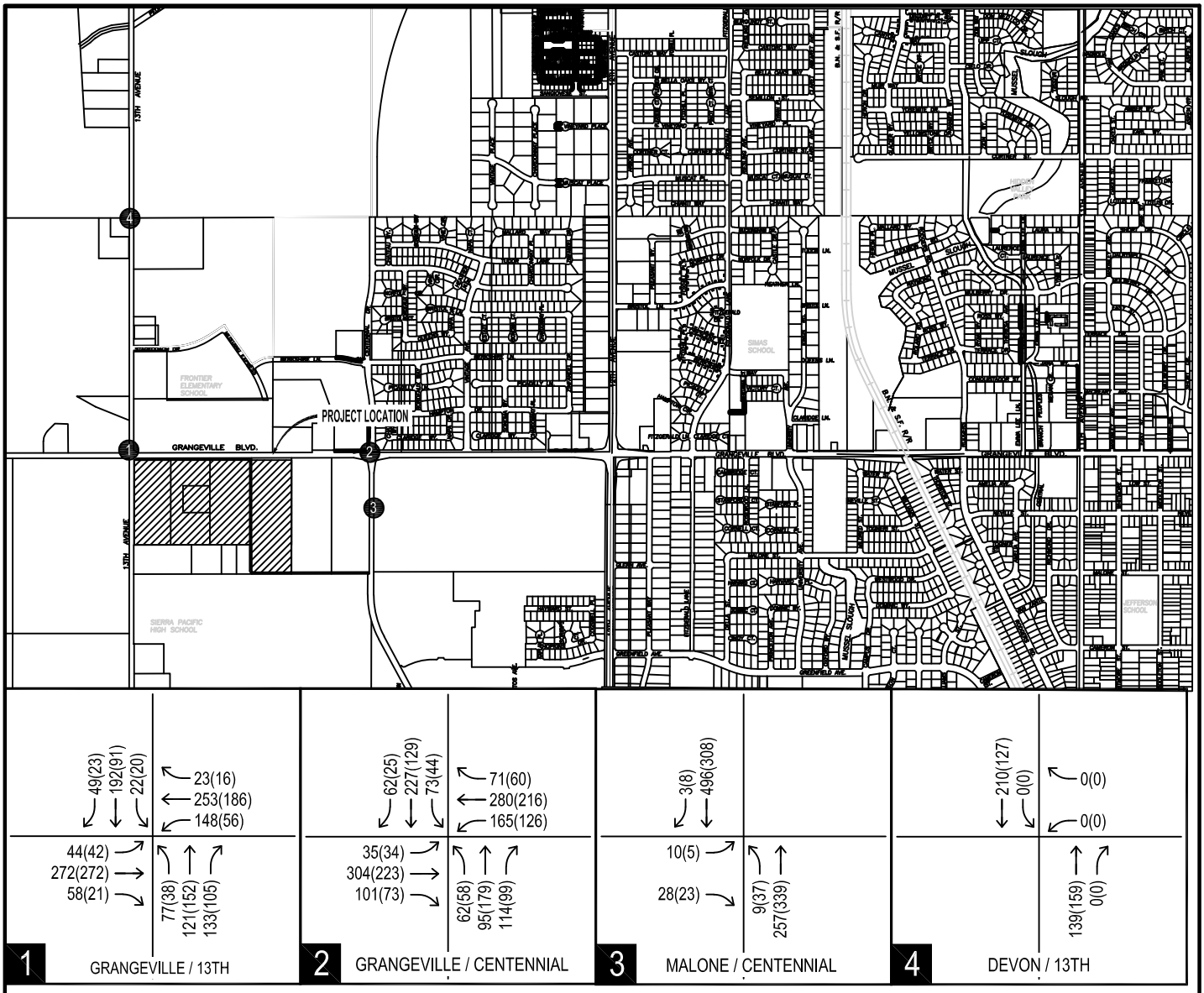
LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

Proposed Tract 934
Hanford, California

PEAK-HOUR PROJECT TRAFFIC VOLUMES

Not to Scale



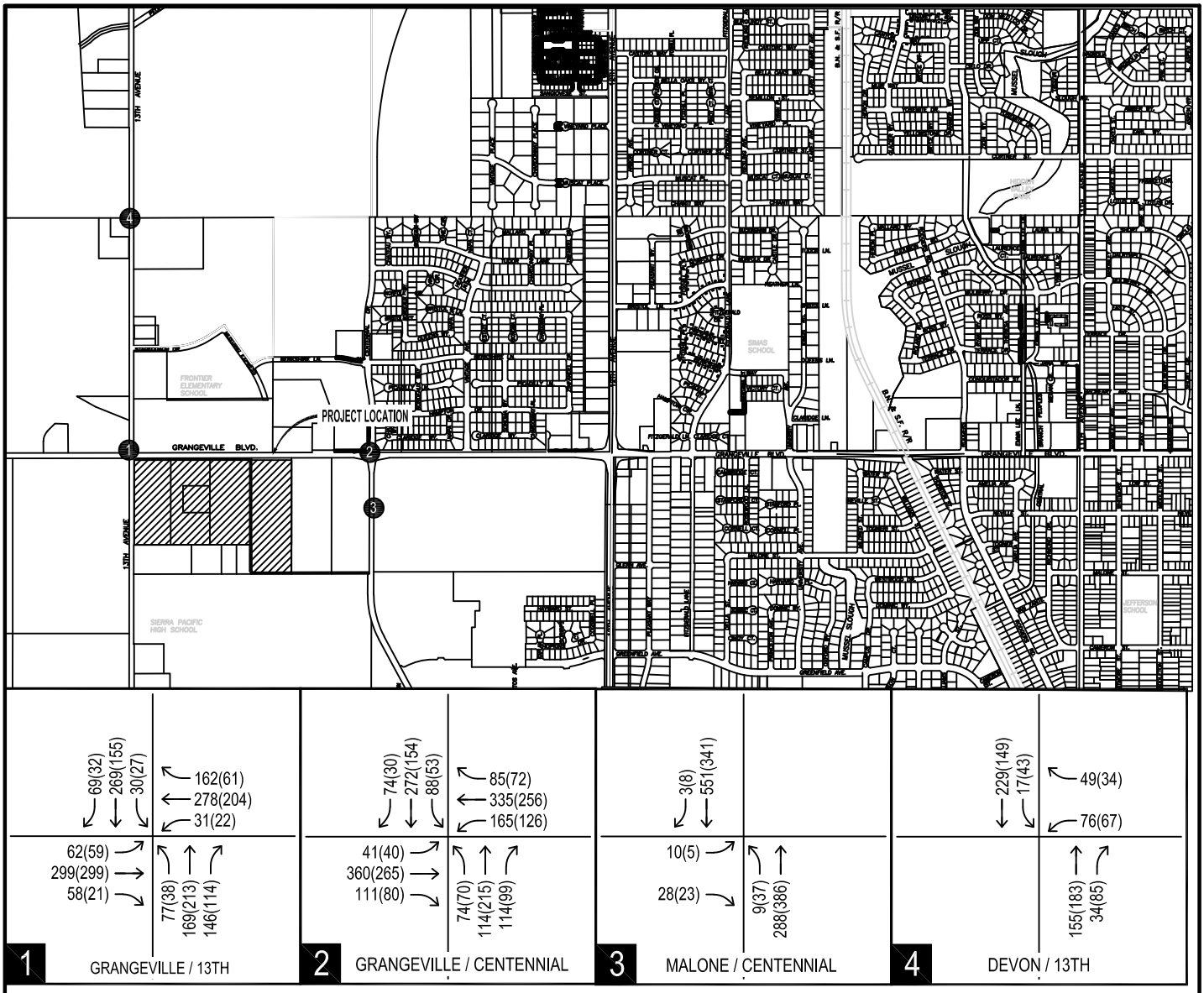
LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

Proposed Tract 934
Hanford, California

EXISTING PLUS PROJECT PEAK-HOUR TRAFFIC VOLUMES

Not to Scale



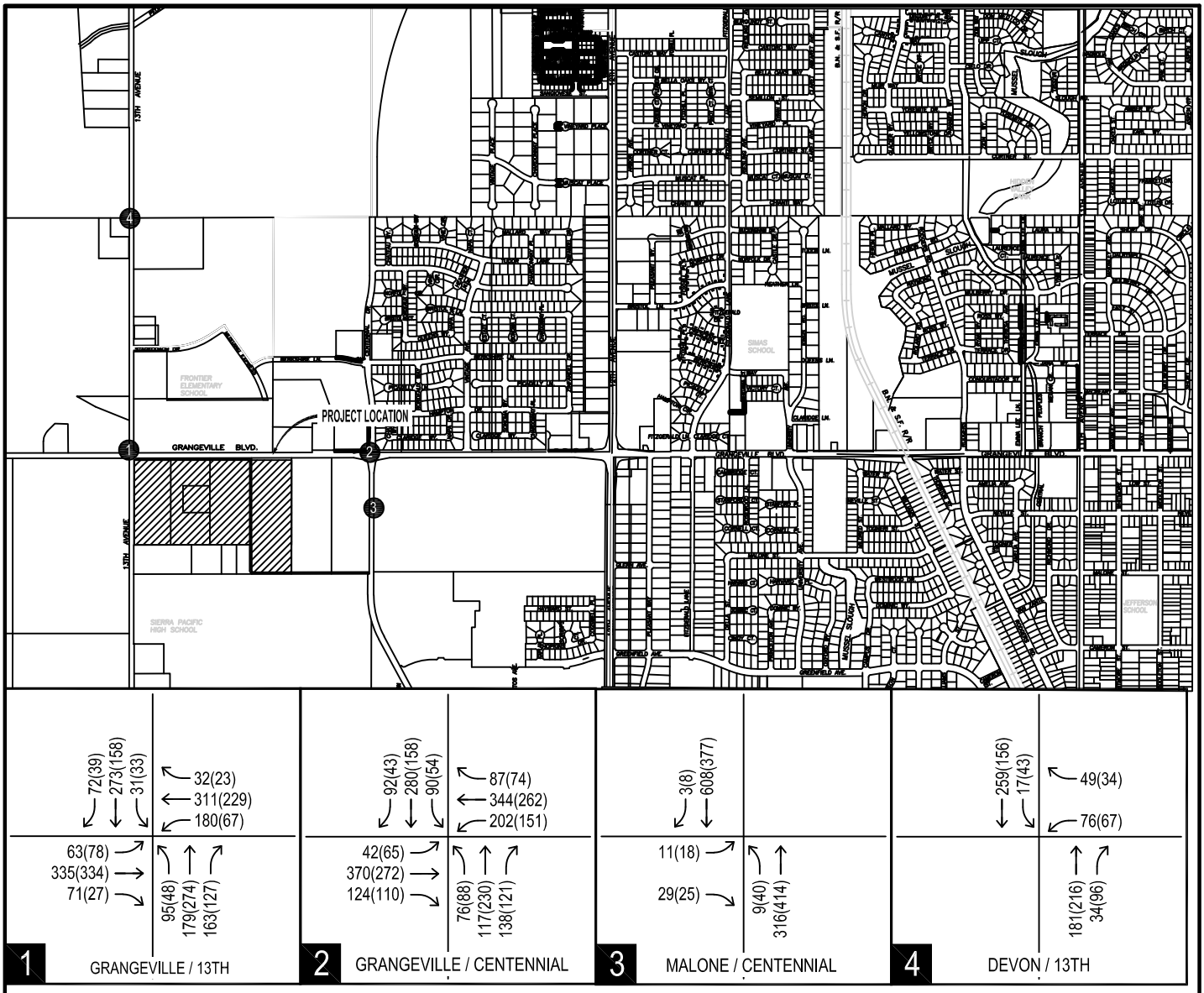
LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

Proposed Tract 934
Hanford, California

NEAR-TERM WITH PROJECT PEAK-HOUR TRAFFIC VOLUMES

Not to Scale



LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

Proposed Tract 934
Hanford, California

CUMULATIVE (YEAR 2042) WITH PROJECT PEAK-HOUR TRAFFIC VOLUMES

Not to Scale

APPENDIX A

TRAFFIC COUNT DATA SHEETS

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

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

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

Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

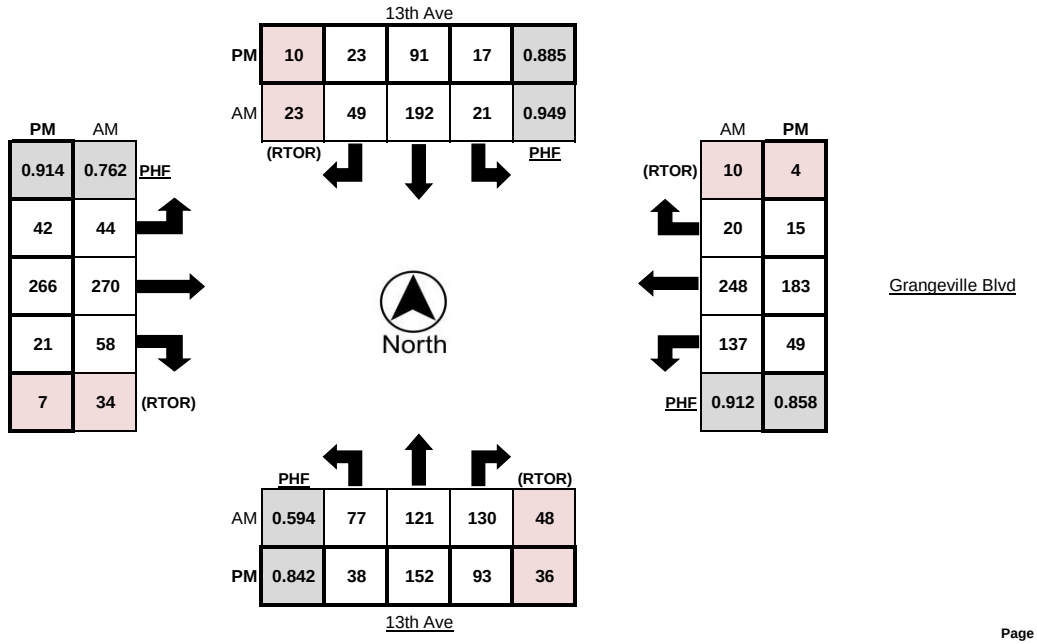
LOCATION Grangeville Blvd @ 13th Ave
LATITUDE 36.3426
COUNTY Kings
LONGITUDE -119.6911
COLLECTION DATE Thursday, September 16, 2021
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	0	15	8	6	5	2	32	11	3	6	0	18	2	0	0	20	53	5	1	0
7:15 AM - 7:30 AM	4	18	7	4	1	4	51	12	6	3	7	32	4	3	1	19	52	2	0	0
7:30 AM - 7:45 AM	4	25	13	6	2	3	48	15	6	2	10	61	11	9	2	31	60	6	3	2
7:45 AM - 8:00 AM	19	28	24	5	4	7	44	16	8	1	17	96	9	8	3	34	71	6	3	1
8:00 AM - 8:15 AM	16	29	32	11	2	4	49	7	4	1	11	78	15	7	0	39	63	4	3	3
8:15 AM - 8:30 AM	38	39	61	26	1	7	51	11	5	4	6	35	23	10	0	33	54	4	1	2
8:30 AM - 8:45 AM	4	18	16	12	1	3	20	12	5	3	9	47	6	3	5	15	36	4	0	1
8:45 AM - 9:00 AM	3	10	6	2	1	2	28	5	2	2	7	27	6	2	0	6	37	1	0	1
TOTAL	**88**	**182**	**167**	**72**	**17**	**32**	**323**	**89**	**39**	**22**	**67**	**394**	**76**	**42**	**11**	**197**	**426**	**32**	**11**	**10**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	18	43	23	12	4	6	26	5	4	2	10	71	7	1	3	17	48	6	3	1
4:15 PM - 4:30 PM	4	38	21	11	1	4	24	9	2	3	8	63	6	2	1	11	34	5	1	0
4:30 PM - 4:45 PM	7	40	25	5	1	2	25	4	1	2	12	74	4	3	4	12	39	3	0	1
4:45 PM - 5:00 PM	9	31	24	8	0	5	16	5	3	3	12	58	4	1	0	9	62	1	0	0
5:00 PM - 5:15 PM	6	32	26	12	1	5	19	4	1	1	7	49	6	1	4	9	66	8	0	1
5:15 PM - 5:30 PM	4	43	19	8	0	3	34	3	0	4	3	55	2	2	0	17	37	5	0	0
5:30 PM - 5:45 PM	4	41	18	9	0	5	23	6	2	1	5	45	4	2	2	13	52	2	0	0
5:45 PM - 6:00 PM	3	32	21	7	1	3	27	7	1	0	7	51	7	4	3	17	47	9	1	1
TOTAL	**55**	**300**	**177**	**72**	**8**	**33**	**194**	**43**	**14**	**16**	**64**	**466**	**40**	**16**	**17**	**105**	**385**	**39**	**5**	**4**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:30 AM - 8:30 AM	77	121	130	48	9	21	192	49	23	8	44	270	58	34	5	137	248	20	10	8
4:00 PM - 5:00 PM	38	152	93	36	6	17	91	23	10	10	42	266	21	7	8	49	183	15	4	2

