INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

CITY OF LEMOORE

TRACT 935

FEBRUARY 2022

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

TRACT 935 PROJECT

Prepared for:

City of Lemoore
711 W. Cinnamon Drive
Lemoore, CA 93245
Contact Person: Nathan Olson, City Manager
Phone: (559) 924-6744

Consultant:

5080 California Avenue, Suite 220
Bakersfield, CA 93309
Contact: Jaymie Brauer
Phone: (661) 616-2600

February 2022

Project #210447

NOTICE OF PUBLIC HEARING AND INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

This is to advise that the City of Lemoore has prepared a Mitigated Negative Declaration for the project identified below that is scheduled to be considered at the Lemoore Planning Commission regular meeting on **Monday, March 14, 2022.**

PLEASE BE ADVISED that the City Council will consider adopting the Mitigated Negative Declaration at a future meeting held after the Planning Commission meeting. That date is uncertain at this time and will be noticed in the future.

All upcoming regular and special Planning Commission and City Council meetings will also be accessible online at www.youtube.com/c/cityoflemoore.

Persons having comments or concerns about the proposed project are encouraged to attend or submit public comments by e-mail to: planning@lemoore.com. Emailed comments must be received by 4:30 p.m. the day of the hearing to be entered into record. In the subject line of the e-mail, please state your name and the item you are commenting on. Persons unable to email comments may send them via USPS mail or other courier to City of Lemoore, Attn: City Clerk, 711 W. Cinnamon Drive, Lemoore CA 93245. Mailed comments must be received by 4:30 p.m. the day of the hearing to be entered into record.

Project Name

Tract 935 Project

Project Location

The project site is located at 18 ¾ Avenue (Liberty Drive) and West Glendale Avenue in the City of Lemoore, Kings County, CA. The project site is on Assessor's Parcel Numbers (APN) 021-550-001 through -005 within Section 34, Township 18S, Range 20E, Mount Diablo Base and Meridian (MDB&M).

Project Description

The applicant, Lennar Homes, Central Valley Division, proposes the construction of 148 single-family residences, internal roads and a drainage retention basin on an approximately 30-acre site (APNs 021-550-001 through -003) (project). Access to the proposed subdivision will be from Liberty Drive and West Glendale Avenue. In order for the project to be constructed, approval of the following actions are required:

- Annexation into the City of Lemoore from unincorporated Kings County
- Detachment from the Kings River Conservation District and the Excelsior Kings River Resource Conservation District
- Prezoning – Low Density Residential
- Tentative Tract Map 935

- Planned Unit Development (PUD)
- Major Site Plan Review

There will be 7 phases with approximately 20 units constructed per phase. Construction will take 24 months with total buildout of the homes in November 2025.

As part of the project, the applicant also proposes to annex an additional 10.1 acres (APNs 021-550-004 and 021-550-005) and the adjacent right of way of Avenue 18 ¾ to the City of Lemoore's jurisdiction. No new development is planned for these parcels at this time. The Project analyzed in the IS/MND does not include these two APNs, except for the annexation. Future proposed development on these parcels may require additional environmental review.

It is anticipated that the following pieces of equipment would be used during construction activities:

- Roller;
- Large bulldozer;
- Loaded trucks;
- Excavator;
- Generator;
- Service truck; and
- Air compressor.

As mandated by the California Environmental Quality Act (CEQA), the public review period for this document was 20 days (CEQA Section 15073[a]). The public review period began on February 18, 2022, and ended on March 10, 2022. For further information, please contact Jaymie Brauer at 661-616-2600 or jaymie.brauer@qkinc.com.

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MITIGATED NEGATIVE DECLARATION

As Lead Agency under the California Environmental Quality Act (CEQA), the City of Lemoore reviewed the project described below to determine whether it could have a significant effect on the environment because of its development. In accordance with CEQA Guidelines Section 15382, "[s]ignificant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Project Name

Tract 935 Project

Project Location

The project site is located at Liberty Avenue and West Glendale Avenue in the City of Lemoore, Kings County, CA. The project site is on Assessor's Parcel Numbers 021-550-001 through -003 within Section 34, Township 18S, Range 20E, Mount Diablo Base and Meridian (MDB&M).

Project Description

The applicant, Lennar Homes, proposes the construction of 148 single-family residences, internal roads and a drainage basin on an approximately 30-acre site (project). Access to the proposed subdivision will be from Avenue 18 ¾ (Liberty Drive) and West Glendale Avenue.

There will be 7 phases with approximately 20 units constructed per phase. Construction will take 24 months with total expected buildout of the homes in November 2025.

It is anticipated that the following pieces of equipment would be used during construction activities:

- Roller;
- Large bulldozer;
- Loaded trucks;
- Excavator;
- Generator;
- Service truck; and
- Air compressor.

Entitlements

In order for the Project to be constructed, approval of the following actions is required:

- Annexation into the City of Lemoore from unincorporated Kings County
- Detachment from the Kings River Conservation District and the Excelsior Kings River Resource Conservation District
- Prezoning – Low Density Residential
- Tentative Tract Map 935
- Planned Unit Development (PUD)

The applicant also proposes to annex APN 021-550-004 and 021-550-005 to the City's jurisdiction, however, no development is planned for these parcels at this time. The Project analyzed in the IS/MND does not include these two APNs. Future proposed development on these parcels may require additional environmental review.

Mailing Address and Phone Number of Contact Person

Nathan Olson, City Manager
Phone: (559) 924-6744
711 W. Cinnamon Drive
Lemoore, CA

Findings

As Lead Agency, the City finds that the project will not have a significant effect on the environment. The Initial Study (IS) (see *Section 3 - Environmental Checklist*) identified one or more potentially significant effects on the environment, but revisions to the project have been made before the release of this Mitigated Negative Declaration (MND) or mitigation measures would be implemented that reduce all potentially significant impacts to less-than-significant levels. The City further finds that there is no substantial evidence that this project would have a significant effect on the environment.

Mitigation Measures Included in the Project to Avoid Potentially Significant Effects

MITIGATION MEASURE(S)

MM BIO-1: Prior to ground disturbing activities, a qualified wildlife biologist shall conduct a biological clearance survey between 14 and 30 days prior to the onset of construction.

The clearance survey shall include walking transects to identify presence of San Joaquin kit fox (SJKF), Swainson's hawk, and burrowing owl and any other special-status species and their sign. The pre-construction survey shall be walked by no greater than 30-foot transects for 100 percent coverage of the project and a 250-foot buffer, where feasible. If no evidence of special-status species is detected, no further action is required except measures BIO-4 through BIO-6 and BIO-8 shall be implemented. A preconstruction clearance survey report shall be submitted to the City as evidence of compliance prior to the issuance of permits.

MM BIO-2: The following avoidance and minimization measures shall be implemented during all phases of the project to reduce the potential for impact from the project. They are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered SJKF Prior to or During Ground Disturbance* (USFWS 2011, Appendix F).

a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or project site.
b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds shall not exceed 20 miles per hour (mph) within the project site.
c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.
d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
e. No pets, such as dogs or cats, shall be permitted on the project sites to prevent harassment, mortality of kit foxes, or destruction of dens.
f. Use of anti-coagulant rodenticides and herbicides in project sites shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the

depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.

g. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.

h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a SJKF during project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.

i. All sightings of the SJKF shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.

j. Any project-related information required by the USFWS or questions concerning the above conditions, or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone: (916) 414-6620 or (916) 414-6600.

k. New sightings of SJKF should be reported to the CNDDB.

MM BIO-3: Within 14 days prior to the start of project ground-disturbing activities, a pre-activity survey with a 500-foot buffer shall be conducted by a qualified biologist knowledgeable in the identification of these species and approved by the CDFW. If dens/burrows that could support any of these species are discovered during the pre-activity survey conducted under MM BIO-1, the avoidance buffers outlined below shall be established. No work would occur within these buffers unless the biologist approves and monitors the activity.

San Joaquin Kit Fox

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal or pupping den – 500 feet, unless otherwise specified by CDFW

MM BIO-4: If all project activities are completed outside of the Swainson's hawk nesting season (February 15 through August 31), this mitigation measure does not apply.

Nesting surveys for the Swainson's hawks shall be conducted in accordance with the protocol outlined in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFG 2000). If potential Swainson's hawk nests or nesting substrates are located within 0.5 miles of the project site, then those nests or substrates must be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson's hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site: one visit during January 1–March 20 to identify potential nest sites, three visits during March 20–April 5, three visits during April 5–April 20, and three visits during June 10–July 30. A fewer number of visits may be permissible if deemed adequate by the City after consultation with a qualified biologist. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to project-related ground disturbance activities. If Swainson's hawks are not found to nest within the survey area, then no further action is warranted.

MM BIO-5: If an active Swainson's hawk nest is discovered at any time within 0.5 mile of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment will consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this project. Based on this assessment, the biologist shall determine if construction activities can proceed and the level of nest monitoring required. Construction activities shall not occur within 500 feet of an active nest but depending upon conditions at the site this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist shall have the authority to stop work if it is determined that project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nest location, the sensitivity of the nesting Swainson's hawk to disturbances, and at the discretion of the qualified biologist.

MM BIO-6: If construction is planned outside the nesting period for raptors (other than burrowing owl) and migratory birds (February 15 to August 31), no mitigation shall be required. If construction is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet. Avoidance buffers may be reduced if a qualified on-site monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any time during the nesting season, nesting bird surveys shall be repeated every 30 days as construction activities are occurring throughout the nesting season.

No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid project construction areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and may be removed, and monitoring may cease.

MM BIO-7: A qualified biologist shall conduct a pre-construction survey on the project site and within 500 feet of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone shall be maintained unless a qualified biologist verifies through noninvasive methods that either the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

In addition, impacts to occupied burrowing owl burrows shall be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

MM BIO-8: Prior to ground disturbance activities, or within one week of being deployed at the project site for newly hired workers, all construction workers at the project site shall attend a Construction Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist.

The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life histories of special-status wildlife and plant species that may be encountered during construction activities, their legal protections, the definition of “take” under the Endangered Species Act, measures the project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the project site shall also be provided to construction personnel. The program shall include:

- An acknowledgement form signed by each worker indicating that environmental training has been completed.
- A copy of the training transcript and/or training video/CD, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain on site for the duration of construction activities.

A copy of the sign-in sheet and training transcript shall be submitted to the City as evidence of compliance

MM CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed project would not cause a substantial adverse change in the significance of a historical resource.

MM CUL-2: Prior to the issuance of grading permits, the developer shall enter into an agreement with the Santa Rosa Rancheria Tachi Yokut tribe. If requested, the developer shall:

a) Retain a qualified Native American monitor to be on site during initial ground disturbance activities.

b) Have a Burial Treatment Plan developed for the project.

c) Retain a qualified tribal member to conduct a Cultural Resources Sensitivity training session with the construction crew prior to ground disturbance activities.

Evidence of the agreement with the Santa Rosa Rancheria Tachi Yokut tribe shall be submitted to the lead agency as evidence of compliance.

MM CUL-3: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the county coroner.

MM GEO-1: Prior to issuing of grading or building permits, the project applicant shall submit to the City: (1) the approved Storm Water Pollution Prevention Plan (SWPPP) and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended Best Management Practices for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Protecting existing storm drain inlets and stabilizing disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

Evidence of the approved SWPPP shall be submitted to the Lead Agency.

MM GEO-2: If any paleontological resources are encountered during ground disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

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

MM NSE-1: During construction, the contractor shall implement the following measures:

a. All stationary construction equipment on the Project site shall be located so that noise emitting objects or equipment faces away from any potential sensitive receptors.
b. The construction contractor shall ensure that all construction equipment is equipped with manufacturer-approved mufflers and baffles. During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.
c. Construction activities shall take place during daylight hours, when feasible.

MM TRA-1: Prior to the issuance of building permits, the developer shall pay it's pro rata share for signalization of the following intersections:

- 19th Avenue and Hanford-Armona Road
- Liberty Drive & Hanford-Armona Road

SECTION 1 - INTRODUCTION

1.1 - Overview

The project proposes to develop single family residential subdivision with the associated road and utility improvements on an existing parcel currently used for agricultural purposes. This will include 148 single-family residences, roads and a drainage basin. The actions required for the project are an annexation, prezoning, a tentative tract map, a PUD, and a major site plan review. The project will also include an annexation of the 3 parcels the subdivision is proposed on, as well as the two parcels directly south with no development proposed on these parcels at this time (project). The area totals approximately 30-acres and consists of all construction, staging, and lay-down areas for this project. Access to the proposed subdivision will be from Avenue 18 ¾ (Liberty Drive) and West Glendale Avenue. There will be 7 phases with approximately 20 units constructed per phase. Construction will take 24 months with total buildout of the homes in November of 2025.

1.2 - CEQA Requirements

The City of Lemoore is the Lead Agency for this project pursuant to the CEQA Guidelines (Public Resources Code Section 15000 et seq.). The Environmental Checklist (CEQA Guidelines Appendix G) or Initial Study (IS) (see *Section 3 – Initial Study*) provides analysis that examines the potential environmental effects of the construction and operation of the project. Section 15063 of the CEQA Guidelines requires the Lead Agency to prepare an IS to determine whether a discretionary project will have a significant effect on the environment. A Mitigated Negative Declaration (MND) is appropriate when an IS has been prepared and a determination can be made that no significant environmental effects will occur because revisions to the project have been made or mitigation measures will be implemented that reduce all potentially significant impacts to less-than-significant levels. The content of an MND is the same as a Negative Declaration, with the addition of identified mitigation measures and a Mitigation Monitoring and Reporting Program (MMRP) (see Section 6 – *Mitigation Monitoring and Reporting Program*).

Based on the IS, the Lead Agency has determined that the environmental review for the proposed application can be completed with an MND.

1.3 - Impact Terminology

The following terminology is used to describe the level of significance of project environmental impacts.

- A finding of “no impact” is appropriate if the analysis concludes that the project would not affect a topic area in any way.
- An impact is considered “less than significant” if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.

- An impact is considered "less than significant with mitigation incorporated" if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments that have been agreed to by the proponent.
- An impact is considered "potentially significant" if the analysis concludes that it could have a substantial adverse effect on the environment.

1.4 - Document Organization and Contents

The content and format of this IS/MND is designed to meet the requirements of CEQA. The report contains the following sections:

- *Section 1 – Introduction:* This section provides an overview of CEQA requirements, intended uses of the IS/MND, document organization, and a list of regulations that have been incorporated by reference.
- *Section 2– Project Description:* This section describes the project and provides data on the site's location.
- *Section 3 – Environmental Checklist:* This section contains the evaluation of 21 different environmental resource factors contained in Appendix G of the CEQA Guidelines. Each environmental resource factor is analyzed to determine whether the proposed project would have an impact. One of four findings is made which include: no impact, less-than-significant impact, less than significant with mitigation, or significant and unavoidable. If the evaluation results in a finding of significant and unavoidable for any of the 21 environmental resource factors, then an Environmental Impact Report will be required.
- *Section 4 – References:* This section contains a full list of references that were used in the preparation of this IS/MND.
- *Section 5- Preparers*
- *Section 6- Mitigation Monitoring and Reporting Program* (RESERVED)

1.5 - Incorporated by Reference

The following documents and/or regulations are incorporated into this IS/MND by reference:

- City of Lemoore General Plan
- City of Lemoore Municipal Code
- City of Lemoore Development Standards
- City of Lemoore 2015 Urban Water Management Plan
- City of Lemoore Master Storm Drain Plan
- 2015 Kings County Emergency Operations Plan
- Kings County General Plan
- Title 24 Building Code

SECTION 2 - PROJECT DESCRIPTION

2.1 - Introduction

2.2 - Project Location

The project site is located at Liberty Avenue and West Glendale Avenue in the City of Lemoore, Kings County, CA. The project site includes APN 021-550-001 through -003 within Section 34, Township 18S, Range 20E, Mount Diablo Base and Meridian (MDB&M). The regional location is depicted on Figure 2-1 and the project site location is depicted on Figure 2-2.

2.3 - Surrounding Land Uses

The project is currently not within City limits and would therefore require an annexation and will be pre-zoned as Low Density Residential. The site is shown in the Lemoore General Plan within the Planning Area and within Urban Growth Boundary and designates the project site as Low Density Residential. The project site has a current land use designation and zone district Limited Agriculture (AL-10) by Kings County.

The surrounding area is primarily used for agricultural purposes with residential development to the east and south of the project site.

2.4 - Project Environment

The project site is currently undeveloped and vacant. Fire service would be served by the Lemoore Fire Department located at 210 Fox Street in Lemoore. Police service would be served by the City of Lemoore Police Department located at 657 Fox Street in Lemoore. Sanitation/garbage collection will be provided by a local waste hauler. Water and sewer service will be provided by City of Lemoore.

2.5 - Proposed Project

The applicant proposes the construction of 148 single-family residences, roads, utility improvements and a drainage retention basin on approximately 30 acres of undeveloped land (project). All construction activities, equipment staging, and lay-down areas for this project will be located within the project boundaries. Access to the proposed subdivision will be from Liberty Drive and West Glendale Avenue. There will be 7 phases with approximately 20 units constructed per phase. Construction will take 24 months with total buildout of the homes in November 2025. It is anticipated that the following pieces of equipment would be used during construction activities:

- Roller
- Large bulldozer
- Loaded trucks
- Excavator
- Generator
- Service truck
- Air compressor

The applicant also requested the annexation of the two parcels directly south (APNs 021-550-004 and 021-550-005), however, no development is planned for these parcels at this time. The Project analyzed in the IS/MND does not include these two APNs. Future proposed development on these parcels may require additional environmental review.

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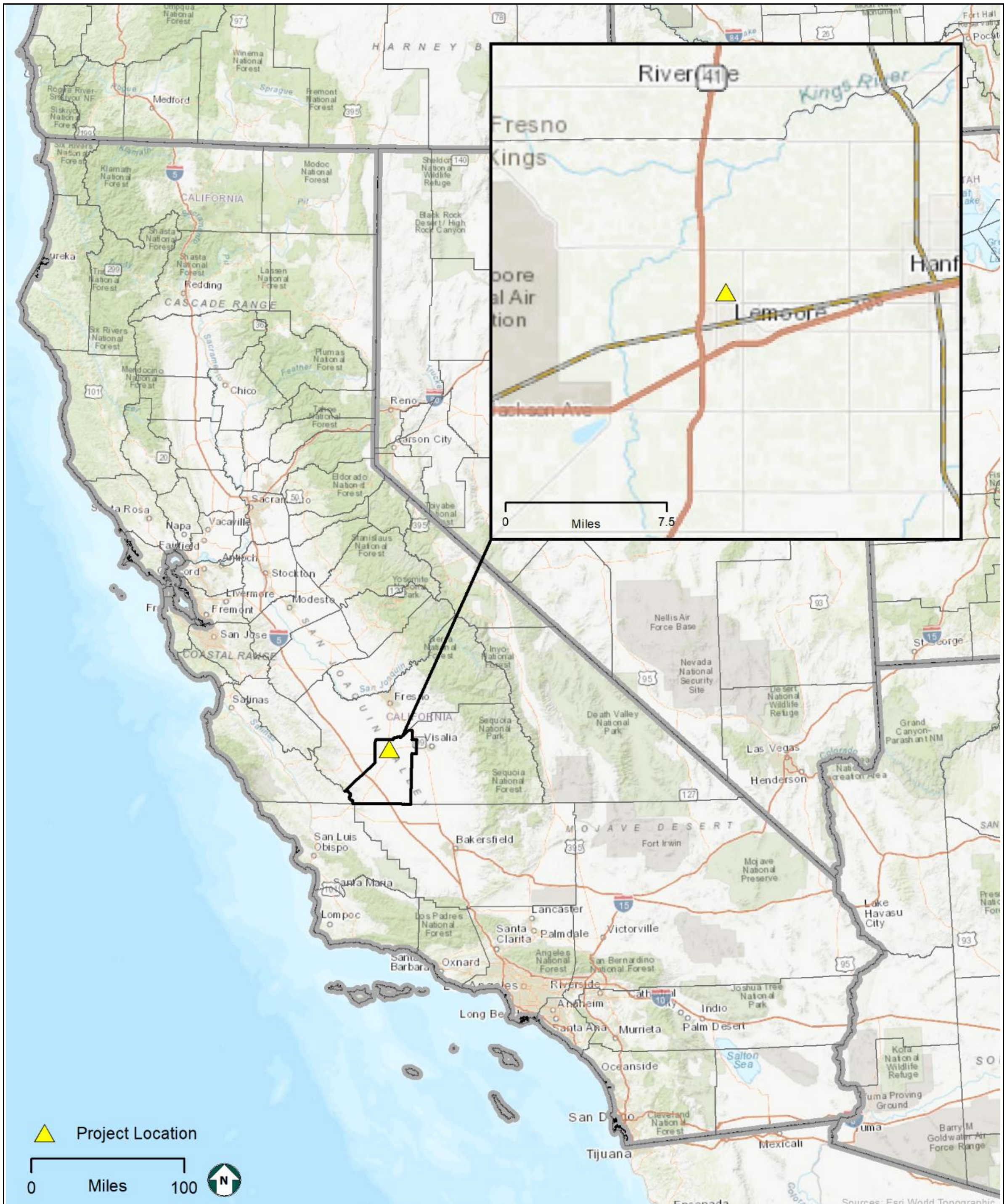

Figure 2-1
Regional Location

Figure 2-2
Project Site

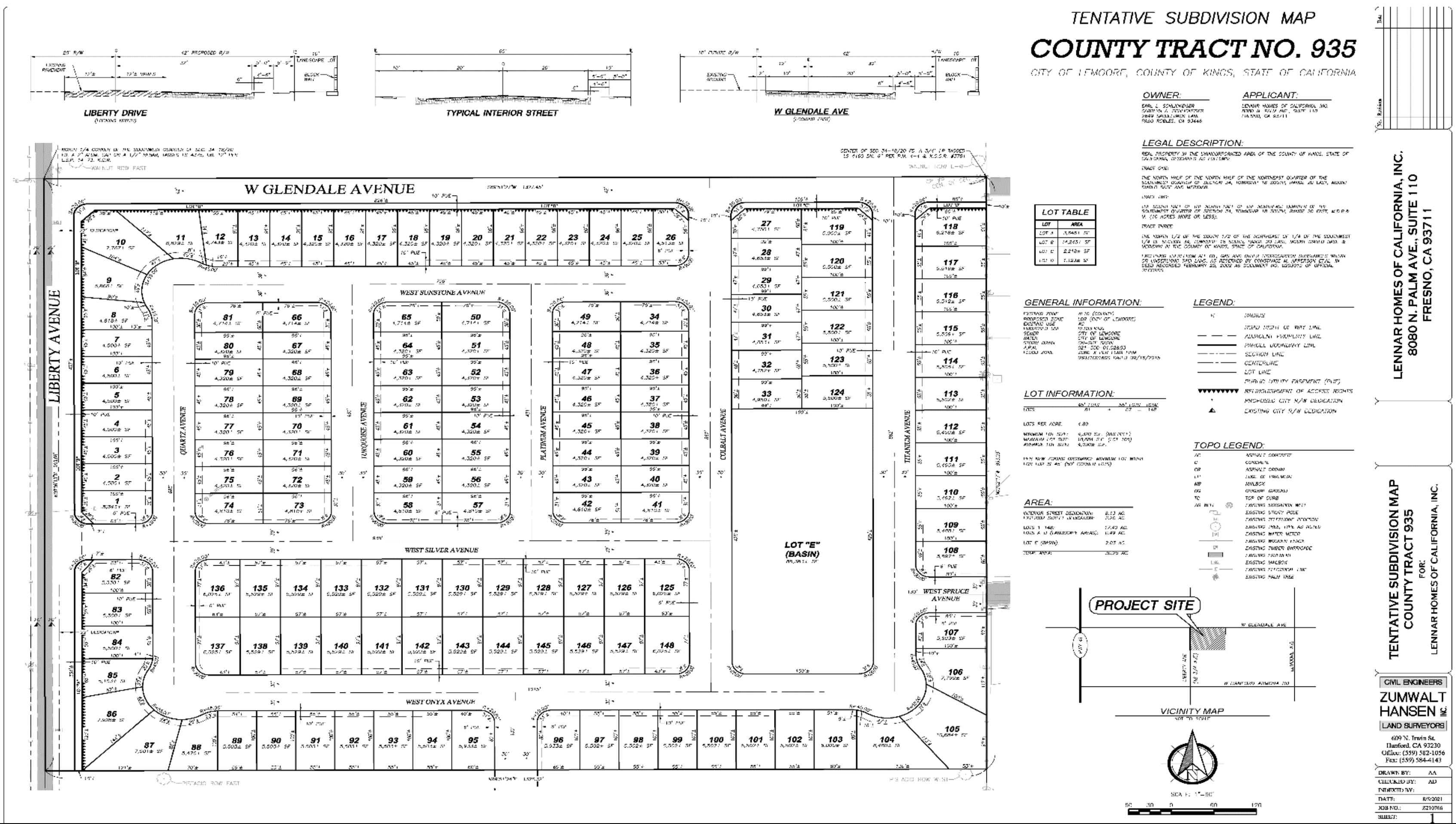

Figure 2-3
Site Plan

SECTION 3 - EVALUATION OF ENVIRONMENTAL IMPACTS

3.1 - Environmental Checklist and Discussion

1. **Project Title:**

   Tract 935 Project

2. **Lead Agency Name and Address:**

   City of Lemoore
   711 W. Cinnamon Drive
   Lemoore, CA 93245

3. **Contact Person and Phone Number:**

   Nathan Olson, City Manager
   Phone: (559) 924-6744

4. **Project Location:**

   The project site is located at 18 ¾ Avenue (Liberty Drive) and West Glendale Avenue in the City of Lemoore, Kings County, CA.

   The project site includes APN 021-550-001 through -003 within Section 34, Township 18S, Range 20E, Mount Diablo Base and Meridian (MDB&M).

   Adjacent parcels APNs 021-550-004 and -005 will be annexed into the City, as well. However, these parcels are not a part of the proposed TTM 935 project and are not analyzed in this document. Future proposed development on those parcels may require additional environmental review.

5. **Proposed General Plan Designation:**

   Low Density Residential

6. **Current Zoning:**

   Limited Agriculture (AL-10, Kings County)

7. **Description of Project:**

   See *Section 2.4 – Proposed Project*.

8. **Surrounding Land Uses and Setting:**

   See *Section 2.3 – Surrounding Land Uses* and Figure 2-3.

9. **Other Public Agencies Whose Approval May be Required:**

   - Kings County Local Agency Formation Commission (Kings LAFCo)
   - San Joaquin Valley Air Pollution Control District (SJVAPCD)
   - Regional Water Quality Control Board - Central (RWQCB)
   - State Water Resource Control Board (SWRCB)

10. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?**

    The Native American Heritage Commission (NAHC) conducted a search of its Sacred Lands File to identify previously recorded sacred sites or cultural resources of special importance to tribes and provide contact information for local Native American representatives who may have information about the project area. A Sacred Lands File Request was also completed by the Native American Heritage Commission (NAHC) on December 2,, 2021. Outreach letters were sent to the tribal organizations on the NAHC-provided contact list, with follow-up emails sent. The Santa Rosa Rancheria responded by phone call and email and expressed concerns that the project may adversely affect cultural resources. No other tribal groups expressed concerns.

    NOTE: 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 Public Resources Code Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.

3.2 - Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Findings of Significance

3.3 - Determination

On the basis of this initial evaluation:

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

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

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

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

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

Nathan Olson

Nathan Olson, City Manager

Date

3.4 - Evaluation of Environmental Impacts

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

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

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

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

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

    a. Earlier Analysis Used. Identify and state where they are available for review;
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis; and
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

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

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

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

9. The explanation of each issue should identify:

   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any, to reduce the impact to less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.1 - AESTHETICS				
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c. In non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion

Impact #3.4.1a – Would the project have a substantial adverse effect on a scenic vista?

The site is located within an area consisting of residential and agricultural uses. Areas to the east and south are residential subdivisions, properties to the west and north are under agricultural cultivation. The site is currently undeveloped. The existing topography of the site is nearly flat, with elevation of approximately 225 feet above mean sea level (AMSL).

A scenic vista is a viewpoint that provides a distant view of highly valued natural or man-made landscape features for the benefit of the general public. Typical scenic vistas are locations where views of rivers, hillsides, and open space areas can be obtained as well as locations where valued urban landscape features can be viewed in the distance. The City of Lemoore 2030 General Plan Community Design Element requires that scenic vistas to the Coalinga Mountains, other natural features, and landmark buildings be maintained (City of Lemoore, 2008).

There are no natural features or landmark buildings within the vicinity of the project site, nor would it impede views to the Coalinga Mountains or other natural features. The project is not located in an area that would result in substantial adverse effects on any scenic vistas. The project would have no impact to a scenic vista.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.1b – Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

There are no listed State scenic highways within or near the City of Lemoore, nor are there scenic highways in Kings County (California Department of Transportation, 2021). The closest eligible scenic highway is a portion of SR 198, southwest of SR 33, which is approximately 35 miles west of the project site. Further, the project does not include the removal of trees determined to be scenic or of scenic value, the destruction of rock outcroppings or degradation of any historic building. The project will not result in development that is substantially different than surrounding land uses. Therefore, impacts to scenic resources would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.1c – In non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The proposed project is located in an undeveloped area with surrounding agriculture and residential uses. The project would be visible from passing motorists driving along Liberty Drive and Glendale Avenue. The project's appearance will be similar in character to the existing residential developments in the vicinity. The project will be pre-zoned to low density residential and once annexed into the City, will be consistent with proposed low density residential zoning. Development of the project will be in compliance with the City's Municipal Code and development standards. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.1d – Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Construction of the proposed project would be temporary and generally occur during daytime hours, typically from 7:00 a.m. to 6:00 p.m. All lighting would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties. Because lighting used to illuminate work areas would be shielded, focused downward, and turned off by 6:00 p.m., the potential for lighting to affect any residents adversely is minimal. Increased truck traffic and the transport of construction materials to the project site would temporarily increase glare conditions during construction. However, this increase in glare would be minimal. Construction would be completed in phases with approximately 20 units constructed per phase. Therefore, construction of the proposed project would not create a new source of substantial glare that would affect daytime views in the area.

The project exterior streetlights and residential lighting will be designed to minimize reflective glare and light scatter, as required by City Municipal Codes and Development Standards regarding outdoor lighting (e.g., Code 9-5B-4- Outdoor Lighting) and street lighting. These requirements would substantially reduce potential nuisances from light or glare. The project will comply with applicable local development standards, the proposed project would not create new sources of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, the project would have a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***..

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.2 - Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. 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 nonagricultural use?	☐	☐	☒	☐
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use?	☐	☒	☐	☐

Discussion

Impact #3.4.2a – Would the project 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 nonagricultural use?

The proposed project would convert approximately 30 acres of land currently zoned for agriculture to residential to accommodate the development of a residential subdivision. In order to determine whether this conversion would result in a significant impact on farmland, several factors must be considered. These factors include the quality of the land being converted, the availability of water to supply farming activities on the land, and the type of use being proposed on the agricultural land. CEQA uses the California Department of Conservation Division of Land Resource Protection's Farmland Mapping Project (FMMP) categories of "Prime Farmland," "Farmland of Statewide Importance," and "Unique Farmland" to define "agricultural land" for the purposes of assessing environmental impacts (PRC Section 21060.1(a)).

According to the Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), the project site is classified as being 8.6 acres of Prime farmland and 20.4 acres of Farmland of Statewide Importance (Figure 3.4.2-1). The most recent data from 2018 indicates Kings County has approximately 890,545 ac of farmland, including 107,913 acres (12%) Prime farmland and 320,053 acres (36%) of Farmland of Statewide Importance (Kings County, 2020). The project's conversion of 8.6 acres of Prime Farmland represents a 0.008% loss and conversion of 20.4 acres is a 0.006% loss of Farmland of Statewide Importance, countywide.

Additionally, the Lemoore General Plan has the project site within the Urban Growth Boundary (UGB), therefore it is expected to be converted from agricultural lands. As discussed in the City of Lemoore's General Plan EIR, areas within the UGB are expected to be converted from agricultural lands to urban uses. This is unavoidable given that the City is surrounded by agricultural lands consequently meaning the expansion of the City would require farmland conversion (City of Lemoore, 2010). Considering these factors, impacts would be less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.2b – Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

See response to Impact #3.4.2a.

The project site is not subject to a Williamson Act contract and would not conflict with any current Williamson Act contracted land in the vicinity. The proposed project includes a pre-zoning that would change the General Plan land use and zoning from the existing AL-10 into Low Density Residential. Parcels to the northwest of the project site boundary are subject to

Williamson Act contracts (Figure 3.4.2-2). However, construction activities will be restricted within the project site boundary and are not anticipated to impact these parcels. Therefore, the construction of the project would not result in a conflict with existing zoning for agricultural use or a Williamson Act contract and impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

. Impacts would be ***less than significant***.

Impact #3.4.2c – Would the project 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))?

The Public Resources Code Section 12220 (g) and Section 4526 defines "Forest land" as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. There are no forest lands identified on the Project site or within its vicinity; therefore, there would be no conflict with or impacts to zoning for forest land or timber land. The City of Lemoore and Kings County Zoning Maps indicate the project site and the adjacent properties are not zoned for forest land or timberland. The site will be pre-zoned to Low Density Residential. The project will have no impact on land designated for forest land or timberland use. The proposed project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2d – Would the project result in the loss of forest land or conversion of forest land to non-forest use?

See discussion of Impact #3.4.2c, above.

The proposed project will have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.2e – Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use?

See discussion of Impact #3.4.a-c, above.

As part of the entitlement process, City staff consulted with the Kings County Agriculture Commissioner regarding the ability of the farm property to the south of the project to continue operations, including the use of agricultural pesticides or herbicides. The Commissioner confirmed that the use of these chemicals would still be allowable.

The City General Plan has adopted Policy COS-I-9, which requires developers to inform subsequent buyers of potential continued agricultural production and the lawful use of agricultural chemicals, including pesticides and fertilizers adjacent to the new development site. A "Right to Farm" acknowledgement will be required of all purchasers of the project's lots. Mitigation measure AG-1 requires project that construct a new residences to record a Right to Farm easement acknowledging the County's Right-to-Farm Ordinance, prior to final map approval. This measure will not would restrict or impair agricultural production on adjacent land and protect the ongoing farm uses to continue operating. It will also disclose to any perspective home buyer that they may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law.

The proposed project will have no impact.

MITIGATION MEASURE(S)

AG-1: Prior to approval of the final Tentative Subdivision Map Tract 935, the developer shall record a Right to Farm easement acknowledging the City's Right-to-Farm Ordinance. The easement shall state the right of neighboring property owners to use agricultural pesticides or herbicides as allowed by law.