	PHF	Trucks
AM	0.921	2.2%
PM	0.884	2.6%



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

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

Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

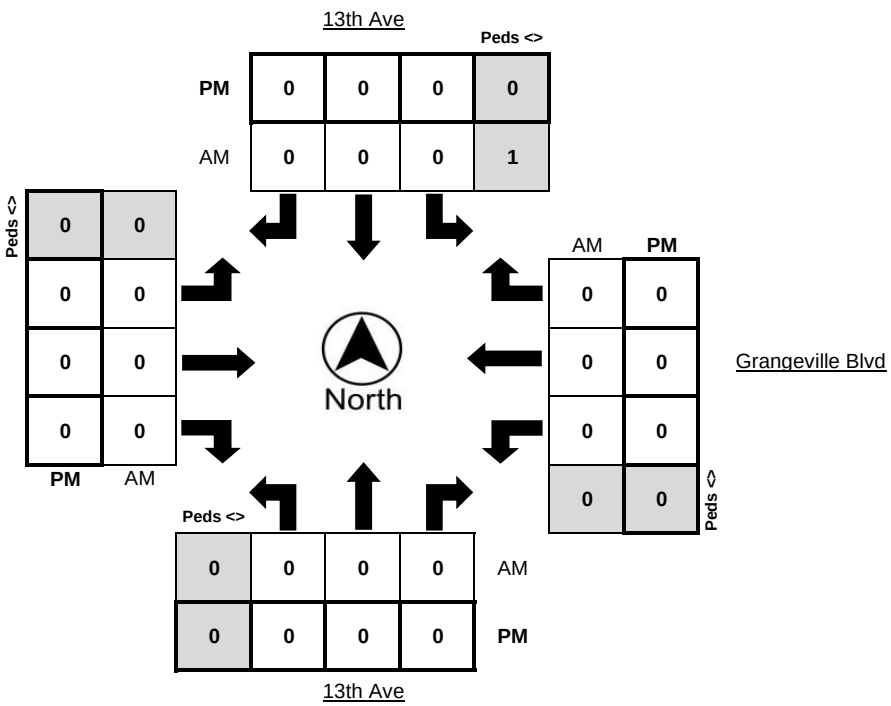
LOCATION Grangeville Blvd @ 13th Ave
LATITUDE 36.3426
COUNTY Kings
LONGITUDE -119.6911
COLLECTION DATE Thursday, September 16, 2021
WEATHER Clear

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

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

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:30 AM - 8:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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



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

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

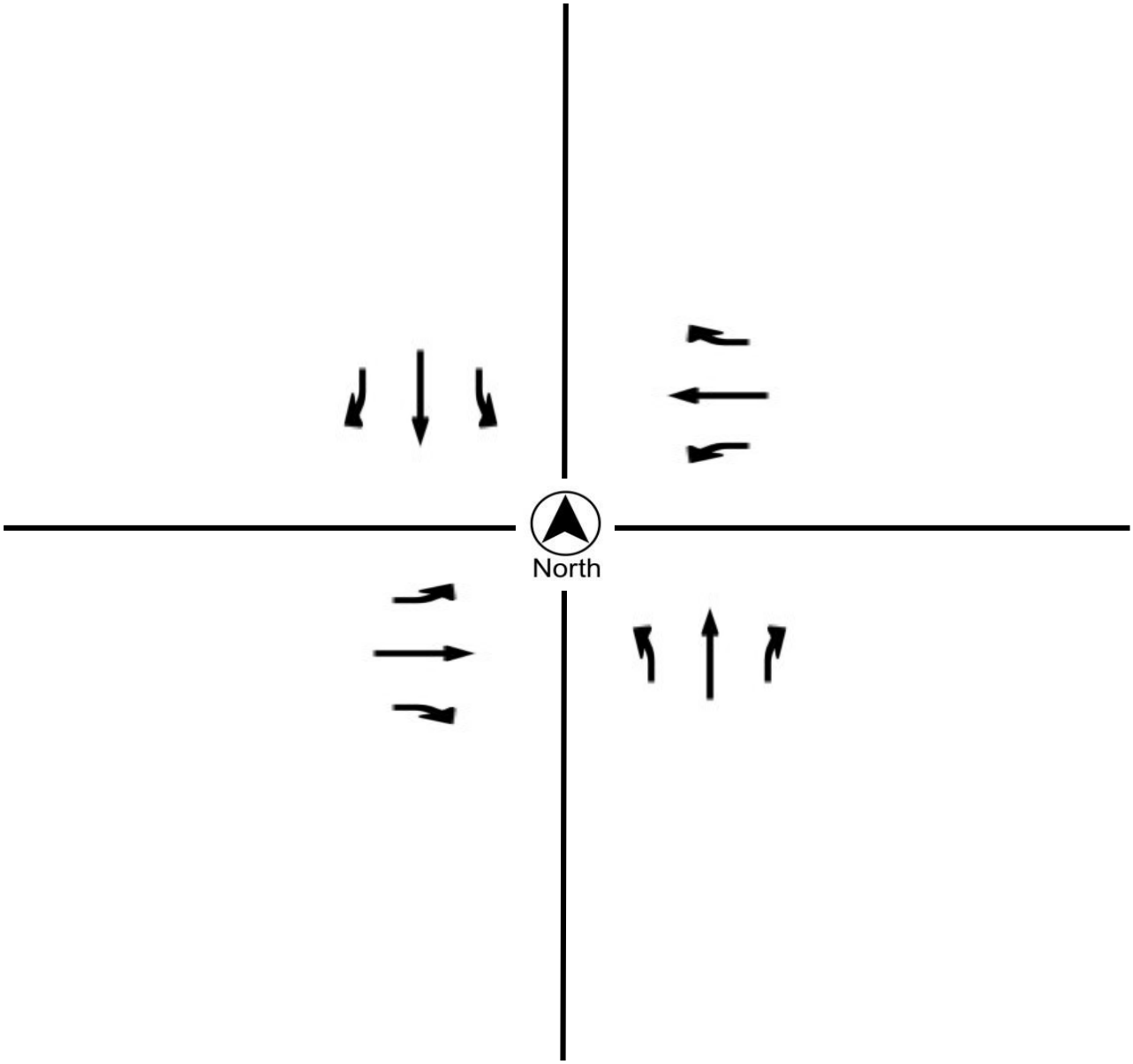
Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION	Grangeville Blvd @ 13th Ave	**N/S STREET**	13th Ave
COUNTY	Kings	**E/W STREET**	Grangeville Blvd
COLLECTION DATE	Thursday, September 16, 2021	**WEATHER**	Clear
CYCLE TIME	58 Seconds	**CONTROL TYPE**	Signal

COMMENTS All approaches have protected left turns.



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

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

Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Grangeville Blvd @ Centennial Dr
COUNTY Kings
COLLECTION DATE Thursday, September 16, 2021

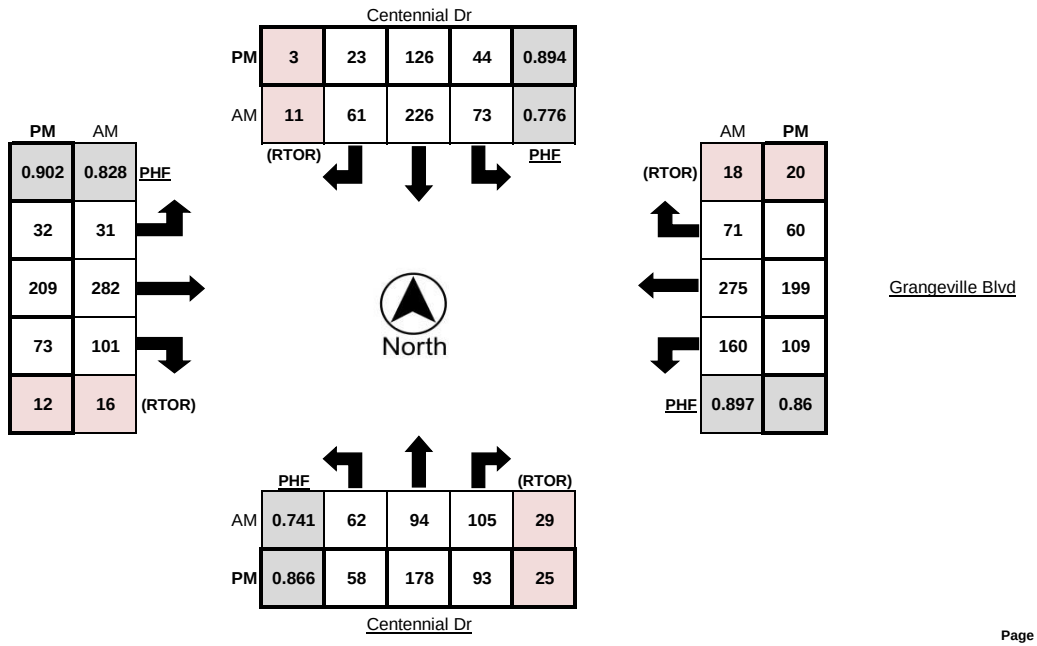
LATITUDE 36.3426
LONGITUDE -119.6819
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	15	10	9	1	1	9	32	11	0	0	3	16	9	1	2	8	46	4	0	0
7:15 AM - 7:30 AM	7	12	19	3	0	14	32	16	2	0	3	30	12	2	1	22	53	7	1	2
7:30 AM - 7:45 AM	15	23	29	7	2	18	53	13	3	0	4	53	13	3	2	27	67	32	2	2
7:45 AM - 8:00 AM	24	30	34	9	3	30	70	16	5	1	6	78	41	2	4	46	70	19	6	2
8:00 AM - 8:15 AM	8	19	14	3	0	19	66	18	2	1	8	82	21	8	2	48	78	15	9	4
8:15 AM - 8:30 AM	15	22	28	10	0	6	37	14	1	2	13	69	26	3	0	39	60	5	1	4
8:30 AM - 8:45 AM	11	19	8	1	1	6	22	5	0	0	4	39	29	2	0	13	38	5	2	0
8:45 AM - 9:00 AM	11	15	11	3	1	9	23	2	0	4	2	31	5	2	1	14	33	7	3	2
TOTAL	**106**	**150**	**152**	**37**	**8**	**111**	**335**	**95**	**13**	**8**	**43**	**398**	**156**	**23**	**12**	**217**	**445**	**94**	**24**	**16**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	14	39	24	2	1	6	26	6	2	0	12	74	24	5	3	28	52	12	2	0
4:15 PM - 4:30 PM	14	32	18	1	0	6	34	4	0	1	9	70	17	1	0	17	33	7	0	1
4:30 PM - 4:45 PM	16	40	14	2	1	8	29	3	2	0	15	67	10	4	1	23	36	17	3	0
4:45 PM - 5:00 PM	12	42	26	7	0	10	34	7	1	0	5	60	22	4	0	35	51	21	10	1
5:00 PM - 5:15 PM	16	52	27	9	0	12	21	5	1	0	12	56	13	3	1	24	62	14	3	2
5:15 PM - 5:30 PM	11	45	18	4	0	8	36	6	0	0	7	53	16	1	0	25	41	12	3	1
5:30 PM - 5:45 PM	19	39	22	5	0	14	35	5	1	0	8	40	22	4	0	25	45	13	4	0
5:45 PM - 6:00 PM	6	24	27	7	0	7	44	7	2	0	8	52	18	5	1	22	58	12	2	2
TOTAL	**108**	**313**	**176**	**37**	**2**	**71**	**259**	**43**	**9**	**1**	**76**	**472**	**142**	**27**	**6**	**199**	**378**	**108**	**27**	**7**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:30 AM - 8:30 AM	62	94	105	29	5	73	226	61	11	4	31	282	101	16	8	160	275	71	18	12
4:45 PM - 5:45 PM	58	178	93	25	0	44	126	23	3	0	32	209	73	12	1	109	199	60	20	4

	PHF	Trucks
AM	0.830	1.9%
PM	0.926	0.4%



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

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

Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

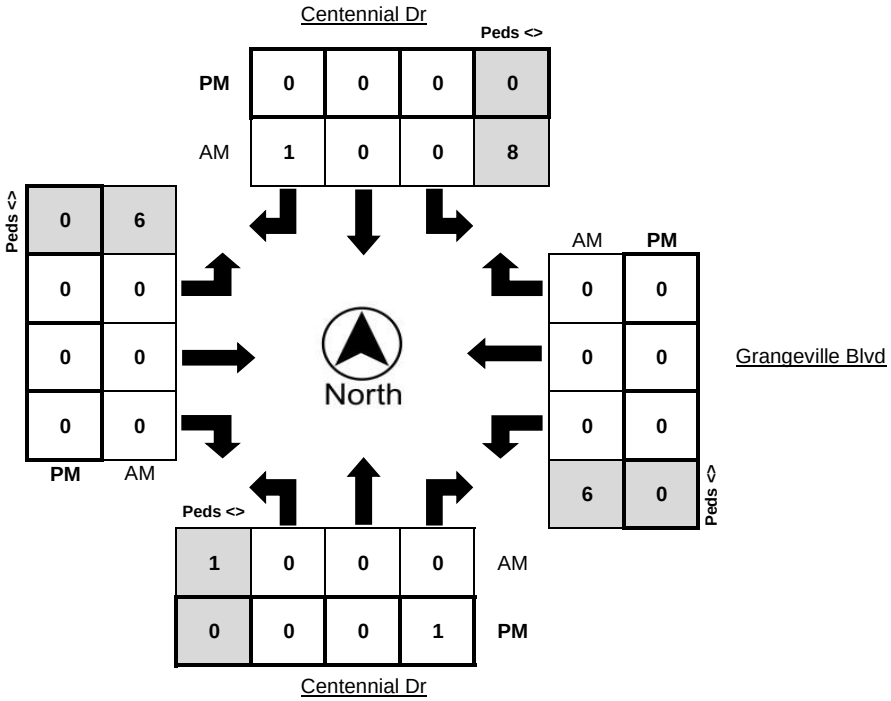
LOCATION Grangeville Blvd @ Centennial Dr
LATITUDE 36.3426
COUNTY Kings
LONGITUDE -119.6819
COLLECTION DATE Thursday, September 16, 2021
WEATHER Clear

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

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

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:30 AM - 8:30 AM	0	0	0	8	0	0	1	1	0	0	0	6	0	0	0	6
4:45 PM - 5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	**Peds**
AM Peak Total	1	21
PM Peak Total	**1**	**0**