The developer shall submit a copy of the recorded Right to Farm easement to the City as evidence of compliance.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

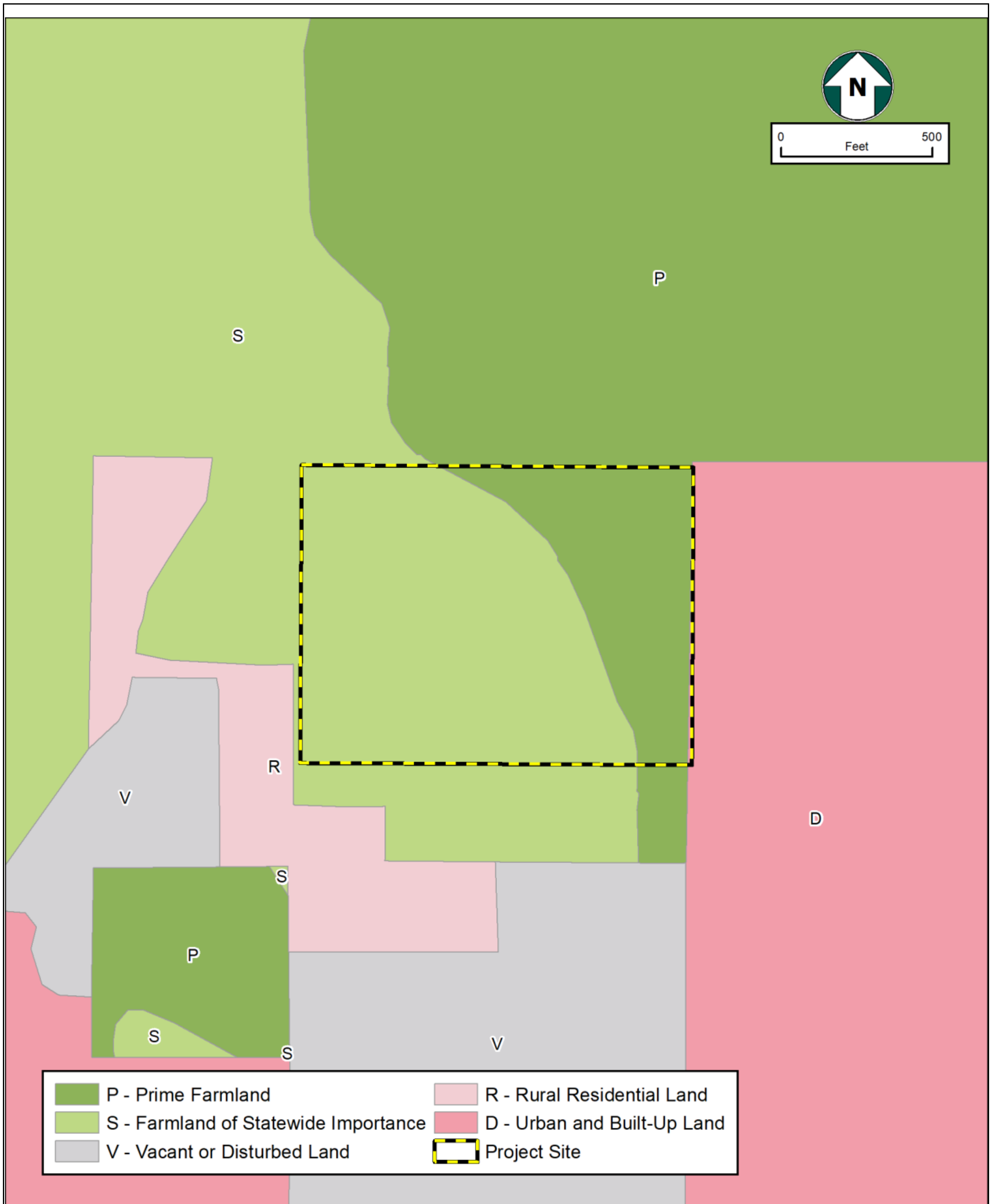

Figure 3.4.2-1
Farmland Mapping and Monitoring Program (FMMP)

Figure 3.4.2-2
Williamson Act Contracts

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.3 - Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard?	☐	☐	☒	☐
c.	Expose sensitive receptors to substantial pollutant concentration?	☐	☐	☒	☐
d.	Result in other emissions (such as those leading to odor) adversely affecting a substantial number of people?	☐	☐	☒	☐

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Discussion

The analysis below is based on a Small Project Analysis Level Assessment (SPAL) prepared for the project (Trinity Consultants, 2022). The SPAL is included in this document as Appendix A.

Impact #3.4.3a – Would the project conflict with or obstruct implementation of the applicable air quality plan?

The project is located within the San Joaquin Valley Air Basin (SJVAB), which and under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAB is designated nonattainment of State and federal health-based air quality standards for ozone and $PM_{2.5}$. The SJVAB is designated nonattainment of State PM_{10}. To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

- 2016 Ozone Plan;
- 2007 PM_{10} Maintenance Plan and Request for Redesignation; and

- 2016 $PM_{2.5}$ Plan.

The SJVAPCD Small Project Analysis Level (SPAL) process established review parameters to determine whether a project qualifies as a "small project." A project that is found to be "less than" the established parameters, according to the SPAL review parameters, has "no possibility of exceeding criteria pollutant emissions thresholds."

As shown in Table 3.4.3-1, the proposed project would not exceed the established SPAL thresholds for a residential project 155 single family units and 800 average daily trips. Based on the above information, this project qualifies for a limited air quality analysis applying the SPAL guidance to determine air quality impacts and impacts would be less than significant.

Table 3.4.3-1
Small Project Analysis Level – Units in Residential

Land Use Category –Residential	Project Size (dwelling unit)	Average Daily Trips*
Single Family	155	800
Proposed Project – Single Family	148	698
SPAL Exceeded?	**No**	**No**

Source: (Trinity Consultants, 2022) *Source: (Peters Engineering Group, 2022)

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.3b – Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The nonattainment pollutants for the SJVAPCD are ozone, PM_{10} and $PM_{2.5}$. Therefore, the pollutants of concern for this impact are ozone precursors, and regional PM_{10}, and $PM_{2.5}$. As shown in Table 3.4.3-2, the project's emissions during temporary construction activities would not exceed thresholds. Therefore, construction emissions were found to be less than significant, and no further evaluation is required.

Table 3.4.3-2
Project Construction Emissions

EmissionsSource	Pollutant					
	ROG	NOx	CO (tons/year)	SOx	PM_{10}	$PM_{2.5}$
2023 Construction Emissions	0.04	0.32	0.35	0.00	0.03	0.02
2024 Construction Emissions	1.53	1.66	1.97	0.00	0.13	0.09
2025 Construction Emissions	1.17	1.38	1.74	0.00	0.11	0.08
SJVAPCD Construction Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Operation of the project would also create additional criteria pollutants, particularly as a result of increased mobile emissions in the project area. However, these impacts also would not exceed thresholds as shown in Table 3.4.3-3.

Table 3.4.3-3
Total Project Operational Emissions

EmissionsSource	Pollutant					
	ROG	NOx	CO (tons/year)	SOx	PM_{10}	$PM_{2.5}$
Unmitigated						
Operational Emissions	2.29	1.08	11.54	0.03	2.42	1.33
SJVAPCD Operational Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded Before Mitigation?	**No**	**No**	**No**	**No**	**No**	**No**
Mitigated						
Operational Emissions	1.66	0.87	5.54	0.01	1.33	0.38
SJVAPCD Operational Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

The long-term operational emissions associated with the proposed project would be less than SJVAPCD significance threshold levels and would, therefore, not pose a significant impact to criteria air pollutants. This finding is consistent with the SPAL screening thresholds and would result in less-than-significant localized impacts.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.3c – Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as areas where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside. Schools, hospitals, nursing homes and daycare centers are locations where sensitive receptors would likely reside. There are residential receptors bordering the project site to the south and the east. The closest schools are Liberty Middle School at approximately 0.4 miles to the south, Meadow Lane Elementary School at approximately 0.6 miles to the east, Freedom Elementary School at approximately 0.7 miles to the southwest, Mary Immaculate Queen School at approximately 0.7 miles to the southeast, Lemoore Head Start at approximately 0.7 miles to the southwest, and Ruiz Family Child Care at approximately 0. 9 miles to the east. There are no other known schools, hospitals, or nursing homes within a one-mile radius of the project. Therefore, the proposed project is not expected to affect any on-site or off-site sensitive receptors and is not expected to have any adverse impacts on any known sensitive receptor.

GAMAQI recommends that Lead Agencies consider situations wherein a new or modified source of HAPs is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to HAPs. Typical sources of HAPs include diesel trucks or permitted sources such as engines, boilers or storage tanks. Because the project is not considered an operational source of increased HAPs and construction is to be temporary, no screening level Health Risk Assessment (HRA) was required. Therefore, potential risk to the population attributable to emissions of HAPs from the proposed Project would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.3d – Would the project result in emissions (such as those leading to odors) adversely affecting a substantial number of people?

As discussed in Impact #3.4.3c, above.

SJVAPCD identifies some common types of facilities that have been known to produce odors in the SJVAB such as wastewater treatment facilities, sanitary landfills, transfer stations, composting facilities, petroleum refinery, asphalt batch plants, chemical manufacturing plants, fiberglass manufacturing, paint/coating operations, food processing facilities, feed lot/dairy, and rendering plants (SJVAPCD, 2015). These can be used as a screening tool to qualitatively assess a Project's potential to adversely affect area receptors.

Because the project is a residential development and the anticipated activities for the project site are not listed in the SJVAPCD as a source that would create objectionable odors, the project is not expected to be a source of objectionable odors.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

3.4.4 - 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 Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
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 Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Discussion

This analysis is based on a biological reconnaissance survey of the project site and accessible areas within 250 feet (Biological Survey Area, BSA) by a qualified biologist in November 2021. Meandering pedestrian transects were walked through the BSA to achieve 100 percent visual coverage, with the aid of binoculars in areas that were inaccessible. The purpose of the survey was to determine the existing plant communities present and extent of and any sensitive habitats, the presence and potential for occurrence of special-status plant and animal species, and to identify any other sensitive biological resources within the BSA. Protocol surveys for specific special-status wildlife species were not conducted. Locations of sensitive biological resources were documented using the ArcGIS Collector application installed on an iPad. Photographs were taken to document the existing landscape and sensitive biological resources. Detailed notes of plant and wildlife species and site conditions observed were taken while conducting the survey.

The biological resources evaluation was conducted based upon a review of available literature and databases and existing site conditions evaluated during a reconnaissance survey. These studies evaluated the potential for sensitive biological resources to occur on and in the vicinity of the project, and any impacts that could potentially occur.

Reviews of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (California Department of Fish and Wildlife, 2021), the California Native Plant Society's Rare Plant Program Inventory (California Native Plant Society, 2021), and the United States Fish and Wildlife Service's Information for Planning and Consultation online tool (US Fish and Wildlife Service, 2021) were conducted to identify special-status plant and wildlife species with the potential to occur within the project and in the vicinity of the project (the *Lemoore* 7.5" USGS quadrangle, within which the project is situated, and the surrounding eight quadrangles). Information regarding the presence of Critical Habitat in the project vicinity was obtained from the United States Fish and Wildlife Service's Critical Habitat Mapper database (USFWS, 2021b). The results of the database inquiries were reviewed to evaluate the potential for occurrence of special-status species and other sensitive biological resources known to occur on or near the project site prior to conducting the biological reconnaissance survey.

General Site Conditions

The project is within the City of Lemoore, Kings County in the San Joaquin Valley of California, most of which has been developed for agricultural and urban use. It has been previously used for agriculture and was recently disked at the time of the survey. There are active orchards north and south of the project and a residential community to the east. There is a private residence and cattle ranch west of the project.

The project site is heavily disturbed at the time of the survey. Remnants of a previous crop of wheat (*Triticum aestivum*) grow scattered throughout the site along with nonnative plants such as Russian thistle (*Salsola tragus*) and devil's trumpet (*Datura stramonium*). The wildlife species observed during the survey were typical of urban habitats and birds were observed throughout the BSA foraging on the ground.

There were eight plant species, three bird species, and one mammal species identified during the survey, either through direct observation or by the presence of diagnostic sign (Table 3.4.4-1). None of these species are listed under the federal or California Endangered Species Acts.

Table 3.4.4-1
List of Plant and Wildlife Species Observed on the Project Site

Scientific name	Common name
Plants	
Aloe vera	aloe
Amaranthus palmeri	Palmer's amaranth
Datura stramonium	devil's trumpet
Juglans sp.	walnut
Pistacia lenticus	mastic
Salsola tragus	Russian thistle
Sonchus sp.	sowthistle
Triticum aestivum	wheat
Wildlife	
Artemisiospiza belli	Bell's sparrow
Canis lupus familiaris	domestic dog
Corvus corax	common raven
Haemorhous mexicanus	house finch

Impact Analysis

Impact #3.4.4a – Would the project 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?

The literature search indicated that there is potential for several special-status species to be present on or in the vicinity of the project. An evaluation of each of the potential special-status species, which included habitat requirements, likelihood of required habitat to occur within the project area, and a comparison to the California Natural Diversity Data Base (CNDDB), California Native Plant Society (CNPS), and United States Fish and Wildlife Service's Information for Planning and Consultation (IPaC) records was conducted. The results of this evaluation concluded that six plant species and 23 wildlife species with special status have a reasonable potential to occur on or near the project.

Special-Status Species

SPECIAL-STATUS PLANT SPECIES

Based on the survey and database queries, there are six special-status plant species that have the potential to occur within the subject quadrangle and eight surrounding quadrangles: brittlescale (*Atriplex depressa*), recurved larkspur (*Delphinium recurvatum*), alkali sink goldfields (*Lasthenia chrysantha*), Panoche peppergrass (*Lepidium jaredii* ssp*. album*), mud nama (*Nama stenocarpa*), and California alkali grass (*Puccinellia simplex*). There are CNDDB records for all of these species within the 9-quad query.

The project site and adjacent land has been historically disturbed by agricultural practices and urban development. None of the sensitive-plant species were observed during the survey, although the survey was not conducted during the blooming periods of any of the species. All project activities will be restricted to previously disturbed and routinely maintained areas that would not support special-status plant species. Thus, no protective measures for special-status plant species is warranted.

SENSITIVE WILDLIFE SPECIES

Based on the database queries there were 23 special-status wildlife species that were identified as having a potential to occur within the subject quadrangle and eight surrounding quadrangles. Twenty (20) of these species were eliminated from consideration due to the lack of suitable habitat. California red-legged frog (*Rana draytonii*), delta smelt (*Hypomesus transpacificus*), giant garter snake (*Thamnophis gigas*), western pond turtle (*Emys marmorata*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), western ridged mussel (*Gonidea angulata*), and western spadefoot (*Spea hammondii*) are dependent upon water bodies and/or vernal pools, which are not present within the BSA. There were no CNDDB records for California red-legged frog, delta smelt, vernal pool fairy shrimp, or vernal pool tadpole shrimp in the 9-quad database query. Hoary bat (*Lasiurus cinereus*) roosts in dense foliage of medium to large trees, typically in forests, which are not present on or near the project. There are no elderberry shrubs (*Sambucus* sp.) in the BSA so valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) would not be present. San Joaquin tiger beetle (*Cicindela tranquebarica joaquinensis*) is highly associated with sandy soils, which are not present in the BSA. The monarch butterfly (*Danaus plexippus*) requires milkweed plants for reproduction and large stands of trees for overwintering, neither of which were observed in the BSA. There is no suitable nesting or foraging habitat for black-crowned night heron (*Nycticorax nycticorax*), tricolored blackbird (*Agelaius tricolor*), western snowy plover (*Charadrius alexandrinus* nivosus), or yellow-headed blackbird (*Xanthocephalus xanthocephalus*), which require wetlands, marshes, dry lakes, or sandy beaches. There are no burrows suitable for blunt-nosed leopard lizard (*Gambelia sila*) or California glossy snake (*Arizona elegans* *occidentalis*). No kangaroo rat burrows were observed during the survey and the BSA does not support habitat suitable for Fresno kangaroo rat (*Dipodomys nitratoides exilis*) or Tipton kangaroo rat (*D. n. nitratoides*).

The remaining three species resulting from the database queries have the potential to occur within the project site and vicinity: burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsonsi*), and San Joaquin kit fox (*Vulpes macrotis mutica*). Nesting birds protected by the federal Migratory Bird Treaty Act (MBTA) may also be present during the breeding season.

San Joaquin Kit Fox

San Joaquin kit fox, a federally Endangered and State Threatened species, has potential to occur in the habitat surrounding the project, but is unlikely to den within the project footprint, although it could pass through as a transient. The nearest CNDDB record for the species is from 2002 and approximately 2.3 miles west of the project, documenting one San Joaquin kit fox that was observed in an agricultural field during a spotlighting effort (EONDX 66434). The agricultural land provides only marginal denning habitat for the species and there were no small mammal burrows, so the natural prey base is likely limited. However, San Joaquin kit foxes are known to adapt well to urban and residential areas and scavenge anthropogenic foods, which may be available in the residential neighborhood east of the project. No known or potential kit fox dens or any sign of the species were observed during the survey.

San Joaquin kit foxes are known to be in the project region and to adapt well to human presence, so the species could be present on or near the project as a transient or become an established resident at any time. Because the project supports only marginal habitat and is a small area, development of the project area would not result in a significant loss of habitat for the species. If the species were to be present during construction activities individual San Joaquin kit foxes could be injured or killed, or normal reproductive or foraging behaviors could be affected.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a State Threatened species and has potential to occur in the habitat in the vicinity of the project but is unlikely to be present within the project footprint. Swainson's hawks forage in agricultural crops, shrublands, and grasslands, and typically nest in scattered trees or small groves. There are suitable foraging habitat and nesting trees in the vicinity of the project, although the project footprint itself does not provide suitable breeding habitat. The nearest CNDDB occurrence is approximately 4 miles northwest of the project, where one or a pair of Swainson's hawks was exhibiting breeding behavior in March 2016 (EONDX 115241).

The project footprint does not contain suitable nesting habitat for Swainson's hawk and there is a limited prey base for the species in the BSA due to ongoing disking and cultivation activities. The planted trees of the adjacent orchards and residential neighborhood provide marginal nesting habitat, and larger planted trees in the vicinity of the project (at rural residences, roadways, etc.) are more suitable for nesting sites. No trees will be removed as a result of the project. Because the project does not provide suitable nesting habitat and is a small area, development of the project area would not result in a significant loss of habitat for the species. There are no suitable nesting trees on the project but there are suitable nesting trees within 0.5 mile of the project. If the species were to be nesting within 0.5 mile of the project during construction activities, normal reproductive or foraging behaviors could be affected.

Burrowing Owl

Burrowing owl (*Athene cunicularia*), a CDFW Species of Special Concern, has a very low potential to occur within the project. The nearest CNDDB record is approximately 6.5 miles northwest of the project, where an active burrow was observed during routine surveys at the Lemoore Naval Air Station in 2008 (EONDX 77772). There were no suitable burrows observed in the BSA, and it supports only marginal foraging habitat, but the species is known to inhabit the region.

Because the project supports only marginal habitat for burrowing owl and is a small area, development of the project area would not result in a significant loss of habitat for the species. If the species were to be present during construction activities individual burrowing owls could be injured or killed, or normal reproductive or foraging behaviors could be affected.

Nesting Migratory Birds

Migratory bird species are protected under the federal MBTA. No active or inactive bird nests were observed during the survey, which was conducted outside of the typical avian breeding season (February 1 – September 30). The project and surrounding vicinity provide suitable nesting habitat for a variety of bird species that may nest in tree branches and cavities, shrubs, man-made structures, and directly on the ground. If nesting migratory birds are in the vicinity of the project during construction activities, individual birds could be injured or killed, or normal reproductive or foraging behaviors could be affected.

CONCLUSION

The project footprint includes disked agricultural land that has been disturbed by agricultural practices. The project and surrounding areas support mainly non-native agricultural trees and other ruderal or ornamental species.

No special-status plant or wildlife species or their sign were observed during the survey.

It is very unlikely that any special-status plant species occur in the project area or in the vicinity due to historic agricultural development and the current vegetation maintenance regimen. No minimization, avoidance, or mitigation measures related to special status plants is warranted.

There is the potential for some special-status or protected wildlife species to be impacted by project activities. Mitigation Measures MM BIO-1 through MM BIO-8, as provided below, would protect, avoid, and minimize impacts to special-status wildlife species. When implemented, these measures would reduce impacts to these species to levels that are less than significant.

Through implementation of the mitigation measures listed below, impacts of the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. Therefore, the project will have a less than significant impact with incorporation of mitigation measures.

MITIGATION MEASURE(S)

MM BIO-1: Prior to ground disturbing activities, a qualified wildlife biologist shall conduct a biological clearance survey between 14 and 30 days prior to the onset of construction.

The clearance survey shall include walking transects to identify presence of San Joaquin kit fox, Swainson's hawk, and burrowing owl and any other special-status species and their sign. The pre-construction survey shall be walked by no greater than 30-foot transects for 100 percent coverage of the project and a 250-foot buffer, where feasible. If no evidence of special-status species is detected, no further action is required except measures BIO-4 through BIO-6 and BIO-8 shall be implemented. . A preconstruction clearance survey report shall be submitted to the City as evidence of compliance prior to the issuance of permits

MM BIO-2: The following avoidance and minimization measures shall be implemented during all phases of the project to reduce the potential for impact from the project. They are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered SJKF Prior to or During Ground Disturbance* (USFWS 2011, Appendix F).

l. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or project site.
m. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds shall not exceed 20 miles per hour (mph) within the project site.
n. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill

or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.

o. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
p. No pets, such as dogs or cats, shall be permitted on the project sites to prevent harassment, mortality of kit foxes, or destruction of dens.
q. Use of anti-coagulant rodenticides and herbicides in project sites shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.
r. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.
s. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a SJKF during project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.
t. All sightings of the SJKF shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.
u. Any project-related information required by the USFWS or questions concerning the above conditions, or their implementation may be directed in writing to the U.S. Fish

and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone: (916) 414-6620 or (916) 414-6600.

v. New sightings of SJKF should be reported to the CNDDB.

MM BIO-3: Within 14 days prior to the start of project ground-disturbing activities, a pre-activity survey with a 500-foot buffer shall be conducted by a qualified biologist knowledgeable in the identification of these species and approved by the CDFW. If dens/burrows that could support any of these species are discovered during the pre-activity survey conducted under MM BIO-1, the avoidance buffers outlined below shall be established. No work would occur within these buffers unless the biologist approves and monitors the activity.

San Joaquin Kit Fox

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal or pupping den – 500 feet, unless otherwise specified by CDFW

MM BIO-4: If all project activities are completed outside of the Swainson's hawk nesting season (February 15 through August 31), this mitigation measure does not apply.

Nesting surveys for the Swainson's hawks shall be conducted in accordance with the protocol outlined in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFG 2000). If potential Swainson's hawk nests or nesting substrates are located within 0.5 miles of the project site, then those nests or substrates must be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson's hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site: one visit during January 1–March 20 to identify potential nest sites, three visits during March 20–April 5, three visits during April 5–April 20, and three visits during June 10–July 30. A fewer number of visits may be permissible if deemed adequate by the City after consultation with a qualified biologist. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to project-related ground disturbance activities. If Swainson's hawks are not found to nest within the BSA, then no further action is warranted.

MM BIO-5: If an active Swainson's hawk nest is discovered at any time within 0.5 mile of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment will consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this project. Based on this assessment, the biologist shall determine if construction activities can proceed and the level of nest monitoring required. Construction activities shall not occur within 500 feet of an active nest but depending upon conditions at the site this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist shall have the authority to stop work if it is determined that project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nest location, the sensitivity of the nesting Swainson's hawk to disturbances, and at the discretion of the qualified biologist.

MM BIO-6: If construction is planned outside the nesting period for raptors (other than burrowing owl) and migratory birds (February 15 to August 31), no mitigation shall be required. If construction is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet. Avoidance buffers may be reduced if a qualified on-site monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any time during the nesting season, nesting bird surveys shall be repeated every 30 days as construction activities are occurring throughout the nesting season.

No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid project construction areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and may be removed, and monitoring may cease.

MM BIO-7: A qualified biologist shall conduct a pre-construction survey on the project site and within 500 feet of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone shall be maintained unless a qualified biologist verifies through noninvasive methods that either the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

In addition, impacts to occupied burrowing owl burrows shall be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

MM BIO-8: Prior to ground disturbance activities, or within one week of being deployed at the project site for newly hired workers, all construction workers at the project site shall attend a Construction Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist.

The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life histories of special-status wildlife and plant species that may be encountered during construction activities, their legal protections, the definition of "take" under the Endangered Species Act, measures the project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the project site shall also be provided to construction personnel. The program shall include:

- An acknowledgement form signed by each worker indicating that environmental training has been completed.
- A copy of the training transcript and/or training video/CD, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain on site for the duration of construction activities.

A copy of the sign-in sheet and training transcript shall be submitted to the City as evidence of compliance

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.4b – Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies,

regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The database queries identified one sensitive natural community with potential to occur in the vicinity of the project, Valley Sink Scrub. There nearest CNDDB occurrence of Valley Sink Scrub is approximately 5 miles south of the project (EONDX 16344). This sensitive natural community, or any other sensitive natural community, was not observed on or in the BSA during the survey. The project is not located near a river or in an area that encompasses a river or potential floodplain, and does not contain any riparian habitat. The proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.4c – Would the project 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?

The United States Army Corps of Engineers (USACE) has regulatory authority over the Clean Water Act (CWA), as provided for by the EPA. The USACE has established specific criteria for the determination of wetlands based upon the presence of wetland hydrology, hydric soils, and hydrophilic vegetation. There are no federally protected wetlands or vernal pools that occur within the project.

Wetlands, streams, reservoirs, sloughs, and ponds typically meet the criteria for federal jurisdiction under Section 404 of the CWA and State jurisdiction under the Porter-Cologne Water Quality Control Act. Streams and ponds typically meet the criteria for State jurisdiction under Section 1602 of the California Fish and Game Code. There are no known or observed water features on the project site. There is a freshwater pond 0.3 miles southwest of the project area, but it will not be impacted by project activities.

The National Wetland Inventory identified two features within the BSA, both of which are west of the project footprint (see Figure 3.4.4-1 below). The "freshwater pond" identified was not visible, and the "riverine" feature consists of a shallow irrigation ditch that was dry at the time of the survey. Neither feature would be impacted by project activities. The biological survey did not identify any other features on or near the project that would meet the criteria for either federal or State jurisdiction. Accordingly, there are no wetlands or Waters of the U.S. occurring on the project site. There would be no impact to federally or

State protected wetlands or waterways as a result of the proposed project. Therefore, the project would have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.4d – 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?

Wildlife migratory corridors are described as a narrow stretch of land that connects two open pieces of habitat that would otherwise be unconnected. These routes provide shelter and sufficient food supplies to support wildlife species during migration. Movement corridors generally consist of riparian, woodlands, or forested habitats that span contiguous acres of undisturbed habitat and are important elements of resident species' home ranges.

The project falls within the Pacific Flyway, a significant migratory route encompassing the west coast of North America, but the project represents a very small land acreage within this territory and does not support any significant migratory stopover habitat. The proposed project and surrounding area do not occur within a known terrestrial migration route, significant wildlife corridor, or linkage area as identified by the Essential Habitat Connectivity Project (Spencer, W.D., et al, 2010). The survey conducted for the project did not provide evidence of a wildlife nursery or important migratory habitat being present on the project site. Migratory birds and raptors could use habitat on and near the project for foraging and/or as stopover sites during migrations or movement between local areas.

The project will not restrict, eliminate, or significantly alter a wildlife movement corridor, wildlife core area, or Essential Habitat Connectivity area, either during construction or after the project has been constructed. Project construction will not substantially interfere with wildlife movements or reduce breeding opportunities.

The proposed project would not interfere 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. Therefore, the project's impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.4e – Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The City's General provides guidance on the protection of listed plant and wildlife species, wetlands, and other sensitive biological resources (City of Lemoore, 2008). The project will implement measures such as those listed above (MM BIO-1 through MM BIO-8) to comply with the General Plan and reduce potential impacts to biological resources to less than significant levels. Therefore, implementation of MM BIO-1 through MM BIO-8, proposed project would have no conflict related to any adopted local policies or ordinances protecting biological resources.

MITIGATION MEASURE(S)

Implementation of MM BIO-1 through MM BIO-8.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.4f – Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?

The project is not located within any Natural Community Conservation Plan or any other local Habitat Conservation Plan, regional, or State Conservation Plan. With mitigation, the proposed project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

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

The analysis below is based on the Extended Phase I Survey (ASM Affiliates, Inc., 2021) found in Appendix B of this document.

Impact #3.4.5a – Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?

The City of Lemoore 2030 General Plan states there are currently no buildings or structures listed in the National Register of Historic Places or as California Historic Landmarks. However, there are 37 sites listed as having local historic significance located within the downtown district (City of Lemoore , 2008).

A records search of site files and maps was conducted at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield. The results indicated that the Project area had not been previously surveyed and no cultural resources had been recorded on it. Three previous surveys had been conducted within a half mile radius of the Project area, with one previously recorded resource known to exist in that same radius. The Santa Rosa Rancheria – Tachi Yokut Tribe Cultural and Historical Preservation Department, however, had previously visited the property and reported the presence of an archaeological site.

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A Phase I survey fieldwork was conducted by qualified archaeologists walking parallel transects spaced at 5 to 10-meter (m) intervals along the approximately 30 acre project site. Members of the Santa Rosa Rancheria Cultural and Historical Preservation Department participated in the survey. The cultural resource that they had previously reported was re-identified, mapped and recorded. Artifacts identified consisted of a scatter of Pismo clam and abalone shell fragments mixed with 1970s-era and later debris, primarily within two bulldozer push-piles. No additional cultural resources of any kind were identified on the project property.

An extended Phase I survey, consisting of the hand-excavation of 22 shovel test pits (STP), was completed in the location of the newly identified archaeological site on March 23, 2021. Subsurface conditions proved to be heavily disturbed with contemporary/modern debris extending to 100-cmbs in some areas. Based on the STP results, the newly discovered site consists of a surface scatter of prehistoric/Native American artifacts, primarily shellfish fragments. The site surface has been heavily disturbed by bulldozing with the extant archaeological specimens concentrated in two bulldozer push-piles. No intact subsurface archaeological deposit is present at this location. The site therefore lacks integrity and does not constitute a significant historical resource. The development of the property will not result in a significant adverse impact to known cultural resources (ASM Affiliates, Inc., 2021).

However, there is still a possibility that unknown historical or archaeological materials may be exposed during construction. Grading and trenching, as well as other ground-disturbing actions have the potential to damage or destroy these previously unidentified and potentially significant cultural resources within the project area, including historical or archaeological resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact. To reduce the potential impacts of the project on cultural resources, the following measures are recommended. With implementation of CUL-1 and CUL-2, impacts under cultural resources would be less than significant.

MITIGATION MEASURE(S)

MM CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed project would not cause a substantial adverse change in the significance of a historical resource.

CUL-2: Prior to the issuance of grading permits, the developer shall enter into an agreement with the Santa Rosa Rancheria Tachi Yokut tribe. If requested, the developer shall:

d) Retain a qualified Native American monitor to be on site during initial ground disturbance activities.

e) Have a Burial Treatment Plan developed for the project

f) Retain a qualified tribal member to conduct a Cultural Resources Sensitivity training session with the construction crew prior to ground disturbance activities.

Evidence of the agreement with the Santa Rosa Rancheria Tachi Yokut tribe shall be submitted to the lead agency as evidence of compliance.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.5b – Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

See discussion of Impact #3.4.5a, above.

MITIGATION MEASURE(S)

Implement MM CUL-1 and MM CUL-2.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.5c – Would the project disturb any human remains, including those interred outside of formal cemeteries?

Human remains are not known to exist within the project area. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. MM CUL-3 has been included in the unlikely event that human remains are found during ground-disturbing activities. Impacts would be less than significant with implementation of mitigation.

MITIGATION MEASURE(S)

MM CUL-3: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with

Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the county coroner.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

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

Discussion

The following analysis is based on project data provided by the applicant, the Small Project Analysis Level Assessment (SPAL) (Trinity Consultants, 2022), and available energy resource consumption data.

Impact #3.4.6a – Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The proposed project would involve the use of energy during construction and operation. Energy use during the construction phase would be in the form of fuel consumption (e.g., gasoline and diesel fuel) to operate heavy equipment, light-duty vehicles and machinery. Long-term operation of the proposed include electricity and natural gas service to power internal and exterior building lighting, and heating and cooling systems. In addition, the increase in vehicle trips associated with the project would increase fuel consumption within the City.

Electricity service for the proposed project would be provided by Pacific Gas and Electric Company (PG&E). The PG&E and State of California 2019 power mix is detailed in Table 3.4.6-1. Energy usage by sector is outlined in Table 3.4.6-2.

Table 3.4.6-1
PG&E and the State of California 2019 Power Mix

• Energy Resource	• PG&E Power Mix	• California-Wide Power Mix
Eligible Renewable	29%	32%
Biomass & Biowaste	*3%*	*2%*
Geothermal	*2%*	*5%*
Small Hydroelectric	*2%*	*2%*

Solar	*12%*	*12%*
Wind	*9%*	*10%*
Coal	0%	3%
Large Hydroelectric	27%	15%
Natural Gas	0%	34%
Nuclear	44%	9%
Other	0%	0%
Unspecified [1]	0%	7%
Total	**100%**	**100%**

Source: (PG&E, 2020)
[1] Electricity from transactions that are not traceable to specific generation source

Table 3.4.6-2
Electricity Consumption in PG&E Service Area (2020)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Streetlight	Usage
6,638	26,247	3,949	9,814	1,748	29,834	290	78,519

Source: (California Energy Commission, 2020)
Note: All usage expressed in millions of kWh (GWh).

PG&E also maintains approximately 42,141 miles of gas distribution pipelines and 6,438 miles of gas transmission pipelines (PG&E, 2021). Table 3.4.6-3 below presents natural gas consumption by sector for PG&E in 2019.

Table 3.4.6-3
Natural Gas Consumption in PG&E Service Territory (2020)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
44	797	51	1,585	140	1,891	4,509

Source: (California Energy Commission, 2020)
Note: All usage expressed in Millions of Therms

In 2005, Kings County consumed 1,286 million kWh of electricity. Non-residential users were responsible for about 75 percent of all electricity consumption in the County, and users overall (residential and non-residential) consumed an average of 8,858 kWh per capita (City of Lemoore, 2010).

The proposed project's estimated energy usage calculated using CalEEMod and shown in the CalEEMod output files in Appendix A is summarized and compared to State-wide usage in Table 3.4.6-4. Estimated motor vehicle fuel use is further detailed in Table 3.4.6-5. As shown in 3.4.6-4, the proposed project would make a minimal contribution to State-wide energy consumption in these categories.

Table 3.4.6-4
Estimated Project Related Energy Usage

Form of Energy	Units	Annual Project-Related Energy Use	Annual State-Wide Energy Use	Project % of State Wide Energy Use
Electricity	kWh/year	79,427.1	272,576,000,000 (California Energy Commission, 2020)	0.0003%
Natural Gas	kBTU/year	504,789	189,082,861,453 (California Energy Commission, 2020)	0.003%
Motor Vehicle Fuels	Gallons	34,056	11,517,369,224 (California Department of Tax and Fee Administration, 2021)	0.000003%

Table 3.4.6-5
Estimated Project Related Annual Motor Vehicle Fuel Consumption

Vehicle Type	Percent of Vehicle Trips	Annual Vehicle Miles Traveled	Average Fuel Economy (miles/gallon) (U.S. Department of Energy, 2020)	Total Annual Fuel Consumption (gallons)_
Passenger Cars	42%	207,680	24.2	8,582
Light/Medium Trucks	39%	192,845	17.5	11,020
Heavy Trucks/Other	19%	93,950	6.5	14,454
Total	**100%**	**494,475**	**-**	**34,056**

The construction and the operation of the project would comply with all applicable federal, State, and local regulations regulating energy usage. The project will implement Title 24 Energy Efficiency Standards and CalGreen Code requirements for new home construction that may include rooftop solar, double-pane windows, electric vehicle charging, LED lights, low flow toilets, faucets drip irrigation and the use of drought tolerant landscaping to increase water conservation.

The project would comply with the SJVAPCD requirements regarding the limitation of vehicle idling, and the use of fuel-efficient vehicles and equipment, to the extent feasible. Energy saving strategies will be implemented where possible to further reduce the project's energy consumption, during the construction phase. Strategies being implemented include those recommended by the California Air Resources Board (CARB) that may reduce both the project's energy consumption, including diesel anti-idling measures, light-duty vehicle technology, usage of alternative fuels such as biodiesel blends and ethanol, and heavy-duty vehicle design measures to reduce energy consumption. As such, impacts would be *less than significant.*

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.6b – Would the project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

See 3.4.6a.