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

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

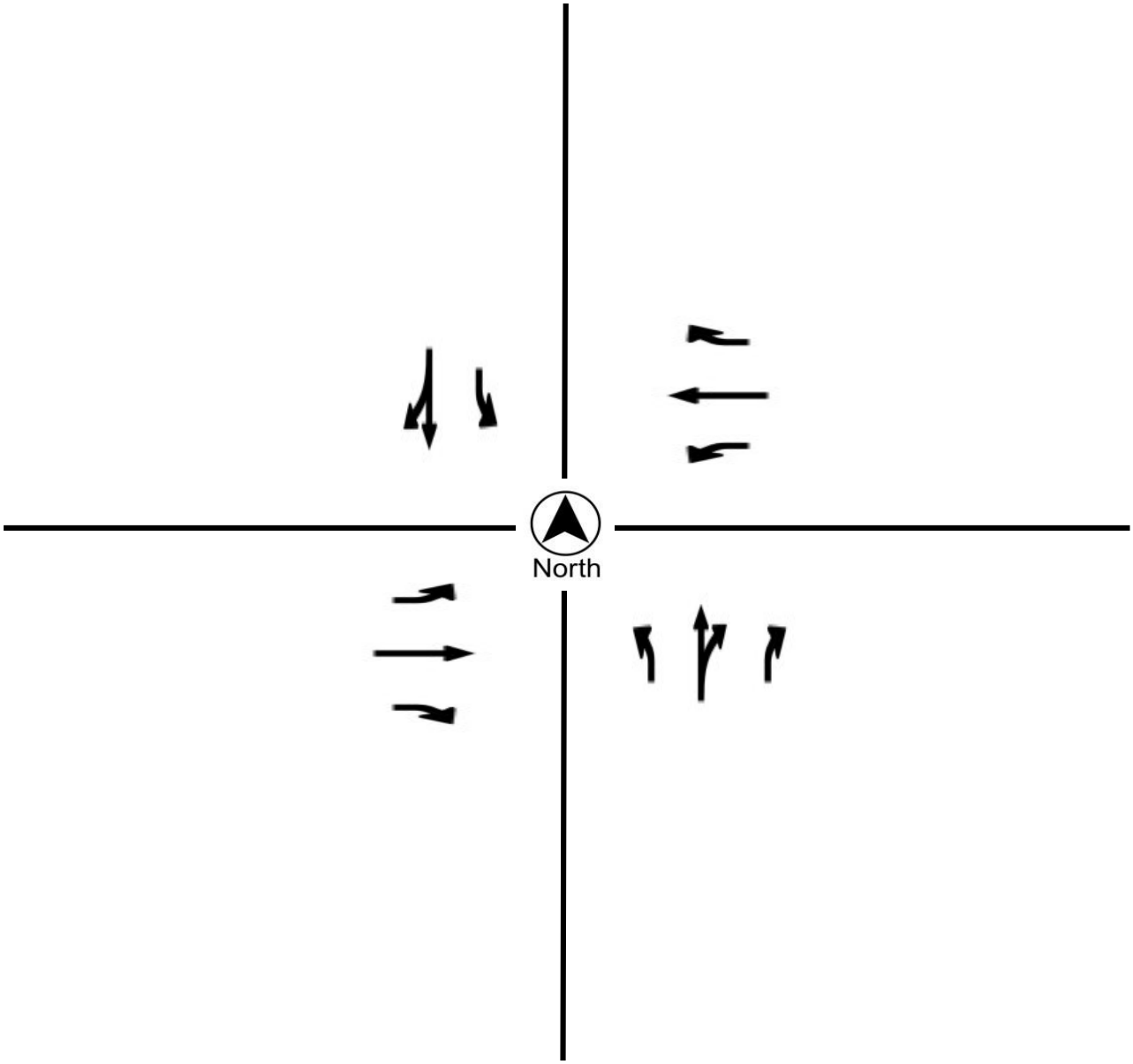
Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION	Grangeville Blvd @ Centennial Dr	**N/S STREET**	Centennial Dr
COUNTY	Kings	**E/W STREET**	Grangeville Blvd
COLLECTION DATE	Thursday, September 16, 2021	**WEATHER**	Clear
CYCLE TIME	74 Seconds	**CONTROL TYPE**	Signal

COMMENTS All approaches have protected left turns.



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

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

Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION Centennial Dr @ Malone St
COUNTY Kings
COLLECTION DATE Thursday, September 16, 2021

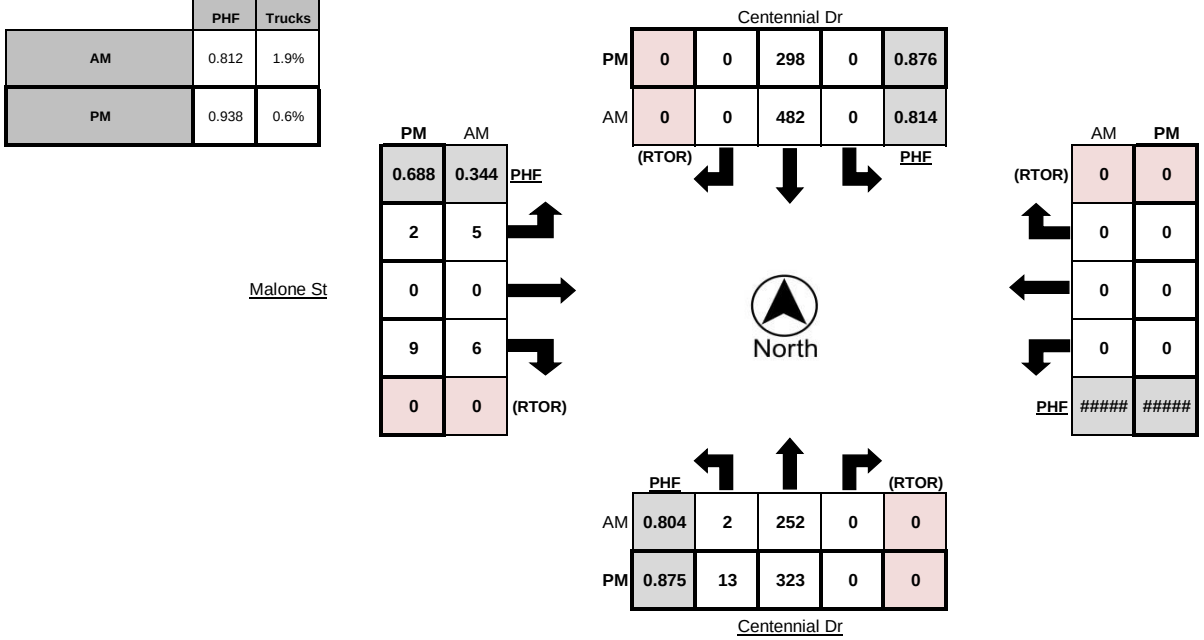
LATITUDE 36.3394
LONGITUDE -119.6820
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	1	34	0	0	1	0	51	0	0	1	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	1	41	0	0	0	0	63	0	0	4	0	0	4	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	1	64	0	0	3	0	92	0	0	1	3	0	5	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	79	0	0	3	0	148	0	0	2	2	0	1	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	1	42	0	0	0	0	136	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	67	0	0	0	0	106	0	0	3	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	3	37	0	0	1	0	61	0	0	1	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	1	38	0	0	1	0	40	0	0	5	1	0	2	0	0	0	0	0	0	0
TOTAL	**8**	**402**	**0**	**0**	**9**	**0**	**697**	**0**	**0**	**19**	**6**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	1	74	0	0	1	0	72	0	0	0	0	0	2	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	1	69	0	0	0	0	69	0	0	3	1	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	5	67	0	0	1	0	56	0	0	0	0	0	1	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	2	83	0	0	0	0	85	0	0	2	0	0	2	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	4	92	0	0	0	0	61	0	0	1	1	0	2	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	3	74	0	0	0	0	72	0	0	1	0	0	2	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	4	74	0	0	0	0	80	0	0	0	1	0	3	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	2	56	0	0	0	0	86	0	0	2	2	0	3	0	0	0	0	0	0	0
TOTAL	**22**	**589**	**0**	**0**	**2**	**0**	**581**	**0**	**0**	**9**	**5**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:30 AM - 8:30 AM	2	252	0	0	6	0	482	0	0	8	5	0	6	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	13	323	0	0	0	0	298	0	0	4	2	0	9	0	0	0	0	0	0	0

	PHF	Trucks
AM	0.812	1.9%
PM	0.938	0.6%



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

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

Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

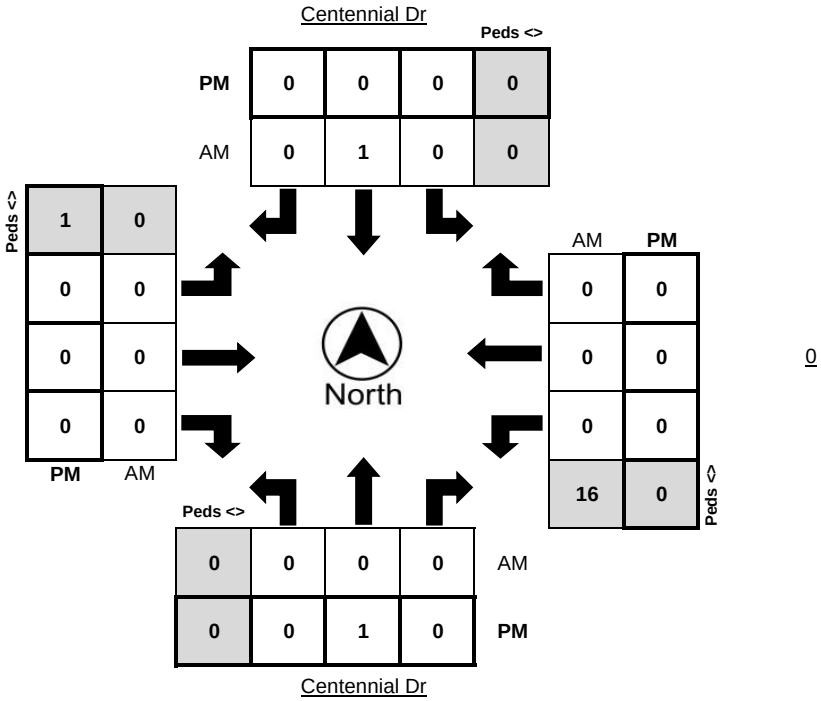
LOCATION Centennial Dr @ Malone St
LATITUDE 36.3394
COUNTY Kings
LONGITUDE -119.6820
COLLECTION DATE Thursday, September 16, 2021
WEATHER Clear

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

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

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:30 AM - 8:30 AM	0	0	0	0	0	1	0	0	0	0	0	16	0	0	0	0
4:45 PM - 5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1

	Bikes	Peds
AM Peak Total	1	16
PM Peak Total	**1**	**1**



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

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

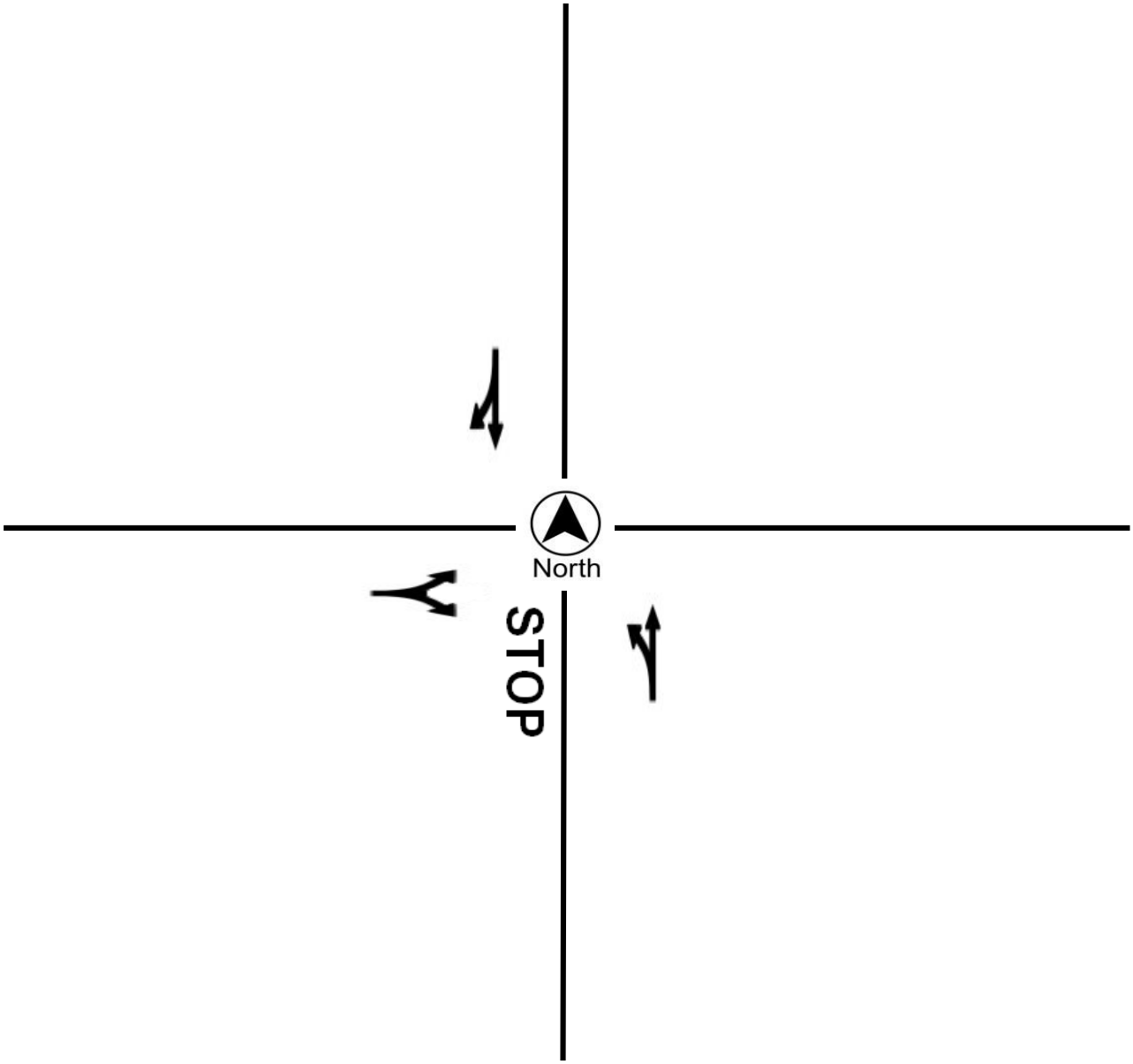
Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION	Centennial Dr @ Malone St	**N/S STREET**	Centennial Dr
COUNTY	Kings	**E/W STREET**	Malone St
COLLECTION DATE	Thursday, September 16, 2021	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



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

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

Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION 13th Ave @ Stage Coach Dr
COUNTY Kings
COLLECTION DATE Tuesday, September 28, 2021

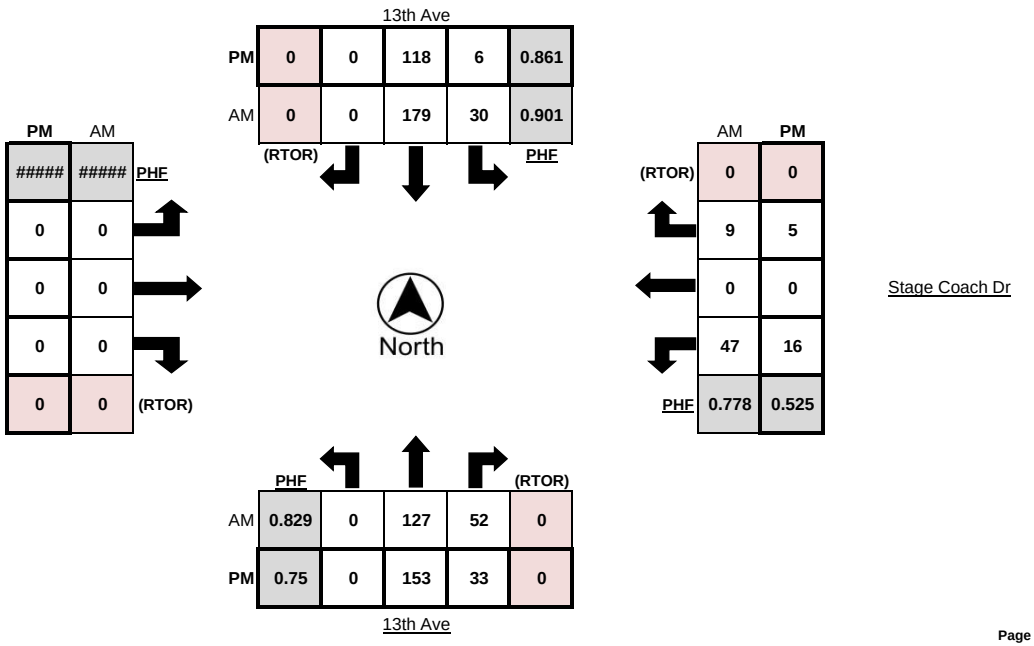
LATITUDE 36.345837°
LONGITUDE -119.691082°
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:00 AM - 7:15 AM	0	22	9	0	4	0	42	0	0	0	0	0	0	0	0	7	0	2	0	1
7:15 AM - 7:30 AM	0	17	3	0	2	1	51	0	0	1	0	0	0	0	0	8	0	0	0	2
7:30 AM - 7:45 AM	0	26	21	0	5	10	47	0	0	2	0	0	0	0	0	14	0	3	0	1
7:45 AM - 8:00 AM	0	22	16	0	1	19	39	0	0	0	0	0	0	0	0	17	0	1	0	1
8:00 AM - 8:15 AM	0	45	9	0	1	1	46	0	0	2	0	0	0	0	0	9	0	4	0	0
8:15 AM - 8:30 AM	0	34	6	0	2	0	47	0	0	0	0	0	0	0	0	7	0	1	0	2
8:30 AM - 8:45 AM	0	21	2	0	1	2	23	0	0	2	0	0	0	0	0	2	0	3	0	1
8:45 AM - 9:00 AM	0	20	1	0	0	1	27	0	0	1	0	0	0	0	0	6	0	0	0	3
TOTAL	**0**	**207**	**67**	**0**	**16**	**34**	**322**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**70**	**0**	**14**	**0**	**11**

	Northbound					Southbound					Eastbound					Westbound				
Time	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
4:00 PM - 4:15 PM	0	32	6	0	0	2	29	0	0	1	0	0	0	0	0	1	0	0	0	0
4:15 PM - 4:30 PM	0	36	4	0	0	2	25	0	0	2	0	0	0	0	0	4	0	1	0	0
4:30 PM - 4:45 PM	0	44	8	0	0	0	23	0	0	1	0	0	0	0	0	9	0	1	0	0
4:45 PM - 5:00 PM	0	28	10	0	1	2	31	0	0	1	0	0	0	0	0	2	0	0	0	0
5:00 PM - 5:15 PM	0	28	6	0	2	2	30	0	0	0	0	0	0	0	0	3	0	3	0	0
5:15 PM - 5:30 PM	0	53	9	0	2	2	34	0	0	0	0	0	0	0	0	2	0	1	0	0
5:30 PM - 5:45 PM	0	31	7	0	1	0	35	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM - 6:00 PM	0	32	10	0	0	2	33	0	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL	**0**	**284**	**60**	**0**	**6**	**12**	**240**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**22**	**0**	**7**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**	**Left**	**Thru**	**Right**	**(RTOR)**	**Trucks**
7:30 AM - 8:30 AM	0	127	52	0	9	30	179	0	0	4	0	0	0	0	0	47	0	9	0	4
4:30 PM - 5:30 PM	0	153	33	0	5	6	118	0	0	2	0	0	0	0	0	16	0	5	0	0

	PHF	Trucks
AM	0.917	3.8%
PM	0.819	2.1%



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

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

Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

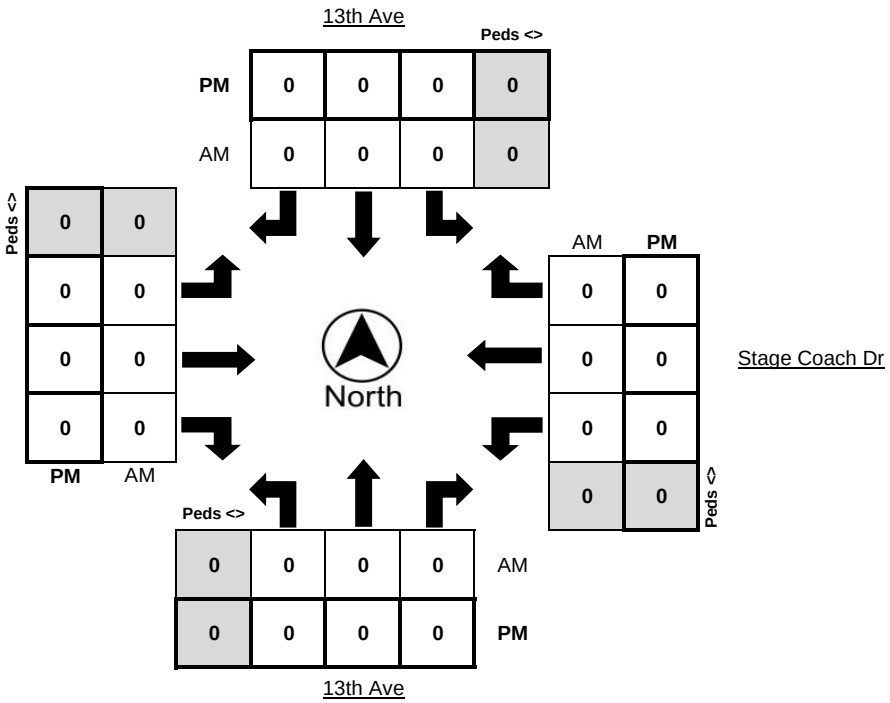
LOCATION 13th Ave @ Stage Coach Dr
LATITUDE 36.345837°
COUNTY Kings
LONGITUDE -119.691082°
COLLECTION DATE Tuesday, September 28, 2021
WEATHER Clear

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

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

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

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	**0**	**0**



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

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

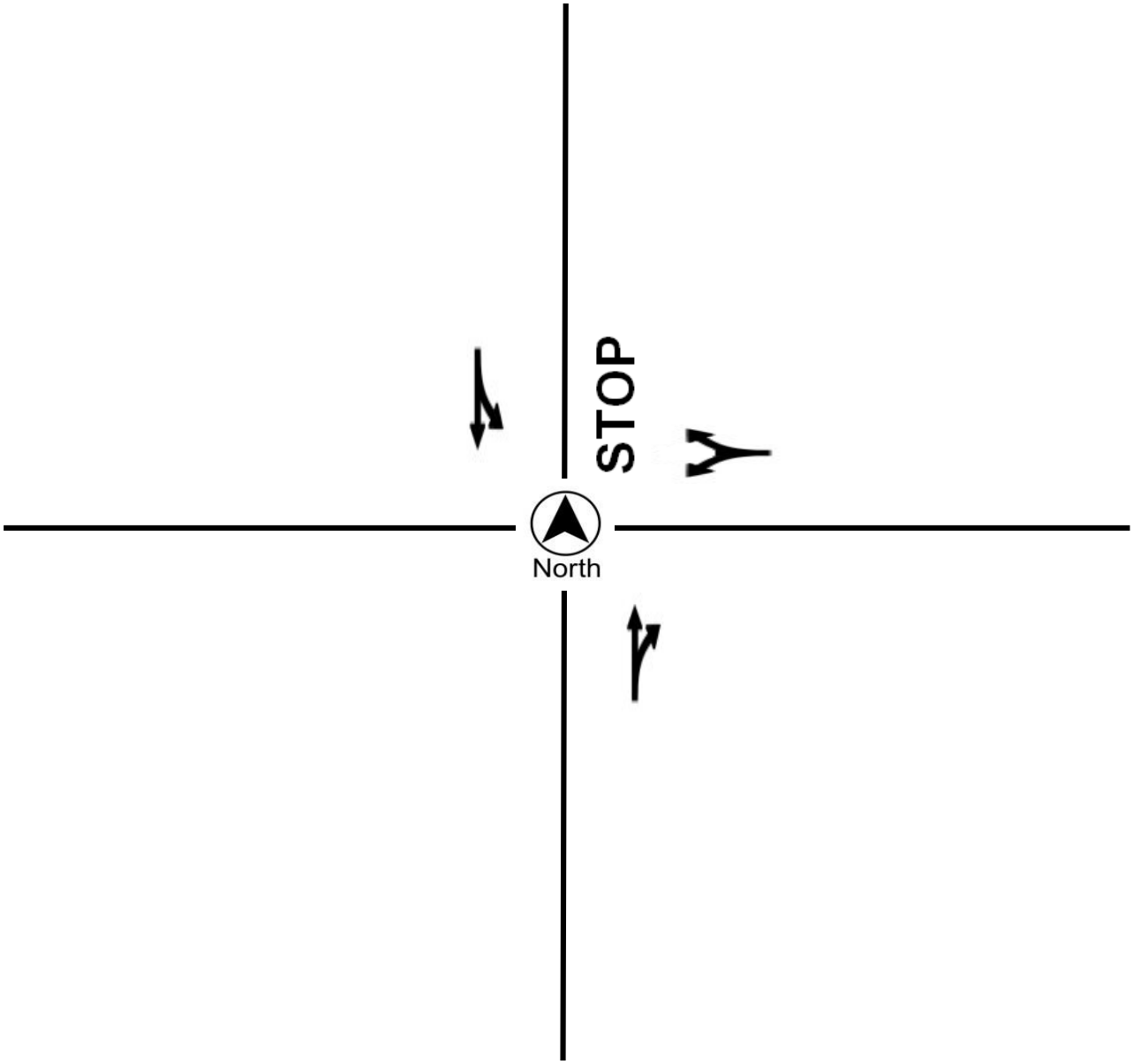
Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION	13th Ave @ Stage Coach Dr	**N/S STREET**	13th Ave
COUNTY	Kings	**E/W STREET**	Stage Coach Dr
COLLECTION DATE	Tuesday, September 28, 2021	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