The proposed project would be in compliance with all applicable federal, State, and local regulations regulating energy usage. The project will comply with Title 24 Energy Efficiency Standards and CalGreen Code requirements for rooftop solar, double-pane windows, electric vehicle charging, LED lights, low flow toilets and faucets to increase water conservation. Energy would also be indirectly conserved through water efficient landscaping requirements consistent with the City's adopted Water Efficient Landscaping Ordinance with the use of drip irrigation and drought tolerant landscaping.

Stringent solid waste recycling requirements applicable to both project construction and operation would reduce energy consumed in solid waste disposal. In summary, the Project will implement all mandatory federal, State, local conservation measures, project design features, and voluntary energy conservation measures will further reduce energy demands. Therefore, the project will not conflict with or obstruct a state or local plan for renewable energy or energy efficiency project related impacts are less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.7 - *Geology and Soils*				
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including Liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on 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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The discussion below is based on the Geotechnical Engineering Investigation completed for the project which is also attached as Appendix C (Krazan & Associates, Inc., 2021).

Discussion

Impact #3.4.7a(i) – Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

According to the City of Lemoore 2030 General Plan, there are no known major fault systems within Lemoore (City of Lemoore, 2008). The greatest potential for geologic disaster in the City is posed by the San Andres Fault, which is located approximately 60 miles west of the Kings County boundary line with Monterey County.

The project site is not located within an Alquist-Priolo earthquake fault zone (California Department of Conservation, 2021). There are no active fault traces in the project vicinity. Accordingly, the project area is not within an earthquake fault zone (Special Studies Zone) and will not require a special site investigation by an engineering geologist.

The General Plan contains a number of policies that would minimize impacts relating to the rupture of a known fault. The Project would adhere to all applicable policies of the General Plan and California Building Code. Therefore, impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.7a(ii) – Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

See response to Impact #3.4.7a.

Secondary hazards from earthquakes include ground shaking/rupture. Since there are no known faults within the immediate area, ground shaking/rupture from surface faulting, seiches, and landslides would not be hazards in the area. Liquefaction potential (sudden loss of shear strength in a saturated cohesionless soil) should be low since groundwater occurs below 90 feet. Lastly, deep subsidence problems may be low to moderate according to the conclusions of the Five County Seismic Safety Element. However, there are no known occurrences of structural or architectural damage due to deep subsidence in the Lemoore area. While such seismic shaking would be less severe from an earthquake that originates at a greater distance from the Project site, the side effects could potentially be damaging to residential buildings and supporting infrastructure. The project is required to design residential buildings and associated infrastructure to withstand substantial ground shaking in accordance with all applicable State law and applicable codes included in the California Building Code (CBC) Title 24 for earthquake construction standards and building standards code including those relating to soil characteristics (California Building Standards Commission, 2019). The project shall adhere to all applicable local and State regulations to reduce any potentially significant impacts to structures resulting from strong seismic ground shaking at the project site. Therefore, project impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.7a(iii) - Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

See discussion of Impact #3.4.7a(i) and a(ii), above.

The potential magnitude/geographic extent of expansive liquefaction erosion was deemed 'negligible' and its significance 'low' throughout the City (City of Lemoore, 2021). Liquefaction is possible in local areas during a strong earthquake or other seismic ground shaking, where unconsolidated sediments coincide with a high-water table. However, the groundwater occurs below 90 feet which means liquefaction potential would be low. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.6a(iv) – Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

See 3.4.6a(ii).

The land is relatively flat with no significant topological features. As such, there is no potential for rock fall and landslides to impact the project in the event of a major earthquake, as the area has no dramatic elevation changes.

The site's topography would not change substantially as a result of project development since the site is essentially flat in nature from previous activities with no surrounding slopes, and it is not considered to be prone to landslides. The project would not expose people or structures to potential substantial adverse effects from landslides. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact.***

Impact #3.4.7b – Would the project result in substantial soil erosion or the loss of topsoil?

The type of soil found within the project site is Grangeville sandy loam and Nord complex. More specifically, the surface soils consisted of approximately 6 to 12 inches of very loose silty sand. These soils are disturbed, have moderate strength characteristics, and are slightly compressible when saturated.

Construction activities associated with the proposed project will disturb surface vegetation and soils during construction and would expose these disturbed areas to erosion by wind and water. To reduce the potential for soil erosion and loss of topsoil, the project would comply with the State Water Resources Control Board's (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit (No. 2012-0006-DWQ) during construction. Under the NPDES, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) are required for construction activities that would disturb an area of one acre or more. A SWPPP must identify potential sources of erosion or sedimentation as well as identify and implement Best Management Practices (BMPs) that ensure reduce erosion. Typical BMPs intended to control erosion include sandbags, retention basins, silt fencing, street sweeping, etc.

Mitigation Measure MM GEO-1 requires the approval of a SWPPP to comply with the NPDES General Construction Permit. The project will comply with all the grading requirements as outlined in Title 24 and Appendix J of the California Building Code (UpCodes, 2016). The project is not expected to result in substantial soil erosion or the loss of topsoil with the incorporation of Mitigation Measure MM GEO-1.

Once constructed, the project will have both impermeable surfaces as well as permeable surfaces. Impermeable surfaces would include roadways, driveways and building sites. Permeable surfaces would include front and back yards, any landscaped areas and open space. Overall, development of the project would not result in conditions where substantial surface soils would be exposed to wind and water erosion. Therefore, impacts would be less than significant with the incorporation of MM GEO-1.

MITIGATION MEASURE(S)

MM GEO-1: Prior to issuing of grading or building permits, the project applicant shall submit to the City: (1) the approved Storm Water Pollution Prevention Plan (SWPPP) and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended Best Management Practices for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Protecting existing storm drain inlets and stabilizing disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

Evidence of the approved SWPPP shall be submitted to the Lead Agency.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.7c – Would the project 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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

See discussion in Impact #3.4.7a(iii) and 3.4.7a(iv) above

As previously discussed, the site soils are considered stable in that there is not a potential of on or offsite landslides, lateral spreading, subsidence or collapse. As discussed in Impact #3.4.7a(iii), the project site soils have a low overall potential for significant liquefaction to occur at the site. All structures would be subject to all IBC and CBC earthquake construction standards, including those relating to soil characteristics. Additionally, the site is not located near any areas with sufficient slope that could result in off-site landslides. Moreover, the

Project will be designed by an engineer as to resist potential side-effects of spreading, subsidence, liquefaction or collapse.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.7d – Would the project 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?

See Impact 3.4.7b and c.

Expansive clay soils are subject to shrinking and swelling due to changes in moisture content over the seasons. These changes can cause damage or failure of foundations, utilities, and pavements. During periods of high moisture content, expansive soils under foundations can heave and result in structures lifting. In dry periods, the same soils can collapse and result in settlement of structures.

There are two types of soil found within the project site, which are Grangeville sandy loam and Nord complex. Generally, clay soils are considered to be expansive in nature, while loam and sandy soils drain well, which makes them non-expansive. Given that the soils are sandy loams, they would not be expansive. There are no other soil types adjacent to the Project site. The Project would comply with all applicable safety regulations and building codes. Therefore, there would be less than significant impacts. .

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.7e – Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

Refer to *Section 3.4.19 - Utilities and Service Systems*.

The proposed project does not include the development or use of septic tanks or alternative wastewater disposal systems as the project would connect to the City's existing sewer system. Therefore, there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

Impact #3.4.7f – Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The project does not intend to use undisturbed land; all construction will be conducted within the footprint of the existing campus. A study completed in the project area classified this location as having low to moderately low sensitivity for subsurface sites (ASM Affiliates, Inc., 2021). There are no unique geological features or known fossil-bearing sediments expected to be in the vicinity of the project site. However, there remains the possibility for previously unknown, buried paleontological resources or unique geological sites to be uncovered during subsurface construction activities. Therefore, this would be a potentially significant impact. However, MM GEO-2, requires that if unknown paleontological resources are discovered during construction activities, work within a 25-foot buffer would cease until a qualified paleontologist determined the appropriate course of action. With implementation of MM GEO-2, the project will have a less-than-significant impact.

MITIGATION MEASURE(S)

MM GEO-2: If any paleontological resources are encountered during ground disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

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

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.8 - Greenhouse Gas Emissions				
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

Analysis of Greenhouse Gases is based on the Small Project Analysis Level Assessment (SPAL) prepared for the Project (Trinity Consultants, 2022), which is included as Appendix A of this document.

Impact #3.4.8a – Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

See Impact #3.4.6a, above.

Construction and operation of this project will result in temporary Greenhouse Gases (GHG) emissions. The project as a whole is not expected to generate GHGs either directly or indirectly that may have a significant impact on the environment. The project's greenhouse gas (GHG) emissions are primarily from mobile source activities and are shown in Table 3.4.8-1.

Table 3.4.8-1
Estimated Annual Greenhouse Gas Emissions

	CO_2 Emissions metric tons	CH_4 Emissions metric tons	N_2O Emissions metric tons	CO_2e Emissions metric tons
Project Operations	1,397.64	2.11	0.07	1,470.52
2005 BAU	2,539.71	3.00	0.24	2,686.85
BAU less Project emissions				45.3%

The amount of CO_2e emissions that would be generated by the Project (1,470.5 metric tons-per-year) is so small in relation to the California CO_2e estimates for 2020 (596 million CO_2e)

that it's not possible for the contribution of the project to be cumulatively considerable (Trinity Consultants, 2022). Additionally, the Project's GHG emissions are less than the 2005 business-as-usual emissions for the project by 1,195 metric tons-per-year of CO_2e, which is a 45.3% reduction. Therefore, the project would not generate a cumulatively considerable GHG impact, nor would it conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The project will also not conflict with any elements of the California Air Resources Board's 2008 Climate Change Scoping Plan. Therefore, the Project would have a less than significant impact.

The SJVAPCD does not have thresholds or guidance regarding the significance of construction related emissions. Overall, the impacts to occur during the construction phase would be short-term and temporary in nature. As there are no current significance thresholds to quantify construction emissions and because construction-related impacts are considered temporary they are therefore, generally considered less than significant. In addition, construction of the proposed project would still have to comply with the SJVAPCD's regulation and requirements as discussed in the air quality section.

The project will not generate long-term emissions over the life of the project. Therefore, the project is considered less than significant for GHG emission impacts.

MITIGATION MEASURES

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***

Impact #3.4.8b – Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

See response to Impact #3.4.8a.

The proposed project will not exceed the SPAL GHGs established by the SJVAPCD. Therefore, the project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant

MITIGATION MEASURES

No mitigation required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.9 - *Hazards and Hazardous Materials*				
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires??	☐	☐	☒	☐

The discussion below is based on the Phase I Environmental Site Assessment completed for the project, and is attached as Appendix C (Krazan & Associates, 2021).

Discussion

Impact #3.4.9a –Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

Project construction-related activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction-related activities. As such, these materials could expose human health or the environment to undue risks associated with their use and no significant impacts will occur during construction activities.

Transportation, storage, use, and disposal of hazardous materials during construction activities will be required to comply with applicable federal, State, and local statutes and regulations. Transportation of hazardous materials is regulated by US Department of Transportation and Caltrans. Additionally, the City's routes that have been designated for hazardous materials transport would be used. Any hazardous waste or debris that is generated during construction of the proposed project would be collected and transported away from the site and disposed of at an approved off-site landfill or other such facility. In addition, sanitary waste generated during construction would be managed through the use of portable toilets, which would be located at reasonably accessible on-site locations.

Residential construction generally uses fewer hazardous chemicals or use chemicals in relatively small quantities and concentrations as compared to commercial or industrial uses. Hazardous materials such as paint, bleach, water treatment chemicals, gasoline, oil, etc., may be used during construction. These materials are stored in appropriate storage locations and containers in the manner specified by the manufacturer and disposed of in accordance with local, federal, and State regulations. No significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous waste during construction or operation of the new residential development would occur.

Project Operation

Once constructed, the use of such materials such as paint, bleach, etc, are considered common for residential developments and would be unlikely for such materials to be stored or used in such quantities that would be considered a significant hazard. The project itself will not generate or use hazardous materials in a manner outside health department requirements. Operation activities will comply with the California building code, local building codes, and any applicable safety measures.

Based on the analysis above, project construction and operation are not anticipated to result in significant impacts as a result of the transportation, use, or disposal of hazardous materials. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.9b – Would the project 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?

Hazardous materials handling on the project site during construction of may result in soil and groundwater contamination from accidental spills. Due to the size of the project, each construction phase would be required to prepare and implement a SWPPP as required per MM GEO-1.

Given that the project site was previously used for agricultural purposes, there is potential of underground storage tanks (USTs) being located at the site. This would be considered a potential area of concern and would need to be properly destroyed in accordance with the State and local guidelines.

Construction and operational activities will also be required to comply with the California fire code to reduce the risk of potential fire hazards. All project plans would comply with State and local codes and regulation. The City's Fire Department will be responsible for enforcing provisions of the fire code.

Review of the State of California Department of Toxic Substances Control (DTSC) Envirostor database available via the DTSC's Internet Website indicated that no sites including State response sites, voluntary cleanup sites, school cleanup sites, or military or school evaluation sites are listed for the subject site or adjacent properties. Additionally, no Federal Superfund – National Priorities List (NPL) sites were determined to be located within a one-mile radius of the subject site (Department of Toxic Substances Control, 2021).

There are no active Geologic Energy Management Division (CalGEM) identified oil or gas fields in the project vicinity and there are no known existing or historical oil wells on the project site (CalGEM, 2021). As such, it is not expected that any wells would be impacted by the project.

As noted in Impact #3.4.9, a, above, if during the construction phase of the project there is a use of hazardous materials, the safe handling and storage of hazardous materials consistent with applicable local and State regulations will be required.

The proposed project is not anticipated to create a significant hazard to the public or the environment and impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.9c – Would the project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

As noted previously, the closest schools are Liberty Middle School at approximately 0.44 miles to the south, Meadow Lane Elementary School at approximately 0.63 miles to the east, Freedom Elementary School at approximately 0.71 miles to the southwest, Mary Immaculate Queen School at approximately 0.69 miles to the southeast, Lemoore Head Start at approximately 0.73 miles to the southwest, and Ruiz Family Child Care at approximately 0.89 miles to the east..

However, construction of the project would require the use of minimal hazardous materials and require implementation of BMPs when handling any hazardous materials, substances, or waste. As noted in Impact #3.4.3a, emissions from construction and related activities are expected to be minimal and not significant. Once constructed, the residential project is not expected to result in hazardous emissions. Therefore, impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant.***

Impact #3.4.9d – Would the project be located on a site that 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?

As noted in Impact #3.4.9b, there are no known existing hazardous material conditions on the property and the property is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and the Department of Toxic Substances Control. The Project itself will not generate or use hazardous materials in a manner outside health department requirements.

The Department of Toxic Substances Control (DTSC) website, *Envirostor*, indicated that there are no active hazardous or toxic sites in the vicinity (within one mile) of the Project site (Department of Toxic Substances Control, 2021). The State Water Resources Control Board website, GeoTracker, indicated that there are no Permitted Underground Storage Tanks, Leaking Underground Storage Tanks, or any other active remediation and cleanup sites on or in the vicinity (within one mile) of the Project site (California Water Resources Board, 2021). However, USTs on rural or agricultural properties historically have been exempt from requirements for registration with regulatory agencies. It is therefore possible that subsurface features such as unregistered USTs may exist in the vicinity of the former on-site structures which remain unknown based upon the absence of any regulatory, municipality, interview data, or other evidence indicating their presence or location. If an UST is discovered, it should be properly destroyed in accordance with local guidelines.

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 and would not create a significant hazard to the public or the environment. The Project site is not within the immediate vicinity of a hazardous materials site and would not impact a listed site. Therefore, there would be a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.9e – For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

There are no public airports within two miles of the project site. Naval Air Station Lemoore (NAS Lemoore) runways are located approximately 8 miles to the west of the project site. The closest public airport is the Hanford Municipal Airport, located approximately 9 miles east of the project. The project is not within an airport land use compatibility plan area. The construction and operation of the project would not result in the generation of noise levels beyond those that exist in the surrounding area. Therefore, the project would not expose people residing or working in the project area to excessive noise levels, and there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

Level of Significance

There would be ***no impact***.

Impact #3.4.9f –Would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

The 2015 Kings County Emergency Operations Plan (EOP) establishes emergency procedures and policies and identifies responsible parties for emergency response in the County and includes the incorporated City of Lemoore (Kings County, 2015). The EOP includes policies that would prevent new development from interfering with emergency response of evacuation plans.

The General Plan also provides guidance to City staff in the event of extraordinary emergency situation associated with natural disaster and technological incidents (City of Lemoore, 2008). The project would also comply with the appropriate local and State requirements regarding emergency response plans and access. The proposed project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities.

Additionally, the proposed project is required to adhere to the standards set forth in City Municipal code 9-7U-8, 17.36.020 and 18.82D.120, which identifies the design standards for emergency access during both the project's construction and operational phases (City of Avenal , 1988). The project would also comply with the appropriate local and State requirements regarding emergency response plans and access. The proposed Project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities.

The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the project would have a less than significant impact

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.9g – Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The majority of the City is considered to have either little or no threat or a moderate threat of wildfire. Only one percent of the area within Lemoore city boundaries currently has a high threat of wildfire. Wildfire hazard present in the City should decrease as vacant parcels become developed (City of Lemoore, 2008).

The project site is in an un-zoned area of the Kings County Fire Hazard Severity Zone Map Local Responsibility Area (LRA) (Cal Fire, 2006). However, Cal Fire has determined that portions of the City of Lemoore are categorized as a Moderate Fire Hazard Severity Zone in LRA. The project site is not located within proximity of a wildland area.

Project-related activities at the project site are not expected to increase the risk of wildfires. The General Plan includes policies that would protect the project and the community from fire dangers. These include the enforcement of fire codes during project-related activities. In addition, developers are required to pay impact fees that offset the impact of residential development on public services, such as fire protection.

The Lemoore City Fire Department, located approximately one mile away, would provide fire protection services to the project. The project will comply with all applicable State and local building standards as required by local fire codes, as well as impact fees to support additional fire protection services. The project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.10 - Hydrology and Water Quality				
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on or offsite?	☐	☒	☐	☐
. ii. Substantially increase the rate of amount of surface runoff in a manner which would result flooding on or offsite?	☐	☒	☐	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☒	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

Impact #3.4.10a – Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Project construction would cause ground disturbance that could result in soil erosion or siltation and subsequent water quality degradation offsite, which is a potentially significant impact. Construction-related activities would also involve the use of materials such as vehicle fuels, lubricating fluids, solvents, and other materials that could result in polluted runoff, which is also a potentially significant impact. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling and grading activities could result in increased erosion and sedimentation to surface waters. However, the potential consequences of any spill or release of these types of materials are generally minimal due to the localized, short-term nature of such releases. The volume of any spills would likely be relatively small because the volume in any single vehicle or container would generally be anticipated to be less than 50 gallons.

As noted in Impact #3.4.9b, accidental spills or disposal of potentially harmful materials used during construction could possibly wash into and pollute surface water runoff. Mitigation Measure MM GEO-1 requires the preparation and implementation of a SWPPP to comply with the Construction General Permit requirements. With implementation of MM GEO-1, the proposed project would not violate any water quality standards or waste discharge requirements. Once constructed, the project would drain water into the existing City sewer system and would not degrade surface or groundwater quality and impacts would be less than significant.

MITIGATION MEASURE(S)

Implementation of Mitigation Measure MM GEO-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.10b – Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The water purveyor for the project is the City of Lemoore. The City has adopted an Urban Water Management Plan (UWMP) (City of Lemoore, 2017). This document is a planning tool that was created to help generally guide the actions of urban water suppliers in successfully preparing for potential water supply disruptions and issues. It provides a framework for long-term water planning and informs the public of a supplier's plans for long-term resource planning that ensures adequate water supplies for existing and future demands.

The City currently utilizes local groundwater as its sole source of municipal water supply. The City's municipal water system extracts its water supply from underground aquifers via six active groundwater wells within the city limits. The City maintains four ground-level storage reservoirs within the distribution system, with a total capacity of 4.4 million gallons (MG) (City of Lemoore, 2017). The groundwater basin underlying the City is the Tulare Lake Basin as defined in the Department of Water Resources Bulletin 118 for construction and operation would come from the City of Lemoore's existing water system.

Per the City's 2015 UWMP, the City's existing system has a total supply capacity of 21,674,000 gallons per day with an average day demand of 8,769,000 gallons (City of Lemoore, 2017). The proposed project consists of 148 dwelling units and the average household size in Lemoore is 2.99 or approximately 444 people (U.S. Census Bureau, 2021). Some of the homes would be bought by existing City residents, while new residents will also move into the City from outside the area.

According to the City's UWMP, actual water used in 2015 for single families was 128 gallons per capita per day (gpcd). Therefore, once constructed, the proposed project would result in an estimated water demand of 61,272 gallons per day (444 people x 128 gallons/day = 61,272 gallons/day). The City's anticipated groundwater supplies were determined to be sufficient to meet all demands through the year 2040, even under multiple dry year drought conditions (City of Lemoore, 2017). Therefore, the project will have a less than significant impact related to groundwater demand.

Water would be used for purposes of dust control during grading and construction as well as for minor activities such as washing of construction equipment and vehicles. Water demands generated by the project during the construction phase would be temporary and not substantial. It is anticipated that groundwater supplies would be adequate to meet construction water demands generated by the project without depleting the underlying aquifer or lowering the local groundwater table. Therefore, project construction and full buildout would not deplete groundwater supplies and impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.10c(i) – Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?

The Project site is relatively flat grading would be minimal. The topography of the site would not appreciably change because of grading activities. The site does not contain any blue-line water features, including streams or rivers. The rate and amount of surface runoff is determined by multiple factors, including the following: topography, the amount and intensity of precipitation, the amount of evaporation that occurs in the watershed and the amount of precipitation and water that infiltrates to the groundwater. The proposed project would alter the existing drainage pattern of the site, which would have the potential to result in erosion, siltation, or flooding on- or off-site. The disturbance of soils on-site during construction could cause erosion, resulting in temporary construction impacts. In addition, the placement of permanent structures on-site could affect drainage in the long-term. Impacts from construction and operation are discussed below.

As discussed in Impact #3.4.10a. above, potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction. Construction-related erosion and sedimentation impacts as a result of soil disturbance would be less than significant after implementation of an SWPPP (see Mitigation Measure MM GEO-1) and BMPs required by the NPDES. No drainages or other water bodies are present on the Project site, and therefore, the proposed project would not change the course of any such drainages.

Once constructed, the project would develop areas of impervious surfaces that would reduce the rate of percolation at the site or concentrate, but areas of open space and the proposed stormwater retention basin will allow for the percolation of stormwater to recharge the aquifer, or the water would be directed into the City's existing stormwater sewer system. The project would comply with applicable City development standards and codes. Therefore, the project would have a less than significant impact on drainage patterns or cause substantial erosion or siltation on or off the site.

MITIGATION MEASURE(S)

Implementation of MM GEO-1

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.10c(ii) – Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?

No drainages or other water bodies are present on the project site and therefore, development of the site would not change the course of any such drainages that may potentially result in on or offsite flooding. Water would be used during the temporary construction phase of the Proposed project (e.g., for dust suppression). However, any water used for dust control would be mechanically and precisely applied and would generally infiltrate or evaporate prior to running off.

The project site is flat, and grading would be minimal. The topography of the site would not change because of grading activities, and it does not contain any water features, streams or rivers. The potential for construction of the proposed project to alter existing drainage patterns would be minimized through compliance with preparation of a SWPPP (MM GEO-1). With implementation of such measures, the project would not substantially increase the amount of runoff in a manner that would result in flooding on- or off-site. Impacts would be reduced to less than significant levels.

Mitigation Measure(s)

Implement MM GEO-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated.***

Impact #3.4.10c(iii) – Would the project 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 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?

Please see response #3.4.10(a through c), above. The project would comply with all applicable State and City codes and regulations. The storm drainage plan will be supported by engineering calculations to ensure that the project does not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, the project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.10c(iv) – Would the project 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 impede or redirect flood flows?

As discussed above in Impact #3.4.10a through c(iii), construction activities could potentially degrade water quality through the occurrence of erosion or siltation at the project site.

Construction of the project would include soil-disturbing activities that could result in erosion and siltation, as well as the use of harmful and potentially hazardous materials required to operate vehicles and equipment. The transport of disturbed soils or the accidental release of potentially hazardous materials could result in water quality degradation. The project would be required comply with the NPDES Construction General Permit. A SWPPP would be prepared to specify BMPs to prevent construction pollutants as required by MM GEO-1. The proposed project would not otherwise substantially degrade water quality.

As discussed above, the existing drainage pattern of the site and area would be affected by project development. However, the project will connect to the existing stormwater sewer system, and therefore potential impacts resulting from the impeding or redirection of flood flows would be less than significant. Therefore, the project will have a less-than-significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation MM GEO-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated****.*

Impact #3.4.10d – Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project site is not located near the ocean or a steep topographic feature (i.e., mountain, hill, bluff, etc.). Additionally, there is no body of water within the vicinity of the project site. The proposed project's inland location makes the risk of tsunami highly unlikely. The probability of a seiche occurring in the City of Lemoore is considered negligible.

As shown in Figure 3.4.10-1, the project is not located within a FEMA 100-year floodplain. As such, the project would not place housing within a 100-year flood hazard area as mapped on a federal flood hazard boundary or flood insurance rate map or other flood hazard delineation map.

The project site is located approximately XX miles of the Pine Flat Dam which is managed by the U.S. Army Corps of Engineers. In the case of dam failure, flood waters would not reach the City for hours. The extremely low probability of dam failure, large volume of flood water available for dilution of potential pollutants, and the relatively long warning period to prepare, indicate that inundation due to dam failure would not have a significant impact on the project (City of Lemoore , 2008).

There is no potential for inundation of the Project site by seiche. Therefore, the Project would not contribute to inundation by seiche, tsunami, or mudflow.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.10e – Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Please see response #3.4.10b above.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

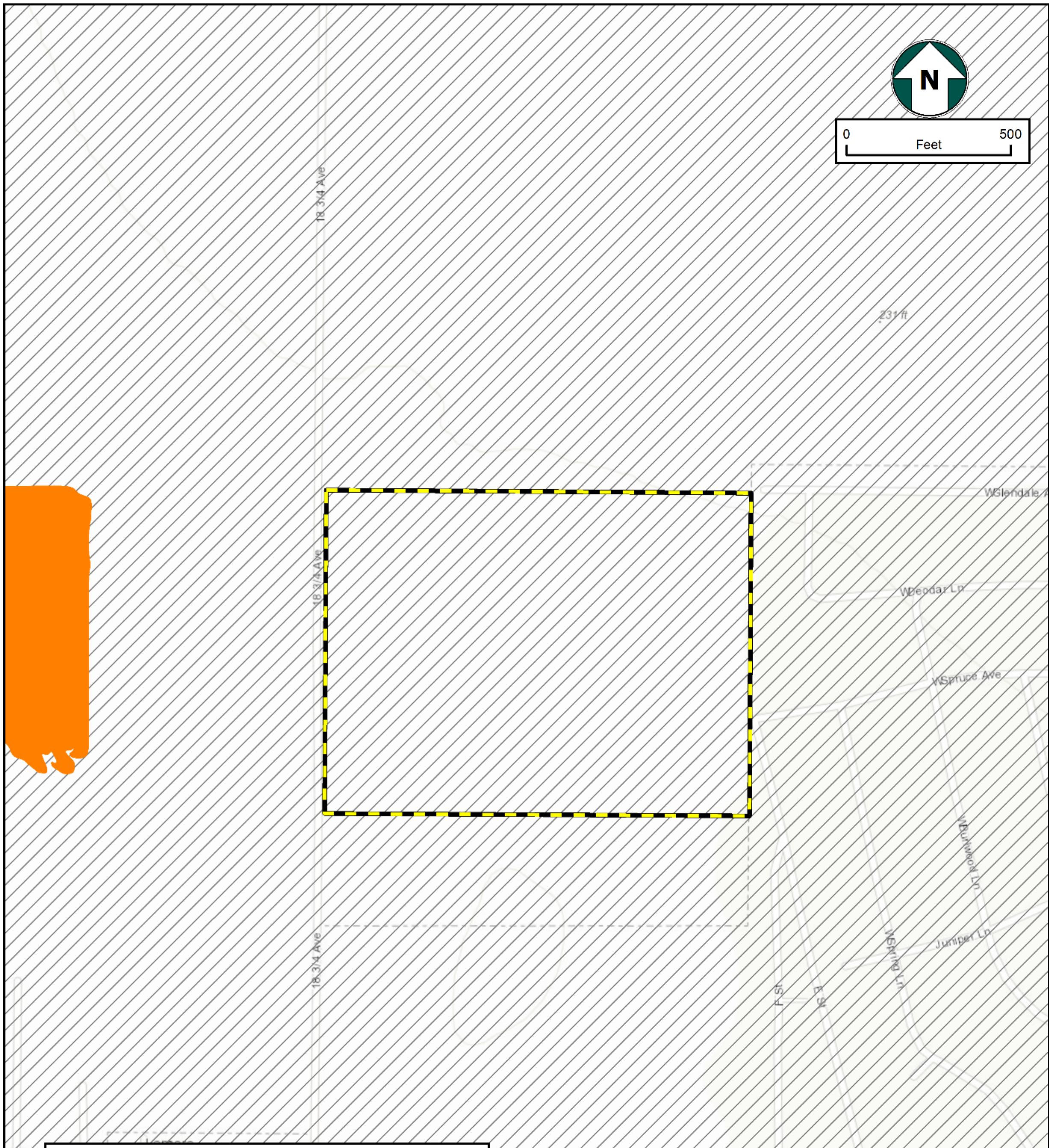

Figure 3.4.10-1
100-Year Floodplain

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.11 - Land Use and Planning				
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion

Impact #3.4.11a – Would the project physically divide an established community?

There is existing residential development to the east and south, with undeveloped agricultural land uses to the west and north. The project will not physically divide an established community. There would be no impact.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

Impact #3.4.11b – Would the project 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?

The project will be annexed into the City and pre-zoned as Low Density Residential. The site is surrounded by residential and agricultural land uses. The Low-Density Residential land use designation allows for densities between 3 to 7 units per acre. The proposed project would include 148 units on approximately 30 acres of currently undeveloped land, for a density of approximately 4.9 units per acre. Within the project vicinity, there are single family residential developments and agricultural lands.

The proposed residential use is allowed within this land use designation, and the project does not exceed the maximum density, therefore the project is not dividing an established community. The project is not being built in a pre-existing community area and would not create any physical barrier between an established community. There would be no impact.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.12 - Mineral Resources				
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion

Impact #3.4.12a – Would the project 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?

The California Department of Conservation, Geological Survey classifies lands into Aggregate and Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act of 1974. These MRZs identify whether known or inferred significant mineral resources are present in areas. Lead agencies are required to incorporate identified MRZs resource areas delineated by the State into their General Plans. The City of Lemoore and the surrounding area have no mapped mineral resources, and no regulated mine facilities (City of Lemoore, 2008). Additionally, per the California Department of Conservation - Geologic Energy Management Division (CalGEM), there are no active, inactive, or capped oil wells located within the project site, and it is not within a CalGEM-recognized oilfield. The project design does not include mineral extraction. 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 and would therefore have no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

Impact #3.4.12b – Would the project 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?

See Impact #3.4.12a, above. The Project would not 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 and would therefore have no impact.

Mitigation Measures

No mitigation is required.

Level of Significance

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.13 - NOISE				
Would the project result in:				
a. Exposure of persons to, or generate, noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b. Exposure of persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

Impact #3.4.13a – Would the project result in exposure of persons to, or generate, noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Land uses deemed sensitive receptors include schools, hospitals, rest homes, and long-term care and mental care facilities, which are considered to be more sensitive to ambient noise levels than others. The nearest sensitive land uses include residential homes bordering the site to the south and the east.

Stationary noise sources can also influence the population, and unlike mobile, transportation-related noise sources, these sources generally have a more permanent and consistent impact on people. These stationary noise sources involve a wide spectrum of uses and activities, including various industrial uses, commercial operations, agricultural production, school playgrounds, high school football games, HVAC units, generators, lawn maintenance equipment and swimming pool pumps.

During the construction phase of the project, noise generating activities will be present, however, it will be temporary in nature and any machinery used as a part of the construction of the Project will be muffled. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours. Operation of the facility would not generate noise levels significantly higher than the existing levels in the project area.

The City of Lemoore 2030 General Plan Section 8.6-Noise provides a land use compatibility for community noise environment thresholds for schools of acceptable up to 70 dB (City of Lemoore, 2008). Construction and operation of the project will not exceed this standard.

Once constructed, the Project would not significantly increase traffic on local roadways. Residential activities could also result in an increase in ambient noise levels in the immediate Project vicinity. Activities that could be expected to generate noise include cars entering and exiting the development, as well as mechanical systems related to heating, ventilation, and air conditioning systems located on residential buildings. This noise would be similar to those generated by the nearby existing residential development and would not be of a level that exceeds thresholds. Implementation of the Mitigation Measure NSE-1 will reduce the temporary noise impacts from construction-related activities to levels that will be less than significant.

Therefore, these increases in ambient noise are considered less than significant and consistent with applicable standards.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with mitigation incorporated*.

MITIGATION MEASURE

MM NSE-1: During construction, the contractor shall implement the following measures:

a. All stationary construction equipment on the Project site shall be located so that noise emitting objects or equipment faces away from any potential sensitive receptors.
b. The construction contractor shall ensure that all construction equipment is equipped with manufacturer-approved mufflers and baffles. During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.
c. Construction activities shall take place during daylight hours, when feasible.

Impact #3.4.13b – Would the project result in exposure of persons to or generate excessive groundborne vibration or groundborne noise levels?

The proposed project is expected to create temporary ground-borne vibration as a result of the construction activities (during site preparation and grading). According to the U.S. Department of Transportation, Federal Railroad Administration, vibration is sound radiated through the ground. The rumbling sound caused by the vibration is called ground-borne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB). The background vibration velocity level in residential areas is usually around 50 VdB. A list of typical vibration-generating equipment is shown in Table 3.4.13-1. However, the project does not propose to use this specific equipment. The table is meant to illustrate typical levels of vibration for various pieces of equipment.

Table 3.4.13-1
Different Levels of Ground-borne Vibration

Vibration Velocity Level	Equipment Type
94 VdB	Vibratory roller
87 VdB	Large bulldozer
87 VdB	Caisson drilling
86 VdB	Loaded trucks
79 VdB	Jackhammer
58 VdB	Small bulldozer

Source: (Federal Transit Administration , 2006)
Note: 25 feet from the corresponding equipment.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximately dividing line between barely perceptible and distinctly perceptible levels for many people.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations (Federal Highway Administration (FHWA), U.S. Department of Transportation, 2017). In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 inch/second) appears to be conservative even for sustained pile driving. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. The typical vibration produced by construction equipment is illustrated in Table 3.4.13-2.