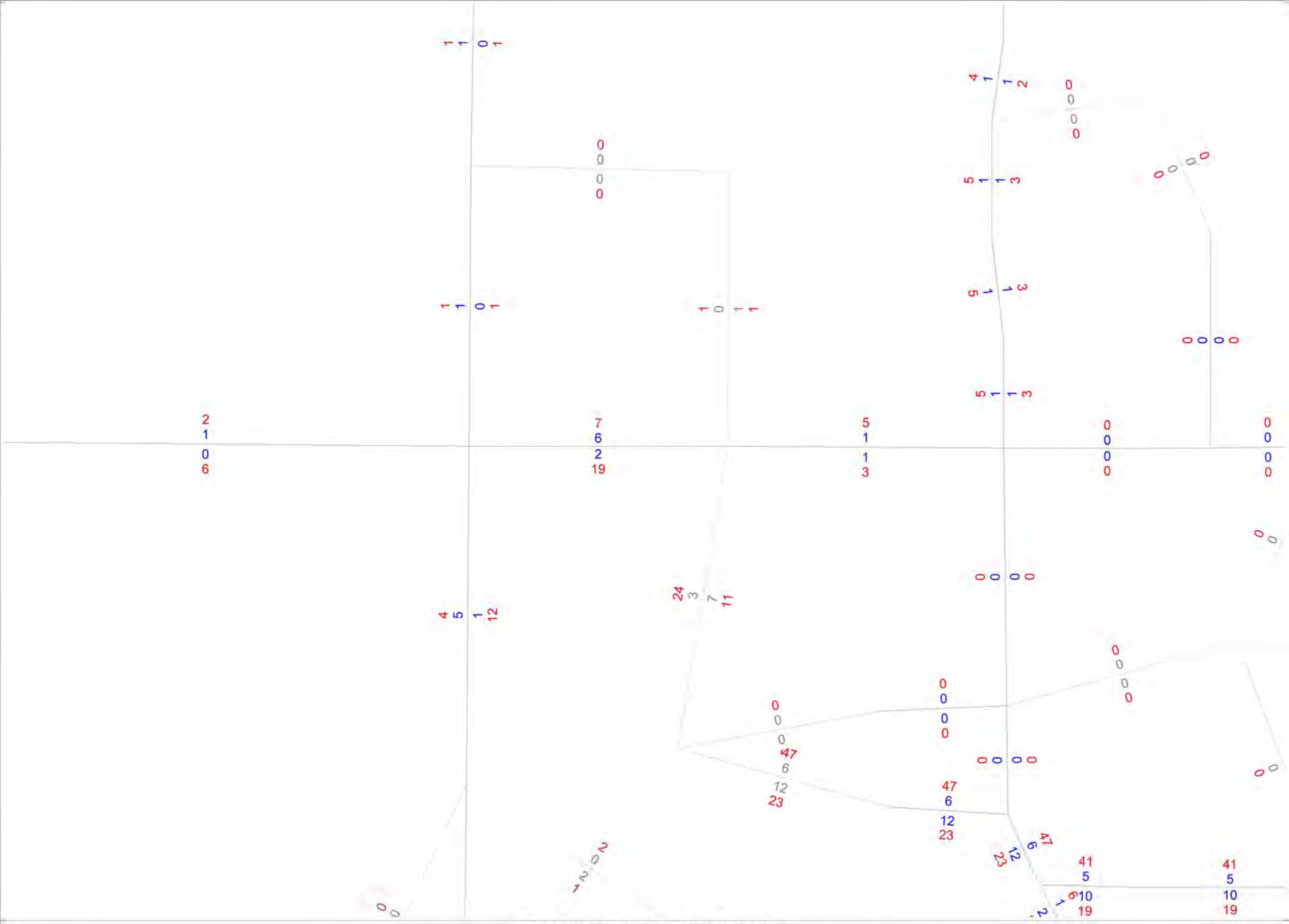
COMMENTS



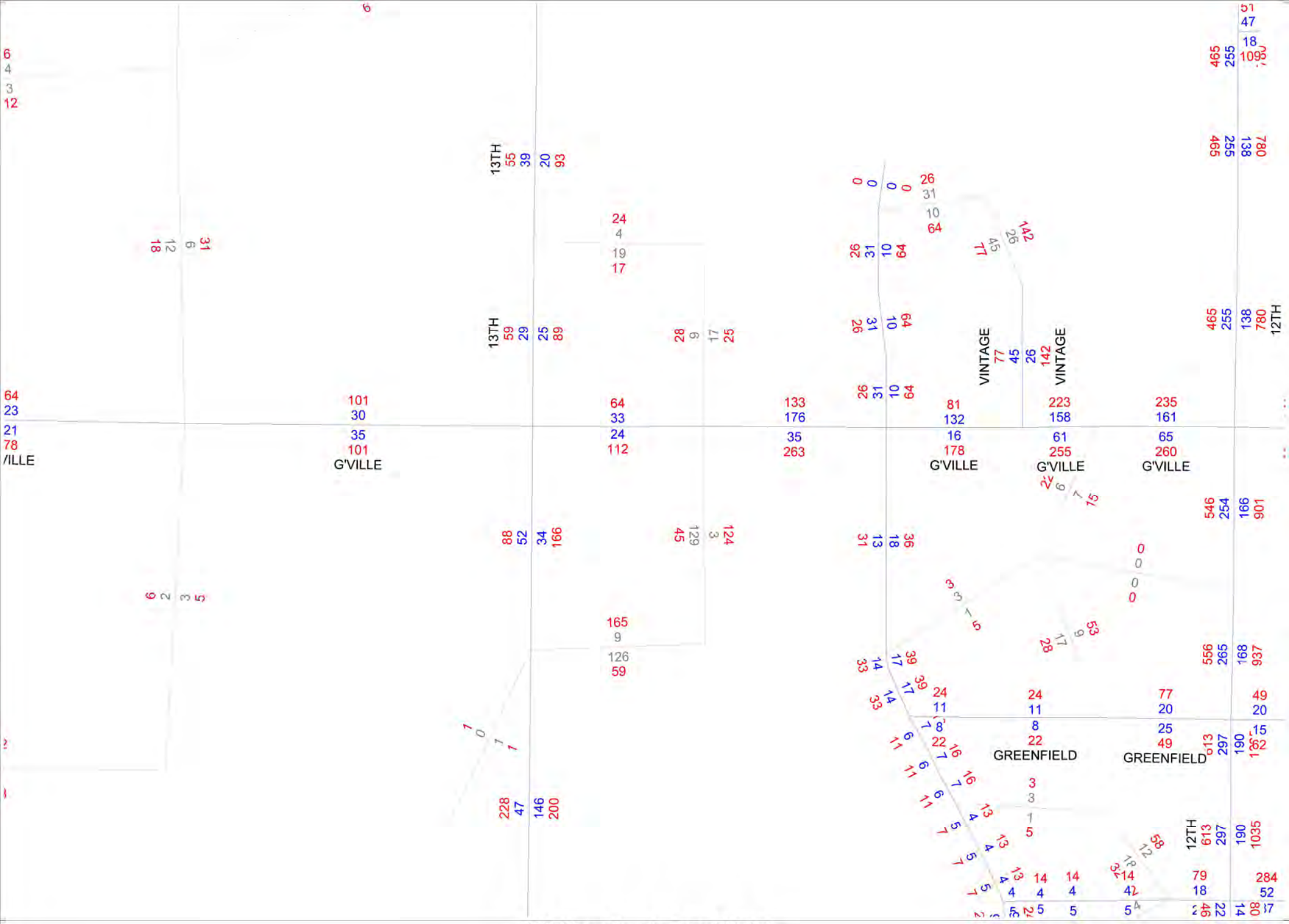
APPENDIX B

KINGS COUNTY TRAVEL MODEL OUTPUT

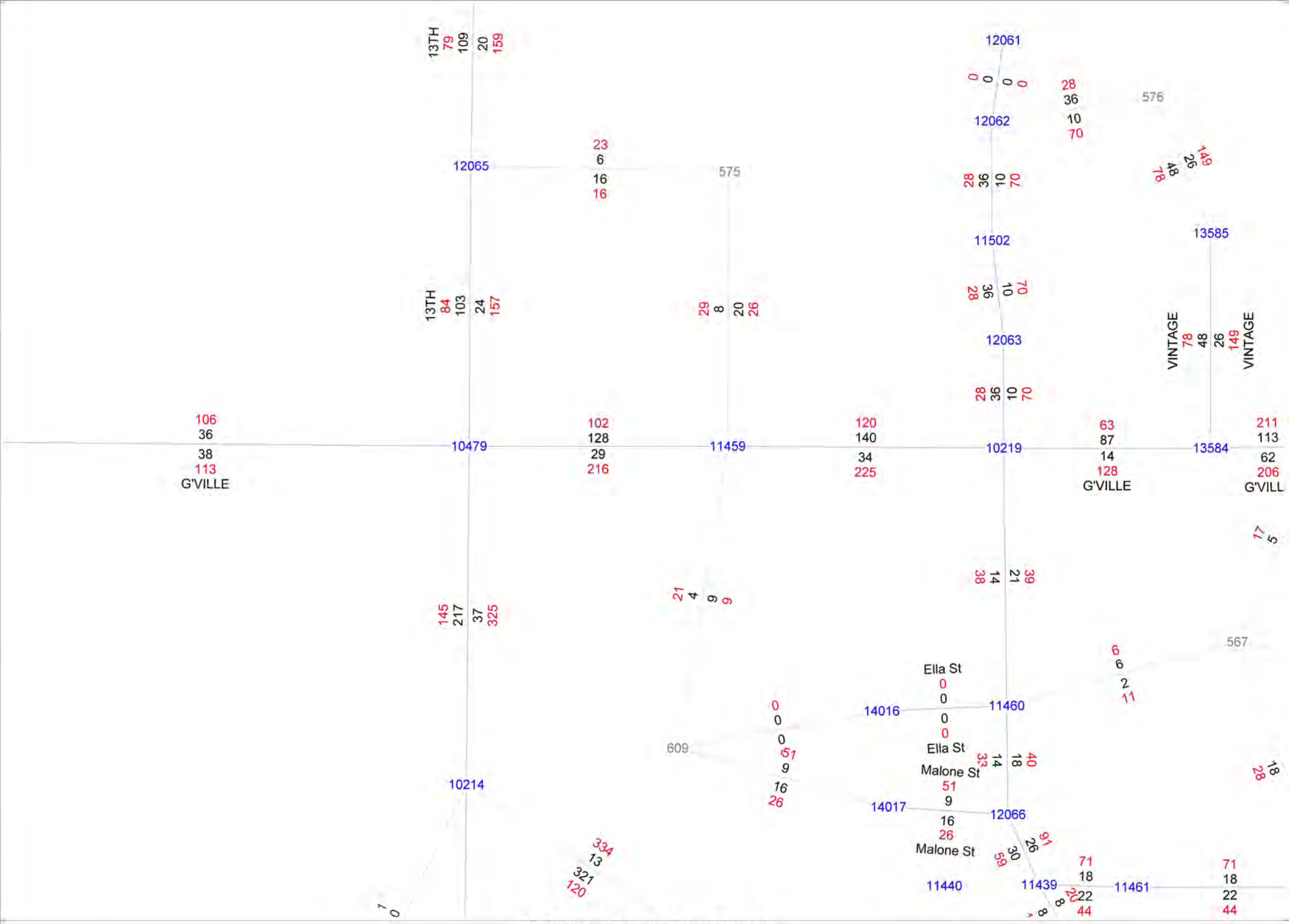
PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION



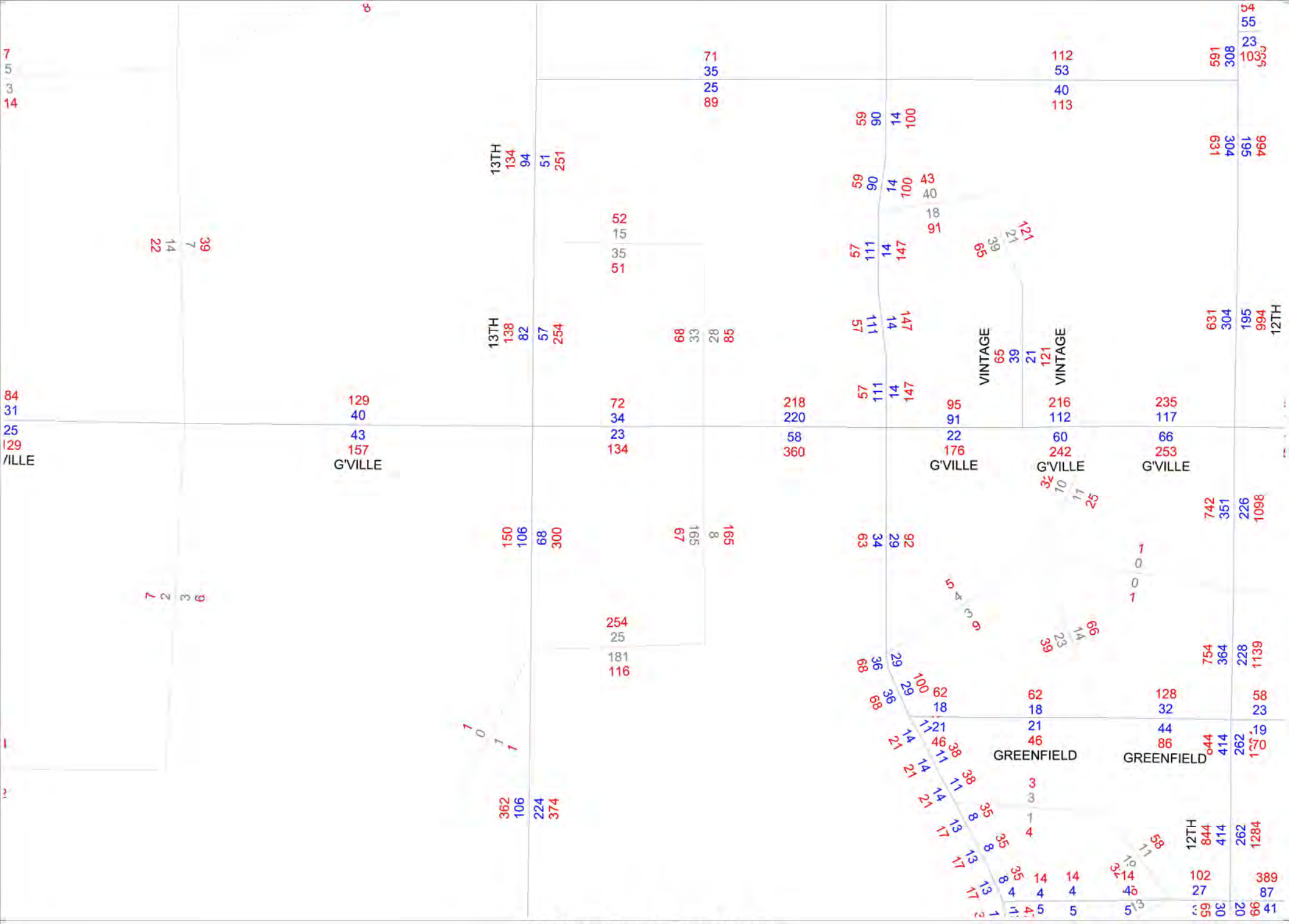
2042 Kings County Travel Model
Select Zone Analysis AM and PM Peak-Hour Traffic Volumes



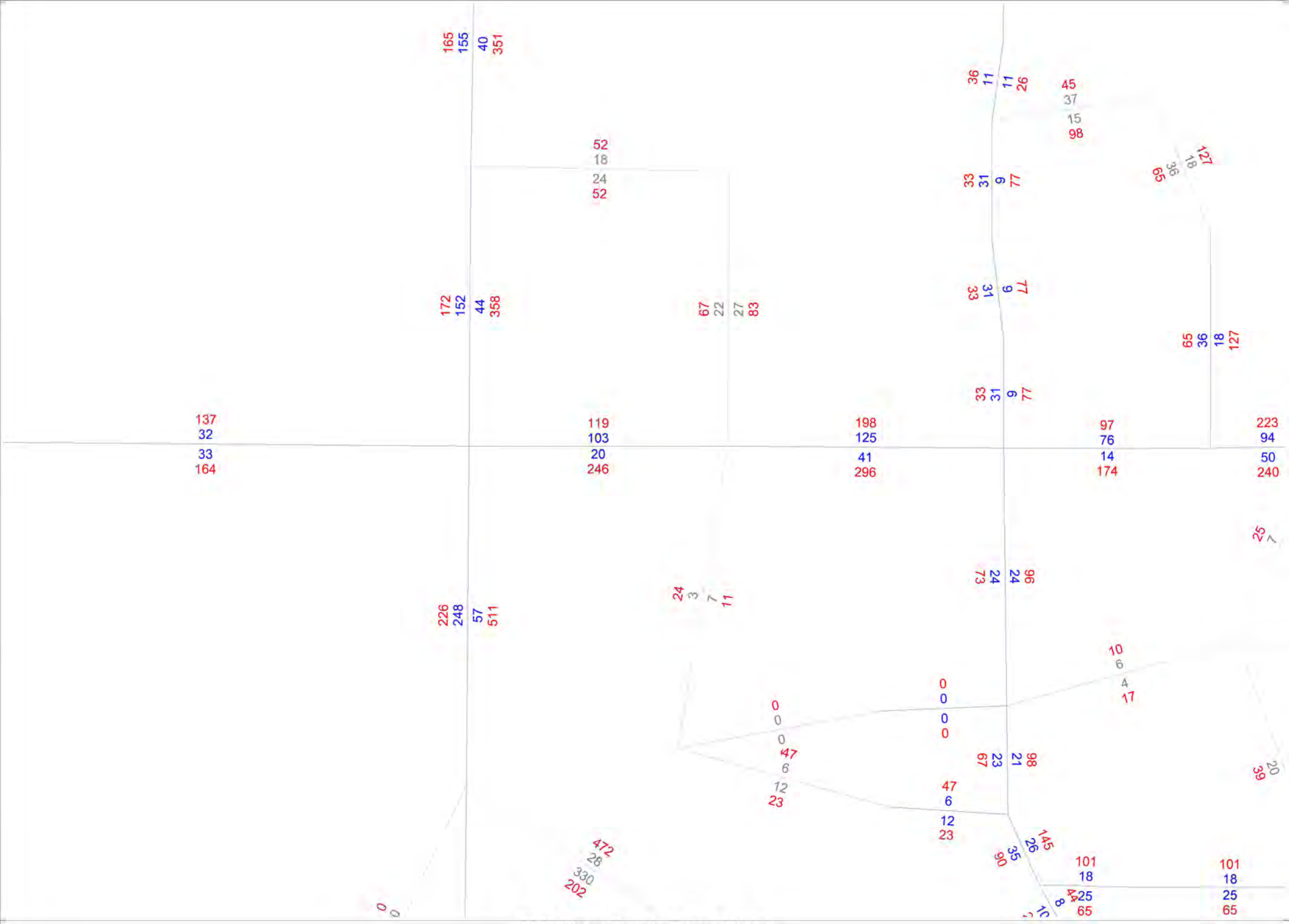
2021 Kings County Travel Model
AM and PM Peak-Hour Traffic Volumes



2021 Kings County Travel Model
AM and PM Peak-Hour Traffic Volumes



2042 Kings County Travel Model
AM and PM Peak-Hour Traffic Volumes



2042 Kings County Travel Model
AM and PM Peak-Hour Traffic Volumes

*Average VMT per Capita by TAZ for Kings County is 9.6

15% or More Below Average

14% Below Average to Average

Above Average

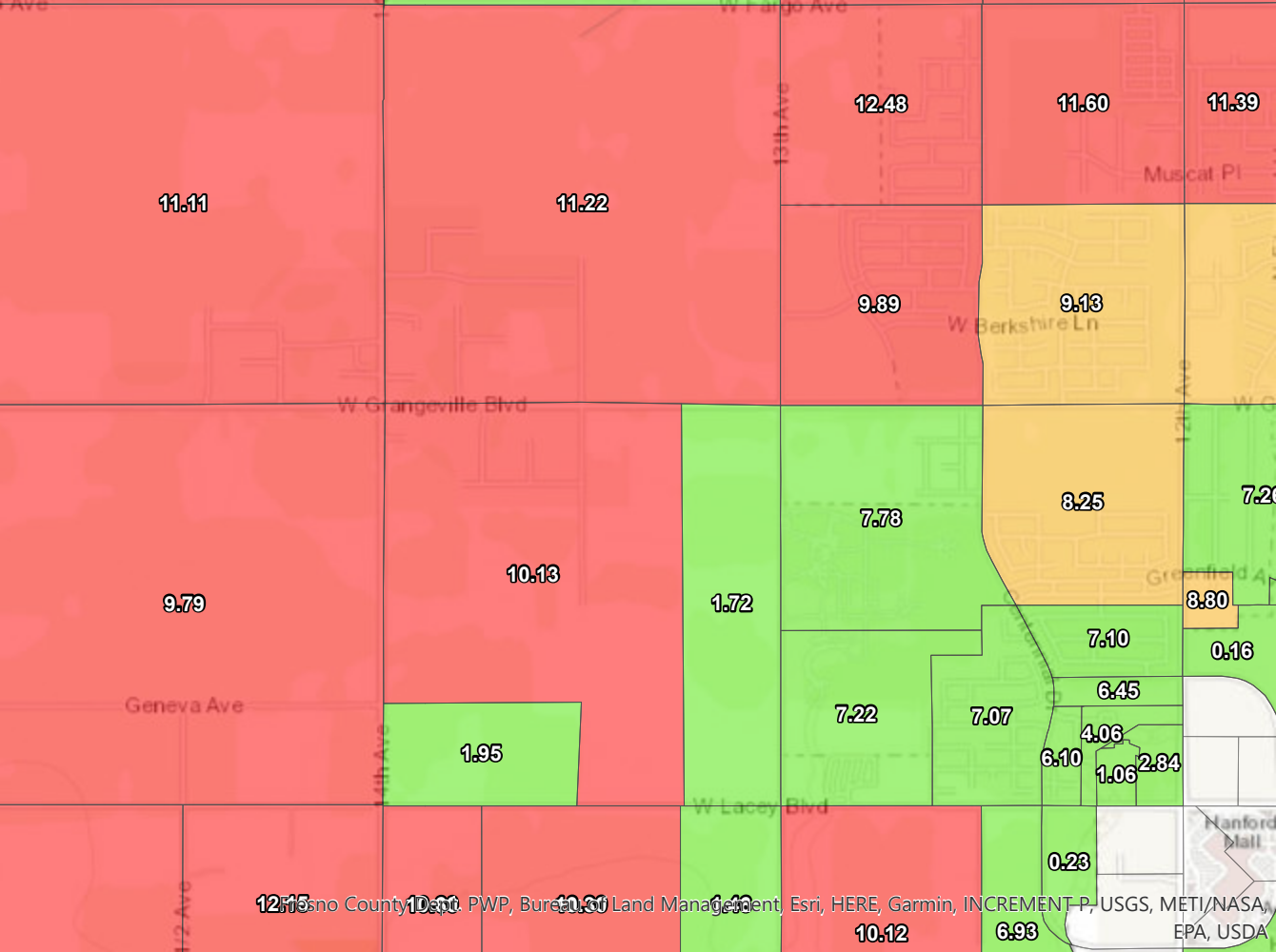
No Data

Kings County

City Boundary

0 2.25 Miles

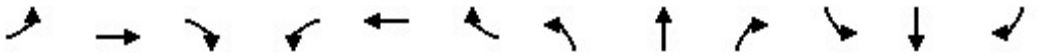
Average VMT per Capita by TAZ
Kings County, CA


11.11
11.22
12.48
11.60
11.39
Muscat Pl
9.89
9.13
W Berkshire Ln
W Grangeville Blvd
7.78
8.25
9.79
10.13
1.72
8.80
7.10
0.16
Geneva Ave
1.95
7.22
7.07
6.45
4.06
6.10
1.06
2.84
W Lacey Blvd
Hanford Mall
0.23
12.15
10.12
6.93
Fresno County, Dept. PWP, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

APPENDIX C

INTERSECTION ANALYSES

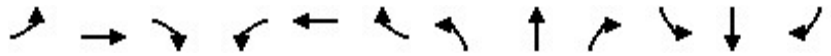
PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	270	58	137	248	20	77	121	130	21	192	49
Future Volume (veh/h)	44	270	58	137	248	20	77	121	130	21	192	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.97	1.00		0.95
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	48	293	26	149	270	11	84	132	89	23	209	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	435	351	193	544	441	129	443	364	49	360	288
Arrive On Green	0.05	0.23	0.23	0.11	0.29	0.29	0.07	0.24	0.24	0.03	0.19	0.19
Sat Flow, veh/h	1781	1870	1508	1781	1870	1517	1781	1870	1539	1781	1870	1498
Grp Volume(v), veh/h	48	293	26	149	270	11	84	132	89	23	209	28
Grp Sat Flow(s),veh/h/ln	1781	1870	1508	1781	1870	1517	1781	1870	1539	1781	1870	1498
Q Serve(g_s), s	1.2	6.4	0.6	3.7	5.4	0.2	2.1	2.6	2.1	0.6	4.6	0.7
Cycle Q Clear(g_c), s	1.2	6.4	0.6	3.7	5.4	0.2	2.1	2.6	2.1	0.6	4.6	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	435	351	193	544	441	129	443	364	49	360	288
V/C Ratio(X)	0.54	0.67	0.07	0.77	0.50	0.02	0.65	0.30	0.24	0.47	0.58	0.10
Avail Cap(c_a), veh/h	241	750	605	355	871	706	237	796	655	233	792	634
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	20.9	15.7	13.5	19.6	13.3	11.4	20.4	14.1	13.9	21.6	16.6	15.0
Incr Delay (d2), s/veh	5.0	1.8	0.1	6.5	0.7	0.0	5.5	0.4	0.3	6.7	1.5	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(95%),veh/ln	0.9	4.0	0.3	2.8	3.1	0.1	1.6	1.6	1.0	0.5	2.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	17.6	13.6	26.0	14.0	11.4	25.9	14.5	14.3	28.3	18.1	15.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		367			430			305			260	
Approach Delay, s/veh		18.4			18.1			17.6			18.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	15.6	8.9	15.4	7.3	13.6	6.3	18.0
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	19.2	9.0	18.1	6.0	19.1	6.1	21.0
Max Q Clear Time (g_c+I1), s	2.6	4.6	5.7	8.4	4.1	6.6	3.2	7.4
Green Ext Time (p_c), s	0.0	0.7	0.1	1.0	0.0	0.8	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	282	101	160	275	71	62	94	105	73	226	61
Future Volume (veh/h)	31	282	101	160	275	71	62	94	105	73	226	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.95
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	37	340	103	193	331	64	75	113	92	88	272	60
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	449	370	242	630	512	110	220	179	119	354	78
Arrive On Green	0.04	0.24	0.24	0.14	0.34	0.34	0.06	0.24	0.24	0.07	0.24	0.24
Sat Flow, veh/h	1781	1870	1539	1781	1870	1522	1781	931	758	1781	1469	324
Grp Volume(v), veh/h	37	340	103	193	331	64	75	0	205	88	0	332
Grp Sat Flow(s),veh/h/ln	1781	1870	1539	1781	1870	1522	1781	0	1688	1781	0	1793
Q Serve(g_s), s	1.1	9.4	3.0	5.8	7.9	1.6	2.3	0.0	5.9	2.7	0.0	9.6
Cycle Q Clear(g_c), s	1.1	9.4	3.0	5.8	7.9	1.6	2.3	0.0	5.9	2.7	0.0	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.18
Lane Grp Cap(c), veh/h	70	449	370	242	630	512	110	0	399	119	0	433
V/C Ratio(X)	0.53	0.76	0.28	0.80	0.53	0.12	0.68	0.00	0.51	0.74	0.00	0.77
Avail Cap(c_a), veh/h	190	607	500	321	745	606	190	0	554	193	0	592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.1	19.6	17.2	23.2	14.8	12.7	25.5	0.0	18.4	25.4	0.0	19.6
Incr Delay (d2), s/veh	6.1	3.7	0.4	10.0	0.7	0.1	7.2	0.0	1.0	8.6	0.0	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(95%),veh/ln	1.0	6.8	1.6	4.9	4.8	0.8	1.9	0.0	3.6	2.4	0.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	23.3	17.6	33.2	15.5	12.8	32.7	0.0	19.4	34.0	0.0	23.7
LnGrp LOS	C	C	B	C	B	B	C	A	B	C	A	C
Approach Vol, veh/h		480			588			280			420	
Approach Delay, s/veh		22.8			21.0			23.0			25.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	18.0	11.5	18.2	7.4	18.3	6.2	23.6
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	6.6	18.2	10.0	18.0	5.9	18.3	5.9	22.1
Max Q Clear Time (g_c+I1), s	4.7	7.9	7.8	11.4	4.3	11.6	3.1	9.9
Green Ext Time (p_c), s	0.0	0.7	0.1	1.2	0.0	1.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

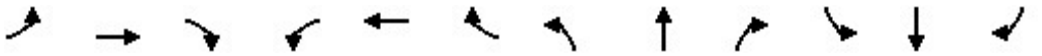
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	6	2	252	482	1
Future Vol, veh/h	5	6	2	252	482	1
Conflicting Peds, #/hr	10	10	10	0	0	10
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	7	2	307	588	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	919	608	599	0	-	0
Stage 1	598	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	301	496	978	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	294	487	969	-	-	-
Mov Cap-2 Maneuver	294	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	728	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0.1	0
HCM LOS	C		

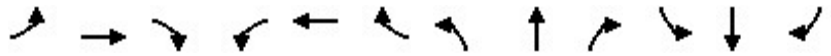
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	969	-	375	-	-
HCM Lane V/C Ratio	0.003	-	0.036	-	-
HCM Control Delay (s)	8.7	0	15	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	266	21	49	183	15	38	152	93	17	91	23
Future Volume (veh/h)	42	266	21	49	183	15	38	152	93	17	91	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.97	1.00		0.94
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	48	302	16	56	208	12	43	173	65	19	103	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	475	384	105	487	394	86	358	294	43	313	249
Arrive On Green	0.05	0.25	0.25	0.06	0.26	0.26	0.05	0.19	0.19	0.02	0.17	0.17
Sat Flow, veh/h	1781	1870	1511	1781	1870	1512	1781	1870	1533	1781	1870	1490
Grp Volume(v), veh/h	48	302	16	56	208	12	43	173	65	19	103	15
Grp Sat Flow(s),veh/h/ln	1781	1870	1511	1781	1870	1512	1781	1870	1533	1781	1870	1490
Q Serve(g_s), s	1.0	5.4	0.3	1.2	3.5	0.2	0.9	3.1	1.4	0.4	1.8	0.3
Cycle Q Clear(g_c), s	1.0	5.4	0.3	1.2	3.5	0.2	0.9	3.1	1.4	0.4	1.8	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	93	475	384	105	487	394	86	358	294	43	313	249
V/C Ratio(X)	0.51	0.64	0.04	0.53	0.43	0.03	0.50	0.48	0.22	0.45	0.33	0.06
Avail Cap(c_a), veh/h	288	996	805	307	1016	822	283	972	796	283	972	774
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	17.4	12.5	10.6	17.3	11.6	10.4	17.5	13.6	12.9	18.2	13.8	13.2
Incr Delay (d2), s/veh	4.3	1.4	0.0	4.2	0.6	0.0	4.5	1.0	0.4	7.1	0.6	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(95%),veh/ln	0.7	2.9	0.1	0.9	1.8	0.1	0.7	1.8	0.6	0.4	1.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	13.9	10.7	21.4	12.2	10.4	22.0	14.6	13.3	25.3	14.4	13.3
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		366			276			281			137	
Approach Delay, s/veh		14.8			14.0			15.4			15.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	12.1	6.2	14.5	5.8	11.2	6.0	14.7
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	19.6	6.5	20.1	6.0	19.6	6.1	20.5
Max Q Clear Time (g_c+I1), s	2.4	5.1	3.2	7.4	2.9	3.8	3.0	5.5
Green Ext Time (p_c), s	0.0	0.8	0.0	1.2	0.0	0.4	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	209	73	109	199	60	58	178	93	44	126	23
Future Volume (veh/h)	32	209	73	109	199	60	58	178	93	44	126	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.95	1.00		0.95
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	35	227	66	118	216	43	63	193	74	48	137	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	387	318	158	478	387	110	296	114	91	347	56
Arrive On Green	0.04	0.21	0.21	0.09	0.26	0.26	0.06	0.23	0.23	0.05	0.22	0.22
Sat Flow, veh/h	1781	1870	1535	1781	1870	1512	1781	1268	486	1781	1559	250
Grp Volume(v), veh/h	35	227	66	118	216	43	63	0	267	48	0	159
Grp Sat Flow(s),veh/h/ln	1781	1870	1535	1781	1870	1512	1781	0	1754	1781	0	1810
Q Serve(g_s), s	0.8	4.6	1.5	2.7	4.1	0.9	1.5	0.0	5.8	1.1	0.0	3.2
Cycle Q Clear(g_c), s	0.8	4.6	1.5	2.7	4.1	0.9	1.5	0.0	5.8	1.1	0.0	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.14
Lane Grp Cap(c), veh/h	71	387	318	158	478	387	110	0	410	91	0	403
V/C Ratio(X)	0.49	0.59	0.21	0.75	0.45	0.11	0.57	0.00	0.65	0.53	0.00	0.39
Avail Cap(c_a), veh/h	248	794	652	378	931	752	252	0	794	252	0	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	15.2	13.9	18.9	13.3	12.1	19.3	0.0	14.7	19.6	0.0	14.0
Incr Delay (d2), s/veh	5.2	1.4	0.3	6.9	0.7	0.1	4.6	0.0	1.8	4.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	2.9	0.7	2.1	2.4	0.4	1.1	0.0	3.5	0.9	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	16.6	14.2	25.8	13.9	12.2	24.0	0.0	16.4	24.3	0.0	14.7
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		328			377			330			207	
Approach Delay, s/veh		17.0			17.4			17.9			16.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	14.8	7.8	13.7	6.6	14.3	5.7	15.7
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	6.6	19.2	9.0	18.0	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	3.1	7.8	4.7	6.6	3.5	5.2	2.8	6.1
Green Ext Time (p_c), s	0.0	1.0	0.1	1.0	0.0	0.6	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

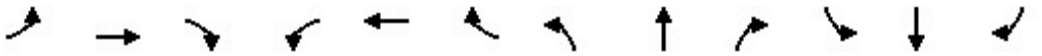
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	9	13	323	298	1
Future Vol, veh/h	2	9	13	323	298	1
Conflicting Peds, #/hr	10	10	10	0	0	10
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	10	14	344	317	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	709	337	328	0	-	0
Stage 1	327	-	-	-	-	-
Stage 2	382	-	-	-	-	-
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	401	705	1232	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	692	1220	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	683	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0.3	0
HCM LOS	B		

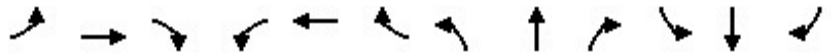
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1220	-	605	-	-
HCM Lane V/C Ratio	0.011	-	0.019	-	-
HCM Control Delay (s)	8	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	272	58	148	253	23	77	121	133	22	192	49
Future Volume (veh/h)	44	272	58	148	253	23	77	121	133	22	192	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.97	1.00		0.94
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	48	296	26	161	275	14	84	132	93	24	209	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	435	351	207	560	454	128	438	360	51	357	286
Arrive On Green	0.05	0.23	0.23	0.12	0.30	0.30	0.07	0.23	0.23	0.03	0.19	0.19
Sat Flow, veh/h	1781	1870	1508	1781	1870	1518	1781	1870	1539	1781	1870	1498
Grp Volume(v), veh/h	48	296	26	161	275	14	84	132	93	24	209	28
Grp Sat Flow(s),veh/h/ln	1781	1870	1508	1781	1870	1518	1781	1870	1539	1781	1870	1498
Q Serve(g_s), s	1.2	6.6	0.6	4.0	5.5	0.3	2.1	2.7	2.3	0.6	4.7	0.7
Cycle Q Clear(g_c), s	1.2	6.6	0.6	4.0	5.5	0.3	2.1	2.7	2.3	0.6	4.7	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	435	351	207	560	454	128	438	360	51	357	286
V/C Ratio(X)	0.54	0.68	0.07	0.78	0.49	0.03	0.66	0.30	0.26	0.47	0.58	0.10
Avail Cap(c_a), veh/h	237	738	595	349	856	695	233	783	644	229	779	624
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	21.3	16.0	13.7	19.7	13.2	11.4	20.7	14.5	14.3	21.9	16.9	15.3
Incr Delay (d2), s/veh	5.0	1.9	0.1	6.1	0.7	0.0	5.7	0.4	0.4	6.5	1.5	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(95%),veh/ln	1.0	4.2	0.3	3.0	3.2	0.1	1.6	1.6	1.1	0.5	3.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	17.9	13.8	25.8	13.9	11.4	26.4	14.9	14.7	28.5	18.4	15.4
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		370			450			309			261	
Approach Delay, s/veh		18.7			18.1			18.0			19.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	15.6	9.3	15.6	7.3	13.7	6.3	18.6
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	19.2	9.0	18.1	6.0	19.1	6.1	21.0
Max Q Clear Time (g_c+I1), s	2.6	4.7	6.0	8.6	4.1	6.7	3.2	7.5
Green Ext Time (p_c), s	0.0	0.7	0.1	1.1	0.0	0.8	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	304	101	165	280	71	62	95	114	73	227	62
Future Volume (veh/h)	35	304	101	165	280	71	62	95	114	73	227	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.95
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	42	366	103	199	337	64	75	114	102	88	273	62
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	465	383	247	645	525	108	209	187	117	351	80
Arrive On Green	0.04	0.25	0.25	0.14	0.34	0.34	0.06	0.24	0.24	0.07	0.24	0.24
Sat Flow, veh/h	1781	1870	1540	1781	1870	1522	1781	887	793	1781	1460	331
Grp Volume(v), veh/h	42	366	103	199	337	64	75	0	216	88	0	335
Grp Sat Flow(s),veh/h/ln	1781	1870	1540	1781	1870	1522	1781	0	1680	1781	0	1791
Q Serve(g_s), s	1.3	10.5	3.1	6.2	8.2	1.6	2.4	0.0	6.5	2.8	0.0	10.0
Cycle Q Clear(g_c), s	1.3	10.5	3.1	6.2	8.2	1.6	2.4	0.0	6.5	2.8	0.0	10.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.19
Lane Grp Cap(c), veh/h	76	465	383	247	645	525	108	0	395	117	0	430
V/C Ratio(X)	0.55	0.79	0.27	0.81	0.52	0.12	0.69	0.00	0.55	0.75	0.00	0.78
Avail Cap(c_a), veh/h	184	589	485	312	723	588	184	0	535	187	0	573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	20.1	17.3	23.9	15.0	12.8	26.3	0.0	19.2	26.2	0.0	20.3
Incr Delay (d2), s/veh	6.2	5.5	0.4	11.5	0.7	0.1	7.6	0.0	1.2	9.2	0.0	4.9
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(95%),veh/ln	1.1	7.9	1.7	5.4	5.1	0.8	2.0	0.0	4.1	2.5	0.0	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	25.6	17.7	35.4	15.6	12.9	34.0	0.0	20.4	35.5	0.0	25.2
LnGrp LOS	C	C	B	D	B	B	C	A	C	D	A	C
Approach Vol, veh/h		511			600			291			423	
Approach Delay, s/veh		24.6			21.9			23.9			27.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	18.4	11.9	19.1	7.5	18.6	6.4	24.6
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	6.9	18.2	10.0	18.0	5.9	18.3	5.9	22.1
Max Q Clear Time (g_c+I1), s	4.3	8.5	8.2	12.5	4.4	12.0	3.3	10.2
Green Ext Time (p_c), s	0.0	0.7	0.1	1.1	0.0	1.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