Table 3.4.13-2
Typical Vibration Levels for Construction Equipment

Equipment	Reference peak particle velocity at 25 feet (inches/second)[1]	Approximate peak particle velocity at 100 feet (inches/second)[2]
Large Bulldozer	0.089	0.011
Loaded Trucks	0.076	0.010
Small Bulldozer	0.003	0.000
Auger/drill Rigs	0.089	0.011
Jackhammer	0.035	0.004

Vibratory Hammer	0.070	0.009
Vibratory Compactor/roller	0.210	0.026

Notes:
1 – Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006. Table 12-2.
2 – Calculated using the following formula: PPV equip = PPVref x (25/D)1.5
where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance PPV (ref) = the reference vibration level in in/sec from Table 12-2 of the FTA Transit Noise and Vibration Impact Assessment Guidelines
D = the distance from the equipment to the receiver

As indicated in Table 3.4.13-2, based on the FTA data, vibration velocities from typical heavy construction equipment that would be used during project construction range from 0.076 to 0.210 inch-per-second peak particle velocity (PPV) at 25 feet from the source of activity. With regard to the proposed Project, groundborne vibration would be generated during site clearing and grading activities onsite facilitated by implementation of the proposed project. As demonstrated in Table 3.4-13-2, vibration levels at 100 feet would range from 0.010 to 0.026 PPV. Therefore, the anticipated vibration levels would not exceed the 0.2 inch-per-second PPV significance threshold during construction at the nearest receptors, which is approximately 100 feet to the east and south.

Typical outdoor sources of perceptible ground-borne vibration are construction equipment and traffic on rough roads. For example, if a roadway is smooth, the ground-borne vibration from traffic is rarely perceptible.

Typically, ground-borne vibration generated by construction activity attenuates rapidly with distance from the source of the vibration. Therefore, vibration issues are generally confined to distances of less than 500 feet (U.S. Department of Transportation, 2005). Potential sources of temporary vibration during construction of the proposed project would be minimal and would include transportation of equipment to the site.

Construction activity would include various site preparation, grading, in fabrication, and site cleanup work. Construction would not involve the use of equipment that would cause high ground-borne vibration levels such as pile-driving or blasting. Once constructed, the proposed project would not have any components that would generate high vibration levels. Thus, construction and operation of the proposed project would not result in any vibration and impacts would be less than significant.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant.***

Impact #3.4.13c – For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

There are no public airports within two miles of the project site. The NAS Lemoore runways are located 9 miles to the west of the project site. The closest public airport is the Hanford Municipal Airport, located approximately 9 miles east of the project. The project is not within an airport land use compatibility plan area. There is no adopted airport land use plan that includes the City of Lemoore. Therefore, the project would not expose people residing or working in the project area to excessive noise levels. Therefore, there would be no impact.

MITIGATION MEASURES

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

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

Discussion

Impact #3.4.14a – Would the project induce substantial 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)?

According the California Department of Finance estimate, the City's population was 26,257 in 2019. The City anticipates a 3.1 percent annual increase in population, with an estimated population of 34,719 in 2025 and 47,115 by 2035 (City of Lemoore, 2017). The project would accommodate population growth in this area through the development of new residential units. The project is adjacent to existing and planned residential development and is therefore the logical extension of existing urban development.

The City's General Plan goals include encouraging residential developments to meet the future population growth needs. This means that by 2035, 20,858 additional people would need housing in the Lemoore area. This project accommodates this anticipated increase in City's population by providing 148 new residences for existing and future residents. Therefore, the project would not induce substantial population growth in an area, either directly or indirectly.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.14b – Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Construction of the project would likely be completed by construction workers residing in the City or the surrounding area; they would not require new housing. The proposed project would not require demolition of any housing, as the project site is currently undeveloped. Therefore, there would be no need to construct replacement housing elsewhere. There would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be ***no impact***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.15 - PUBLIC SERVICES				
Would the project:				
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 to other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

Discussion

Impact #3.4.15a(i) – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – fire protection?

The closest station to the project site is located at 210 Fox Street, approximately 1 mile south of the project site. The project will not result in significant environmental impacts related to acceptable service ratios, response times, or to other performance objectives fire protection services.

The proposed project will comply with Title 24 of the California Building Code and local development standards. Prior to recordation of any subdivision map, the applicant will be required to enter into an agreement with the City to contribute towards necessary fire protection equipment and/or facilities as determined through negotiations between the City and the applicant.

An approved water supply system capable of supplying required fire flow for fire protection purposes is to be installed by the project. The establishment of gallons-per-minute requirements for fire flow shall be based on the *Guide for Determination of Required Fire Flow*, published by the State Insurance Service Office and the City's adopted Fire Code.

Fire hydrants would also be located and installed per the City fire standards. The project would install the required infrastructure to meet water supply demands for fire protection services. These design standards coupled with existing fire protection infrastructure would provide the proper fire suppression services onsite. Development of the project will increase the need for fire protection services and expand the service area and response times of the local City Fire Department. By incorporating the fire standards and the required design features in the project design additional fire protection services will be required to provide coverage for the project. Because the project will increase both the need and the demand for fire protection services in the City, the project will comply with impact fee requirements, which would reduce impacts to fire protection to less than significant levels.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.15a(ii) – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – police protection?

The City's police station is located at 657 Fox Street, approximately a half mile south of the project site. The proposed project would be located adjacent to residential subdivisions that are served by the City police station. The project may result in significant environmental impacts related to acceptable service ratios, response times, or to other performance objectives specific to police protection services and expanded police coverage may be required. The project proposes additional residential development in a previously undeveloped location, which will increase the need for police services. However, the project will pay appropriate development fees based on the adopted fee calculations and is responsible for constructing any infrastructure needed to serve the project. Impacts would be *less than significant*.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

Impact #3.4.15a(iii) – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response

Buildout of the General Plan will result in the addition of 148 single family households. Student generation factors by household type, shown in Table 3.4.15-3, are used to calculate future enrollment. School size assumptions for households in the Planning Area are as follows:

- K–6: 51 students
- 7–8: 13 students
- 9–12: 26 students

Table 3.4.15-2
Student Generation Factors

	Household Type	
Type	**Single Family**	**Multi-family**
Elementary School (K-6)	0.354	0.320
Middle School (7-8)	0.088	0.070
High School (9-12)	0.183	0.117
Total	**0.625**	**0.507**

Source: Lemoore Union Elementary School District and Lemoore Union High School District, 2006.

The increased population generated by the proposed project would increase the number of students attending local schools and could result in significant impacts to these facilities by requiring new facilities. The proposed project would require the payment of developer fees of $3.79 per square foot of new residential construction to offset the school district's student classroom capacity. The developer will pay appropriate impact fees at time of building permits. According to Government Code Section 65996, the development fees authorized by SB 50 are deemed "full and complete school facilities mitigation."

Mitigation Measure(s)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.15a(iv) – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – parks?

The project is within the boundaries of the Lemoore Parks and Recreation District. The proposed project includes uses that would increase the use of park and recreation facilities in the area. The City presently owns and maintains 7 parks. The nearest park to the site is Lions Park approximately half a mile south. Park and recreation fees (Quimby) are collected for new residential developments. The project review and approval process will ensure that all park related fees are paid by the applicant. These requirements will ensure that the proposed Project does not significantly affect park and recreation facilities. Impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.15a(v) – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services – other public facilities?

Community facilities are the network of public and private institutions that support the civic and social needs of the population. They offer a variety of recreational, artistic, and educational programs and special events. New community facilities are not specifically sited on the General Plan Land Use Diagram. Small-scale facilities are appropriately sited as integral parts of neighborhoods and communities, while existing larger-scale facilities are generally depicted as public/semi-public land use, as appropriate (City of Lemoore , 2008).

Other public facilities include libraries, refuse pick up, and other services. All jurisdictions collect planning and building fees as well as impact fees for new development, as necessary. Property owners would also pay property taxes, some of which are used to pay for improvements to other City services and facilities. Therefore, the project would not 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 other public facilities.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

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

Discussion

Impact #3.4.16a – Would the project Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

See Impact #3.4.15a(ii) above.

Although the proposed project does include uses that would increase the use of park and recreation facilities in the area, the proposed project will not result in the physical deterioration of existing parks or recreational facilities. With the payment of the development impact fees, there would be a less than significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.16b – Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

See Impact #3.4.15a, above.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

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

Discussion

A Traffic Study was prepared for this project (Peters Engineering Group, 2022) and is included in Appendix E.

Impact #3.4.17a – Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Transit

The Kings Area Rural Transit (KART) operates two transit routes in Lemoore. Route 12, KART Transit Center to Skyline and Union, has stops at Bush and Belle Haven and West Hills College (WHC). The route operates Monday through Friday with three a.m. and two p.m. stops starting around 8:10 a.m. and stopping at 5:00 p.m. Route 20, KART Transit Center to WHC, likewise has stops at Bush and Belle Haven and WHC. This route operates Monday through Friday from approximately 6:10 a.m. to 10:40 a.m. with 30-minute headways. The project construction and operation will not create any delays or closures to the transit system.

Bike

The nearest existing bike path is located along Hanford-Armona Road 0.25 miles south of the project site. The construction and operation of the project would not interfere with the bike lane.

Roadways

The City of Lemoore does not have an adopted level of service standard, however, per the General Plan most traffic studies use a LOS "D" as their standard for traffic impact study purposes. Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities.

The project trip generation and design hour volumes shown in Table 3.4.17-1 were estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

Table 3.4.17-1
Project Estimated Trips

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)	148	9.43	1,396	0.70	26:74	27	77	104	0.94	63:37	88	52	140

(Peters Engineering Group, 2022)

As shown in Table 3.4.17-2, the intersections within the scope of the study are anticipated to operate at an acceptable level of service prior to and with the addition of project traffic.

Table 3.4.17-2
Traffic Conditions Analysis

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
Intersection LOS Summary - Existing and Existing-Plus-Project Conditions									
SR 41/Hanford-Armona	Signals	21.9	C	19.0	B	22.7	C	19.9	B
19th Ave/Hanford-Armona	OWS	22.3	C	21.1	C	23.8	C	22.6	C
19th Ave/Cinnamon	AWS	19.1	C	10.8	B	19.5	C	10.9	B
Liberty/Hanford-Armona	TWS	**67.5**	**F**	23.0	C	**104.6**	**F**	27.6	D
Fox-Antelope/Hanford-Armona	Signals	17.1	B	15.8	B	17.2	B	15.9	B
Lemoore/Glendale	TWS	14.2	B	12.7	B	14.6	B	13.1	B

Lemoore/Hanford-Armona	Signals	23.6	C	21.8	C	24.0	C	22.0	C
Intersection LOS Summary - Existing and Near-Term With-Project Conditions									
SR 41/Hanford-Armona	Signals	21.9	C	19.0	B	30.6	C	25.9	C
19th Ave/Hanford-Armona	OWS	22.3	C	21.1	C	**72.7**	**F**	**55.4**	**F**
19th Ave/Cinnamon	AWS	19.1	C	10.8	B	22.6	C	11.4	B
Liberty/Hanford-Armona	TWS	**67.5**	**F**	23.0	C	**>300**	**F**	**119.2**	**F**
Fox-Antelope/Hanford-Armona	Signals	17.1	B	15.8	B	20.1	C	16.9	B
Lemoore/Glendale	TWS	14.2	B	12.7	B	23.8	C	25.9	D
Lemoore/Hanford-Armona	Signals	23.6	C	21.8	C	30.5	C	24.8	C
Intersection LOS Summary - Existing and Year 2042 Conditions									
SR 41/Hanford-Armona	Signals	21.9	C	19.0	B	43.4	D	39.1	D
19th Ave/Hanford-Armona	OWS	22.3	C	21.1	C	**76.0**	**F**	**76.8**	**F**
19th Ave/Cinnamon	AWS	19.1	C	10.8	B	**38.6**	**E**	12.7	B
Liberty/Hanford-Armona	TWS	**67.5**	**F**	23.0	C	**>300**	**F**	**>300**	**F**
Fox-Antelope/Hanford-Armona	Signals	17.1	B	15.8	B	21.6	C	17.8	B
Lemoore/Glendale	TWS	14.2	B	12.7	B	31.5	D	33.9	D
Lemoore/Hanford-Armona	Signals	23.6	C	21.8	C	32.3	C	27.3	C

Note: DNE: does not exist OWS: one-way stop TWS: two-way stop AWS: all-way stop

As shown in Table 3.4.17-2, with the development of near-term projects and the proposed project, the intersections at 19th Avenue and Hanford-Armona Road, and the intersection at Liberty Drive and Hanford-Armona Road would operate below an acceptable level of service. It is anticipated that these intersections would also operate below LOS D at year 2042. The remaining intersections within the scope of study are anticipated to operate at acceptable levels of service during the peak hour.

To mitigate the intersections that are projected to operate below the appropriate adopted level of service standard, MM TRA-1 should be implemented.

MITIGATION MEASURE(S)

MM TRA-1: Prior to the issuance of building permits, the developer shall pay it's pro rata share for signalization of the following intersections:

- 19th Avenue and Hanford-Armona Road
- Liberty Drive & Hanford-Armona Road

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.17b – Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

The State of California Governor's Office of Planning and Research document entitled *Technical Advisory on Evaluating Transportation Impacts in CEQA* (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 (Peters Engineering Group, 2022).

The project site is located in an area that is expected to generate VMT at a rate less than 15 percent below the Countywide average per capita (Kings County Association of Governments, 2022). Therefore, the project would have less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.17c – Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The project will be designed to current standards and safety regulations. All intersections will be constructed as to comply with the City and Caltrans regulations, and design and safety standards of Chapter 33 of the California Building Codes (CBC) and the guidelines of Title 24 in order to create safe and accessible roadways.

Vehicles exiting the subdivision will be provided with a clear view of the roadway without obstructions. Landscaping associated with the entry driveways could impede such views, if improperly installed. Specific circulation patterns and roadway designs will incorporate all applicable safety measures to ensure that hazardous design features or inadequate emergency access to the site or other areas surrounding the project area would not occur.

Therefore, with the incorporated design features and all applicable rules and regulations, the project will have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.17d – Would the project result in inadequate emergency access?

See the discussion in Impact #3.4.9f.

State and City Fire Codes establishes standards by which emergency access may be determined. The proposed project would have to provide adequate unobstructed space for fire trucks to turn around. The proposed project site would have adequate internal circulation capacity including entrance and exit routes to provide adequate unobstructed space for fire trucks and other emergency vehicles to gain access and to turn around. The proposed project would not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact

3.4.18 - Tribal Cultural Resources

Would the project:

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

Discussion

Impact #3.4.18a(i) – 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 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)?

Please see Impacts #3.4.5a, #3.4.5b, and #3.4.5d, above.

On December 2, 2021 the Native American Heritage Commission (NAHC) was asked to conduct a search of its Sacred Lands File to identify previously recorded sacred sites or cultural resources of special importance to tribes and provide contact information for local Native American representatives who may have information about the project area. Letters were mailed to tribes listed in Appendix B. The letters included a brief project description and location maps (Appendix B).

A Sacred Lands File Request was also completed by the Native American Heritage Commission (NAHC) on December 2, 2021. The results of the search was deemed positive, and it was recommended that the City consult with Santa Rosa Rancheria Tachi Yokut Tribe. Outreach letters were sent to the tribal organizations on the NAHC-provided contact list, with follow-up emails sent. The Santa Rosa Rancheria responded by phone call and email and expressed concerns that the project may adversely affect cultural resources. No other tribal groups expressed concerns. Based on the consultation with the Tribe, it is determined with implementation of Mitigation Measures MM CUL-1 through MM CUL-3, the project would not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources.

MITIGATION MEASURE(S)

Implement MM CUL-1 through MM CUL-3.

LEVEL OF SIGNIFICANCE

Impact would be ***less than significant with mitigation incorporated***.

Impact #3.15.17a(ii) - 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 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?

Please see Impacts #3.4.5a, #3.4.5b, and #3.4.5d, above.

With implementation of Mitigation Measures MM CUL-1 through MM CUL-3, the project would not cause a substantial adverse change in the significance of a tribal cultural resource that is 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.

MITIGATION MEASURE(S)

Implement MM CUL-1 through MM CUL-3.

LEVEL OF SIGNIFICANCE

Impact would be ***less than significant with mitigation incorporated***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.19 - UTILITIES AND SERVICE SYSTEMS				
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider that 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?	☐	☒	☐	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion:

Impact #3.4.19a – Would the project 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?

The project would be constructed on land that has pre-zoning of Low-Density Residential. The project is located within the planned future growth and service area for the City services.

The proposed project will require construction of new infrastructure to connect to the existing utility infrastructure. This will include water, wastewater, and storm water drainage connections, all of which would be constructed to meet City development standards. Additionally, the project will include connections for electric power, natural gas, and telecommunications facilities. The installation of this infrastructure will not require any major upsizing or other offsite construction activities that would cause a significant impact. The new infrastructure would be connected to existing infrastructure that is adjacent to the project site. Electrical, natural gas, and telecommunications facilities would be placed by the individual serving utilities; these entities already have in place safety and siting protocols to ensure that placement of new utilities to serve new construction would not have a significant effect on the environment.

See Section #3.4.10- *Hydrology and Water Quality* for a discussion of wastewater disposal. The project will not require the construction of new water or wastewater treatment facilities. Water usage for dust control during construction-related activities will be minimal due to the small footprint and short duration of construction-related activities of the proposed project.

The proposed project would be subject to the payment of any applicable connection charges and/or fees and extension of services in a manner which is compliant with the Lemoore standards, specifications, and policies. All applicable local, State, and federal requirements and best management practices will be incorporated into construction and operation of the project. Impacts would be considered less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.19b – Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

See Impact #3.4.10b.

According to the City's UWMP, actual water used in 2015 for single families was 128 gallons per capita per day (gpcd). Therefore, once constructed, the proposed project would result in an estimated water demand of 61,272 gallons per day (444 people x 128 gallons/day = 61,272 gallons/day). The City's anticipated groundwater supplies were determined to be sufficient to meet all demands through the year 2040, even under multiple dry year drought conditions (City of Lemoore, 2017). Therefore, the project will have a less than significant impact related to groundwater demand.

Water would be used for purposes of dust control during grading and construction as well as for minor activities such as washing of construction equipment and vehicles. Water demands generated by the project during the construction phase would be temporary and not substantial. It is anticipated that groundwater supplies would be adequate to meet construction water demands generated by the project without depleting the underlying aquifer or lowering the local groundwater table. Therefore, project construction and full buildout would not deplete groundwater supplies and impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.19c – Would the project result in a determination by the wastewater treatment provider that 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?

The project will connect to the existing City sewer system. The generation of wastewater and water would be consistent with the City requirements. The proposed increase in water and wastewater usage at the project site is minimal and is not anticipated to require the construction of new water or wastewater treatment facilities or the expansion of existing facilities. Impacts would be less than significant.

The project will connect to the existing storm drain lines. The site engineering and design plans for the proposed project would be required to implement BMPs, comply with requirements of the City Building and Development Standards and comply with the NPDES General Permit during construction. Implementation of MM GEO-1 would reduce impacts to less than significant.

Therefore, the project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities.

MITIGATION MEASURE(S)

Implementation of MM GEO-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant.***

Impact #3.4.19d – Would the project 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?

Implementation of the proposed project would result in the generation of solid waste on the site, which would increase the demand for solid waste disposal. During construction these materials, which are not anticipated to contain hazardous materials, would be collected and transported away from the site to an appropriate disposal facility.

Solid waste disposal for Lemoore is managed by Kings Waste and Recycling Authority (KWRA). The City's PWD Refuse Division is responsible for solid waste collection services. The majority of the City's solid waste is taken to the Kettleman Hills non-hazardous landfill facility, owned by Chemical Waste Management (CWMI). The facility is located south of Lemoore and has an available capacity of 15.6 million cubic yards as of 2020 (Cal Recycle , 2020). KWRA is currently studying the future needs of solid waste services including building a new landfill to be operated by CWMI near the existing site. The County has a 25-year contract with CWMI to handle its solid waste until 2023 (City of Lemoore , 2008).

The project, in compliance with federal, State, and local statutes and regulations related to solid waste, would dispose of all waste generated onsite at an approved solid waste facility. The project does not, and would not conflict with federal, State, or local regulations related to solid waste. The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs in compliance with federal, State, and local statutes and regulations related to solid waste. Therefore, the project would have a less-than-significant impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.19e – Would the project comply with federal, State, and local management and reduction statutes and regulations related to solid waste?

See discussion for Impact #3.4.19d.

MITIGATION MEASURE(S)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.20 - *Wildfire*				
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or	☐	☐	☒	☐
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?	☐	☐	☒	☐

Discussion:

Impact #3.4.20a – Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

See Impact #3.4.9g regarding emergency response.

The project is located on the edge of an urbanized area to the east and south, and rural agriculture to the west and north. Access for emergency vehicles to the site would be maintained throughout the construction period. The project would not interfere with any local or regional emergency response or evacuation plans because the project would not result in substantial alteration to the adjacent and area circulation system.

The City has established emergency response and evacuation plans based on the Lemoore Emergency Operations Plan. Impacts related to fire hazards and emergency response plans would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.20b – Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire?

Wildfire hazard data for the Lemoore Planning Area, which includes the project, is provided by the California Department of Forestry and Fire Protection, as summarized in Table 3.4.20-1. The majority of the City is considered to have either little or no threat or a moderate threat of wildfire. Only one percent of the Planning Area currently has a high threat of wildfire. Wildfire hazard present in the Planning Area should decrease as vacant parcels become developed.

Table 3.4.20-1
Existing Wildfire Hazards

Fire Hazards	Acreage	Percent of City Area
Little or No Threat	5,648	46
Moderate	6,494	53
High	85	1
Very High	0	0
Total	**12,227**	**100**

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents) and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area to mass ratio and require less heat to reach the ignition point.

The project site and surrounding area is relatively flat and without steep slopes. The site is located in an area that is predominately urban with some ongoing agricultural activities, which is not considered at a significant risk of wildlife. There are no other factors of the project or the surrounding area that would exacerbate wildfire risks, and thereby expose project occupants to pollutant concentration from a wildfire or the uncontrolled spread of a wildfire. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.20c – Would the project, require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines?

See Impacts #3.4.20a and b, above.

The project includes development of infrastructure (water, sewer, electrical power lines, and storm drainage) required to support the proposed residential uses. The project site is surrounded by existing and future urban development. The project would require the installation or maintenance of additional electrical distribution lines and natural gas lines to connect the residences to the existing utility grid. However, the project would be constructed in accordance with all local, State and federal regulations regarding power lines and other related infrastructure, as well as fire suppression requirements. Therefore, the project would not exacerbate fire risk or result in temporary or ongoing impacts to the environment and impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant***.

Impact #3.4.20d – Would the project, 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?

The project site is not located near the ocean or a steep topographic feature (i.e., mountain, hill, bluff, etc.). Additionally, there is no body of water within the vicinity of the project site. As shown in Figure 3.4.10-1, the project is not located within a FEMA 100-year floodplain.

Landslides include rockfalls, deep slope failure, and shallow slope failure. Factors such as the geological conditions, drainage, slope, vegetation, and others directly affect the potential for landslides. The Project site is relatively flat; therefore, the potential for a landslide in the project site is essentially non-existent. Impacts would be less than significant.

Therefore, the project will not expose people or structures to risks of flooding, landslides, runoff, slope instability, or drainage changes.

Mitigation Measure(s)

No mitigation is required.

Level of Significance

Impacts would be ***less than significant***.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.21 - MANDATORY FINDINGS OF SIGNIFICANCE				
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, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion:

Impact #3.4.21a – 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, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

As evaluated in this IS/MND, the proposed project would not 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; 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. Mitigation measures have been included to lessen the significance of potential impacts. Similar mitigation measures would be expected of other projects in the surrounding area, most of which share a similar cultural paleontological and biological resources. Consequently, the incremental effects of the proposed project, after mitigation, would not contribute to an adverse cumulative impact on these resources. Therefore, the project would have a less-than-significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implement MM BIO-1 through MM BIO-8; MM CUL-1 through MM CUL-3.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.21b - Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

As described in the impact analyses in Sections 3.4.1 through 3.4.20 of this IS/MND, any potentially significant impacts of the proposed project would be reduced to a less-than-significant level following incorporation of the mitigation measures. All planned projects in the vicinity of the proposed project would be subject to review in separate environmental documents and required to conform to the City of Lemoore General Plan, zoning, mitigate for project-specific impacts, and provide appropriate engineering to ensure the development meets are applicable federal, State and local regulations and codes. As currently designed, and with compliance of the recommended mitigation measures, the proposed project would not contribute to a cumulative impact. Thus, the cumulative impacts of past, present, and reasonably foreseeable future projects would be less than cumulatively considerable.

MITIGATION MEASURE(S)

Implement MM AG-1, MM BIO-1 through MM BIO-8, MM CUL-1 through MM CUL-3, MM GEO-1, MM GEO-2, MM NSE-1, and MM TRA-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

Impact #3.4.21c - Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

All of the project's impacts, both direct and indirect, that are attributable to the project were identified and mitigated to a less-than-significant level. The project will have the appropriate engineering to ensure the development meets are applicable federal, State and local regulations and codes. Thus, the cumulative impacts of past, present, and reasonably foreseeable future projects would be less than cumulatively considerable. Therefore, the proposed project would not either directly or indirectly cause substantial adverse effects on human beings because all potentially adverse direct impacts of the proposed project are identified as having no impact, less-than-significant impact, or less-than-significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implement MM AG-1, MM BIO-1 through MM BIO-8, MM CUL-1 through MM CUL-3, MM GEO-1 through MM GEO-2, MM NSE-1, and MM TRA-1.

LEVEL OF SIGNIFICANCE

Impacts would be ***less than significant with mitigation incorporated***.

SECTION 4 - REFERENCES

ASM Affiliates, Inc. (2021). *Extended Phase I Survey for the Schlickeiser Property Project.*

Cal Fire. (2006). *California Wildland Hazard Severity Zone Map Update.* Retrieved from Local Responsibility Area (LRA) Map: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_statewide

Cal Recycle . (2020, April). *SWIS 16-AA-0023 Kettlemen Hills B18 Nonhaz Codisposal site*. Retrieved from SWIS Facility/Site Search: https://www2.calrecycle.ca.gov/SWFacilities/Directory

CalGEM. (2021). *Well Finder*. Retrieved from https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-119.82298/36.29423/14

California Building Standards Commission. (2019). *California Code of Regulations.*

California Department of Conservation. (2021). Retrieved from CA Geologic Survey Regulatory Maps: https://maps.conservation.ca.gov/cgs/DataViewer/index.html

California Department of Fish and Wildlife. (2021, March). *RareFind 5*. Retrieved from California Natural Diversity Database: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data

California Department of Tax and Fee Administration. (2021). *California Department of Tax and Fee Administration*. Retrieved from Fuel Taxes Statistics and Reports: https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm

California Department of Transportation. (2021). *California Scenic Highway Mapping System.*

California Energy Commission. (2020). *California Energy Commission*. Retrieved from 2020 Total System Electric Generation: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation#:~:text=Total%20generation%20for%20California%20was,to%2057%20percent%20in%202019.

California Energy Commission. (2020). *California Energy Commission*. Retrieved from Gas Consumption by Entity: http://www.ecdms.energy.ca.gov/gasbyutil.aspx

California Energy Commission. (2020). *Electricity Consumption by Entity*. Retrieved from http://www.ecdms.energy.ca.gov/elecbyutil.aspx

California Native Plant Society. (2021, March). *Rare Plant Inventory*. Retrieved from http://rareplants.cnps.org/

California Water Resources Board. (2021). *GeoTracker*. Retrieved March 9, 2016, from https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=desert+hot+springs%2C+ca

City of Avenal . (1988). *Ordinance No. 87-04.* Retrieved from http://www.cityofavenal.com/DocumentCenter/View/198/Ordinance--87-04?bidId=

City of Lemoore . (2008). *2030 General Plan.*

City of Lemoore. (2008). *2030 General Plan.*

City of Lemoore. (2008). *2030 General Plan.*

City of Lemoore. (2010). *2030 Lemoore General Plan: Draft Environmental Impact Report.*

City of Lemoore. (2017). *2015 Urban Water Management Plan.*

City of Lemoore. (2021). *Community Profile Information- Hazards.* Retrieved from http://www.cityofhanfordca.com/document_center/Government/Local%20Hazard%20Mitigation%20Plan/Local%20Hazard%20Mitigation%20Plan%20-%20Lemoore%20Community%20Profile.pdf

County of Kings. (2010). *General Plan 2035 .*

Department of Toxic Substances Control. (2021). EnviroStor. California, United States of America.

Federal Highway Administration (FHWA), U.S. Department of Transportation. (2017). *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/.

Federal Transit Administration . (2006). *Transit Noise and Vibration Impact Assessment.*

Kings County. (2010b). *General Plan Enviromental Impact Report.*

Kings County. (2015). *Kings County Emergency Ooperations Plan.*

Kings County. (2020). *2020 Crop Report.*

Kings County Association of Governments. (2022). *Kings County Online VMT Mapping Tool*. Retrieved from KCAG: https://www.arcgis.com/apps/webappviewer/index.html?id=84b4b47b08ac41af88779212180ff36c

Krazan & Associates. (2021). *Phase I Environmental Site Assessment .*

Krazan & Associates, Inc. (2021). *Geotechnical Engineering Investigation for Proposed Residential Tract 935.*

Peters Engineering Group. (2022). *Traffic Study for Tract 935.*

PG&E. (2020). *PG&E*. Retrieved from Where Your Electricity Comes From: https://www.pge.com/pge_global/common/pdfs/your-account/your-bill/understand-your-bill/bill-inserts/2020/1220-PowerContent-ADA.pdf

PG&E. (2021). *PG&E*. Retrieved from Company Profile: https://www.pge.com/en_US/about-pge/company-information/profile/profile.page

SJVAPCD. (2015). *Guidance for Assessing and Mitigating Air Quality Impacts.*

Southern California Edison. (2020, October). *2019 Power Content Label*. Retrieved from Southern California Edison: https://www.energy.ca.gov/filebrowser/download/3265

Spencer, W.D., et al. (2010). *California Essential Habitat Connectivity Project - A Strategy for Conserving a Connected California.* Caltrans.

Trinity Consultants. (2022). *Small Project Analysis Level Assessment TTM 935.*

U.S. Census Bureau. (2021). *Census.* Retrieved from Lemoore, CA: https://www.census.gov/quickfacts/lemoorecitycalifornia

U.S. Department of Energy. (2020). Retrieved from Alternative Fuels Data Center: https://afdc.energy.gov/data/10310

U.S. Department of Transportation, F. R. (2005). *High-Speed Ground Transportation Noise and Vibration Impact Assessment.*

UpCodes. (2016). *Appendix J Grading*. Retrieved from https://up.codes/viewer/california/ca-building-code-2016-v2/chapter/J/grading#J

US Fish and Wildlife Service. (2021, Nov). *List of Endangered Species*. Retrieved from https://www.fws.gov/endangered/

USFWS. (2021b, March). *Critical Habitat Portal*. Retrieved from https://ecos.fws.gov/ecp/report/table/critical-habitat.html.

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APPENDIX A

SMALL PROJECT ANALYSIS LEVEL ASSESSMENT

APPENDIX B

CULTURAL MEMORANDUM

APPENDIX C

APPENDIX D

TRAFFIC STUDY

SMALL PROJECT ANALYSIS LEVEL ASSESSMENT

Lennar TTM 935 Single-Family Residential Project
Lemoore, CA

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January 2022

Project 210505.0222

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1.1 Executive Summary

Trinity Consultants has completed a limited air quality assessment for single-family residential community at the southeast corner of the intersection Liberty Drive and West Glendale Avenue in Lemoore, California. The Project includes the construction of 148 single-family residences on approximately 30 acres.

This limited air quality assessment uses the San Joaquin Valley Air Pollution Control District's (SJVAPCD) screening tool, Small Project Analysis Level (SPAL) (SJVAPCD 2020). This SPAL assessment was prepared pursuant to the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2015), the California Environmental Quality Act (CEQA) (Public Resources Code 21000 to 21189) and the CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

1.2 Statement of Finding

Based on the SPAL established by the SJVAPCD's GAMAQI, the emissions estimates prepared pursuant to this SPAL assessment do not exceed the SJVAPCD's established emissions thresholds and significance thresholds for all CEQA air quality determinations; this Project would therefore not pose a significant impact to the San Joaquin Valley Air Basin and would have a less than significant air quality impact.

2. PROJECT INFORMATION

2.1 Introduction

The Project site is located in the City of Lemoore on the southeast corner of the intersection of Liberty Drive and West Glendale Avenue. The Project includes the construction of 148 single family residences on approximately 30 acres. The Project was assessed in 7 phases. This assessment examines the projected gross impacts to air quality posed by this Project to the San Joaquin Valley Air Basin to determine whether or not the Project remains below established air quality thresholds of significance.

2.2 Project Location

The Project is located within the City of Lemoore, on the southeast corner of the intersection of Liberty Drive and West Glendale Avenue. **Figure 2-1** depicts the Project location.

Figure 2-1. Project Location

3. SMALL PROJECT ANALYSIS LEVEL QUALIFICATION

This assessment was prepared pursuant to the SJVAPCD's GAMAQI (SJVAPCD 2015), the CEQA (Public Resources Code 21000 to 21189) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387). The SJVAPCD created the SPAL screening tool to streamline air quality assessments of commonly encountered projects. According to GAMAQI, the SJVAPCD "pre-calculated the emissions on a large number and types of projects to identify the level at which they have no possibility of exceeding the emissions thresholds"[1].

The SJVAPCD SPAL process established review parameters to determine whether a project qualifies as a "small project." A project that is found to be "less than" the established parameters has "no possibility of exceeding criteria pollutant emissions thresholds." **Table 3-1** presents the SPAL size parameters for residential projects.

Table 3-1. Small Project Analysis Level in Units for Residential

Land Use Category – Residential	Project Size (dwelling unit)*
Single Family	155
Apartment, Low Rise	224
Apartment, Mid Rise	225
Apartment, High Rise	340
Condominiums/Townhouse	256
Condominiums, High Rise	352
Mobile Home Park	292
Retirement Community	580
Congregate Care Assisted Living	536
Proposed Project – Single Family	**148**
SPAL Exceeded?	No
*Project size based on SPAL Table 1, as posted on SJVAPCD webpage: http://www.valleyair.org/transportation/CEQA Rules/GAMAQI-SPAL.pdf	

As shown in **Table 3-1**, the proposed Project would not exceed the established SPAL limits for a "Single Family" residential project. The Project would construct 148 single family residences compared to the allowable project size for an "Single Family" project which is 155 units. Based on the above information, this Project qualifies for a limited air quality analysis applying the SPAL guidance to determine air quality impacts.

[1] SJVAPCD GAMAQI, Section 8.3.4, Page 85.

4. AIR QUALITY IMPACTS THRESHOLDS AND EVALUATION METHODOLOGY

Significance thresholds are based on the CEQA Appendix G Environmental Checklist Form (not included herein) and SJVAPCD air quality thresholds (SJVAPCD 2015). A potentially significant impact to air quality, as defined by the CEQA Checklist, would occur if the project caused one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SJVAPCD has identified quantitative emission thresholds to determine whether the potential air quality impacts of a project require analysis in the form of an Environmental Impact Report. The SJVAPCD air quality thresholds from the GAMAQI are presented in **Table 4-1** (SJVAPCD 2015). The SJVAPCD separates construction emissions from operational emissions, and further separates permitted operational emissions from non-permitted operational emissions, for determining significance thresholds for air pollutant emissions.

Table 4-1. SJVAPCD Air Quality Thresholds of Significance - Criteria Pollutants

Pollutant/ Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tpy)	Emissions (tpy)	Emissions (tpy)
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: SJVAPCD 2015

Criteria pollutant emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0 (California Air Pollution Control Officers Association (CAPCOA) 2021). This project would generate short-term construction emissions and long-term operational emissions.

An air quality evaluation also considers: 1) exposure of sensitive receptors to substantial pollutant concentrations; and 2) the creation of other emissions (such as those leading to odors) adversely affecting a substantial number of people. The criteria for this evaluation are based on the Lead Agency's determination of the proximity of the proposed Project to sensitive receptors. A sensitive receptor is a location where human populations, especially children, senior citizens and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, i.e. the 24-hour, 8-hour or 1-hour standards. Commercial and industrial sources are not considered sensitive receptors.