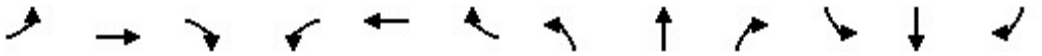
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	28	9	257	496	3
Future Vol, veh/h	10	28	9	257	496	3
Conflicting Peds, #/hr	10	10	10	0	0	10
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	34	11	313	605	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	960	625	619	0	-	0
Stage 1	615	-	-	-	-	-
Stage 2	345	-	-	-	-	-
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	285	485	961	-	-	-
Stage 1	539	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	275	476	952	-	-	-
Mov Cap-2 Maneuver	275	-	-	-	-	-
Stage 1	526	-	-	-	-	-
Stage 2	710	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0.3	0
HCM LOS	C		

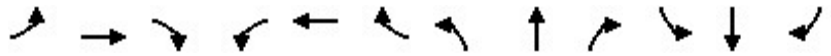
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	952	-	399	-	-
HCM Lane V/C Ratio	0.012	-	0.116	-	-
HCM Control Delay (s)	8.8	0	15.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	272	21	56	186	16	38	152	105	20	91	23
Future Volume (veh/h)	42	272	21	56	186	16	38	152	105	20	91	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.97	1.00		0.94
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	48	309	16	64	211	13	43	173	78	23	103	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	478	387	115	501	406	85	354	290	50	317	253
Arrive On Green	0.05	0.26	0.26	0.06	0.27	0.27	0.05	0.19	0.19	0.03	0.17	0.17
Sat Flow, veh/h	1781	1870	1512	1781	1870	1514	1781	1870	1532	1781	1870	1491
Grp Volume(v), veh/h	48	309	16	64	211	13	43	173	78	23	103	15
Grp Sat Flow(s),veh/h/ln	1781	1870	1512	1781	1870	1514	1781	1870	1532	1781	1870	1491
Q Serve(g_s), s	1.0	5.7	0.3	1.3	3.6	0.2	0.9	3.2	1.7	0.5	1.9	0.3
Cycle Q Clear(g_c), s	1.0	5.7	0.3	1.3	3.6	0.2	0.9	3.2	1.7	0.5	1.9	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	93	478	387	115	501	406	85	354	290	50	317	253
V/C Ratio(X)	0.52	0.65	0.04	0.56	0.42	0.03	0.50	0.49	0.27	0.46	0.32	0.06
Avail Cap(c_a), veh/h	282	977	789	301	996	806	278	952	780	278	952	759
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	17.8	12.8	10.8	17.5	11.6	10.4	17.9	13.9	13.3	18.4	14.0	13.4
Incr Delay (d2), s/veh	4.4	1.5	0.0	4.2	0.6	0.0	4.5	1.0	0.5	6.3	0.6	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(95%),veh/ln	0.8	3.1	0.1	1.0	1.9	0.1	0.7	1.9	0.8	0.4	1.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	14.2	10.8	21.7	12.2	10.4	22.4	15.0	13.8	24.7	14.6	13.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		373			288			294			141	
Approach Delay, s/veh		15.1			14.2			15.8			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	12.2	6.5	14.7	5.8	11.4	6.0	15.2
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	6.0	19.6	6.5	20.1	6.0	19.6	6.1	20.5
Max Q Clear Time (g_c+I1), s	2.5	5.2	3.3	7.7	2.9	3.9	3.0	5.6
Green Ext Time (p_c), s	0.0	0.9	0.0	1.2	0.0	0.4	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	223	73	126	216	60	58	179	99	44	129	25
Future Volume (veh/h)	34	223	73	126	216	60	58	179	99	44	129	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.95
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	37	242	66	137	235	43	63	195	81	48	140	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	395	325	178	505	408	109	291	121	90	347	59
Arrive On Green	0.04	0.21	0.21	0.10	0.27	0.27	0.06	0.24	0.24	0.05	0.22	0.22
Sat Flow, veh/h	1781	1870	1536	1781	1870	1514	1781	1234	513	1781	1542	264
Grp Volume(v), veh/h	37	242	66	137	235	43	63	0	276	48	0	164
Grp Sat Flow(s),veh/h/ln	1781	1870	1536	1781	1870	1514	1781	0	1747	1781	0	1806
Q Serve(g_s), s	0.9	5.2	1.6	3.3	4.6	0.9	1.5	0.0	6.3	1.2	0.0	3.4
Cycle Q Clear(g_c), s	0.9	5.2	1.6	3.3	4.6	0.9	1.5	0.0	6.3	1.2	0.0	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		0.15
Lane Grp Cap(c), veh/h	74	395	325	178	505	408	109	0	411	90	0	406
V/C Ratio(X)	0.50	0.61	0.20	0.77	0.47	0.11	0.58	0.00	0.67	0.53	0.00	0.40
Avail Cap(c_a), veh/h	238	762	626	363	894	723	242	0	760	242	0	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	15.8	14.4	19.4	13.5	12.1	20.2	0.0	15.3	20.5	0.0	14.6
Incr Delay (d2), s/veh	5.2	1.5	0.3	6.9	0.7	0.1	4.8	0.0	1.9	4.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	3.2	0.8	2.5	2.7	0.4	1.2	0.0	3.8	1.0	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	17.3	14.7	26.3	14.1	12.2	25.0	0.0	17.2	25.3	0.0	15.2
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		345			415			339			212	
Approach Delay, s/veh		17.7			18.0			18.7			17.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	15.3	8.4	14.2	6.7	14.8	5.8	16.8
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	6.6	19.2	9.0	18.0	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	3.2	8.3	5.3	7.2	3.5	5.4	2.9	6.6
Green Ext Time (p_c), s	0.0	1.1	0.1	1.0	0.0	0.6	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

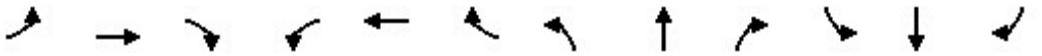
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	23	37	339	308	8
Future Vol, veh/h	5	23	37	339	308	8
Conflicting Peds, #/hr	10	10	10	0	0	10
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	24	39	361	328	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	787	348	347	0	-	0
Stage 1	338	-	-	-	-	-
Stage 2	449	-	-	-	-	-
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	360	695	1212	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	338	682	1200	-	-	-
Mov Cap-2 Maneuver	338	-	-	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	637	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0.8	0
HCM LOS	B		

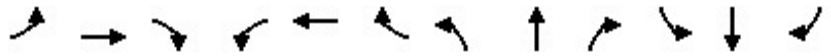
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1200	-	577	-	-
HCM Lane V/C Ratio	0.033	-	0.052	-	-
HCM Control Delay (s)	8.1	0	11.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	299	58	162	278	31	77	169	146	30	269	69
Future Volume (veh/h)	62	299	58	162	278	31	77	169	146	30	269	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.97	1.00		0.95
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	67	325	26	176	302	23	84	184	107	33	292	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	444	358	223	566	460	121	477	393	65	419	337
Arrive On Green	0.06	0.24	0.24	0.13	0.30	0.30	0.07	0.26	0.26	0.04	0.22	0.22
Sat Flow, veh/h	1781	1870	1508	1781	1870	1518	1781	1870	1541	1781	1870	1506
Grp Volume(v), veh/h	67	325	26	176	302	23	84	184	107	33	292	50
Grp Sat Flow(s),veh/h/ln	1781	1870	1508	1781	1870	1518	1781	1870	1541	1781	1870	1506
Q Serve(g_s), s	1.9	8.3	0.7	4.9	6.9	0.6	2.4	4.2	2.9	0.9	7.4	1.4
Cycle Q Clear(g_c), s	1.9	8.3	0.7	4.9	6.9	0.6	2.4	4.2	2.9	0.9	7.4	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	444	358	223	566	460	121	477	393	65	419	337
V/C Ratio(X)	0.63	0.73	0.07	0.79	0.53	0.05	0.69	0.39	0.27	0.51	0.70	0.15
Avail Cap(c_a), veh/h	211	657	530	311	763	619	208	697	575	204	694	559
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	23.6	18.1	15.2	21.9	14.9	12.7	23.5	15.8	15.3	24.4	18.4	16.0
Incr Delay (d2), s/veh	6.0	2.4	0.1	8.7	0.8	0.0	7.0	0.5	0.4	6.0	2.1	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(95%),veh/ln	1.5	5.6	0.4	4.0	4.3	0.3	1.9	2.7	1.5	0.8	5.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	20.5	15.3	30.6	15.7	12.8	30.4	16.4	15.7	30.3	20.5	16.2
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	C	B
Approach Vol, veh/h		418			501			375			375	
Approach Delay, s/veh		21.6			20.8			19.3			20.8	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	18.0	10.5	17.1	7.5	16.4	7.1	20.5
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	5.9	19.2	9.0	18.1	6.0	19.1	6.1	21.0
Max Q Clear Time (g_c+I1), s	2.9	6.2	6.9	10.3	4.4	9.4	3.9	8.9
Green Ext Time (p_c), s	0.0	1.0	0.1	1.0	0.0	1.1	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	360	111	165	335	85	74	114	114	88	272	74
Future Volume (veh/h)	41	360	111	165	335	85	74	114	114	88	272	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.95
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	49	434	115	199	404	80	89	137	102	106	328	76
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	494	407	243	664	541	114	241	179	136	377	87
Arrive On Green	0.05	0.26	0.26	0.14	0.36	0.36	0.06	0.25	0.25	0.08	0.26	0.26
Sat Flow, veh/h	1781	1870	1542	1781	1870	1523	1781	973	725	1781	1454	337
Grp Volume(v), veh/h	49	434	115	199	404	80	89	0	239	106	0	404
Grp Sat Flow(s),veh/h/ln	1781	1870	1542	1781	1870	1523	1781	0	1698	1781	0	1791
Q Serve(g_s), s	1.7	14.3	3.8	7.0	11.5	2.3	3.2	0.0	8.0	3.8	0.0	13.9
Cycle Q Clear(g_c), s	1.7	14.3	3.8	7.0	11.5	2.3	3.2	0.0	8.0	3.8	0.0	13.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		0.19
Lane Grp Cap(c), veh/h	81	494	407	243	664	541	114	0	420	136	0	465
V/C Ratio(X)	0.61	0.88	0.28	0.82	0.61	0.15	0.78	0.00	0.57	0.78	0.00	0.87
Avail Cap(c_a), veh/h	163	522	430	276	664	541	163	0	479	166	0	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	22.8	18.9	27.1	17.1	14.2	29.7	0.0	21.3	29.3	0.0	22.8
Incr Delay (d2), s/veh	7.2	15.2	0.4	15.8	1.6	0.1	14.1	0.0	1.2	17.5	0.0	14.1
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(95%),veh/ln	1.5	11.9	2.2	6.6	7.7	1.2	3.0	0.0	5.2	3.9	0.0	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	38.0	19.3	42.8	18.7	14.3	43.8	0.0	22.5	46.8	0.0	37.0
LnGrp LOS	D	D	B	D	B	B	D	A	C	D	A	D
Approach Vol, veh/h		598			683			328			510	
Approach Delay, s/veh		34.3			25.2			28.3			39.0	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	20.9	12.8	21.9	8.1	21.6	6.9	27.8
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	6.9	18.2	10.0	18.0	5.9	18.3	5.9	22.1
Max Q Clear Time (g_c+I1), s	5.8	10.0	9.0	16.3	5.2	15.9	3.7	13.5
Green Ext Time (p_c), s	0.0	0.7	0.1	0.5	0.0	0.6	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	31.6
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	28	9	288	551	3
Future Vol, veh/h	10	28	9	288	551	3
Conflicting Peds, #/hr	10	10	10	0	0	10
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	34	11	351	672	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1065	692	686	0	-	0
Stage 1	682	-	-	-	-	-
Stage 2	383	-	-	-	-	-
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	246	444	908	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	436	899	-	-	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	899	-	357	-	-
HCM Lane V/C Ratio	0.012	-	0.13	-	-
HCM Control Delay (s)	9.1	0	16.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

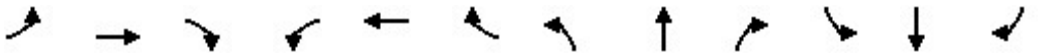
Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	49	155	34	17	229
Future Vol, veh/h	76	49	155	34	17	229
Conflicting Peds, #/hr	10	10	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	53	168	37	18	249

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	492	207	0	0	215	0
Stage 1	197	-	-	-	-	-
Stage 2	295	-	-	-	-	-
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	536	833	-	-	1355	-
Stage 1	836	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	518	817	-	-	1342	-
Mov Cap-2 Maneuver	518	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0.5
HCM LOS	B		