5. PROJECT-RELATED EMISSIONS

This document was prepared pursuant to the SJVAPCD's GAMAQI and SPAL guidelines and provides a cursory review of the Project emissions to demonstrate that it would not exceed established air quality emissions thresholds.

5.1 Short-Term Emissions

Table 5-1 shows the construction emission levels using default CalEEMod factors for construction of a 148 single-family residential project (see Attachment A) except for the following:

- Project site acres was changed from the default to the actual acreage of the Project site.

Construction emission estimates also included the following SJVAPCD's required measures for all projects:

- Water exposed area 3 times per day; and
- Reduce vehicle speed to less than 15 miles per hour.

Based on these anticipated activity levels, the Project construction activities would not exceed construction thresholds (**Table 4-1**). Therefore, construction emissions were found to be less than significant, and no further evaluation is required.

Table 5-1. Project Construction Emissions

Emissions Source	Pollutant					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	(tons/year)					
2023 Construction Emissions	0.04	0.32	0.35	0.00	0.03	0.02
2024 Construction Emissions	1.53	1.66	1.97	0.00	0.13	0.09
2025 Construction Emissions	1.17	1.38	1.74	0.00	0.11	0.08
SJVAPCD Construction Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

5.2 Long-Term Emissions

Table 5-2 presents the Project's long-term operations emissions generated from mobile, energy, and area sources as well as from water use and waste generation emissions. Most of these emissions impacts are from mobile sources traveling to and from the Project area. The following changes to default values were incorporated during the CalEEMod analysis:

- Construction schedule was changes from the default to match the anticipated construction schedule of the Project (24 months); and
- Fleet mix was changed from the default to match the SJVAPCD's residential fleet mix for year 2024 & 2025.

Operational emission estimates also included the following mitigation measures even though the project was less than significant before mitigation:

- Improved Transit Accessibility;

- Improved Destination Accessibility;
- Improved Pedestrian Network;
- No Hearths; and
- Use electric lawnmower, leaf blower, and chainsaw (3% per SJVAPCD).

Table 5-2. Total Project Operational Emissions

Emissions Source	Pollutant					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	(tons/year)					
Unmitigated						
Operational Emissions	2.29	1.08	11.54	0.03	2.42	1.33
SJVAPCD Operational Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded Before Mitigation?	**No**	**No**	**No**	**No**	**No**	**No**
Mitigated						
Operational Emissions	1.66	0.87	5.54	0.01	1.33	0.38
SJVAPCD Operational Emissions Thresholds	10	10	100	27	15	15
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

As calculated (see **Attachment A**), the long-term operational emissions associated with the proposed Project would be less than SJVAPCD significance threshold levels and would, therefore, not pose a significant impact to criteria air pollutants. This finding is consistent with the SPAL screening thresholds.

5.3 Greenhouse Gas Emissions

The Project's greenhouse gas (GHG) emissions are primarily from mobile source activities. Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified as carbon dioxide equivalents (CO_2e) (**see Attachment A**). The proposed Project's operational CO_2e emissions were estimated using CalEEMod. These emissions are summarized in **Table 5-3**.

Table 5-3. Estimated Annual Greenhouse Gas Emissions

	CO_2 Emissions metric tons	CH_4 Emissions metric tons	N_2O Emissions metric tons	CO_2e Emissions metric tons
Project Operations	1,397.64	2.11	0.07	1,470.52
2005 BAU	2,539.71	3.00	0.24	2,686.85
BAU less Project emissions				45.3%

The current inventory and forecast for GHG emissions in the California Air Resources Board's 2008 Climate Change Scoping Plan supports the 2011 IPPC estimates. The 2008 Climate Change Scoping Plan also indicates that GHG emissions will increase to 596.41 million metric tons of CO_2e by 2020. It is widely understood that climate change is a "global" issue and, as such, GHG emissions are a cumulative problem and can only be evaluated as such.

The amount of CO_2 that would be generated by the Project is so small in relation to the California CO_2 equivalent estimates for 2020 (596 million metric tons CO_2e) that it's not possible for the contribution of the project to be cumulatively considerable. Additionally, the Project's GHG emissions are less than the 2005 business as usual emissions for the Project by 1,216.33 metric tons CO_2e, which is a 45.3% reduction. Therefore, the Project would not generate a cumulatively considerable GHG impact, nor would it conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The

Project will also not conflict with any elements of the California Air Resources Board's 2008 Climate Change Scoping Plan. Therefore, this potential impact is less than significant.

5.4 Potential Impact on Sensitive Receptors

The proposed Project is located on the southeast corner of the intersection of Liberty Drive and West Glendale Avenue. Sensitive receptors are defined as areas where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside. Schools, hospitals, nursing homes and daycare centers are locations where sensitive receptors would likely reside. There are residential receptors bordering the Project site to the south and the east. The closest schools are Liberty Middle School at 0.44 miles to the south, Meadow Lane Elementary School at 0.63 miles to the east, Freedom Elementary School at 0.71 miles to the southwest, Mary Immaculate Queen School at 0.69 miles to the southeast, Lemoore Head Start at 0.73 miles to the southwest, and Ruiz Family Child Care at 0.89 miles to the east. There are no other known schools, hospitals, or nursing homes within a one-mile radius of the Project.

Based on the predicted operational emissions and activity types, the proposed Project is not expected to affect any sensitive receptors and is *not expected to have any adverse impacts on any known sensitive receptor*.

5.5 Potential Impacts to Visibility to Nearby Class 1 Areas

It should be noted that visibility impact analyses are not usually conducted for area sources. The recommended analysis methodology was initially intended for stationary sources of emissions which were subject to the Prevention of Significant Deterioration (PSD) requirements in 40 CFR Part 60. Since the Project's emissions are predicted to be significantly less than the PSD threshold levels, an impact at either the Dome Land Wilderness or the Sequoia National Park Areas (the two nearest Class 1 areas to the Project) is extremely unlikely. Therefore, based on the Project's predicted emissions, the Project is not expected to have any adverse impact to visibility at any Class 1 Area.

5.6 Potential Odor Impacts

The proposed Project is a residential community located near other residential neighborhoods and commercial land uses. Expected uses are not known to be a source of nuisance odors and are not listed in Table 6 of the SJVAPCD's GAMAQI. The Project is therefore not anticipated to have substantial odor impacts. The Project is therefore anticipated to have a less than significant odor impact.

5.7 Ambient Air Quality Impacts

As stated in the of GAMAQI (2015, p 96-97), SJVAPCD has developed screening levels for requiring an Ambient Air Quality Analysis (AAQA). The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

As shown above in **Table 5-1** and **Table 5-2**, average daily emissions for construction and operational activities associated with this Project would not exceed 100 pounds per day. Therefore, an AAQA is not required for this Project.

5.8 Toxic Air Contaminant (TAC) Impacts

TACs, as defined by the California Health & Safety Code (CH&SC) §44321, are listed in Appendices AI and AII in AB 2588 Air Toxic "Hot Spots" and Assessment Act's Emissions Inventory Criteria and Guideline Regulation document. SJVAPCD's risk management objectives for permitting and CEQA are as follows:

- Minimize health risks from new and modified sources of air pollution.
- Health risks from new and modified sources shall not be significant relative to the background risk levels and other risk levels that are typically accepted throughout the community.
- Avoid unreasonable restrictions on permitting.

The proposed Project would result in emissions of Hazardous Air Pollutants (HAPs) during construction and would be located near existing residents; therefore, an assessment of the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed Project is required. To predict the potential health risk to the population attributable to emissions of HAPs from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over the construction period for construction emissions. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices (HIs), which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risk is the identification of sources with increased HAPs. HAP emissions from anticipated on-site construction activities were evaluated.

Health risk is determined using the Hotspots Analysis and Reporting Program (HARP2) software distributed by the CARB; HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source. Assumptions used to calculate the emission rates for the proposed Project are outlined below.

The most recent version of EPA's AMS/EPA Regulatory Model - AERMOD was used to predict the dispersion of emissions from the proposed Project. The analysis employed all of the regulatory default AERMOD model keyword parameters, including elevated terrain options.

Diesel combustion emissions from diesel on-site construction equipment were modeled as an area source for on-site construction activity on the property. Diesel particulate matter was calculated using CalEEMod for onsite construction equipment. A unit emission rate of 1 grams/second (g/sec) was input to AERMOD for each source. The time-of-day variable emissions rates were applied in AERMOD since construction emissions are expected to be limited to specific work hours provided by the project proponent. This scenario places the highest level of activity and impact in the closest proximity to potential receptors to determine if, at the Project's highest potential impact, it would present adverse health risks to nearby receptors. Operational emissions from the single family residences would not generate HAP emissions.

Discrete receptor grids were used over the areas of dense residential neighborhoods surrounding the Project site as well as individual discrete receptors for scattered agricultural residences. A total of 4,133 discrete off-site receptors were analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area.

SJVAPCD-provided, AERMET processed meteorological data sets for the Lemoore monitoring station, calendar years 2012 through 2016 was input to AERMOD (SJVAPCD 2018). This was the most recent available dataset available at the time the modeling was conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility is considered "rural" under the Auer land use classification method (Auer 1978).

Plot files generated by AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT v21081) program in the Hotspots Analysis and Reporting Program Version 2 (HARP 2) (CARB 2021). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute noncancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA). HARP2 site parameters were set for the mandatory minimum pathways of inhalation, soil ingestion, dermal, and mother's milk for residential receptors and inhalation, soil ingestion, and dermal for worker receptors. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP2 output files. Total cancer risk was predicted for each receptor. A hazard index was computed for chronic non-cancer health effects for each applicable endpoint and each receptor. A hazard index for acute non-cancer health effects was not computed since DPM does not have a risk exposure level for acute risk.

SJVAPCD has set the level of significance for carcinogenic risk at twenty in one million, which is understood as the possibility of causing twenty additional cancer cases in a population of one million people. The level of significance for chronic non-cancer risk is a hazard index of 1.0. All receptors were modeled with a 2-year exposure for the construction activities.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the maximum exposed individual receptor (MEIR) does not exceed the significance levels of twenty in one million (20E-06) and 1.0, respectively for the proposed Project. The MEIR is identified by receptor location and risk and is provided in **Table 5-4**. The electronic AERMOD and HARP2 output files are provided in Appendix B.

Table 5-4. Potential Maximum Health Risk Impacts

	Value	UTM East	UTM N
Excess Cancer Risk	1.27E-05	249560.10	4022894.02
Chronic Hazard Index	7.43E-03	249560.10	4022894.02

As shown above in **Table 5-4**, the maximum predicted cancer risk for the proposed Project is 1.27E-05. The maximum chronic non-cancer hazard index for the proposed Project is 7.43E-03. Since the MEIR remained below the significance threshold for cancer and chronic risk, this Project would not have an adverse effect to any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be less than significant based on the following conclusions:

1. Potential carcinogenic risk from the proposed Project is below the significance level of twenty in a million at each of the modeled receptors; and
2. The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
3. The hazard index for the potential acute non-cancer risk was not calculated since there is no acute risk associated with DPM emission; therefore, the proposed Project is considered below the significance level.

Therefore, potential risk to the population attributable to emissions of HAPs from the proposed Project would be less than significant.

5.9 Cumulative Impacts

Cumulative impacts were also evaluated; however, cumulative emissions were not quantified because no other tentative projects were found within a one-mile radius of the Proposed Project that provided enough project detail information to accurately estimate emissions. Owing to the inherently cumulative nature of air quality impacts, the threshold for whether a project would make a cumulatively considerable contribution to a significant cumulative impact is currently based on whether the proposed Project would exceed established project-level thresholds. As such, a qualitative evaluation of the cumulative projects supports a finding that the Project's contribution would not be cumulatively considerable because the proposed Project's incremental emissions increase would be less than significant.

6. CONCLUSIONS

Based on the criteria established by the SJVAPCD's GAMAQI and SPAL guidelines, the proposed Project does not meet the minimum standards to require a full Air Quality Impact Analysis. Furthermore, the Project as proposed would not exceed the SJVAPCD's criteria air pollutant emission levels and would generate *less than significant air quality impacts*.

7. REFERENCES

California Environmental Quality Act (CEQA). 2021. (Public Resources Code 21000 - 21189) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

---------. 2021. CEQA, Appendix G – Environmental Checklist Form, Final Text.

California Air Pollution Control Officers Association (CAPCOA). 2021. California Emissions Estimator Model tm (CalEEMod), version 2020.4.0.

----------. 2016. "Air Toxic Hot Spots" Facility Prioritization Guidelines, Revised 2016.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2020. Small Project Analysis Level (SPAL) Memorandum. November 13, 2020. http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF

-----------. 2015. Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI). March 19, 2015. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf

-----------. 2009. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. December 17, 2009.

APPENDIX A. CALEEMOD EMISSIONS ESTIMATES OUTPUT FILES

Lennar TTM 935 SPAL Phase 1

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	22.00	Dwelling Unit	4.29	36,000.00	57

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	37
Climate Zone	3			**Operational Year**	2024
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 - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Construction Phase - Phase 1 = approx. 75 days

Grading - 30 acres for 148 homes, 7 phases with construction of 20 homes.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Fleet Mix - Fleet Mix Operational Year 2024

Woodstoves -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	2.00
tblConstructionPhase	NumDays	230.00	62.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	18.00	5.00
tblFleetMix	HHD	0.04	0.02
tblFleetMix	LDA	0.50	0.53
tblFleetMix	LDT1	0.05	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.03	9.0000e-004
tblFleetMix	LHD2	6.7450e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.16	0.06
tblFleetMix	MH	3.5200e-003	2.0000e-003
tblFleetMix	MHD	8.2690e-003	8.0000e-003
tblFleetMix	OBUS	6.2000e-004	0.00
tblFleetMix	SBUS	1.1520e-003	2.0000e-004
tblFleetMix	UBUS	1.8900e-004	4.3000e-003
tblGrading	AcresOfGrading	2.00	8.00
tblGrading	AcresOfGrading	1.50	7.50
tblLandUse	LandUseSquareFeet	39,600.00	36,000.00
tblLandUse	LotAcreage	7.14	4.29
tblLandUse	Population	63.00	57.00
tblTripsAndVMT	WorkerTripNumber	8.00	7.00
tblTripsAndVMT	WorkerTripNumber	2.00	1.00
tblWater	IndoorWaterUseRate	1,433,388.56	1,303,080.51
tblWater	OutdoorWaterUseRate	903,658.01	821,507.28

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0350	0.3215	0.3534	6.1000e-004	0.0249	0.0154	0.0403	9.5900e-003	0.0145	0.0241	0.0000	52.4687	52.4687	0.0125	1.4000e-004	52.8231
2024	0.3571	0.1728	0.2162	3.6000e-004	1.1900e-003	7.9100e-003	9.0900e-003	3.2000e-004	7.4300e-003	7.7500e-003	0.0000	31.4588	31.4588	7.3800e-003	8.0000e-005	31.6683
Maximum	**0.3571**	**0.3215**	**0.3534**	**6.1000e-004**	**0.0249**	**0.0154**	**0.0403**	**9.5900e-003**	**0.0145**	**0.0241**	**0.0000**	**52.4687**	**52.4687**	**0.0125**	**1.4000e-004**	**52.8231**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0350	0.3215	0.3534	6.1000e-004	0.0107	0.0154	0.0261	4.0000e-003	0.0145	0.0185	0.0000	52.4687	52.4687	0.0125	1.4000e-004	52.8230
2024	0.3571	0.1728	0.2162	3.6000e-004	1.1900e-003	7.9100e-003	9.0900e-003	3.2000e-004	7.4300e-003	7.7500e-003	0.0000	31.4587	31.4587	7.3800e-003	8.0000e-005	31.6682
Maximum	**0.3571**	**0.3215**	**0.3534**	**6.1000e-004**	**0.0107**	**0.0154**	**0.0261**	**4.0000e-003**	**0.0145**	**0.0185**	**0.0000**	**52.4687**	**52.4687**	**0.0125**	**1.4000e-004**	**52.8230**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.51**	**0.00**	**28.76**	**56.41**	**0.00**	**17.57**	**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	**11-1-2023**	**1-31-2024**	0.5227	0.5227
2	**2-1-2024**	**4-30-2024**	0.3612	0.3612
		Highest	0.5227	0.5227

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	0.2677	0.0231	0.9608	2.6500e-003		0.1311	0.1311		0.1311	0.1311	17.3433	9.7974	27.1407	0.0815	1.7000e-004	29.2306
Energy	2.8500e-003	0.0244	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	44.4514	44.4514	3.1700e-003	8.4000e-004	44.7796
Mobile	0.0607	0.1152	0.7312	2.0400e-003	0.2199	1.5400e-003	0.2214	0.0586	1.4400e-003	0.0600	0.0000	190.6093	190.6093	0.0127	9.3400e-003	193.7089
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.3313**	**0.1627**	**1.7024**	**4.8500e-003**	**0.2199**	**0.1346**	**0.3545**	**0.0586**	**0.1345**	**0.1931**	**21.9221**	**245.7765**	**267.6986**	**0.3861**	**0.0114**	**280.7398**

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	0.1792	1.8700e-003	0.1621	1.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	0.2644	0.2644	2.5000e-004	0.0000	0.2707
Energy	2.8500e-003	0.0244	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	35.5691	35.5691	1.7300e-003	6.6000e-004	35.8094
Mobile	0.0593	0.1055	0.6679	1.8100e-003	0.1939	1.3800e-003	0.1953	0.0517	1.2900e-003	0.0530	0.0000	168.8441	168.8441	0.0116	8.5000e-003	171.6673
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.2414**	**0.1318**	**0.8403**	**1.9800e-003**	**0.1939**	**4.2500e-003**	**0.1982**	**0.0517**	**4.1600e-003**	**0.0558**	**4.5788**	**205.5960**	**210.1748**	**0.3024**	**0.0102**	**220.7682**

	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	**27.12**	**19.00**	**50.64**	**59.18**	**11.80**	**96.84**	**44.09**	**11.79**	**96.91**	**71.09**	**79.11**	**16.35**	**21.49**	**21.69**	**10.47**	**21.36**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2023	11/1/2023	5	1	
2	Grading	Grading	11/2/2023	11/3/2023	5	2	
3	Building Construction	Building Construction	11/4/2023	1/30/2024	5	62	

4	Paving	Paving	1/31/2024	2/6/2024	5	5	
5	Architectural Coating	Architectural Coating	2/7/2024	2/13/2024	5	5	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 72,900; Residential Outdoor: 24,300; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0130	0.0000	0.0130	5.3900e-003	0.0000	5.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	0.0138	9.1200e-003	2.0000e-005		6.3000e-004	6.3000e-004		5.8000e-004	5.8000e-004	0.0000	1.6725	1.6725	5.4000e-004	0.0000	1.6861
Total	**1.3300e-003**	**0.0138**	**9.1200e-003**	**2.0000e-005**	**0.0130**	**6.3000e-004**	**0.0136**	**5.3900e-003**	**5.8000e-004**	**5.9700e-003**	**0.0000**	**1.6725**	**1.6725**	**5.4000e-004**	**0.0000**	**1.6861**

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0569	0.0569	0.0000	0.0000	0.0574
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0569**	**0.0569**	**0.0000**	**0.0000**	**0.0574**

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					5.0700e-003	0.0000	5.0700e-003	2.1000e-003	0.0000	2.1000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	0.0138	9.1200e-003	2.0000e-005		6.3000e-004	6.3000e-004		5.8000e-004	5.8000e-004	0.0000	1.6725	1.6725	5.4000e-004	0.0000	1.6861
Total	**1.3300e-003**	**0.0138**	**9.1200e-003**	**2.0000e-005**	**5.0700e-003**	**6.3000e-004**	**5.7000e-003**	**2.1000e-003**	**5.8000e-004**	**2.6800e-003**	**0.0000**	**1.6725**	**1.6725**	**5.4000e-004**	**0.0000**	**1.6861**

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0569	0.0569	0.0000	0.0000	0.0574
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0569**	**0.0569**	**0.0000**	**0.0000**	**0.0574**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0103	0.0000	0.0103	3.7700e-003	0.0000	3.7700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0179	0.0148	3.0000e-005		7.7000e-004	7.7000e-004		7.1000e-004	7.1000e-004	0.0000	2.6061	2.6061	8.4000e-004	0.0000	2.6271
Total	**1.7100e-003**	**0.0179**	**0.0148**	**3.0000e-005**	**0.0103**	**7.7000e-004**	**0.0110**	**3.7700e-003**	**7.1000e-004**	**4.4800e-003**	**0.0000**	**2.6061**	**2.6061**	**8.4000e-004**	**0.0000**	**2.6271**

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.7000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0948	0.0948	0.0000	0.0000	0.0957
Total	**5.0000e-005**	**3.0000e-005**	**3.7000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0948**	**0.0948**	**0.0000**	**0.0000**	**0.0957**

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					4.0000e-003	0.0000	4.0000e-003	1.4700e-003	0.0000	1.4700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0179	0.0148	3.0000e-005		7.7000e-004	7.7000e-004		7.1000e-004	7.1000e-004	0.0000	2.6061	2.6061	8.4000e-004	0.0000	2.6271
Total	**1.7100e-003**	**0.0179**	**0.0148**	**3.0000e-005**	**4.0000e-003**	**7.7000e-004**	**4.7700e-003**	**1.4700e-003**	**7.1000e-004**	**2.1800e-003**	**0.0000**	**2.6061**	**2.6061**	**8.4000e-004**	**0.0000**	**2.6271**

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.7000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0948	0.0948	0.0000	0.0000	0.0957
Total	**5.0000e-005**	**3.0000e-005**	**3.7000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0948**	**0.0948**	**0.0000**	**0.0000**	**0.0957**

3.4 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	0.0315	0.2877	0.3249	5.4000e-004		0.0140	0.0140		0.0132	0.0132	0.0000	46.3610	46.3610	0.0110	0.0000	46.6367
Total	**0.0315**	**0.2877**	**0.3249**	**5.4000e-004**		**0.0140**	**0.0140**		**0.0132**	**0.0132**	**0.0000**	**46.3610**	**46.3610**	**0.0110**	**0.0000**	**46.6367**

3.4 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	5.0000e-005	1.7900e-003	5.9000e-004	1.0000e-005	2.7000e-004	1.0000e-005	2.8000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	0.7927	0.7927	0.0000	1.1000e-004	0.8269
Worker	4.2000e-004	2.9000e-004	3.4600e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1300e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8848	0.8848	3.0000e-005	3.0000e-005	0.8932
Total	**4.7000e-004**	**2.0800e-003**	**4.0500e-003**	**2.0000e-005**	**1.3900e-003**	**2.0000e-005**	**1.4100e-003**	**3.8000e-004**	**2.0000e-005**	**3.9000e-004**	**0.0000**	**1.6775**	**1.6775**	**3.0000e-005**	**1.4000e-004**	**1.7201**

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	0.0315	0.2877	0.3249	5.4000e-004		0.0140	0.0140		0.0132	0.0132	0.0000	46.3609	46.3609	0.0110	0.0000	46.6366
Total	**0.0315**	**0.2877**	**0.3249**	**5.4000e-004**		**0.0140**	**0.0140**		**0.0132**	**0.0132**	**0.0000**	**46.3609**	**46.3609**	**0.0110**	**0.0000**	**46.6366**

3.4 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	5.0000e-005	1.7900e-003	5.9000e-004	1.0000e-005	2.7000e-004	1.0000e-005	2.8000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	0.7927	0.7927	0.0000	1.1000e-004	0.8269
Worker	4.2000e-004	2.9000e-004	3.4600e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1300e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8848	0.8848	3.0000e-005	3.0000e-005	0.8932
Total	**4.7000e-004**	**2.0800e-003**	**4.0500e-003**	**2.0000e-005**	**1.3900e-003**	**2.0000e-005**	**1.4100e-003**	**3.8000e-004**	**2.0000e-005**	**3.9000e-004**	**0.0000**	**1.6775**	**1.6775**	**3.0000e-005**	**1.4000e-004**	**1.7201**

3.4 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	0.0162	0.1479	0.1778	3.0000e-004		6.7500e-003	6.7500e-003		6.3500e-003	6.3500e-003	0.0000	25.5034	25.5034	6.0300e-003	0.0000	25.6542
Total	**0.0162**	**0.1479**	**0.1778**	**3.0000e-004**		**6.7500e-003**	**6.7500e-003**		**6.3500e-003**	**6.3500e-003**	**0.0000**	**25.5034**	**25.5034**	**6.0300e-003**	**0.0000**	**25.6542**

3.4 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	3.0000e-005	9.9000e-004	3.2000e-004	0.0000	1.5000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4296	0.4296	0.0000	6.0000e-005	0.4481
Worker	2.1000e-004	1.4000e-004	1.7600e-003	1.0000e-005	6.2000e-004	0.0000	6.2000e-004	1.6000e-004	0.0000	1.7000e-004	0.0000	0.4711	0.4711	1.0000e-005	1.0000e-005	0.4754
Total	**2.4000e-004**	**1.1300e-003**	**2.0800e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.2000e-004**	**0.0000**	**0.9007**	**0.9007**	**1.0000e-005**	**7.0000e-005**	**0.9235**

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	0.0162	0.1479	0.1778	3.0000e-004		6.7500e-003	6.7500e-003		6.3500e-003	6.3500e-003	0.0000	25.5034	25.5034	6.0300e-003	0.0000	25.6541
Total	**0.0162**	**0.1479**	**0.1778**	**3.0000e-004**		**6.7500e-003**	**6.7500e-003**		**6.3500e-003**	**6.3500e-003**	**0.0000**	**25.5034**	**25.5034**	**6.0300e-003**	**0.0000**	**25.6541**

3.4 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	3.0000e-005	9.9000e-004	3.2000e-004	0.0000	1.5000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4296	0.4296	0.0000	6.0000e-005	0.4481
Worker	2.1000e-004	1.4000e-004	1.7600e-003	1.0000e-005	6.2000e-004	0.0000	6.2000e-004	1.6000e-004	0.0000	1.7000e-004	0.0000	0.4711	0.4711	1.0000e-005	1.0000e-005	0.4754
Total	**2.4000e-004**	**1.1300e-003**	**2.0800e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.2000e-004**	**0.0000**	**0.9007**	**0.9007**	**1.0000e-005**	**7.0000e-005**	**0.9235**

3.5 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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1273
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1273**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1272
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1272**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

3.6 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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

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	0.0593	0.1055	0.6679	1.8100e-003	0.1939	1.3800e-003	0.1953	0.0517	1.2900e-003	0.0530	0.0000	168.8441	168.8441	0.0116	8.5000e-003	171.6673
Unmitigated	0.0607	0.1152	0.7312	2.0400e-003	0.2199	1.5400e-003	0.2214	0.0586	1.4400e-003	0.0600	0.0000	190.6093	190.6093	0.0127	9.3400e-003	193.7089

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	207.68	209.88	188.10	587,325	518,021
Total	207.68	209.88	188.10	587,325	518,021

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	0.527700	0.209000	0.167500	0.055600	0.000900	0.000900	0.008000	0.021400	0.000000	0.004300	0.002500	0.000200	0.002000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	7.3489	7.3489	1.1900e-003	1.4000e-004	7.4216
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16.2312	16.2312	2.6300e-003	3.2000e-004	16.3917
NaturalGas Mitigated	2.8500e-003	0.0244	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.2202	28.2202	5.4000e-004	5.2000e-004	28.3879
NaturalGas Unmitigated	2.8500e-003	0.0244	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.2202	28.2202	5.4000e-004	5.2000e-004	28.3879

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	528826	2.8500e-003	0.0244	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.2202	28.2202	5.4000e-004	5.2000e-004	28.3879
Total		**2.8500e-003**	**0.0244**	**0.0104**	**1.6000e-004**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**	**0.0000**	**28.2202**	**28.2202**	**5.4000e-004**	**5.2000e-004**	**28.3879**

5.2 Energy by Land Use - NaturalGas

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	528826	2.8500e-003	0.0244	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.2202	28.2202	5.4000e-004	5.2000e-004	28.3879
Total		**2.8500e-003**	**0.0244**	**0.0104**	**1.6000e-004**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**	**0.0000**	**28.2202**	**28.2202**	**5.4000e-004**	**5.2000e-004**	**28.3879**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	175427	16.2312	2.6300e-003	3.2000e-004	16.3917
Total		**16.2312**	**2.6300e-003**	**3.2000e-004**	**16.3917**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	79427.1	7.3489	1.1900e-003	1.4000e-004	7.4216
Total		**7.3489**	**1.1900e-003**	**1.4000e-004**	**7.4216**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

	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	0.1792	1.8700e-003	0.1621	1.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	0.2644	0.2644	2.5000e-004	0.0000	0.2707
Unmitigated	0.2677	0.0231	0.9608	2.6500e-003		0.1311	0.1311		0.1311	0.1311	17.3433	9.7974	27.1407	0.0815	1.7000e-004	29.2306

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	0.0212	0.7975	2.6400e-003		0.1302	0.1302		0.1302	0.1302	17.3433	9.5306	26.8738	0.0813	1.7000e-004	28.9574
Landscaping	4.9100e-003	1.8800e-003	0.1633	1.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004	0.0000	0.2668	0.2668	2.6000e-004	0.0000	0.2732
Total	**0.2677**	**0.0231**	**0.9608**	**2.6500e-003**		**0.1311**	**0.1311**		**0.1311**	**0.1311**	**17.3433**	**9.7974**	**27.1407**	**0.0815**	**1.7000e-004**	**29.2306**

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.8400e-003	1.8700e-003	0.1621	1.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	0.2644	0.2644	2.5000e-004	0.0000	0.2707
Total	**0.1792**	**1.8700e-003**	**0.1621**	**1.0000e-005**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**0.2644**	**0.2644**	**2.5000e-004**	**0.0000**	**0.2707**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3318	0.0426	1.0200e-003	2.7012
Unmitigated	1.3318	0.0426	1.0200e-003	2.7012

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.1654	0.2462	0.0000	10.3195
Unmitigated	4.1654	0.2462	0.0000	10.3195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lennar TTM 935 SPAL - Phase 2

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	21.00	Dwelling Unit	4.29	36,000.00	57

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	37
Climate Zone	3			**Operational Year**	2024
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 - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Construction Phase - Phase 2 = approx. 75 days

Grading - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Woodstoves -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Fleet Mix - Fleet Mix Operational Year 2024

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	2.00
tblConstructionPhase	NumDays	8.00	3.00
tblConstructionPhase	NumDays	230.00	62.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	18.00	5.00
tblFleetMix	HHD	0.04	0.02
tblFleetMix	LDA	0.50	0.53
tblFleetMix	LDT1	0.05	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.03	9.0000e-004
tblFleetMix	LHD2	6.7450e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.16	0.06
tblFleetMix	MH	3.5200e-003	2.0000e-003
tblFleetMix	MHD	8.2690e-003	8.0000e-003
tblFleetMix	OBUS	6.2000e-004	0.00
tblFleetMix	SBUS	1.1520e-003	2.0000e-004
tblFleetMix	UBUS	1.8900e-004	4.3000e-003
tblGrading	AcresOfGrading	3.00	8.00
tblGrading	AcresOfGrading	3.00	7.50
tblLandUse	LandUseSquareFeet	37,800.00	36,000.00
tblLandUse	LotAcreage	6.82	4.29
tblLandUse	Population	60.00	57.00
tblTripsAndVMT	WorkerTripNumber	8.00	7.00
tblTripsAndVMT	WorkerTripNumber	2.00	1.00
tblWater	IndoorWaterUseRate	1,368,234.54	1,303,080.51
tblWater	OutdoorWaterUseRate	862,582.64	821,507.28

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					
2024	0.3923	0.4966	0.5847	1.0100e-003	0.0382	0.0225	0.0607	0.0166	0.0211	0.0377	0.0000	86.9694	86.9694	0.0207	2.3000e-004	87.5553
Maximum	**0.3923**	**0.4966**	**0.5847**	**1.0100e-003**	**0.0382**	**0.0225**	**0.0607**	**0.0166**	**0.0211**	**0.0377**	**0.0000**	**86.9694**	**86.9694**	**0.0207**	**2.3000e-004**	**87.5553**

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					
2024	0.3923	0.4966	0.5847	1.0100e-003	0.0167	0.0225	0.0392	6.9400e-003	0.0211	0.0281	0.0000	86.9693	86.9693	0.0207	2.3000e-004	87.5552
Maximum	**0.3923**	**0.4966**	**0.5847**	**1.0100e-003**	**0.0167**	**0.0225**	**0.0392**	**6.9400e-003**	**0.0211**	**0.0281**	**0.0000**	**86.9693**	**86.9693**	**0.0207**	**2.3000e-004**	**87.5552**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.36**	**0.00**	**35.47**	**58.09**	**0.00**	**25.56**	**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	**2-15-2024**	**5-14-2024**	0.4820	0.4820
2	**5-15-2024**	**8-14-2024**	0.3968	0.3968
		Highest	0.4820	0.4820

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	0.2674	0.0226	0.9532	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	42.4308	42.4308	3.0200e-003	8.0000e-004	42.7441
Mobile	0.0580	0.1100	0.6980	1.9500e-003	0.2099	1.4700e-003	0.2114	0.0559	1.3700e-003	0.0573	0.0000	181.9453	181.9453	0.0121	8.9100e-003	184.9039
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.3281**	**0.1559**	**1.6611**	**4.7500e-003**	**0.2099**	**0.1344**	**0.3443**	**0.0559**	**0.1343**	**0.1902**	**21.9221**	**234.6466**	**256.5687**	**0.3854**	**0.0109**	**269.4512**

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	33.5486	33.5486	1.5900e-003	6.2000e-004	33.7740
Mobile	0.0566	0.1007	0.6375	1.7200e-003	0.1851	1.3200e-003	0.1865	0.0493	1.2300e-003	0.0506	0.0000	161.1694	161.1694	0.0111	8.1100e-003	163.8643
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.2384**	**0.1258**	**0.8021**	**1.8800e-003**	**0.1851**	**4.0600e-003**	**0.1892**	**0.0493**	**3.9700e-003**	**0.0533**	**4.5788**	**195.8888**	**200.4676**	**0.3017**	**9.7500e-003**	**210.9174**

	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	**27.35**	**19.31**	**51.71**	**60.42**	**11.80**	**96.98**	**45.05**	**11.80**	**97.04**	**71.98**	**79.11**	**16.52**	**21.87**	**21.71**	**10.55**	**21.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/15/2024	2/16/2024	5	2	
2	Grading	Grading	2/19/2024	2/21/2024	5	3	
3	Building Construction	Building Construction	2/23/2024	5/20/2024	5	62	

4	Paving	Paving	5/21/2024	5/27/2024	5	5	
5	Architectural Coating	Architectural Coating	5/28/2024	6/3/2024	5	5	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 72,900; Residential Outdoor: 24,300; 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
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0104	0.0000	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0272	0.0183	4.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	3.3457	3.3457	1.0800e-003	0.0000	3.3728
Total	**2.6600e-003**	**0.0272**	**0.0183**	**4.0000e-005**	**0.0220**	**1.2300e-003**	**0.0233**	**0.0104**	**1.1300e-003**	**0.0115**	**0.0000**	**3.3457**	**3.3457**	**1.0800e-003**	**0.0000**	**3.3728**

3.2 Site Preparation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.1000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1101	0.1101	0.0000	0.0000	0.1111
Total	**5.0000e-005**	**3.0000e-005**	**4.1000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1101**	**0.1101**	**0.0000**	**0.0000**	**0.1111**

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					8.6000e-003	0.0000	8.6000e-003	4.0400e-003	0.0000	4.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0272	0.0183	4.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	3.3457	3.3457	1.0800e-003	0.0000	3.3728
Total	**2.6600e-003**	**0.0272**	**0.0183**	**4.0000e-005**	**8.6000e-003**	**1.2300e-003**	**9.8300e-003**	**4.0400e-003**	**1.1300e-003**	**5.1700e-003**	**0.0000**	**3.3457**	**3.3457**	**1.0800e-003**	**0.0000**	**3.3728**

3.2 Site Preparation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.1000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1101	0.1101	0.0000	0.0000	0.1111
Total	**5.0000e-005**	**3.0000e-005**	**4.1000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1101**	**0.1101**	**0.0000**	**0.0000**	**0.1111**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0133	0.0000	0.0133	5.4200e-003	0.0000	5.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0256	0.0221	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.9096	3.9096	1.2600e-003	0.0000	3.9412
Total	**2.4900e-003**	**0.0256**	**0.0221**	**4.0000e-005**	**0.0133**	**1.0900e-003**	**0.0144**	**5.4200e-003**	**1.0000e-003**	**6.4200e-003**	**0.0000**	**3.9096**	**3.9096**	**1.2600e-003**	**0.0000**	**3.9412**

3.3 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1377	0.1377	0.0000	0.0000	0.1389
Total	**6.0000e-005**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1377**	**0.1377**	**0.0000**	**0.0000**	**0.1389**

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					5.1800e-003	0.0000	5.1800e-003	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0256	0.0221	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.9096	3.9096	1.2600e-003	0.0000	3.9412
Total	**2.4900e-003**	**0.0256**	**0.0221**	**4.0000e-005**	**5.1800e-003**	**1.0900e-003**	**6.2700e-003**	**2.1200e-003**	**1.0000e-003**	**3.1200e-003**	**0.0000**	**3.9096**	**3.9096**	**1.2600e-003**	**0.0000**	**3.9412**

3.3 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1377	0.1377	0.0000	0.0000	0.1389
Total	**6.0000e-005**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1377**	**0.1377**	**0.0000**	**0.0000**	**0.1389**

3.4 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	0.0456	0.4168	0.5012	8.4000e-004		0.0190	0.0190		0.0179	0.0179	0.0000	71.8732	71.8732	0.0170	0.0000	72.2981
Total	**0.0456**	**0.4168**	**0.5012**	**8.4000e-004**		**0.0190**	**0.0190**		**0.0179**	**0.0179**	**0.0000**	**71.8732**	**71.8732**	**0.0170**	**0.0000**	**72.2981**

3.4 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	7.0000e-005	2.7800e-003	8.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2107	1.2107	0.0000	1.7000e-004	1.2628
Worker	6.1000e-004	4.0000e-004	4.9500e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.3278	1.3278	4.0000e-005	4.0000e-005	1.3398
Total	**6.8000e-004**	**3.1800e-003**	**5.8400e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.5384**	**2.5384**	**4.0000e-005**	**2.1000e-004**	**2.6026**

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	0.0456	0.4168	0.5012	8.4000e-004		0.0190	0.0190		0.0179	0.0179	0.0000	71.8731	71.8731	0.0170	0.0000	72.2980
Total	**0.0456**	**0.4168**	**0.5012**	**8.4000e-004**		**0.0190**	**0.0190**		**0.0179**	**0.0179**	**0.0000**	**71.8731**	**71.8731**	**0.0170**	**0.0000**	**72.2980**

3.4 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	7.0000e-005	2.7800e-003	8.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2107	1.2107	0.0000	1.7000e-004	1.2628
Worker	6.1000e-004	4.0000e-004	4.9500e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.3278	1.3278	4.0000e-005	4.0000e-005	1.3398
Total	**6.8000e-004**	**3.1800e-003**	**5.8400e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.5384**	**2.5384**	**4.0000e-005**	**2.1000e-004**	**2.6026**

3.5 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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1273
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1273**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1272
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1272**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

3.6 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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

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	0.0566	0.1007	0.6375	1.7200e-003	0.1851	1.3200e-003	0.1865	0.0493	1.2300e-003	0.0506	0.0000	161.1694	161.1694	0.0111	8.1100e-003	163.8643
Unmitigated	0.0580	0.1100	0.6980	1.9500e-003	0.2099	1.4700e-003	0.2114	0.0559	1.3700e-003	0.0573	0.0000	181.9453	181.9453	0.0121	8.9100e-003	184.9039

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	198.24	200.34	179.55	560,629	494,475
Total	198.24	200.34	179.55	560,629	494,475

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	0.527700	0.209000	0.167500	0.055600	0.000900	0.000900	0.008000	0.021400	0.000000	0.004300	0.002500	0.000200	0.002000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	6.6111	6.6111	1.0700e-003	1.3000e-004	6.6765
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.4934	15.4934	2.5100e-003	3.0000e-004	15.6466
NaturalGas Mitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
NaturalGas Unmitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.2 Energy by Land Use - NaturalGas

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	167453	15.4934	2.5100e-003	3.0000e-004	15.6466
Total		**15.4934**	**2.5100e-003**	**3.0000e-004**	**15.6466**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	71453.2	6.6111	1.0700e-003	1.3000e-004	6.6765
Total		**6.6111**	**1.0700e-003**	**1.3000e-004**	**6.6765**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Unmitigated	0.2674	0.0226	0.9532	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	0.0208	0.7973	2.6400e-003		0.1302	0.1302		0.1302	0.1302	17.3433	9.0974	26.4406	0.0813	1.7000e-004	28.5216
Landscaping	4.6900e-003	1.8000e-003	0.1559	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2547	0.2547	2.4000e-004	0.0000	0.2608
Total	**0.2674**	**0.0226**	**0.9532**	**2.6500e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**17.3433**	**9.3521**	**26.6953**	**0.0815**	**1.7000e-004**	**28.7824**

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6200e-003	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Total	**0.1790**	**1.7800e-003**	**0.1547**	**1.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**0.2524**	**0.2524**	**2.4000e-004**	**0.0000**	**0.2584**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3318	0.0426	1.0200e-003	2.7012
Unmitigated	1.3318	0.0426	1.0200e-003	2.7012

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.1654	0.2462	0.0000	10.3195
Unmitigated	4.1654	0.2462	0.0000	10.3195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lennar TTM 935 SPAL - Phase 3

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	21.00	Dwelling Unit	4.29	36,000.00	57

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	37
Climate Zone	3			**Operational Year**	2024
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 - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Construction Phase - Phase 3 = approx. 74 days

Grading - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Woodstoves -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Fleet Mix - Fleet Mix Operational Year 2024

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	2.00
tblConstructionPhase	NumDays	8.00	3.00
tblConstructionPhase	NumDays	230.00	62.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	18.00	5.00
tblFleetMix	HHD	0.04	0.02
tblFleetMix	LDA	0.50	0.53
tblFleetMix	LDT1	0.05	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.03	9.0000e-004
tblFleetMix	LHD2	6.7450e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.16	0.06
tblFleetMix	MH	3.5200e-003	2.0000e-003
tblFleetMix	MHD	8.2690e-003	8.0000e-003
tblFleetMix	OBUS	6.2000e-004	0.00
tblFleetMix	SBUS	1.1520e-003	2.0000e-004
tblFleetMix	UBUS	1.8900e-004	4.3000e-003
tblGrading	AcresOfGrading	3.00	8.00
tblGrading	AcresOfGrading	3.00	7.50
tblLandUse	LandUseSquareFeet	37,800.00	36,000.00
tblLandUse	LotAcreage	6.82	4.29
tblLandUse	Population	60.00	57.00
tblTripsAndVMT	WorkerTripNumber	8.00	7.00
tblTripsAndVMT	WorkerTripNumber	2.00	1.00
tblWater	IndoorWaterUseRate	1,368,234.54	1,303,080.51
tblWater	OutdoorWaterUseRate	862,582.64	821,507.28

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					
2024	0.3923	0.4966	0.5847	1.0100e-003	0.0382	0.0225	0.0607	0.0166	0.0211	0.0377	0.0000	86.9694	86.9694	0.0207	2.3000e-004	87.5553
Maximum	**0.3923**	**0.4966**	**0.5847**	**1.0100e-003**	**0.0382**	**0.0225**	**0.0607**	**0.0166**	**0.0211**	**0.0377**	**0.0000**	**86.9694**	**86.9694**	**0.0207**	**2.3000e-004**	**87.5553**

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					
2024	0.3923	0.4966	0.5847	1.0100e-003	0.0167	0.0225	0.0392	6.9400e-003	0.0211	0.0281	0.0000	86.9693	86.9693	0.0207	2.3000e-004	87.5552
Maximum	**0.3923**	**0.4966**	**0.5847**	**1.0100e-003**	**0.0167**	**0.0225**	**0.0392**	**6.9400e-003**	**0.0211**	**0.0281**	**0.0000**	**86.9693**	**86.9693**	**0.0207**	**2.3000e-004**	**87.5552**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.36**	**0.00**	**35.47**	**58.09**	**0.00**	**25.56**	**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	**5-31-2024**	**8-30-2024**	0.5194	0.5194
2	**8-31-2024**	**9-30-2024**	0.3806	0.3806
		Highest	0.5194	0.5194

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	0.2674	0.0226	0.9532	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	42.4308	42.4308	3.0200e-003	8.0000e-004	42.7441
Mobile	0.0580	0.1100	0.6980	1.9500e-003	0.2099	1.4700e-003	0.2114	0.0559	1.3700e-003	0.0573	0.0000	181.9453	181.9453	0.0121	8.9100e-003	184.9039
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.3281**	**0.1559**	**1.6611**	**4.7500e-003**	**0.2099**	**0.1344**	**0.3443**	**0.0559**	**0.1343**	**0.1902**	**21.9221**	**234.6466**	**256.5687**	**0.3854**	**0.0109**	**269.4512**

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	33.5486	33.5486	1.5900e-003	6.2000e-004	33.7740
Mobile	0.0566	0.1007	0.6375	1.7200e-003	0.1851	1.3200e-003	0.1865	0.0493	1.2300e-003	0.0506	0.0000	161.1694	161.1694	0.0111	8.1100e-003	163.8643
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.2384**	**0.1258**	**0.8021**	**1.8800e-003**	**0.1851**	**4.0600e-003**	**0.1892**	**0.0493**	**3.9700e-003**	**0.0533**	**4.5788**	**195.8888**	**200.4676**	**0.3017**	**9.7500e-003**	**210.9174**

	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	**27.35**	**19.31**	**51.71**	**60.42**	**11.80**	**96.98**	**45.05**	**11.80**	**97.04**	**71.98**	**79.11**	**16.52**	**21.87**	**21.71**	**10.55**	**21.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/31/2024	6/3/2024	5	2	
2	Grading	Grading	6/4/2024	6/6/2024	5	3	
3	Building Construction	Building Construction	6/7/2024	9/2/2024	5	62	

4	Paving	Paving	9/3/2024	9/9/2024	5	5	
5	Architectural Coating	Architectural Coating	9/10/2024	9/16/2024	5	5	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 72,900; Residential Outdoor: 24,300; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0104	0.0000	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0272	0.0183	4.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	3.3457	3.3457	1.0800e-003	0.0000	3.3728
Total	**2.6600e-003**	**0.0272**	**0.0183**	**4.0000e-005**	**0.0220**	**1.2300e-003**	**0.0233**	**0.0104**	**1.1300e-003**	**0.0115**	**0.0000**	**3.3457**	**3.3457**	**1.0800e-003**	**0.0000**	**3.3728**

3.2 Site Preparation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.1000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1101	0.1101	0.0000	0.0000	0.1111
Total	**5.0000e-005**	**3.0000e-005**	**4.1000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1101**	**0.1101**	**0.0000**	**0.0000**	**0.1111**

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					8.6000e-003	0.0000	8.6000e-003	4.0400e-003	0.0000	4.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0272	0.0183	4.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	3.3457	3.3457	1.0800e-003	0.0000	3.3728
Total	**2.6600e-003**	**0.0272**	**0.0183**	**4.0000e-005**	**8.6000e-003**	**1.2300e-003**	**9.8300e-003**	**4.0400e-003**	**1.1300e-003**	**5.1700e-003**	**0.0000**	**3.3457**	**3.3457**	**1.0800e-003**	**0.0000**	**3.3728**

3.2 Site Preparation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.1000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1101	0.1101	0.0000	0.0000	0.1111
Total	**5.0000e-005**	**3.0000e-005**	**4.1000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1101**	**0.1101**	**0.0000**	**0.0000**	**0.1111**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0133	0.0000	0.0133	5.4200e-003	0.0000	5.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0256	0.0221	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.9096	3.9096	1.2600e-003	0.0000	3.9412
Total	**2.4900e-003**	**0.0256**	**0.0221**	**4.0000e-005**	**0.0133**	**1.0900e-003**	**0.0144**	**5.4200e-003**	**1.0000e-003**	**6.4200e-003**	**0.0000**	**3.9096**	**3.9096**	**1.2600e-003**	**0.0000**	**3.9412**

3.3 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1377	0.1377	0.0000	0.0000	0.1389
Total	**6.0000e-005**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1377**	**0.1377**	**0.0000**	**0.0000**	**0.1389**

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					5.1800e-003	0.0000	5.1800e-003	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0256	0.0221	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.9096	3.9096	1.2600e-003	0.0000	3.9412
Total	**2.4900e-003**	**0.0256**	**0.0221**	**4.0000e-005**	**5.1800e-003**	**1.0900e-003**	**6.2700e-003**	**2.1200e-003**	**1.0000e-003**	**3.1200e-003**	**0.0000**	**3.9096**	**3.9096**	**1.2600e-003**	**0.0000**	**3.9412**

3.3 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1377	0.1377	0.0000	0.0000	0.1389
Total	**6.0000e-005**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1377**	**0.1377**	**0.0000**	**0.0000**	**0.1389**

3.4 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	0.0456	0.4168	0.5012	8.4000e-004		0.0190	0.0190		0.0179	0.0179	0.0000	71.8732	71.8732	0.0170	0.0000	72.2981
Total	**0.0456**	**0.4168**	**0.5012**	**8.4000e-004**		**0.0190**	**0.0190**		**0.0179**	**0.0179**	**0.0000**	**71.8732**	**71.8732**	**0.0170**	**0.0000**	**72.2981**

3.4 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	7.0000e-005	2.7800e-003	8.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2107	1.2107	0.0000	1.7000e-004	1.2628
Worker	6.1000e-004	4.0000e-004	4.9500e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.3278	1.3278	4.0000e-005	4.0000e-005	1.3398
Total	**6.8000e-004**	**3.1800e-003**	**5.8400e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.5384**	**2.5384**	**4.0000e-005**	**2.1000e-004**	**2.6026**

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	0.0456	0.4168	0.5012	8.4000e-004		0.0190	0.0190		0.0179	0.0179	0.0000	71.8731	71.8731	0.0170	0.0000	72.2980
Total	**0.0456**	**0.4168**	**0.5012**	**8.4000e-004**		**0.0190**	**0.0190**		**0.0179**	**0.0179**	**0.0000**	**71.8731**	**71.8731**	**0.0170**	**0.0000**	**72.2980**

3.4 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	7.0000e-005	2.7800e-003	8.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2107	1.2107	0.0000	1.7000e-004	1.2628
Worker	6.1000e-004	4.0000e-004	4.9500e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.3278	1.3278	4.0000e-005	4.0000e-005	1.3398
Total	**6.8000e-004**	**3.1800e-003**	**5.8400e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.5384**	**2.5384**	**4.0000e-005**	**2.1000e-004**	**2.6026**

3.5 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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1273
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1273**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1272
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1272**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

3.6 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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

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	0.0566	0.1007	0.6375	1.7200e-003	0.1851	1.3200e-003	0.1865	0.0493	1.2300e-003	0.0506	0.0000	161.1694	161.1694	0.0111	8.1100e-003	163.8643
Unmitigated	0.0580	0.1100	0.6980	1.9500e-003	0.2099	1.4700e-003	0.2114	0.0559	1.3700e-003	0.0573	0.0000	181.9453	181.9453	0.0121	8.9100e-003	184.9039

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	198.24	200.34	179.55	560,629	494,475
Total	198.24	200.34	179.55	560,629	494,475

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	0.527700	0.209000	0.167500	0.055600	0.000900	0.000900	0.008000	0.021400	0.000000	0.004300	0.002500	0.000200	0.002000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	6.6111	6.6111	1.0700e-003	1.3000e-004	6.6765
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.4934	15.4934	2.5100e-003	3.0000e-004	15.6466
NaturalGas Mitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
NaturalGas Unmitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.2 Energy by Land Use - NaturalGas

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	167453	15.4934	2.5100e-003	3.0000e-004	15.6466
Total		**15.4934**	**2.5100e-003**	**3.0000e-004**	**15.6466**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	71453.2	6.6111	1.0700e-003	1.3000e-004	6.6765
Total		**6.6111**	**1.0700e-003**	**1.3000e-004**	**6.6765**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Unmitigated	0.2674	0.0226	0.9532	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	0.0208	0.7973	2.6400e-003		0.1302	0.1302		0.1302	0.1302	17.3433	9.0974	26.4406	0.0813	1.7000e-004	28.5216
Landscaping	4.6900e-003	1.8000e-003	0.1559	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2547	0.2547	2.4000e-004	0.0000	0.2608
Total	**0.2674**	**0.0226**	**0.9532**	**2.6500e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**17.3433**	**9.3521**	**26.6953**	**0.0815**	**1.7000e-004**	**28.7824**

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6200e-003	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Total	**0.1790**	**1.7800e-003**	**0.1547**	**1.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**0.2524**	**0.2524**	**2.4000e-004**	**0.0000**	**0.2584**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3318	0.0426	1.0200e-003	2.7012
Unmitigated	1.3318	0.0426	1.0200e-003	2.7012

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.1654	0.2462	0.0000	10.3195
Unmitigated	4.1654	0.2462	0.0000	10.3195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lennar TTM 935 SPAL - Phase 4

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	21.00	Dwelling Unit	4.29	36,000.00	57

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	37
Climate Zone	3			**Operational Year**	2024
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 - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Construction Phase - Phase 4 = approx. 74 days

Grading - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Woodstoves -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Fleet Mix - Fleet Mix Operational Year 2024

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	2.00
tblConstructionPhase	NumDays	8.00	3.00
tblConstructionPhase	NumDays	230.00	62.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	18.00	5.00
tblFleetMix	HHD	0.04	0.02
tblFleetMix	LDA	0.50	0.53
tblFleetMix	LDT1	0.05	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.03	9.0000e-004
tblFleetMix	LHD2	6.7450e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.16	0.06
tblFleetMix	MH	3.5200e-003	2.0000e-003
tblFleetMix	MHD	8.2690e-003	8.0000e-003
tblFleetMix	OBUS	6.2000e-004	0.00
tblFleetMix	SBUS	1.1520e-003	2.0000e-004
tblFleetMix	UBUS	1.8900e-004	4.3000e-003
tblGrading	AcresOfGrading	3.00	8.00
tblGrading	AcresOfGrading	3.00	7.50
tblLandUse	LandUseSquareFeet	37,800.00	36,000.00
tblLandUse	LotAcreage	6.82	4.29
tblLandUse	Population	60.00	57.00
tblTripsAndVMT	WorkerTripNumber	8.00	7.00
tblTripsAndVMT	WorkerTripNumber	2.00	1.00
tblWater	IndoorWaterUseRate	1,368,234.54	1,303,080.51
tblWater	OutdoorWaterUseRate	862,582.64	821,507.28

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					
2024	0.3923	0.4966	0.5847	1.0100e-003	0.0382	0.0225	0.0607	0.0166	0.0211	0.0377	0.0000	86.9694	86.9694	0.0207	2.3000e-004	87.5553
Maximum	**0.3923**	**0.4966**	**0.5847**	**1.0100e-003**	**0.0382**	**0.0225**	**0.0607**	**0.0166**	**0.0211**	**0.0377**	**0.0000**	**86.9694**	**86.9694**	**0.0207**	**2.3000e-004**	**87.5553**

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					
2024	0.3923	0.4966	0.5847	1.0100e-003	0.0167	0.0225	0.0392	6.9400e-003	0.0211	0.0281	0.0000	86.9693	86.9693	0.0207	2.3000e-004	87.5552
Maximum	**0.3923**	**0.4966**	**0.5847**	**1.0100e-003**	**0.0167**	**0.0225**	**0.0392**	**6.9400e-003**	**0.0211**	**0.0281**	**0.0000**	**86.9693**	**86.9693**	**0.0207**	**2.3000e-004**	**87.5552**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.36**	**0.00**	**35.47**	**58.09**	**0.00**	**25.56**	**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	**9-16-2024**	**9-30-2024**	0.0844	0.0844
		Highest	0.0844	0.0844

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	0.2674	0.0226	0.9532	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	42.4308	42.4308	3.0200e-003	8.0000e-004	42.7441
Mobile	0.0580	0.1100	0.6980	1.9500e-003	0.2099	1.4700e-003	0.2114	0.0559	1.3700e-003	0.0573	0.0000	181.9453	181.9453	0.0121	8.9100e-003	184.9039
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.3281**	**0.1559**	**1.6611**	**4.7500e-003**	**0.2099**	**0.1344**	**0.3443**	**0.0559**	**0.1343**	**0.1902**	**21.9221**	**234.6466**	**256.5687**	**0.3854**	**0.0109**	**269.4512**

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	33.5486	33.5486	1.5900e-003	6.2000e-004	33.7740
Mobile	0.0566	0.1007	0.6375	1.7200e-003	0.1851	1.3200e-003	0.1865	0.0493	1.2300e-003	0.0506	0.0000	161.1694	161.1694	0.0111	8.1100e-003	163.8643
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.2384**	**0.1258**	**0.8021**	**1.8800e-003**	**0.1851**	**4.0600e-003**	**0.1892**	**0.0493**	**3.9700e-003**	**0.0533**	**4.5788**	**195.8888**	**200.4676**	**0.3017**	**9.7500e-003**	**210.9174**

	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	**27.35**	**19.31**	**51.71**	**60.42**	**11.80**	**96.98**	**45.05**	**11.80**	**97.04**	**71.98**	**79.11**	**16.52**	**21.87**	**21.71**	**10.55**	**21.72**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/16/2024	9/17/2024	5	2	
2	Grading	Grading	9/18/2024	9/20/2024	5	3	
3	Building Construction	Building Construction	9/23/2024	12/17/2024	5	62	

4	Paving	Paving	12/18/2024	12/24/2024	5	5	
5	Architectural Coating	Architectural Coating	12/25/2024	12/31/2024	5	5	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 72,900; Residential Outdoor: 24,300; 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
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0104	0.0000	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0272	0.0183	4.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	3.3457	3.3457	1.0800e-003	0.0000	3.3728
Total	**2.6600e-003**	**0.0272**	**0.0183**	**4.0000e-005**	**0.0220**	**1.2300e-003**	**0.0233**	**0.0104**	**1.1300e-003**	**0.0115**	**0.0000**	**3.3457**	**3.3457**	**1.0800e-003**	**0.0000**	**3.3728**

3.2 Site Preparation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.1000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1101	0.1101	0.0000	0.0000	0.1111
Total	**5.0000e-005**	**3.0000e-005**	**4.1000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1101**	**0.1101**	**0.0000**	**0.0000**	**0.1111**

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					8.6000e-003	0.0000	8.6000e-003	4.0400e-003	0.0000	4.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0272	0.0183	4.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	3.3457	3.3457	1.0800e-003	0.0000	3.3728
Total	**2.6600e-003**	**0.0272**	**0.0183**	**4.0000e-005**	**8.6000e-003**	**1.2300e-003**	**9.8300e-003**	**4.0400e-003**	**1.1300e-003**	**5.1700e-003**	**0.0000**	**3.3457**	**3.3457**	**1.0800e-003**	**0.0000**	**3.3728**

3.2 Site Preparation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	4.1000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1101	0.1101	0.0000	0.0000	0.1111
Total	**5.0000e-005**	**3.0000e-005**	**4.1000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1101**	**0.1101**	**0.0000**	**0.0000**	**0.1111**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0133	0.0000	0.0133	5.4200e-003	0.0000	5.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0256	0.0221	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.9096	3.9096	1.2600e-003	0.0000	3.9412
Total	**2.4900e-003**	**0.0256**	**0.0221**	**4.0000e-005**	**0.0133**	**1.0900e-003**	**0.0144**	**5.4200e-003**	**1.0000e-003**	**6.4200e-003**	**0.0000**	**3.9096**	**3.9096**	**1.2600e-003**	**0.0000**	**3.9412**

3.3 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1377	0.1377	0.0000	0.0000	0.1389
Total	**6.0000e-005**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1377**	**0.1377**	**0.0000**	**0.0000**	**0.1389**

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					5.1800e-003	0.0000	5.1800e-003	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0256	0.0221	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.9096	3.9096	1.2600e-003	0.0000	3.9412
Total	**2.4900e-003**	**0.0256**	**0.0221**	**4.0000e-005**	**5.1800e-003**	**1.0900e-003**	**6.2700e-003**	**2.1200e-003**	**1.0000e-003**	**3.1200e-003**	**0.0000**	**3.9096**	**3.9096**	**1.2600e-003**	**0.0000**	**3.9412**

3.3 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1377	0.1377	0.0000	0.0000	0.1389
Total	**6.0000e-005**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1377**	**0.1377**	**0.0000**	**0.0000**	**0.1389**

3.4 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	0.0456	0.4168	0.5012	8.4000e-004		0.0190	0.0190		0.0179	0.0179	0.0000	71.8732	71.8732	0.0170	0.0000	72.2981
Total	**0.0456**	**0.4168**	**0.5012**	**8.4000e-004**		**0.0190**	**0.0190**		**0.0179**	**0.0179**	**0.0000**	**71.8732**	**71.8732**	**0.0170**	**0.0000**	**72.2981**

3.4 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	7.0000e-005	2.7800e-003	8.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2107	1.2107	0.0000	1.7000e-004	1.2628
Worker	6.1000e-004	4.0000e-004	4.9500e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.3278	1.3278	4.0000e-005	4.0000e-005	1.3398
Total	**6.8000e-004**	**3.1800e-003**	**5.8400e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.5384**	**2.5384**	**4.0000e-005**	**2.1000e-004**	**2.6026**

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	0.0456	0.4168	0.5012	8.4000e-004		0.0190	0.0190		0.0179	0.0179	0.0000	71.8731	71.8731	0.0170	0.0000	72.2980
Total	**0.0456**	**0.4168**	**0.5012**	**8.4000e-004**		**0.0190**	**0.0190**		**0.0179**	**0.0179**	**0.0000**	**71.8731**	**71.8731**	**0.0170**	**0.0000**	**72.2980**

3.4 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	7.0000e-005	2.7800e-003	8.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2107	1.2107	0.0000	1.7000e-004	1.2628
Worker	6.1000e-004	4.0000e-004	4.9500e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.3278	1.3278	4.0000e-005	4.0000e-005	1.3398
Total	**6.8000e-004**	**3.1800e-003**	**5.8400e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.5384**	**2.5384**	**4.0000e-005**	**2.1000e-004**	**2.6026**

3.5 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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1273
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1273**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

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	2.2000e-003	0.0207	0.0306	5.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	4.0951	4.0951	1.2900e-003	0.0000	4.1272
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**0.0207**	**0.0306**	**5.0000e-005**		**1.0000e-003**	**1.0000e-003**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**4.0951**	**4.0951**	**1.2900e-003**	**0.0000**	**4.1272**

3.5 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	1.4000e-004	9.0000e-005	1.1400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3059	0.3059	1.0000e-005	1.0000e-005	0.3087
Total	**1.4000e-004**	**9.0000e-005**	**1.1400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3059**	**0.3059**	**1.0000e-005**	**1.0000e-005**	**0.3087**

3.6 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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.3383**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.6 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	1.0000e-005	0.0000	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0153	0.0153	0.0000	0.0000	0.0154
Total	**1.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0153**	**0.0153**	**0.0000**	**0.0000**	**0.0154**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.0566	0.1007	0.6375	1.7200e-003	0.1851	1.3200e-003	0.1865	0.0493	1.2300e-003	0.0506	0.0000	161.1694	161.1694	0.0111	8.1100e-003	163.8643
Unmitigated	0.0580	0.1100	0.6980	1.9500e-003	0.2099	1.4700e-003	0.2114	0.0559	1.3700e-003	0.0573	0.0000	181.9453	181.9453	0.0121	8.9100e-003	184.9039

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	198.24	200.34	179.55	560,629	494,475
Total	198.24	200.34	179.55	560,629	494,475

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	0.527700	0.209000	0.167500	0.055600	0.000900	0.000900	0.008000	0.021400	0.000000	0.004300	0.002500	0.000200	0.002000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	6.6111	6.6111	1.0700e-003	1.3000e-004	6.6765
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.4934	15.4934	2.5100e-003	3.0000e-004	15.6466
NaturalGas Mitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
NaturalGas Unmitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.2 Energy by Land Use - NaturalGas

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	167453	15.4934	2.5100e-003	3.0000e-004	15.6466
Total		**15.4934**	**2.5100e-003**	**3.0000e-004**	**15.6466**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	71453.2	6.6111	1.0700e-003	1.3000e-004	6.6765
Total		**6.6111**	**1.0700e-003**	**1.3000e-004**	**6.6765**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

	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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Unmitigated	0.2674	0.0226	0.9532	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	0.0208	0.7973	2.6400e-003		0.1302	0.1302		0.1302	0.1302	17.3433	9.0974	26.4406	0.0813	1.7000e-004	28.5216
Landscaping	4.6900e-003	1.8000e-003	0.1559	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2547	0.2547	2.4000e-004	0.0000	0.2608
Total	**0.2674**	**0.0226**	**0.9532**	**2.6500e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**17.3433**	**9.3521**	**26.6953**	**0.0815**	**1.7000e-004**	**28.7824**

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6200e-003	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Total	**0.1790**	**1.7800e-003**	**0.1547**	**1.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**0.2524**	**0.2524**	**2.4000e-004**	**0.0000**	**0.2584**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3318	0.0426	1.0200e-003	2.7012
Unmitigated	1.3318	0.0426	1.0200e-003	2.7012

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.1654	0.2462	0.0000	10.3195
Unmitigated	4.1654	0.2462	0.0000	10.3195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lennar TTM 935 SPAL - Phase 5

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	21.00	Dwelling Unit	4.29	36,000.00	57

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 - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Construction Phase - Phase 5 = approx. 74 days

Grading - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Woodstoves -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Fleet Mix - Fleet Mix Operational Year 2025

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	2.00
tblConstructionPhase	NumDays	8.00	3.00
tblConstructionPhase	NumDays	230.00	62.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	18.00	5.00
tblFleetMix	HHD	0.04	0.02
tblFleetMix	LDA	0.51	0.52
tblFleetMix	LDT1	0.05	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.03	8.0000e-004
tblFleetMix	LHD2	6.6260e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.16	0.06
tblFleetMix	MH	3.3810e-003	2.2000e-003
tblFleetMix	MHD	8.2810e-003	7.6000e-003
tblFleetMix	OBUS	6.0300e-004	0.00
tblFleetMix	SBUS	1.1230e-003	1.0000e-004
tblFleetMix	UBUS	1.8800e-004	4.3000e-003
tblGrading	AcresOfGrading	3.00	8.00
tblGrading	AcresOfGrading	3.00	7.50
tblLandUse	LandUseSquareFeet	37,800.00	36,000.00
tblLandUse	LotAcreage	6.82	4.29
tblLandUse	Population	60.00	57.00
tblTripsAndVMT	WorkerTripNumber	8.00	7.00
tblTripsAndVMT	WorkerTripNumber	2.00	1.00
tblWater	IndoorWaterUseRate	1,368,234.54	1,303,080.51
tblWater	OutdoorWaterUseRate	862,582.64	821,507.28

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					
2025	0.3884	0.4597	0.5808	1.0100e-003	0.0382	0.0194	0.0576	0.0166	0.0182	0.0348	0.0000	86.9085	86.9085	0.0206	2.2000e-004	87.4898
Maximum	**0.3884**	**0.4597**	**0.5808**	**1.0100e-003**	**0.0382**	**0.0194**	**0.0576**	**0.0166**	**0.0182**	**0.0348**	**0.0000**	**86.9085**	**86.9085**	**0.0206**	**2.2000e-004**	**87.4898**

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					
2025	0.3884	0.4597	0.5808	1.0100e-003	0.0167	0.0194	0.0361	6.9400e-003	0.0182	0.0252	0.0000	86.9084	86.9084	0.0206	2.2000e-004	87.4897
Maximum	**0.3884**	**0.4597**	**0.5808**	**1.0100e-003**	**0.0167**	**0.0194**	**0.0361**	**6.9400e-003**	**0.0182**	**0.0252**	**0.0000**	**86.9084**	**86.9084**	**0.0206**	**2.2000e-004**	**87.4897**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.36**	**0.00**	**37.39**	**58.09**	**0.00**	**27.69**	**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	**1-1-2025**	**3-31-2025**	0.4639	0.4639
2	**4-1-2025**	**6-30-2025**	0.3773	0.3773
		Highest	0.4639	0.4639

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	0.2674	0.0226	0.9531	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	42.4308	42.4308	3.0200e-003	8.0000e-004	42.7441
Mobile	0.0538	0.1035	0.6549	1.8800e-003	0.2098	1.4200e-003	0.2113	0.0559	1.3200e-003	0.0572	0.0000	176.1742	176.1742	0.0112	8.4700e-003	178.9788
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.3239**	**0.1493**	**1.6179**	**4.6800e-003**	**0.2098**	**0.1343**	**0.3442**	**0.0559**	**0.1342**	**0.1901**	**21.9221**	**228.8756**	**250.7976**	**0.3845**	**0.0105**	**263.5261**

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	33.5486	33.5486	1.5900e-003	6.2000e-004	33.7740
Mobile	0.0526	0.0948	0.5987	1.6700e-003	0.1851	1.2700e-003	0.1863	0.0493	1.1800e-003	0.0505	0.0000	156.0569	156.0569	0.0103	7.7100e-003	158.6117
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.2343**	**0.1198**	**0.7632**	**1.8300e-003**	**0.1851**	**4.0100e-003**	**0.1891**	**0.0493**	**3.9200e-003**	**0.0532**	**4.5788**	**190.7763**	**195.3551**	**0.3009**	**9.3500e-003**	**205.6649**

	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	**27.67**	**19.75**	**52.82**	**60.90**	**11.80**	**97.01**	**45.06**	**11.81**	**97.08**	**72.00**	**79.11**	**16.65**	**22.11**	**21.74**	**10.61**	**21.96**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2025	1/2/2025	5	2	
2	Grading	Grading	1/3/2025	1/7/2025	5	3	
3	Building Construction	Building Construction	1/8/2025	4/3/2025	5	62	

4	Paving	Paving	4/4/2025	4/10/2025	5	5	
5	Architectural Coating	Architectural Coating	4/11/2025	4/17/2025	5	5	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 72,900; Residential Outdoor: 24,300; 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
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0104	0.0000	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4700e-003	0.0252	0.0179	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.3467	3.3467	1.0800e-003	0.0000	3.3738
Total	**2.4700e-003**	**0.0252**	**0.0179**	**4.0000e-005**	**0.0220**	**1.0900e-003**	**0.0231**	**0.0104**	**1.0000e-003**	**0.0114**	**0.0000**	**3.3467**	**3.3467**	**1.0800e-003**	**0.0000**	**3.3738**

3.2 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1064	0.1064	0.0000	0.0000	0.1074
Total	**5.0000e-005**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1064**	**0.1064**	**0.0000**	**0.0000**	**0.1074**

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					8.6000e-003	0.0000	8.6000e-003	4.0400e-003	0.0000	4.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4700e-003	0.0252	0.0179	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.3467	3.3467	1.0800e-003	0.0000	3.3738
Total	**2.4700e-003**	**0.0252**	**0.0179**	**4.0000e-005**	**8.6000e-003**	**1.0900e-003**	**9.6900e-003**	**4.0400e-003**	**1.0000e-003**	**5.0400e-003**	**0.0000**	**3.3467**	**3.3467**	**1.0800e-003**	**0.0000**	**3.3738**