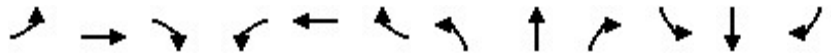
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	518	817	1342	-
HCM Lane V/C Ratio	-	-	0.159	0.065	0.014	-
HCM Control Delay (s)	-	-	13.3	9.7	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	299	21	61	204	22	38	213	114	27	155	32
Future Volume (veh/h)	59	299	21	61	204	22	38	213	114	27	155	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.97	1.00		0.95
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	67	340	16	69	232	20	43	242	89	31	176	25
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	491	397	117	493	399	83	406	334	64	386	310
Arrive On Green	0.06	0.26	0.26	0.07	0.26	0.26	0.05	0.22	0.22	0.04	0.21	0.21
Sat Flow, veh/h	1781	1870	1513	1781	1870	1513	1781	1870	1537	1781	1870	1502
Grp Volume(v), veh/h	67	340	16	69	232	20	43	242	89	31	176	25
Grp Sat Flow(s),veh/h/ln	1781	1870	1513	1781	1870	1513	1781	1870	1537	1781	1870	1502
Q Serve(g_s), s	1.6	7.0	0.3	1.6	4.4	0.4	1.0	4.9	2.0	0.7	3.5	0.6
Cycle Q Clear(g_c), s	1.6	7.0	0.3	1.6	4.4	0.4	1.0	4.9	2.0	0.7	3.5	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	491	397	117	493	399	83	406	334	64	386	310
V/C Ratio(X)	0.58	0.69	0.04	0.59	0.47	0.05	0.52	0.60	0.27	0.48	0.46	0.08
Avail Cap(c_a), veh/h	256	884	715	272	902	730	251	862	708	251	862	692
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	19.3	14.1	11.7	19.3	13.2	11.7	19.8	15.0	13.8	20.1	14.8	13.6
Incr Delay (d2), s/veh	4.7	1.8	0.0	4.7	0.7	0.1	4.9	1.4	0.4	5.5	0.8	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(95%),veh/ln	1.2	4.1	0.2	1.2	2.5	0.2	0.8	3.0	1.0	0.6	2.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	15.9	11.7	24.0	13.8	11.7	24.6	16.4	14.3	25.6	15.6	13.7
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		423			321			374			232	
Approach Delay, s/veh		17.0			15.9			16.8			16.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	14.1	6.8	16.1	6.0	13.7	6.7	16.1
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	19.6	6.5	20.1	6.0	19.6	6.1	20.5
Max Q Clear Time (g_c+I1), s	2.7	6.9	3.6	9.0	3.0	5.5	3.6	6.4
Green Ext Time (p_c), s	0.0	1.2	0.0	1.3	0.0	0.7	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	265	80	126	256	72	70	215	99	53	154	30
Future Volume (veh/h)	40	265	80	126	256	72	70	215	99	53	154	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.95
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	43	288	74	137	278	56	76	234	81	58	167	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	425	349	177	526	426	118	324	112	100	363	65
Arrive On Green	0.05	0.23	0.23	0.10	0.28	0.28	0.07	0.25	0.25	0.06	0.24	0.24
Sat Flow, veh/h	1781	1870	1538	1781	1870	1515	1781	1309	453	1781	1530	275
Grp Volume(v), veh/h	43	288	74	137	278	56	76	0	315	58	0	197
Grp Sat Flow(s),veh/h/ln	1781	1870	1538	1781	1870	1515	1781	0	1762	1781	0	1804
Q Serve(g_s), s	1.1	6.8	1.9	3.6	6.0	1.3	2.0	0.0	7.9	1.5	0.0	4.5
Cycle Q Clear(g_c), s	1.1	6.8	1.9	3.6	6.0	1.3	2.0	0.0	7.9	1.5	0.0	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		0.15
Lane Grp Cap(c), veh/h	81	425	349	177	526	426	118	0	436	100	0	428
V/C Ratio(X)	0.53	0.68	0.21	0.77	0.53	0.13	0.64	0.00	0.72	0.58	0.00	0.46
Avail Cap(c_a), veh/h	218	700	575	333	820	665	222	0	703	222	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	17.0	15.1	21.1	14.6	12.9	21.9	0.0	16.6	22.2	0.0	15.7
Incr Delay (d2), s/veh	5.3	1.9	0.3	7.0	0.8	0.1	5.7	0.0	2.3	5.3	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	4.4	1.0	2.8	3.6	0.6	1.6	0.0	5.0	1.3	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	18.9	15.4	28.1	15.4	13.0	27.7	0.0	18.9	27.4	0.0	16.5
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		405			471			391			255	
Approach Delay, s/veh		19.2			18.8			20.6			19.0	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	16.8	8.8	15.8	7.2	16.3	6.2	18.4
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	6.6	19.2	9.0	18.0	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	3.5	9.9	5.6	8.8	4.0	6.5	3.1	8.0
Green Ext Time (p_c), s	0.0	1.1	0.1	1.1	0.0	0.8	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	23	37	386	341	8
Future Vol, veh/h	5	23	37	386	341	8
Conflicting Peds, #/hr	10	10	10	0	0	10
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	24	39	411	363	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	872	383	382	0	-	0
Stage 1	373	-	-	-	-	-
Stage 2	499	-	-	-	-	-
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	321	664	1176	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	301	651	1165	-	-	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	604	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1165	-	539	-	-
HCM Lane V/C Ratio	0.034	-	0.055	-	-
HCM Control Delay (s)	8.2	0	12.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

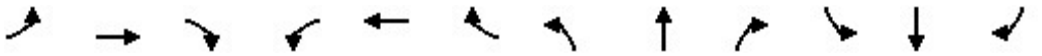
Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	34	183	85	43	149
Future Vol, veh/h	67	34	183	85	43	149
Conflicting Peds, #/hr	10	10	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	37	199	92	47	162

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	521	265	0	0	301	0
Stage 1	255	-	-	-	-	-
Stage 2	266	-	-	-	-	-
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	516	774	-	-	1260	-
Stage 1	788	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	487	759	-	-	1248	-
Mov Cap-2 Maneuver	487	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	1.8
HCM LOS	B		

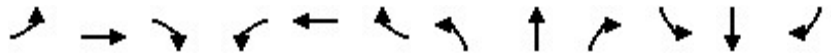
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	487	759	1248	-
HCM Lane V/C Ratio	-	-	0.15	0.049	0.037	-
HCM Control Delay (s)	-	-	13.7	10	8	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	335	71	180	311	32	95	179	163	31	273	72
Future Volume (veh/h)	63	335	71	180	311	32	95	179	163	31	273	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.97	1.00		0.95
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	68	364	40	196	338	24	103	195	125	34	297	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	465	376	244	612	497	132	482	397	65	412	332
Arrive On Green	0.06	0.25	0.25	0.14	0.33	0.33	0.07	0.26	0.26	0.04	0.22	0.22
Sat Flow, veh/h	1781	1870	1511	1781	1870	1521	1781	1870	1541	1781	1870	1505
Grp Volume(v), veh/h	68	364	40	196	338	24	103	195	125	34	297	53
Grp Sat Flow(s),veh/h/ln	1781	1870	1511	1781	1870	1521	1781	1870	1541	1781	1870	1505
Q Serve(g_s), s	2.1	10.1	1.1	5.9	8.3	0.6	3.2	4.8	3.6	1.0	8.2	1.6
Cycle Q Clear(g_c), s	2.1	10.1	1.1	5.9	8.3	0.6	3.2	4.8	3.6	1.0	8.2	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	465	376	244	612	497	132	482	397	65	412	332
V/C Ratio(X)	0.65	0.78	0.11	0.80	0.55	0.05	0.78	0.40	0.31	0.52	0.72	0.16
Avail Cap(c_a), veh/h	195	609	492	288	706	574	192	646	532	189	642	517
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	25.6	19.5	16.1	23.3	15.4	12.8	25.3	17.1	16.7	26.3	20.1	17.5
Incr Delay (d2), s/veh	6.7	4.9	0.1	13.2	0.8	0.0	11.8	0.5	0.4	6.2	2.4	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(95%),veh/ln	1.7	7.5	0.6	5.4	5.1	0.3	2.8	3.1	2.0	0.9	5.7	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	24.4	16.2	36.5	16.2	12.8	37.1	17.7	17.1	32.6	22.5	17.7
LnGrp LOS	C	C	B	D	B	B	D	B	B	C	C	B
Approach Vol, veh/h		472			558			423			384	
Approach Delay, s/veh		24.8			23.2			22.2			22.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	19.2	11.6	18.7	8.1	17.2	7.3	23.1
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	19.2	9.0	18.1	6.0	19.1	6.1	21.0
Max Q Clear Time (g_c+I1), s	3.0	6.8	7.9	12.1	5.2	10.2	4.1	10.3
Green Ext Time (p_c), s	0.0	1.0	0.1	1.0	0.0	1.1	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	370	124	202	344	87	76	117	138	90	280	92
Future Volume (veh/h)	42	370	124	202	344	87	76	117	138	90	280	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.96
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	51	446	130	243	414	83	92	141	131	108	337	98
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	495	408	283	710	579	118	228	212	138	376	109
Arrive On Green	0.04	0.26	0.26	0.16	0.38	0.38	0.07	0.26	0.26	0.08	0.27	0.27
Sat Flow, veh/h	1781	1870	1542	1781	1870	1525	1781	870	809	1781	1376	400
Grp Volume(v), veh/h	51	446	130	243	414	83	92	0	272	108	0	435
Grp Sat Flow(s),veh/h/ln	1781	1870	1542	1781	1870	1525	1781	0	1679	1781	0	1776
Q Serve(g_s), s	2.1	17.3	5.1	10.0	13.2	2.7	3.8	0.0	10.7	4.5	0.0	17.7
Cycle Q Clear(g_c), s	2.1	17.3	5.1	10.0	13.2	2.7	3.8	0.0	10.7	4.5	0.0	17.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.23
Lane Grp Cap(c), veh/h	78	495	408	283	710	579	118	0	440	138	0	486
V/C Ratio(X)	0.66	0.90	0.32	0.86	0.58	0.14	0.78	0.00	0.62	0.78	0.00	0.90
Avail Cap(c_a), veh/h	142	526	434	287	710	579	142	0	479	180	0	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.3	26.7	22.2	30.8	18.5	15.3	34.5	0.0	24.4	34.0	0.0	26.2
Incr Delay (d2), s/veh	9.0	18.0	0.4	22.0	1.2	0.1	20.1	0.0	2.1	15.1	0.0	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	14.2	3.0	9.5	8.8	1.5	4.0	0.0	7.4	4.4	0.0	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	44.7	22.6	52.7	19.8	15.4	54.6	0.0	26.5	49.1	0.0	42.4
LnGrp LOS	D	D	C	D	B	B	D	A	C	D	A	D
Approach Vol, veh/h		627			740			364			543	
Approach Delay, s/veh		40.1			30.1			33.6			43.7	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	24.6	15.9	24.7	9.0	25.4	7.3	33.4
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	7.6	21.4	12.1	21.1	6.0	23.0	6.0	27.2
Max Q Clear Time (g_c+I1), s	6.5	12.7	12.0	19.3	5.8	19.7	4.1	15.2
Green Ext Time (p_c), s	0.0	0.9	0.0	0.6	0.0	0.8	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	29	9	316	608	3
Future Vol, veh/h	11	29	9	316	608	3
Conflicting Peds, #/hr	10	10	10	0	0	10
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	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	35	11	385	741	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1168	761	755	0	-	0
Stage 1	751	-	-	-	-	-
Stage 2	417	-	-	-	-	-
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	214	405	855	-	-	-
Stage 1	466	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	206	397	847	-	-	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	847	-	316	-	-
HCM Lane V/C Ratio	0.013	-	0.154	-	-
HCM Control Delay (s)	9.3	0	18.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

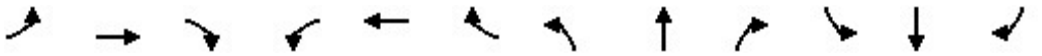
Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	49	181	34	17	259
Future Vol, veh/h	76	49	181	34	17	259
Conflicting Peds, #/hr	10	10	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	53	197	37	18	282

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	554	236	0	0	244	0
Stage 1	226	-	-	-	-	-
Stage 2	328	-	-	-	-	-
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	493	803	-	-	1322	-
Stage 1	812	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	476	788	-	-	1309	-
Mov Cap-2 Maneuver	476	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.5
HCM LOS	B		

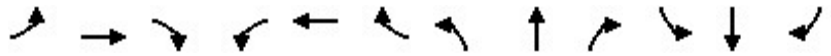
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	476	788	1309	-
HCM Lane V/C Ratio	-	-	0.174	0.068	0.014	-
HCM Control Delay (s)	-	-	14.1	9.9	7.8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	334	27	67	229	23	48	274	127	33	158	39
Future Volume (veh/h)	78	334	27	67	229	23	48	274	127	33	158	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.97	1.00		0.95
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	89	380	23	76	260	21	55	311	103	38	180	33
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	510	413	119	499	403	97	454	374	74	430	346
Arrive On Green	0.07	0.27	0.27	0.07	0.27	0.27	0.05	0.24	0.24	0.04	0.23	0.23
Sat Flow, veh/h	1781	1870	1514	1781	1870	1513	1781	1870	1540	1781	1870	1507
Grp Volume(v), veh/h	89	380	23	76	260	21	55	311	103	38	180	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1514	1781	1870	1513	1781	1870	1540	1781	1870	1507
Q Serve(g_s), s	2.3	8.8	0.5	2.0	5.6	0.5	1.4	7.1	2.6	1.0	3.9	0.8
Cycle Q Clear(g_c), s	2.3	8.8	0.5	2.0	5.6	0.5	1.4	7.1	2.6	1.0	3.9	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	130	510	413	119	499	403	97	454	374	74	430	346
V/C Ratio(X)	0.69	0.75	0.06	0.64	0.52	0.05	0.57	0.69	0.28	0.51	0.42	0.10
Avail Cap(c_a), veh/h	230	795	643	245	811	656	226	775	638	226	775	624
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	21.4	15.7	12.7	21.5	14.8	12.9	21.8	16.3	14.5	22.2	15.5	14.3
Incr Delay (d2), s/veh	6.3	2.2	0.1	5.6	0.8	0.1	5.1	1.8	0.4	5.4	0.6	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(95%),veh/ln	1.8	5.5	0.3	1.5	3.4	0.2	1.1	4.6	1.3	0.8	2.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	17.9	12.8	27.1	15.6	13.0	27.0	18.1	14.9	27.6	16.2	14.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		492			357			469			251	
Approach Delay, s/veh		19.4			17.9			18.4			17.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	16.4	7.2	17.8	6.6	15.8	7.4	17.5
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	19.6	6.5	20.1	6.0	19.6	6.1	20.5
Max Q Clear Time (g_c+I1), s	3.0	9.1	4.0	10.8	3.4	5.9	4.3	7.6
Green Ext Time (p_c), s	0.0	1.4	0.0	1.4	0.0	0.7	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	272	110	151	262	74	88	230	121	54	158	43
Future Volume (veh/h)	65	272	110	151	262	74	88	230	121	54	158	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.95
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	71	296	107	164	285	58	96	250	105	59	172	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	422	347	209	526	427	128	322	135	98	347	89
Arrive On Green	0.06	0.23	0.23	0.12	0.28	0.28	0.07	0.26	0.26	0.06	0.24	0.24
Sat Flow, veh/h	1781	1870	1538	1781	1870	1516	1781	1231	517	1781	1420	363
Grp Volume(v), veh/h	71	296	107	164	285	58	96	0	355	59	0	216
Grp Sat Flow(s),veh/h/ln	1781	1870	1538	1781	1870	1516	1781	0	1748	1781	0	1784
Q Serve(g_s), s	2.0	7.6	3.0	4.7	6.8	1.5	2.8	0.0	9.8	1.7	0.0	5.4
Cycle Q Clear(g_c), s	2.0	7.6	3.0	4.7	6.8	1.5	2.8	0.0	9.8	1.7	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.20
Lane Grp Cap(c), veh/h	110	422	347	209	526	427	128	0	457	98	0	436
V/C Ratio(X)	0.65	0.70	0.31	0.78	0.54	0.14	0.75	0.00	0.78	0.60	0.00	0.50
Avail Cap(c_a), veh/h	201	644	530	307	755	612	204	0	642	204	0	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.0	18.6	16.8	22.4	15.9	14.0	23.8	0.0	17.9	24.1	0.0	17.0
Incr Delay (d2), s/veh	6.3	2.1	0.5	7.8	0.9	0.1	8.4	0.0	3.9	5.8	0.0	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(95%),veh/ln	1.7	5.2	1.6	3.8	4.2	0.7	2.4	0.0	6.7	1.4	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	20.8	17.3	30.2	16.8	14.2	32.2	0.0	21.8	29.9	0.0	17.8
LnGrp LOS	C	C	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		474			507			451			275	
Approach Delay, s/veh		21.4			20.8			24.0			20.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	18.6	10.1	16.7	7.8	17.7	7.2	19.6
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	6.9	19.2	9.0	18.0	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	3.7	11.8	6.7	9.6	4.8	7.4	4.0	8.8
Green Ext Time (p_c), s	0.0	1.1	0.1	1.2	0.0	0.9	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	25	40	414	377	8
Future Vol, veh/h	5	25	40	414	377	8
Conflicting Peds, #/hr	10	10	10	0	0	10
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	27	43	440	401	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	947	421	420	0	-	0
Stage 1	411	-	-	-	-	-
Stage 2	536	-	-	-	-	-
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	290	632	1139	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	270	620	1128	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1128	-	510	-	-
HCM Lane V/C Ratio	0.038	-	0.063	-	-
HCM Control Delay (s)	8.3	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	34	216	96	43	156
Future Vol, veh/h	67	34	216	96	43	156
Conflicting Peds, #/hr	10	10	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	37	235	104	47	170

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	571	307	0	0	349	0
Stage 1	297	-	-	-	-	-
Stage 2	274	-	-	-	-	-
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	482	733	-	-	1210	-
Stage 1	754	-	-	-	-	-
Stage 2	772	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	454	719	-	-	1198	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	454	719	1198	-
HCM Lane V/C Ratio	-	-	0.16	0.051	0.039	-
HCM Control Delay (s)	-	-	14.4	10.3	8.1	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	0.1	-

Appendix C: Pre-consultation Letters

Letters can be provided by the City of Hanford upon request. Contact the Community Development Department at (559) 585-2580 or 317 N Douty Street, Hanford, CA 93230.