3.2 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1064	0.1064	0.0000	0.0000	0.1074
Total	**5.0000e-005**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1064**	**0.1064**	**0.0000**	**0.0000**	**0.1074**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0133	0.0000	0.0133	5.4200e-003	0.0000	5.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2800e-003	0.0230	0.0218	4.0000e-005		9.4000e-004	9.4000e-004		8.6000e-004	8.6000e-004	0.0000	3.9105	3.9105	1.2600e-003	0.0000	3.9421
Total	**2.2800e-003**	**0.0230**	**0.0218**	**4.0000e-005**	**0.0133**	**9.4000e-004**	**0.0142**	**5.4200e-003**	**8.6000e-004**	**6.2800e-003**	**0.0000**	**3.9105**	**3.9105**	**1.2600e-003**	**0.0000**	**3.9421**

3.3 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	6.0000e-005	4.0000e-005	4.8000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1342
Total	**6.0000e-005**	**4.0000e-005**	**4.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1330**	**0.1330**	**0.0000**	**0.0000**	**0.1342**

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					5.1800e-003	0.0000	5.1800e-003	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2800e-003	0.0230	0.0218	4.0000e-005		9.4000e-004	9.4000e-004		8.6000e-004	8.6000e-004	0.0000	3.9105	3.9105	1.2600e-003	0.0000	3.9421
Total	**2.2800e-003**	**0.0230**	**0.0218**	**4.0000e-005**	**5.1800e-003**	**9.4000e-004**	**6.1200e-003**	**2.1200e-003**	**8.6000e-004**	**2.9800e-003**	**0.0000**	**3.9105**	**3.9105**	**1.2600e-003**	**0.0000**	**3.9421**

3.3 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	6.0000e-005	4.0000e-005	4.8000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1342
Total	**6.0000e-005**	**4.0000e-005**	**4.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1330**	**0.1330**	**0.0000**	**0.0000**	**0.1342**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.3866	0.4986	8.4000e-004		0.0164	0.0164		0.0154	0.0154	0.0000	71.8950	71.8950	0.0169	0.0000	72.3175
Total	**0.0424**	**0.3866**	**0.4986**	**8.4000e-004**		**0.0164**	**0.0164**		**0.0154**	**0.0154**	**0.0000**	**71.8950**	**71.8950**	**0.0169**	**0.0000**	**72.3175**

3.4 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.7600e-003	8.7000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1905	1.1905	0.0000	1.7000e-004	1.2417
Worker	5.6000e-004	3.5000e-004	4.6000e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.2830	1.2830	3.0000e-005	3.0000e-005	1.2942
Total	**6.3000e-004**	**3.1100e-003**	**5.4700e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.4736**	**2.4736**	**3.0000e-005**	**2.0000e-004**	**2.5359**

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	0.0424	0.3866	0.4986	8.4000e-004		0.0164	0.0164		0.0154	0.0154	0.0000	71.8949	71.8949	0.0169	0.0000	72.3175
Total	**0.0424**	**0.3866**	**0.4986**	**8.4000e-004**		**0.0164**	**0.0164**		**0.0154**	**0.0154**	**0.0000**	**71.8949**	**71.8949**	**0.0169**	**0.0000**	**72.3175**

3.4 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.7600e-003	8.7000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1905	1.1905	0.0000	1.7000e-004	1.2417
Worker	5.6000e-004	3.5000e-004	4.6000e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.2830	1.2830	3.0000e-005	3.0000e-005	1.2942
Total	**6.3000e-004**	**3.1100e-003**	**5.4700e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.4736**	**2.4736**	**3.0000e-005**	**2.0000e-004**	**2.5359**

3.5 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0500e-003	0.0188	0.0304	5.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	4.0946	4.0946	1.2900e-003	0.0000	4.1267
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0500e-003**	**0.0188**	**0.0304**	**5.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**4.0946**	**4.0946**	**1.2900e-003**	**0.0000**	**4.1267**

3.5 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.2956	0.2956	1.0000e-005	1.0000e-005	0.2982
Total	**1.3000e-004**	**8.0000e-005**	**1.0600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.2956**	**0.2956**	**1.0000e-005**	**1.0000e-005**	**0.2982**

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	2.0500e-003	0.0188	0.0304	5.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	4.0946	4.0946	1.2900e-003	0.0000	4.1267
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0500e-003**	**0.0188**	**0.0304**	**5.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**4.0946**	**4.0946**	**1.2900e-003**	**0.0000**	**4.1267**

3.5 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.2956	0.2956	1.0000e-005	1.0000e-005	0.2982
Total	**1.3000e-004**	**8.0000e-005**	**1.0600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.2956**	**0.2956**	**1.0000e-005**	**1.0000e-005**	**0.2982**

3.6 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3000e-004	2.8600e-003	4.5200e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.6383	0.6383	3.0000e-005	0.0000	0.6392
Total	**0.3383**	**2.8600e-003**	**4.5200e-003**	**1.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.6383**	**0.6383**	**3.0000e-005**	**0.0000**	**0.6392**

3.6 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0148	0.0148	0.0000	0.0000	0.0149
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0148**	**0.0148**	**0.0000**	**0.0000**	**0.0149**

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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3000e-004	2.8600e-003	4.5200e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.6383	0.6383	3.0000e-005	0.0000	0.6392
Total	**0.3383**	**2.8600e-003**	**4.5200e-003**	**1.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.6383**	**0.6383**	**3.0000e-005**	**0.0000**	**0.6392**

3.6 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0148	0.0148	0.0000	0.0000	0.0149
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0148**	**0.0148**	**0.0000**	**0.0000**	**0.0149**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

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	0.0526	0.0948	0.5987	1.6700e-003	0.1851	1.2700e-003	0.1863	0.0493	1.1800e-003	0.0505	0.0000	156.0569	156.0569	0.0103	7.7100e-003	158.6117
Unmitigated	0.0538	0.1035	0.6549	1.8800e-003	0.2098	1.4200e-003	0.2113	0.0559	1.3200e-003	0.0572	0.0000	176.1742	176.1742	0.0112	8.4700e-003	178.9788

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	198.24	200.34	179.55	560,629	494,475
Total	198.24	200.34	179.55	560,629	494,475

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	0.524400	0.212000	0.167700	0.056300	0.000800	0.000900	0.007600	0.021200	0.000000	0.004300	0.002500	0.000100	0.002200

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	6.6111	6.6111	1.0700e-003	1.3000e-004	6.6765
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.4934	15.4934	2.5100e-003	3.0000e-004	15.6466
NaturalGas Mitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
NaturalGas Unmitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.2 Energy by Land Use - NaturalGas

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	167453	15.4934	2.5100e-003	3.0000e-004	15.6466
Total		**15.4934**	**2.5100e-003**	**3.0000e-004**	**15.6466**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	71453.2	6.6111	1.0700e-003	1.3000e-004	6.6765
Total		**6.6111**	**1.0700e-003**	**1.3000e-004**	**6.6765**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

	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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Unmitigated	0.2674	0.0226	0.9531	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	0.0208	0.7973	2.6400e-003		0.1302	0.1302		0.1302	0.1302	17.3433	9.0974	26.4406	0.0813	1.7000e-004	28.5216
Landscaping	4.6800e-003	1.7900e-003	0.1558	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2547	0.2547	2.4000e-004	0.0000	0.2608
Total	**0.2674**	**0.0226**	**0.9531**	**2.6500e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**17.3433**	**9.3521**	**26.6953**	**0.0815**	**1.7000e-004**	**28.7824**

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6100e-003	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Total	**0.1790**	**1.7800e-003**	**0.1547**	**1.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**0.2524**	**0.2524**	**2.4000e-004**	**0.0000**	**0.2584**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3318	0.0426	1.0200e-003	2.7012
Unmitigated	1.3318	0.0426	1.0200e-003	2.7012

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.1654	0.2462	0.0000	10.3195
Unmitigated	4.1654	0.2462	0.0000	10.3195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lennar TTM 935 SPAL - Phase 6

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	21.00	Dwelling Unit	4.29	36,000.00	57

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 - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Construction Phase - Phase 1 = approx. 74 days

Grading - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Woodstoves -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Fleet Mix - Fleet Mix Operational Year 2025

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	2.00
tblConstructionPhase	NumDays	8.00	3.00
tblConstructionPhase	NumDays	230.00	62.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	18.00	5.00
tblFleetMix	HHD	0.04	0.02
tblFleetMix	LDA	0.51	0.52
tblFleetMix	LDT1	0.05	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.03	8.0000e-004
tblFleetMix	LHD2	6.6260e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.16	0.06
tblFleetMix	MH	3.3810e-003	2.2000e-003
tblFleetMix	MHD	8.2810e-003	7.6000e-003
tblFleetMix	OBUS	6.0300e-004	0.00
tblFleetMix	SBUS	1.1230e-003	1.0000e-004
tblFleetMix	UBUS	1.8800e-004	4.3000e-003
tblGrading	AcresOfGrading	3.00	8.00
tblGrading	AcresOfGrading	3.00	7.50
tblLandUse	LandUseSquareFeet	37,800.00	36,000.00
tblLandUse	LotAcreage	6.82	4.29
tblLandUse	Population	60.00	57.00
tblTripsAndVMT	WorkerTripNumber	8.00	7.00
tblTripsAndVMT	WorkerTripNumber	2.00	1.00
tblWater	IndoorWaterUseRate	1,368,234.54	1,303,080.51
tblWater	OutdoorWaterUseRate	862,582.64	821,507.28

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					
2025	0.3884	0.4597	0.5808	1.0100e-003	0.0382	0.0194	0.0576	0.0166	0.0182	0.0348	0.0000	86.9085	86.9085	0.0206	2.2000e-004	87.4898
Maximum	**0.3884**	**0.4597**	**0.5808**	**1.0100e-003**	**0.0382**	**0.0194**	**0.0576**	**0.0166**	**0.0182**	**0.0348**	**0.0000**	**86.9085**	**86.9085**	**0.0206**	**2.2000e-004**	**87.4898**

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					
2025	0.3884	0.4597	0.5808	1.0100e-003	0.0167	0.0194	0.0361	6.9400e-003	0.0182	0.0252	0.0000	86.9084	86.9084	0.0206	2.2000e-004	87.4897
Maximum	**0.3884**	**0.4597**	**0.5808**	**1.0100e-003**	**0.0167**	**0.0194**	**0.0361**	**6.9400e-003**	**0.0182**	**0.0252**	**0.0000**	**86.9084**	**86.9084**	**0.0206**	**2.2000e-004**	**87.4897**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.36**	**0.00**	**37.39**	**58.09**	**0.00**	**27.69**	**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	**4-17-2025**	**7-16-2025**	0.4687	0.4687
2	**7-17-2025**	**9-30-2025**	0.3723	0.3723
		Highest	0.4687	0.4687

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	0.2674	0.0226	0.9531	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	42.4308	42.4308	3.0200e-003	8.0000e-004	42.7441
Mobile	0.0538	0.1035	0.6549	1.8800e-003	0.2098	1.4200e-003	0.2113	0.0559	1.3200e-003	0.0572	0.0000	176.1742	176.1742	0.0112	8.4700e-003	178.9788
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.3239**	**0.1493**	**1.6179**	**4.6800e-003**	**0.2098**	**0.1343**	**0.3442**	**0.0559**	**0.1342**	**0.1901**	**21.9221**	**228.8756**	**250.7976**	**0.3845**	**0.0105**	**263.5261**

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	33.5486	33.5486	1.5900e-003	6.2000e-004	33.7740
Mobile	0.0526	0.0948	0.5987	1.6700e-003	0.1851	1.2700e-003	0.1863	0.0493	1.1800e-003	0.0505	0.0000	156.0569	156.0569	0.0103	7.7100e-003	158.6117
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.2343**	**0.1198**	**0.7632**	**1.8300e-003**	**0.1851**	**4.0100e-003**	**0.1891**	**0.0493**	**3.9200e-003**	**0.0532**	**4.5788**	**190.7763**	**195.3551**	**0.3009**	**9.3500e-003**	**205.6649**

	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	**27.67**	**19.75**	**52.82**	**60.90**	**11.80**	**97.01**	**45.06**	**11.81**	**97.08**	**72.00**	**79.11**	**16.65**	**22.11**	**21.74**	**10.61**	**21.96**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/17/2025	4/18/2025	5	2	
2	Grading	Grading	4/19/2025	4/23/2025	5	3	
3	Building Construction	Building Construction	4/24/2025	7/18/2025	5	62	

4	Paving	Paving	7/19/2025	7/25/2025	5	5	
5	Architectural Coating	Architectural Coating	7/26/2025	8/1/2025	5	5	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 72,900; Residential Outdoor: 24,300; 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
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0104	0.0000	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4700e-003	0.0252	0.0179	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.3467	3.3467	1.0800e-003	0.0000	3.3738
Total	**2.4700e-003**	**0.0252**	**0.0179**	**4.0000e-005**	**0.0220**	**1.0900e-003**	**0.0231**	**0.0104**	**1.0000e-003**	**0.0114**	**0.0000**	**3.3467**	**3.3467**	**1.0800e-003**	**0.0000**	**3.3738**

3.2 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1064	0.1064	0.0000	0.0000	0.1074
Total	**5.0000e-005**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1064**	**0.1064**	**0.0000**	**0.0000**	**0.1074**

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					8.6000e-003	0.0000	8.6000e-003	4.0400e-003	0.0000	4.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4700e-003	0.0252	0.0179	4.0000e-005		1.0900e-003	1.0900e-003		1.0000e-003	1.0000e-003	0.0000	3.3467	3.3467	1.0800e-003	0.0000	3.3738
Total	**2.4700e-003**	**0.0252**	**0.0179**	**4.0000e-005**	**8.6000e-003**	**1.0900e-003**	**9.6900e-003**	**4.0400e-003**	**1.0000e-003**	**5.0400e-003**	**0.0000**	**3.3467**	**3.3467**	**1.0800e-003**	**0.0000**	**3.3738**

3.2 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.4000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1064	0.1064	0.0000	0.0000	0.1074
Total	**5.0000e-005**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1064**	**0.1064**	**0.0000**	**0.0000**	**0.1074**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0133	0.0000	0.0133	5.4200e-003	0.0000	5.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2800e-003	0.0230	0.0218	4.0000e-005		9.4000e-004	9.4000e-004		8.6000e-004	8.6000e-004	0.0000	3.9105	3.9105	1.2600e-003	0.0000	3.9421
Total	**2.2800e-003**	**0.0230**	**0.0218**	**4.0000e-005**	**0.0133**	**9.4000e-004**	**0.0142**	**5.4200e-003**	**8.6000e-004**	**6.2800e-003**	**0.0000**	**3.9105**	**3.9105**	**1.2600e-003**	**0.0000**	**3.9421**

3.3 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	6.0000e-005	4.0000e-005	4.8000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1342
Total	**6.0000e-005**	**4.0000e-005**	**4.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1330**	**0.1330**	**0.0000**	**0.0000**	**0.1342**

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					5.1800e-003	0.0000	5.1800e-003	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2800e-003	0.0230	0.0218	4.0000e-005		9.4000e-004	9.4000e-004		8.6000e-004	8.6000e-004	0.0000	3.9105	3.9105	1.2600e-003	0.0000	3.9421
Total	**2.2800e-003**	**0.0230**	**0.0218**	**4.0000e-005**	**5.1800e-003**	**9.4000e-004**	**6.1200e-003**	**2.1200e-003**	**8.6000e-004**	**2.9800e-003**	**0.0000**	**3.9105**	**3.9105**	**1.2600e-003**	**0.0000**	**3.9421**

3.3 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	6.0000e-005	4.0000e-005	4.8000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1330	0.1330	0.0000	0.0000	0.1342
Total	**6.0000e-005**	**4.0000e-005**	**4.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1330**	**0.1330**	**0.0000**	**0.0000**	**0.1342**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.3866	0.4986	8.4000e-004		0.0164	0.0164		0.0154	0.0154	0.0000	71.8950	71.8950	0.0169	0.0000	72.3175
Total	**0.0424**	**0.3866**	**0.4986**	**8.4000e-004**		**0.0164**	**0.0164**		**0.0154**	**0.0154**	**0.0000**	**71.8950**	**71.8950**	**0.0169**	**0.0000**	**72.3175**

3.4 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.7600e-003	8.7000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1905	1.1905	0.0000	1.7000e-004	1.2417
Worker	5.6000e-004	3.5000e-004	4.6000e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.2830	1.2830	3.0000e-005	3.0000e-005	1.2942
Total	**6.3000e-004**	**3.1100e-003**	**5.4700e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.4736**	**2.4736**	**3.0000e-005**	**2.0000e-004**	**2.5359**

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	0.0424	0.3866	0.4986	8.4000e-004		0.0164	0.0164		0.0154	0.0154	0.0000	71.8949	71.8949	0.0169	0.0000	72.3175
Total	**0.0424**	**0.3866**	**0.4986**	**8.4000e-004**		**0.0164**	**0.0164**		**0.0154**	**0.0154**	**0.0000**	**71.8949**	**71.8949**	**0.0169**	**0.0000**	**72.3175**

3.4 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.7600e-003	8.7000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1905	1.1905	0.0000	1.7000e-004	1.2417
Worker	5.6000e-004	3.5000e-004	4.6000e-003	1.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.2830	1.2830	3.0000e-005	3.0000e-005	1.2942
Total	**6.3000e-004**	**3.1100e-003**	**5.4700e-003**	**2.0000e-005**	**2.1500e-003**	**3.0000e-005**	**2.1800e-003**	**5.8000e-004**	**3.0000e-005**	**6.1000e-004**	**0.0000**	**2.4736**	**2.4736**	**3.0000e-005**	**2.0000e-004**	**2.5359**

3.5 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0500e-003	0.0188	0.0304	5.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	4.0946	4.0946	1.2900e-003	0.0000	4.1267
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0500e-003**	**0.0188**	**0.0304**	**5.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**4.0946**	**4.0946**	**1.2900e-003**	**0.0000**	**4.1267**

3.5 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.2956	0.2956	1.0000e-005	1.0000e-005	0.2982
Total	**1.3000e-004**	**8.0000e-005**	**1.0600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.2956**	**0.2956**	**1.0000e-005**	**1.0000e-005**	**0.2982**

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	2.0500e-003	0.0188	0.0304	5.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	4.0946	4.0946	1.2900e-003	0.0000	4.1267
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0500e-003**	**0.0188**	**0.0304**	**5.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**4.0946**	**4.0946**	**1.2900e-003**	**0.0000**	**4.1267**

3.5 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.2956	0.2956	1.0000e-005	1.0000e-005	0.2982
Total	**1.3000e-004**	**8.0000e-005**	**1.0600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.2956**	**0.2956**	**1.0000e-005**	**1.0000e-005**	**0.2982**

3.6 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3000e-004	2.8600e-003	4.5200e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.6383	0.6383	3.0000e-005	0.0000	0.6392
Total	**0.3383**	**2.8600e-003**	**4.5200e-003**	**1.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.6383**	**0.6383**	**3.0000e-005**	**0.0000**	**0.6392**

3.6 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0148	0.0148	0.0000	0.0000	0.0149
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0148**	**0.0148**	**0.0000**	**0.0000**	**0.0149**

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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3000e-004	2.8600e-003	4.5200e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.6383	0.6383	3.0000e-005	0.0000	0.6392
Total	**0.3383**	**2.8600e-003**	**4.5200e-003**	**1.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.6383**	**0.6383**	**3.0000e-005**	**0.0000**	**0.6392**

3.6 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.0000e-005	0.0000	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0148	0.0148	0.0000	0.0000	0.0149
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0148**	**0.0148**	**0.0000**	**0.0000**	**0.0149**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

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	0.0526	0.0948	0.5987	1.6700e-003	0.1851	1.2700e-003	0.1863	0.0493	1.1800e-003	0.0505	0.0000	156.0569	156.0569	0.0103	7.7100e-003	158.6117
Unmitigated	0.0538	0.1035	0.6549	1.8800e-003	0.2098	1.4200e-003	0.2113	0.0559	1.3200e-003	0.0572	0.0000	176.1742	176.1742	0.0112	8.4700e-003	178.9788

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	198.24	200.34	179.55	560,629	494,475
Total	198.24	200.34	179.55	560,629	494,475

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	0.524400	0.212000	0.167700	0.056300	0.000800	0.000900	0.007600	0.021200	0.000000	0.004300	0.002500	0.000100	0.002200

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	6.6111	6.6111	1.0700e-003	1.3000e-004	6.6765
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.4934	15.4934	2.5100e-003	3.0000e-004	15.6466
NaturalGas Mitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
NaturalGas Unmitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.2 Energy by Land Use - NaturalGas

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	167453	15.4934	2.5100e-003	3.0000e-004	15.6466
Total		**15.4934**	**2.5100e-003**	**3.0000e-004**	**15.6466**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	71453.2	6.6111	1.0700e-003	1.3000e-004	6.6765
Total		**6.6111**	**1.0700e-003**	**1.3000e-004**	**6.6765**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

	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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Unmitigated	0.2674	0.0226	0.9531	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	0.0208	0.7973	2.6400e-003		0.1302	0.1302		0.1302	0.1302	17.3433	9.0974	26.4406	0.0813	1.7000e-004	28.5216
Landscaping	4.6800e-003	1.7900e-003	0.1558	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2547	0.2547	2.4000e-004	0.0000	0.2608
Total	**0.2674**	**0.0226**	**0.9531**	**2.6500e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**17.3433**	**9.3521**	**26.6953**	**0.0815**	**1.7000e-004**	**28.7824**

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6100e-003	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Total	**0.1790**	**1.7800e-003**	**0.1547**	**1.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**0.2524**	**0.2524**	**2.4000e-004**	**0.0000**	**0.2584**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3318	0.0426	1.0200e-003	2.7012
Unmitigated	1.3318	0.0426	1.0200e-003	2.7012

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.1654	0.2462	0.0000	10.3195
Unmitigated	4.1654	0.2462	0.0000	10.3195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lennar TTM 935 SPAL - Phase 7

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	21.00	Dwelling Unit	4.29	36,000.00	57

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 - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Construction Phase - Phase 1 = approx. 74 days

Grading - Project specified 30 acres, 7 phases. 4.29 acres per phase.

Woodstoves -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Fleet Mix - Fleet Mix Operational Year 2025

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.04	0.02
tblFleetMix	LDA	0.51	0.52
tblFleetMix	LDT1	0.05	0.21
tblFleetMix	LDT2	0.17	0.17
tblFleetMix	LHD1	0.03	8.0000e-004
tblFleetMix	LHD2	6.6260e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.16	0.06
tblFleetMix	MH	3.3810e-003	2.2000e-003
tblFleetMix	MHD	8.2810e-003	7.6000e-003
tblFleetMix	OBUS	6.0300e-004	0.00
tblFleetMix	SBUS	1.1230e-003	1.0000e-004
tblFleetMix	UBUS	1.8800e-004	4.3000e-003
tblLandUse	LandUseSquareFeet	37,800.00	36,000.00
tblLandUse	LotAcreage	6.82	4.29
tblLandUse	Population	60.00	57.00
tblTripsAndVMT	WorkerTripNumber	8.00	7.00
tblTripsAndVMT	WorkerTripNumber	2.00	1.00
tblWater	IndoorWaterUseRate	1,368,234.54	1,303,080.51
tblWater	OutdoorWaterUseRate	862,582.64	821,507.28

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					
2025	0.0792	0.7279	0.8857	1.5600e-003	0.0817	0.0306	0.1122	0.0401	0.0287	0.0687	0.0000	134.5669	134.5669	0.0323	3.4000e-004	135.4749
2026	0.4402	0.9205	1.2186	2.0700e-003	6.1800e-003	0.0390	0.0452	1.6600e-003	0.0367	0.0384	0.0000	178.7371	178.7371	0.0414	4.6000e-004	179.9092
Maximum	**0.4402**	**0.9205**	**1.2186**	**2.0700e-003**	**0.0817**	**0.0390**	**0.1122**	**0.0401**	**0.0367**	**0.0687**	**0.0000**	**178.7371**	**178.7371**	**0.0414**	**4.6000e-004**	**179.9092**

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					
2025	0.0792	0.7279	0.8857	1.5600e-003	0.0344	0.0306	0.0650	0.0163	0.0287	0.0450	0.0000	134.5667	134.5667	0.0323	3.4000e-004	135.4747
2026	0.4402	0.9205	1.2186	2.0700e-003	6.1800e-003	0.0390	0.0452	1.6600e-003	0.0367	0.0384	0.0000	178.7369	178.7369	0.0414	4.6000e-004	179.9089
Maximum	**0.4402**	**0.9205**	**1.2186**	**2.0700e-003**	**0.0344**	**0.0390**	**0.0650**	**0.0163**	**0.0367**	**0.0450**	**0.0000**	**178.7369**	**178.7369**	**0.0414**	**4.6000e-004**	**179.9089**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.80**	**0.00**	**30.01**	**56.92**	**0.00**	**22.18**	**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	**8-1-2025**	**10-31-2025**	0.5058	0.5058
2	**11-1-2025**	**1-31-2026**	0.4587	0.4587
3	**2-1-2026**	**4-30-2026**	0.4436	0.4436
4	**5-1-2026**	**7-31-2026**	0.4112	0.4112
5	**8-1-2026**	**9-30-2026**	0.3609	0.3609
		Highest	0.5058	0.5058

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	0.2674	0.0226	0.9531	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	42.4308	42.4308	3.0200e-003	8.0000e-004	42.7441
Mobile	0.0538	0.1035	0.6549	1.8800e-003	0.2098	1.4200e-003	0.2113	0.0559	1.3200e-003	0.0572	0.0000	176.1742	176.1742	0.0112	8.4700e-003	178.9788
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.3239**	**0.1493**	**1.6179**	**4.6800e-003**	**0.2098**	**0.1343**	**0.3442**	**0.0559**	**0.1342**	**0.1901**	**21.9221**	**228.8756**	**250.7976**	**0.3845**	**0.0105**	**263.5261**

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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Energy	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	33.5486	33.5486	1.5900e-003	6.2000e-004	33.7740
Mobile	0.0526	0.0948	0.5987	1.6700e-003	0.1851	1.2700e-003	0.1863	0.0493	1.1800e-003	0.0505	0.0000	156.0569	156.0569	0.0103	7.7100e-003	158.6117
Waste						0.0000	0.0000		0.0000	0.0000	4.1654	0.0000	4.1654	0.2462	0.0000	10.3195
Water						0.0000	0.0000		0.0000	0.0000	0.4134	0.9184	1.3318	0.0426	1.0200e-003	2.7012
Total	**0.2343**	**0.1198**	**0.7632**	**1.8300e-003**	**0.1851**	**4.0100e-003**	**0.1891**	**0.0493**	**3.9200e-003**	**0.0532**	**4.5788**	**190.7763**	**195.3551**	**0.3009**	**9.3500e-003**	**205.6649**

	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	**27.67**	**19.75**	**52.82**	**60.90**	**11.80**	**97.01**	**45.06**	**11.81**	**97.08**	**72.00**	**79.11**	**16.65**	**22.11**	**21.74**	**10.61**	**21.96**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2025	8/7/2025	5	5	
2	Grading	Grading	8/8/2025	8/19/2025	5	8	
3	Building Construction	Building Construction	8/20/2025	7/7/2026	5	230	

4	Paving	Paving	7/8/2026	7/31/2026	5	18	
5	Architectural Coating	Architectural Coating	8/1/2026	8/26/2026	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 72,900; Residential Outdoor: 24,300; 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
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	7.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3668	8.3668	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0491**	**2.7200e-003**	**0.0519**	**0.0253**	**2.5000e-003**	**0.0278**	**0.0000**	**8.3668**	**8.3668**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.2000e-004	7.0000e-005	9.5000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2661	0.2661	1.0000e-005	1.0000e-005	0.2684
Total	**1.2000e-004**	**7.0000e-005**	**9.5000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2661**	**0.2661**	**1.0000e-005**	**1.0000e-005**	**0.2684**

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					0.0192	0.0000	0.0192	9.8500e-003	0.0000	9.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1800e-003	0.0631	0.0448	1.0000e-004		2.7200e-003	2.7200e-003		2.5000e-003	2.5000e-003	0.0000	8.3667	8.3667	2.7100e-003	0.0000	8.4344
Total	**6.1800e-003**	**0.0631**	**0.0448**	**1.0000e-004**	**0.0192**	**2.7200e-003**	**0.0219**	**9.8500e-003**	**2.5000e-003**	**0.0124**	**0.0000**	**8.3667**	**8.3667**	**2.7100e-003**	**0.0000**	**8.4344**

3.2 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.2000e-004	7.0000e-005	9.5000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2661	0.2661	1.0000e-005	1.0000e-005	0.2684
Total	**1.2000e-004**	**7.0000e-005**	**9.5000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2661**	**0.2661**	**1.0000e-005**	**1.0000e-005**	**0.2684**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0283	0.0000	0.0283	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0283**	**2.4900e-003**	**0.0308**	**0.0137**	**2.2900e-003**	**0.0160**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.6000e-004	1.0000e-004	1.2700e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3548	0.3548	1.0000e-005	1.0000e-005	0.3578
Total	**1.6000e-004**	**1.0000e-004**	**1.2700e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3548**	**0.3548**	**1.0000e-005**	**1.0000e-005**	**0.3578**

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					0.0111	0.0000	0.0111	5.3400e-003	0.0000	5.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0900e-003	0.0613	0.0582	1.2000e-004		2.4900e-003	2.4900e-003		2.2900e-003	2.2900e-003	0.0000	10.4279	10.4279	3.3700e-003	0.0000	10.5122
Total	**6.0900e-003**	**0.0613**	**0.0582**	**1.2000e-004**	**0.0111**	**2.4900e-003**	**0.0135**	**5.3400e-003**	**2.2900e-003**	**7.6300e-003**	**0.0000**	**10.4279**	**10.4279**	**3.3700e-003**	**0.0000**	**10.5122**

3.3 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	1.6000e-004	1.0000e-004	1.2700e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3548	0.3548	1.0000e-005	1.0000e-005	0.3578
Total	**1.6000e-004**	**1.0000e-004**	**1.2700e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3548**	**0.3548**	**1.0000e-005**	**1.0000e-005**	**0.3578**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0656	0.5985	0.7721	1.2900e-003		0.0253	0.0253		0.0238	0.0238	0.0000	111.3213	111.3213	0.0262	0.0000	111.9755
Total	**0.0656**	**0.5985**	**0.7721**	**1.2900e-003**		**0.0253**	**0.0253**		**0.0238**	**0.0238**	**0.0000**	**111.3213**	**111.3213**	**0.0262**	**0.0000**	**111.9755**

3.4 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.2800e-003	1.3500e-003	2.0000e-005	6.4000e-004	3.0000e-005	6.7000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	1.8434	1.8434	1.0000e-005	2.7000e-004	1.9226
Worker	8.7000e-004	5.5000e-004	7.1200e-003	2.0000e-005	2.7000e-003	1.0000e-005	2.7100e-003	7.2000e-004	1.0000e-005	7.3000e-004	0.0000	1.9867	1.9867	5.0000e-005	5.0000e-005	2.0039
Total	**9.8000e-004**	**4.8300e-003**	**8.4700e-003**	**4.0000e-005**	**3.3400e-003**	**4.0000e-005**	**3.3800e-003**	**9.0000e-004**	**4.0000e-005**	**9.4000e-004**	**0.0000**	**3.8300**	**3.8300**	**6.0000e-005**	**3.2000e-004**	**3.9265**

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	0.0656	0.5985	0.7721	1.2900e-003		0.0253	0.0253		0.0238	0.0238	0.0000	111.3212	111.3212	0.0262	0.0000	111.9754
Total	**0.0656**	**0.5985**	**0.7721**	**1.2900e-003**		**0.0253**	**0.0253**		**0.0238**	**0.0238**	**0.0000**	**111.3212**	**111.3212**	**0.0262**	**0.0000**	**111.9754**

3.4 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.2800e-003	1.3500e-003	2.0000e-005	6.4000e-004	3.0000e-005	6.7000e-004	1.8000e-004	3.0000e-005	2.1000e-004	0.0000	1.8434	1.8434	1.0000e-005	2.7000e-004	1.9226
Worker	8.7000e-004	5.5000e-004	7.1200e-003	2.0000e-005	2.7000e-003	1.0000e-005	2.7100e-003	7.2000e-004	1.0000e-005	7.3000e-004	0.0000	1.9867	1.9867	5.0000e-005	5.0000e-005	2.0039
Total	**9.8000e-004**	**4.8300e-003**	**8.4700e-003**	**4.0000e-005**	**3.3400e-003**	**4.0000e-005**	**3.3800e-003**	**9.0000e-004**	**4.0000e-005**	**9.4000e-004**	**0.0000**	**3.8300**	**3.8300**	**6.0000e-005**	**3.2000e-004**	**3.9265**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0916	0.8355	1.0777	1.8100e-003		0.0354	0.0354		0.0333	0.0333	0.0000	155.3860	155.3860	0.0365	0.0000	156.2992
Total	**0.0916**	**0.8355**	**1.0777**	**1.8100e-003**		**0.0354**	**0.0354**		**0.0333**	**0.0333**	**0.0000**	**155.3860**	**155.3860**	**0.0365**	**0.0000**	**156.2992**

3.4 Building Construction - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	5.9400e-003	1.8400e-003	3.0000e-005	8.9000e-004	4.0000e-005	9.3000e-004	2.6000e-004	4.0000e-005	3.0000e-004	0.0000	2.5292	2.5292	1.0000e-005	3.6000e-004	2.6374
Worker	1.1400e-003	6.9000e-004	9.4100e-003	3.0000e-005	3.7700e-003	2.0000e-005	3.7800e-003	1.0000e-003	2.0000e-005	1.0200e-003	0.0000	2.6968	2.6968	7.0000e-005	7.0000e-005	2.7194
Total	**1.2900e-003**	**6.6300e-003**	**0.0113**	**6.0000e-005**	**4.6600e-003**	**6.0000e-005**	**4.7100e-003**	**1.2600e-003**	**6.0000e-005**	**1.3200e-003**	**0.0000**	**5.2259**	**5.2259**	**8.0000e-005**	**4.3000e-004**	**5.3568**

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	0.0916	0.8355	1.0777	1.8100e-003		0.0354	0.0354		0.0333	0.0333	0.0000	155.3859	155.3859	0.0365	0.0000	156.2990
Total	**0.0916**	**0.8355**	**1.0777**	**1.8100e-003**		**0.0354**	**0.0354**		**0.0333**	**0.0333**	**0.0000**	**155.3859**	**155.3859**	**0.0365**	**0.0000**	**156.2990**

3.4 Building Construction - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	5.9400e-003	1.8400e-003	3.0000e-005	8.9000e-004	4.0000e-005	9.3000e-004	2.6000e-004	4.0000e-005	3.0000e-004	0.0000	2.5292	2.5292	1.0000e-005	3.6000e-004	2.6374
Worker	1.1400e-003	6.9000e-004	9.4100e-003	3.0000e-005	3.7700e-003	2.0000e-005	3.7800e-003	1.0000e-003	2.0000e-005	1.0200e-003	0.0000	2.6968	2.6968	7.0000e-005	7.0000e-005	2.7194
Total	**1.2900e-003**	**6.6300e-003**	**0.0113**	**6.0000e-005**	**4.6600e-003**	**6.0000e-005**	**4.7100e-003**	**1.2600e-003**	**6.0000e-005**	**1.3200e-003**	**0.0000**	**5.2259**	**5.2259**	**8.0000e-005**	**4.3000e-004**	**5.3568**

3.5 Paving - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.6000e-004	3.6100e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0350	1.0350	3.0000e-005	3.0000e-005	1.0437
Total	**4.4000e-004**	**2.6000e-004**	**3.6100e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0350**	**1.0350**	**3.0000e-005**	**3.0000e-005**	**1.0437**

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	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.3800e-003**	**0.0678**	**0.1096**	**1.7000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9300e-003**	**2.9300e-003**	**0.0000**	**14.7404**	**14.7404**	**4.6300e-003**	**0.0000**	**14.8562**

3.5 Paving - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.6000e-004	3.6100e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0350	1.0350	3.0000e-005	3.0000e-005	1.0437
Total	**4.4000e-004**	**2.6000e-004**	**3.6100e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0350**	**1.0350**	**3.0000e-005**	**3.0000e-005**	**1.0437**

3.6 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5400e-003	0.0103	0.0163	3.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3011
Total	**0.3394**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	2.0000e-005	1.0000e-005	1.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0518	0.0518	0.0000	0.0000	0.0522
Total	**2.0000e-005**	**1.0000e-005**	**1.8000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0518**	**0.0518**	**0.0000**	**0.0000**	**0.0522**

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	0.3379					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5400e-003	0.0103	0.0163	3.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3011
Total	**0.3394**	**0.0103**	**0.0163**	**3.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3011**

3.6 Architectural Coating - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	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	2.0000e-005	1.0000e-005	1.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0518	0.0518	0.0000	0.0000	0.0522
Total	**2.0000e-005**	**1.0000e-005**	**1.8000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0518**	**0.0518**	**0.0000**	**0.0000**	**0.0522**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

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	0.0526	0.0948	0.5987	1.6700e-003	0.1851	1.2700e-003	0.1863	0.0493	1.1800e-003	0.0505	0.0000	156.0569	156.0569	0.0103	7.7100e-003	158.6117
Unmitigated	0.0538	0.1035	0.6549	1.8800e-003	0.2098	1.4200e-003	0.2113	0.0559	1.3200e-003	0.0572	0.0000	176.1742	176.1742	0.0112	8.4700e-003	178.9788

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	198.24	200.34	179.55	560,629	494,475
Total	198.24	200.34	179.55	560,629	494,475

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	0.524400	0.212000	0.167700	0.056300	0.000800	0.000900	0.007600	0.021200	0.000000	0.004300	0.002500	0.000100	0.002200

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	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	6.6111	6.6111	1.0700e-003	1.3000e-004	6.6765
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.4934	15.4934	2.5100e-003	3.0000e-004	15.6466
NaturalGas Mitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
NaturalGas Unmitigated	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.2 Energy by Land Use - NaturalGas

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	504789	2.7200e-003	0.0233	9.9000e-003	1.5000e-004		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	26.9374	26.9374	5.2000e-004	4.9000e-004	27.0975
Total		**2.7200e-003**	**0.0233**	**9.9000e-003**	**1.5000e-004**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**26.9374**	**26.9374**	**5.2000e-004**	**4.9000e-004**	**27.0975**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	167453	15.4934	2.5100e-003	3.0000e-004	15.6466
Total		**15.4934**	**2.5100e-003**	**3.0000e-004**	**15.6466**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	71453.2	6.6111	1.0700e-003	1.3000e-004	6.6765
Total		**6.6111**	**1.0700e-003**	**1.3000e-004**	**6.6765**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

	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	0.1790	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Unmitigated	0.2674	0.0226	0.9531	2.6500e-003		0.1310	0.1310		0.1310	0.1310	17.3433	9.3521	26.6953	0.0815	1.7000e-004	28.7824

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0884	0.0208	0.7973	2.6400e-003		0.1302	0.1302		0.1302	0.1302	17.3433	9.0974	26.4406	0.0813	1.7000e-004	28.5216
Landscaping	4.6800e-003	1.7900e-003	0.1558	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2547	0.2547	2.4000e-004	0.0000	0.2608
Total	**0.2674**	**0.0226**	**0.9531**	**2.6500e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**17.3433**	**9.3521**	**26.6953**	**0.0815**	**1.7000e-004**	**28.7824**

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	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6100e-003	1.7800e-003	0.1547	1.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	0.2524	0.2524	2.4000e-004	0.0000	0.2584
Total	**0.1790**	**1.7800e-003**	**0.1547**	**1.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**0.2524**	**0.2524**	**2.4000e-004**	**0.0000**	**0.2584**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3318	0.0426	1.0200e-003	2.7012
Unmitigated	1.3318	0.0426	1.0200e-003	2.7012

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.821507	1.3318	0.0426	1.0200e-003	2.7012
Total		**1.3318**	**0.0426**	**1.0200e-003**	**2.7012**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.1654	0.2462	0.0000	10.3195
Unmitigated	4.1654	0.2462	0.0000	10.3195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	20.52	4.1654	0.2462	0.0000	10.3195
Total		**4.1654**	**0.2462**	**0.0000**	**10.3195**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lennar TTM 935 SPAL - BAU
Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	148.00	Dwelling Unit	30.00	266,400.00	423

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 37

Climate Zone 3 **Operational Year** 2005

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 - Project acreage: 30

Construction Phase - Notee: Operational Run Only

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	440.00	0.00
tblLandUse	LotAcreage	48.05	30.00

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					
2004											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
2004											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum											**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	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)**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

		Highest		

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											121.2817	65.9098	187.1914	0.5711	1.1800e-003	201.8185
Energy											0.0000	299.0364	299.0364	0.0213	5.6200e-003	301.2442
Mobile											0.0000	2,012.7119	2,012.7119	0.2699	0.2274	2,087.2208
Waste											30.9115	0.0000	30.9115	1.8268	0.0000	76.5818
Water											3.0592	6.7963	9.8555	0.3153	7.5500e-003	19.9889
Total											**155.2524**	**2,384.4543**	**2,539.7067**	**3.0044**	**0.2417**	**2,686.8542**

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											121.2817	65.9098	187.1914	0.5711	1.1800e-003	201.8185
Energy											0.0000	299.0364	299.0364	0.0213	5.6200e-003	301.2442
Mobile											0.0000	2,012.7119	2,012.7119	0.2699	0.2274	2,087.2208
Waste											30.9115	0.0000	30.9115	1.8268	0.0000	76.5818
Water											3.0592	6.7963	9.8555	0.3153	7.5500e-003	19.9889
Total											**155.2524**	**2,384.4543**	**2,539.7067**	**3.0044**	**0.2417**	**2,686.8542**

	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	Building Construction	Building Construction	5/13/2004	5/12/2004	5	0	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; 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
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	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
Building Construction	9	53.00	16.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction - 2004

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Building Construction - 2004

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 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											0.0000	2,012.7119	2,012.7119	0.2699	0.2274	2,087.2208
Unmitigated											0.0000	2,012.7119	2,012.7119	0.2699	0.2274	2,087.2208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,397.12	1,411.92	1265.40	3,951,097	3,951,097
Total	1,397.12	1,411.92	1,265.40	3,951,097	3,951,097

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	0.469644	0.076968	0.160836	0.173619	0.042235	0.005594	0.011165	0.028022	0.000693	0.000053	0.021206	0.001062	0.008904

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	109.1916	109.1916	0.0177	2.1400e-003	110.2713
Electricity Unmitigated											0.0000	109.1916	109.1916	0.0177	2.1400e-003	110.2713
NaturalGas Mitigated											0.0000	189.8448	189.8448	3.6400e-003	3.4800e-003	190.9730
NaturalGas Unmitigated											0.0000	189.8448	189.8448	3.6400e-003	3.4800e-003	190.9730

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	3.55756e +006											0.0000	189.8448	189.8448	3.6400e-003	3.4800e-003	190.9730
Total												**0.0000**	**189.8448**	**189.8448**	**3.6400e-003**	**3.4800e-003**	**190.9730**

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	3.55756e +006											0.0000	189.8448	189.8448	3.6400e-003	3.4800e-003	190.9730
Total												**0.0000**	**189.8448**	**189.8448**	**3.6400e-003**	**3.4800e-003**	**190.9730**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.18015e +006	109.1916	0.0177	2.1400e-003	110.2713
Total		**109.1916**	**0.0177**	**2.1400e-003**	**110.2713**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.18015e +006	109.1916	0.0177	2.1400e-003	110.2713
Total		**109.1916**	**0.0177**	**2.1400e-003**	**110.2713**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											121.2817	65.9098	187.1914	0.5711	1.1800e-003	201.8185
Unmitigated											121.2817	65.9098	187.1914	0.5711	1.1800e-003	201.8185

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											121.2817	64.1147	185.3964	0.5682	1.1800e-003	199.9516
Landscaping											0.0000	1.7951	1.7951	2.8700e-003	0.0000	1.8669
Total											**121.2817**	**65.9098**	**187.1914**	**0.5711**	**1.1800e-003**	**201.8185**

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											121.2817	64.1147	185.3964	0.5682	1.1800e-003	199.9516
Landscaping											0.0000	1.7951	1.7951	2.8700e-003	0.0000	1.8669
Total											**121.2817**	**65.9098**	**187.1914**	**0.5711**	**1.1800e-003**	**201.8185**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.8555	0.3153	7.5500e-003	19.9889
Unmitigated	9.8555	0.3153	7.5500e-003	19.9889

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	9.6428 / 6.07915	9.8555	0.3153	7.5500e-003	19.9889
Total		**9.8555**	**0.3153**	**7.5500e-003**	**19.9889**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	9.6428 / 6.07915	9.8555	0.3153	7.5500e-003	19.9889
Total		**9.8555**	**0.3153**	**7.5500e-003**	**19.9889**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	30.9115	1.8268	0.0000	76.5818
Unmitigated	30.9115	1.8268	0.0000	76.5818

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	152.28	30.9115	1.8268	0.0000	76.5818
Total		**30.9115**	**1.8268**	**0.0000**	**76.5818**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	152.28	30.9115	1.8268	0.0000	76.5818
Total		**30.9115**	**1.8268**	**0.0000**	**76.5818**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B. HEALTH RISK ASSESSMENT MODELING FILES

(Electronic Files)

TECHNICAL MEMORANDUM

Date: February 16, 2022

Project: Cultural resources records search- Tentative Tract 935 Project, Lemoore, CA

To: Jaymie Brauer, Principal Planner

From: Robert Parr, MS, RPA, Senior Archaeologist

Subject: Cultural Resources Records Search Results (RS#21-473)

Background

A cultural resources records search (RS #21-473) was conducted at the Southern San Joaquin Valley Information Center, CSU Bakersfield for the above referenced Project in the City of Lemoore, Kings County to determine whether the proposed project would impact cultural resources.

Project Location

The Project is located in Kings County, California (Attachment A: Figures 1-4). The Project site is within the northeast ¼ of the southwest ¼ of Section 34, T.18S, R.21E (MDB&M) (Figures 1-4).

Project Description

The applicant proposes the construction of a 148 single-family single family residences, internal roads and a drainage basin on an approximately 30 acre site (APNs 021-550-001, 021-550-002, and 021-550-003) (Project). Access to the proposed subdivision will be from Liberty Drive and West Glendale Avenue. In order for the Project to be constructed, the following actions are required: Annexation into the City of Lemoore, Prezoning, Tentative Tract Map, Planned Unit Development (PUD) and a Major Site Plan Review. Additionally, the applicant also proposes to annex APN 021-550-004 and 021-550-005 to the City's jurisdiction, however, no development is planned for this parcel at this time.

Results

The records search covered an area within one-half mile of the Project and included a review of the *National Register of Historic Places, California Points of Historical Interest*, *California Registry of Historic Resources, California Historical Landmarks, California State Historic Resources Inventory*, and a review of cultural resource reports on file.

The records search indicated that the subject property had never been surveyed for cultural resources and it is not known if any exist there. Three cultural resource studies have been conducted within a half mile of the project (Wren 1989; Bissonnette 1992; Girado and Orfila 2009).

One prehistoric cultural resource (P-16-000013) has been recorded within a half mile of the property. This is described as a "burial and occupational mound" in a site record by Hewes Massey in June of 1939 and as a "large burial and habitation site" in a site record by S. Ceniceros dated 14 August 1977. The Project will not impact these cultural resources.

No additional cultural resources have been identified or recorded within a half mile of the project.

A Sacred Lands File request was also submitted to the Native American Heritage Commission. A response dated January 27, 2022, indicates positive results (see Attachment C). The Santa Rosa Rancheria Tachi Yokut tribe has consulted by the City and the measures below are recommended to reduce impacts to less than significant levels.

Conclusions

Based on the results of cultural records search findings and the lack of historical or archaeological resources previously identified within a half mile radius of the proposed Project, the potential to encounter subsurface cultural resources is minimal. Additionally, the Project construction would be conducted within the partially developed and previously disturbed parcel. The potential to uncover subsurface historical or archaeological deposits would be considered unlikely.

However, there is still a possibility that historical or archaeological materials may be exposed during construction. Grading and trenching, as well as other ground-disturbing actions have the potential to damage or destroy these previously unidentified and potentially significant cultural resources within the project area, including historical or archaeological resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact. To reduce the potential impacts of the Project on cultural resources, the following measures are recommended to be included as Conditions of Approval. With implementation of CUL-1 through CUL-C, the Project would have a less than significant impact related to cultural resources.

<u>Recommended Avoidance Measures</u>

MM CUL-1: If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed project would not cause a substantial adverse change in the significance of a historical resource.

MM CUL-2: Prior to the issuance of grading permits, the developer shall enter into an agreement with the Santa Rosa Rancheria Tachi Yokut tribe. If requested, the developer shall:

a) Retain a qualified native American monitor to be on site during initial ground disturbance activities.
b) Have a Burial Treatment Plan developed for the project
c) Retain a qualified tribal member to conduct a Cultural Resources Sensitivity training session with the construction crew prior to ground disturbance activities.

Evidence of the agreement with the Santa Rosa Rancheria Tachi Yokut tribe shall be submitted to the lead agency as evidence of compliance.

MM CUL-3: If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the county coroner.

Robert E. Parr, MS, RPA
Senior Archaeologist

Attachment A- Figures
Attachment B- Sacred Lands File Response by the Native American Heritage Commission

References

(all reports on file at the Southern San Joaquin Valley Information Center, California State University, Bakersfield)

Bissonnette, Linda Dick
1992 Cultural Resource Assessment West Hills Community College Lemoore Campus (Kings County). (KI-00007)

Girado, Amy and Rebecca S. Orfila
2009 A Cultural Resources Assessment of Approximately 70 Acres of Land for the City of Lemoore Arsenic Mitigation Program, Kings County, California. (KI-00191)

Wren, Donald G.
1989 Lemoore Union Elementary School District. (KI-00066)

Attachment A-
Figures

TECHNICAL MEMORANDUM

Attachment B-
Sacred Lands File Response by the
Native American Heritage Commission

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

NATIVE AMERICAN HERITAGE COMMISSION

January 27, 2022

Jaymie Brauer
Quad Knopf, Inc.

Via Email to: Jaymie.brauer@qkinc.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Tentative Tract Map 935 (210447) Project, Kings County

Dear Ms. Brauer:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

    All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the Santa Rosa Rancheria Tachi Yokut Tribe on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT - SCHLICKHEISER
18¾ AVENUE AND WEST GLENDALE AVENUE
LEMOORE, CALIFORNIA

PROJECT NO. 012-21056
MARCH 30, 2021

Prepared for:

MS. WENDY ERICKSON
LENNAR CENTRAL VALLEY
8080 NORTH PALM AVENUE, SUITE 110
FRESNO, CALIFORNIA 93711

Prepared by:

KRAZAN & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING DIVISION
215 WEST DAKOTA AVENUE
CLOVIS, CALIFORNIA 93612
(559) 348-2200

March 30, 2021

KA No. 012-21056

Ms. Wendy Erickson
Lennar Central Valley
8080 North Palm Avenue, Suite 110
Fresno, California 93711

RE: Geotechnical Engineering Investigation
Proposed Residential Development - Schlickheiser
18¾ Avenue and West Glendale Avenue
Lemoore, California

Dear Ms. Erickson:

In accordance with your request, we have completed a Geotechnical Engineering Investigation for the above-referenced site. The results of our investigation are presented in the attached report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (559) 348-2200.

REGISTERED PROFESSIONAL ENGINEER
DAVID R. JAROSZ II
2698
GEOTECHNICAL
STATE OF CALIFORNIA

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

David R. Jarosz, II
Managing Engineer
RGE No. 2698/RCE No. 60185

DRJ:ht

TABLE OF CONTENTS

March 30, 2021 KA Project No. 012-21056

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT - SCHLICKHEISER
18¾ AVENUE AND WEST GLENDALE AVENUE
LEMOORE, CALIFORNIA

INTRODUCTION

This report presents the results of our Geotechnical Engineering Investigation for the proposed residential development to be located on the southeast corner of 18¾ Avenue and West Glendale Avenue in Lemoore, California. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, Engineered Fill, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior flatwork, retaining walls, soil cement reactivity and pavement design.

A site plan showing the approximate boring locations is presented following the text of this report. A description of the field investigation, boring logs and the boring log legend are presented in Appendix A. Appendix A contains a description of laboratory testing phase of this study; along with laboratory test results. Appendices B and C contain guides to earthwork and pavement specifications. When conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE

This investigation was conducted to evaluate the soil and groundwater conditions at the site, to make geotechnical engineering recommendations for use in design of specific construction elements and to provide criteria for site preparation and Engineered Fill construction.

Our scope of services was outlined in our proposal dated January 29, 2021 (KA Proposal No. P115-21) and included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- A field investigation consisting of drilling 9 borings to depths ranging from approximately 10 to 20 feet for evaluation of the subsurface conditions at the project site.
- Performing laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.

- Evaluation of the data obtained from the investigation and an engineering analysis to provide recommendations for use in the project design and preparation of construction specifications.
- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway; structural load information and other final details pertaining to the structures are unavailable. On a preliminary basis, it is understood the development will consist of single-family residential units and a drainage basin. It is anticipated the buildings will be single- or two-story wood-framed structures utilizing concrete slab-on-grade. Footing loads are anticipated to be light to moderate. On-site paved areas and landscaping are also planned for the development of the project.

In the event these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

SITE LOCATION, SITE HISTORY AND SITE DESCRIPTION

The site is rectangular in shape and encompasses approximately 30 acres. The site is located on the east side of Avenue 18¾, approximately ½ mile north of Hanford Armona Road in Lemoore, California. The site is identified by Kings County Assessor's Parcel Numbers (APN) 021-550-01, -02, and -03. The site is surrounded agricultural land, rural residences, a residential development, and a mobile home park.

Site history was obtained by reviewing historical aerial photographs taken in 1994, 2003, 2007, 2012, 2016, and 2018. Review of the 1994 aerial photograph indicates that the project site was predominately vacant. A grove of trees and an access road loop were located in the northwestern region of the site. The site was surrounded by vacant and residential land, rural residences, a residential development, and a mobile home park. The site was bordered by Avenue 18¾ to the west and an access road to the north.

Review of the 2003 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 1994 aerial photograph.

Review of the 2007 aerial photograph indicates that the majority of the project site consisted of agricultural land. The grove of trees in the northwestern region and the access road loop still remained.

Review of the 2012 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 2007 aerial photograph. The grove of trees had been cleared and was vacant.

Review of the 2016 and 2018 aerial photographs indicate that the project site conditions appeared to be relatively similar to that noted in the 2012 aerial photograph.

Presently, the site predominately utilized as agricultural land consisting of a rice paddy field. An irregularly shaped area in the northwestern region of the site is vacant. Irrigation ditches and berms are located around the project site perimeter and throughout the site. Wood and chain link fencing border the site to the east. Buried utility and irrigation lines associated with the existing and surrounding developments may be located within the site. Overhead electrical lines are located along the eastern edge of the site. The site is relatively level with no major changes in grade.

GEOLOGIC SETTING

The San Joaquin Valley, which includes the Lemoore area, is a topographic and structural basin that is bounded on the east by the Sierra Nevada and on the west by the Coast Ranges. The Sierra Nevada, a fault block dipping gently southwestward, is made up of igneous and metamorphic rocks of pre-Tertiary age that comprise the basement complex beneath the Valley. The Coast Ranges contain folded and faulted sedimentary rocks of Mesozoic and Cenozoic age, which are similar to those rocks that underlie the Valley at depth and non-conformably overlie the basement complex; gently dipping to nearly horizontal sedimentary rocks of Tertiary and Quaternary age overlie the older rocks. These younger rocks are mostly of continental origin and in the Lemoore area, they were derived from the Sierra Nevada.

The San Joaquin River is the principal river in the area. Alluvial fans formed by this river are the largest geomorphic features in the Lemoore area. The formation of the fans has resulted in rather flat regional topography.

The Coast Ranges evolved as a result of folding, faulting and accretion of diverse geologic terrains. They are composed chiefly of sedimentary and metamorphic rocks that are sharply deformed into complex structures. They are broken by numerous faults, the San Andreas Fault being the most notable structural feature.

Both the Sierra Nevada and Coast Range are geologically young mountain ranges and possess active and potentially active fault zones. Major active faults and fault Zones occur at some distance to the east, west and south of the Lemoore area. The Owens Valley Fault Zone bounds the eastern edge of the Sierra Nevada block and contains both active and potentially active faults.

Portions of the Ortigalita, Calaveras, Hayward and Rinconada Faults, which are to the west, are considered potentially active. The San Andreas Fault is possibly the best-known fault and is located about 60 to 70 miles to the west.

There are no active fault traces in the project vicinity. Accordingly, the project area is not within an Earthquake Fault Zone (Special Studies Zone) and will not require a special site investigation by an Engineering Geologist.

Lemoore residents could feel the effects of a large seismic event on one of the nearby active or potentially active fault zones. Lemoore has experienced groundshaking from earthquakes in the historical past. According to the Five County Seismic Safety Element, groundshaking of VII intensity (Modified Mercali Scale) was felt in Lemoore from the 1872 Owens Valley Earthquake. This is the largest known earthquake event affecting the Lemoore area.

Secondary hazards from earthquakes include rupture, seiche, landslides, liquefaction, and subsidence. Since there are no known faults within the immediate area, ground rupture from surface faulting should not be a potential problem. Seiche and landslides are not hazards in the area either. Liquefaction potential (sudden loss of shear strength in a saturated cohesionless soil) should be low since groundwater occurs below 90 feet. Lastly, deep subsidence problems may be low to moderate according to the conclusions of the Five County Seismic Safety Element. However, there are no known occurrences of structural or architectural damage due to deep subsidence in the Lemoore area.

FIELD AND LABORATORY INVESTIGATIONS

Subsurface soil conditions were explored by drilling 9 borings to depths ranging from approximately 10 to 20 feet below existing site grade, using a truck-mounted drill rig. In addition, 3 bulk subgrade samples were obtained from the site for laboratory R-value testing. The approximate boring and bulk sample locations are shown on the site plan. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency, obtain information regarding the engineering properties of the subsoils and to retain soil samples for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A more detailed description of the field investigation is presented in Appendix A.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, density, gradation, shear strength, consolidation potential, expansion potential and R-value of the materials encountered. In addition, chemical tests were performed to evaluate the soil-cement reactivity. Details of the laboratory test program and the results of laboratory test are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the upper soils predominately consisted of approximately 6 to 12 inches of very loose silty sand. These soils are disturbed, have moderate strength characteristics, and are slightly compressible when saturated.

Below the loose surface soils, loose to medium dense silty sand, sandy silt, sand, and clayey silt were encountered. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. Penetration resistance ranged from 5 to 20 blows per foot. Dry densities ranged from 79 to 120 pcf. Representative soil samples consolidated approximately 2½ to 3 percent under a 2 ksf load when saturated. A representative soil sample had an angle of internal friction of 38 degrees. A representative sample of the clayey soil had an expansion index of 23. These soils extended to the termination depth of our borings.

For additional information about the soils encountered, please refer to the logs of borings in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was encountered at depths of 16½ feet below existing site grade in one of the borings. Groundwater was not encountered in the other borings.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

Administrative Summary

In brief, the subject site and soil conditions, with the exception of the loose surface soils and existing developments, appear to be conducive to the development of the project. The surface soils have a very loose consistency. These soils are disturbed, have low strength characteristics and are highly compressible when saturated. Accordingly, it is recommended that the surface soils be recompacted. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation.

Presently, the site is utilized as agricultural land consisting of a rice paddy field. Irrigation ditches and berms are located throughout the site. Associated with these developments may be buried structures, such as utility lines, irrigation lines, drainage lines, septic systems and possible water wells that may extend into the project site. Demolition activities should include proper removal all buried structures. Water wells should be abandoned in accordance with county standards. The resulting excavations should be backfilled with Engineered Fill. It is suspected that demolition activities of the existing structures will disturb the upper soils. Following demolition activities, it is recommended that the disturbed soils be removed and/or recompacted. Any buried structures or loosely backfilled excavations encountered during construction should be properly removed and the resulting excavations backfilled with Engineered Fill. Disturbed areas caused by demolition activities should be recompacted.

Trees were previously located within the site. Tree or root removal operations should include roots greater than 1 inch in diameter. The resulting excavations should be backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

All deleterious materials and loose soils should be removed from the ditches and the resulting excavations should be cleaned to firm native soil, and backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Relatively clean sands were encountered at various locations throughout the site. The possibility exists that site grading operations could expose these soils in areas of proposed buildings, pavements, and/or retaining walls. The Contractor should note that these soils lack the cohesion necessary to stand vertically, even in shallow excavations such as footing trenches. If these conditions are encountered, it will be necessary to over-excavate the affected area(s) to a minimum of 12 inches below the proposed bearing surface. These areas may be backfilled using a mix of the silty sand and sand soils that contains at least 20 percent fines and meeting the requirements for Engineered Fill. This material may be obtained from elsewhere at the site, imported to the site from an approved off-site source, or manufactured through blending of the excavated clean sand with other suitable material containing a higher percentage of fines to result in material meeting the requirements for Engineered Fill.

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structure footings may be designed utilizing an allowable bearing pressure of 2,000 psf for dead-plus-live loads. Footings should have a minimum embedment of 12 inches.

Groundwater Influence on Structures/Construction

During our field investigation groundwater was encountered as shallow as 16½ feet below existing site grade. Therefore, dewatering and/or waterproofing may be required should structures or excavations extend below this depth. If groundwater is encountered, our firm should be consulted prior to dewatering the site. Installation of a standpipe piezometer is suggested prior to construction should groundwater levels be a concern.

In addition to the groundwater level, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may become saturated, "pump," or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

Site Preparation

General site clearing should include removal of vegetation; existing utilities; concrete structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed.

Deeper stripping may be required in localized areas. These materials will not be suitable for use as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

Fill material was not encountered in our borings. However, fill may be located between and beyond our borings. It is anticipated fill soils will consist of silty sands, sandy silts or sands. The thickness and extent of fill material was determined based on limited test borings and visual observation. Verification of the extent of fill should be determined during site grading. It is recommended that fill soils that have not been properly compacted and certified be excavated and recompacted. Prior to backfilling, the bottom of the excavation should be observed by Krazan & Associates, Inc. to verify no additional removal is required.

Presently, the site is utilized as agricultural land consisting of a rice paddy field. Irrigation ditches and berms are located throughout the site. Associated with this development may be buried structures, such as utility lines, irrigation lines, septic systems, and water wells. Demolition activities should include proper removal of any buried structures. Any buried structures or loosely backfilled excavations encountered during construction should be properly removed and the resulting excavations backfilled. Excavations, depressions, or soft and pliant areas extending below planned finish subgrade level should be cleaned to firm undisturbed soil, and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed. Concrete footings should be removed to an equivalent depth of at least 3 feet below proposed footing elevations or as recommended by the Soils Engineer. Water wells should be abandoned in accordance with county standards. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. Resulting excavations should be backfilled with Engineered Fill.

Trees were previously located within the site. Tree or root removal operations should include roots greater than 1 inch in diameter. The resulting excavations should be backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Following stripping, fill removal, tree or root removal, and demolition activities, the exposed subgrade within proposed building areas should be excavated to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned as necessary and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Limits of recompaction should extend 5 feet beyond structural elements. Prior to backfilling, the bottom of the excavation should be proof-rolled and observed by Krazan & Associates, Inc. to verify stability. Soft or pliant areas should be excavated to firm native ground.

Following stripping, fill removal operations demolition activities, the exposed subgrade in exterior flatwork and pavement areas should be excavated/scarified to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned as necessary, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Limits of recompaction should extend 2 feet beyond the edge of pavements or sidewalks. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation.

All deleterious materials and loose soils should be removed from the ditches and the resulting excavations should be cleaned to firm native soil, and backfilled with Engineered Fill compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

The upper soils, during wet winter months, become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

Engineered Fill

The on-site, upper native soils are predominately silty sands, sandy silts, sands, and clayey silts. The clayey silt was encountered in the southeastern region of the site. These soils will be suitable for reuse as Engineered Fill, provided they are cleansed of excessive organics and debris. Clayey soils with an expansion index of greater than 15 should not be used in the upper 12 inches of soil supporting slabs-on-grade or exterior flatwork.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time.

Imported Fill should consist of a well-graded, slightly cohesive, fine silty sand or sandy silt soil, with relatively impervious characteristics when compacted. This material should be approved by the Soils Engineer prior to use and should typically possess the following characteristics:

Percent Passing No. 200 Sieve	20 to 50
Plasticity Index	10 maximum
UBC Standard 29-2 Expansion Index	15 maximum

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned as necessary, and compacted to achieve at least 90 percent of maximum density based on ASTM D1557. Clayey soils should be moisture-conditioned to a minimum of 2 percent above optimum moisture content. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

Drainage and Landscaping

The ground surface should slope away from building pad and pavement areas toward appropriate drop inlets or other surface drainage devices. In accordance with Section 1804 of the 2019 California Building Code, it is recommended that the ground surface adjacent to foundations be sloped a minimum of 5 percent for a minimum distance of 10 feet away from structures, or to an approved alternative means of drainage conveyance. Swales used for conveyance of drainage and located within 10 feet of foundations should be sloped a minimum of 2 percent. Impervious surfaces, such as pavement and exterior concrete flatwork, within 10 feet of building foundations should be sloped a minimum of 1 percent away from the structure. Drainage gradients should be maintained to carry all surface water to collection facilities and off-site. These grades should be maintained for the life of the project.

Utility Trench Backfill

Utility trenches should be excavated according to accepted engineering practice following OSHA (Occupational Safety and Health Administration) standards by a Contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the Contractor. Traffic and vibration adjacent to trench walls should be reduced and cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. The utility trench backfill placed in pavement areas should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

The Contractor is responsible for removing all water sensitive soils from the trench regardless of the backfill location and compaction requirements. The Contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

Foundations

The proposed structures may be supported on a shallow foundation system bearing on undisturbed native soil or on Engineered Fill. Spread and continuous footings can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	1,500 psf
Dead-Plus-Live Load	2,000 psf
Total Load, including wind or seismic loads	2,650 psf

The footings should have a minimum depth of 12 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 12 inches, regardless of load.

The total movement is not expected to exceed 1 inch. Differential movement should be less than 1 inch. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.4 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 325 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A ⅓ increase in the above value may be used for short duration, wind, or seismic loads.

Floor Slabs and Exterior Flatwork

In areas that will utilize moisture-sensitive floor coverings, concrete slab-on-grade floors should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with accepted engineering practice. The water vapor retarder should consist of a vapor retarder sheeting underlain by a minimum of 3 inches of compacted, clean, gravel of ¾-inch maximum size. To aide in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the 100 sieve. The sand should be free of clay, silt, or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To reduce moisture vapor intrusion, it is recommended that a vapor retarder be installed. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to reduce the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 31 pounds per square foot per foot of depth. Walls incapable of this deflection or are fully constrained walls against deflection may be designed for an equivalent fluid at-rest pressure of 52 pounds per square foot per foot of depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand-operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

R-Value Test Results and Pavement Design

Three subgrade soil samples were obtained from the project site for R-value testing at the locations shown on the attached site plan. The samples were tested in accordance with the State of California Materials Manual Test Designation 301. Results of the tests are as follows:

Sample	Depth	Description	R-Value at Equilibrium
1	12-24"	Silty Sand (SM)	59
2	12-24"	Silty Sand (SM)	58
3	12-24"	Silty Sand (SM)	60

The test results are moderate and indicate good subgrade support characteristics under dynamic traffic loads. The following table shows the recommended pavement sections for various traffic indices.

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Compacted Subgrade**
4.0	2.0"	4.0"	12.0"
4.5	2.5"	4.0"	12.0"
5.0	2.5"	4.0"	12.0"
5.5	3.0"	4.0"	12.0"
6.0	3.0"	4.0"	12.0"
6.5	3.5"	4.0"	12.0"
7.0	4.0"	4.0"	12.0"
7.5	4.0"	4.0"	12.0"

**** 95% compaction based on ASTM Test Method D1557 or CAL 216***
***** 90% compaction based on ASTM Test Method D1557 or CAL 216***

If traffic indices are not available, an estimated (typical value) index of 4.5 may be used for light automobile traffic, and an index of 7.0 may be used for light truck traffic.

The following recommendations are for light-duty and heavy-duty Portland Cement Concrete Pavement Sections based on the design procedures developed by the Portland Cement Association.

PORTLAND CEMENT PAVEMENT
LIGHT DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
4.5	5.0"	--	12.0"

HEAVY DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
7.0	6.5"	--	12.0"

**** 95% compaction based on ASTM Test Method D1557 or CAL 216***
***** 90% compaction based on ASTM Test Method D1557 or CAL 216***
******Minimum compressive strength of 3000 psi***

It is recommended that any uncertified fill material encountered within pavement areas be removed and/or recompacted. The fill materials should be moisture-conditioned to near optimum moisture and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within paved areas. However, the Owner should be aware that the paved areas may settle which may require annual maintenance. At a minimum, it is recommended that the upper 12 inches of subgrade soil be moisture-conditioned to a minimum of 2 percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Seismic Parameters – 2019 California Building Code

The Site Class per Section 1613 of the 2019 California Building Code (2019 CBC) and ASCE 7-16, Chapter 20 is based upon the site soil conditions. It is our opinion that a Site Class D is most consistent with the subject site soil conditions. For seismic design of the structures based on the seismic provisions of the 2019 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Section 1613.2.2
Site Coefficient F_a	1.158	Table 1613.2.3 (1)
S_s	0.856	Section 1613.2.1
S_{MS}	0.991	Section 1613.2.3
S_{DS}	0.660	Section 1613.2.4
Site Coefficient F_v	2.000	Table 1613.2.3 (2)
S_1	0.300	Section 1613.2.1
S_{M1}	0.600	Section 1613.2.3
S_{D1}	0.400	Section 1613.2.4
T_S	0.606	Section 1613.2

* Based on Equivalent Lateral Force (ELF) Design Procedure being used.

Soil Cement Reactivity

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete (or stucco) and the soil. HUD/FHA and UBC have developed criteria for evaluation of sulfate levels and how they relate to cement reactivity with soil and/or water.

Soil samples were obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentrations detected from these soil samples were less than 150 ppm and are below the maximum allowable values established by HUD/FHA and UBC. Therefore, no special design requirements are necessary to compensate for sulfate reactivity with the cement.

Compacted Material Acceptance

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent on the stability of that material. The Soils Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with an in-situ moisture content significantly less than optimum moisture. This type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

Testing and Inspection

A representative of Krazan & Associates, Inc. should be present at the site during the earthwork activities to confirm that actual subsurface conditions are consistent with the exploratory fieldwork. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. This representative can also verify that the intent of these recommendations is incorporated into the project design and construction. Krazan & Associates, Inc. will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

LIMITATIONS

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.

The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Geotechnical Engineering Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

If you have any questions or if we may be of further assistance, please do not hesitate to contact our office at (559) 348-2200.

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

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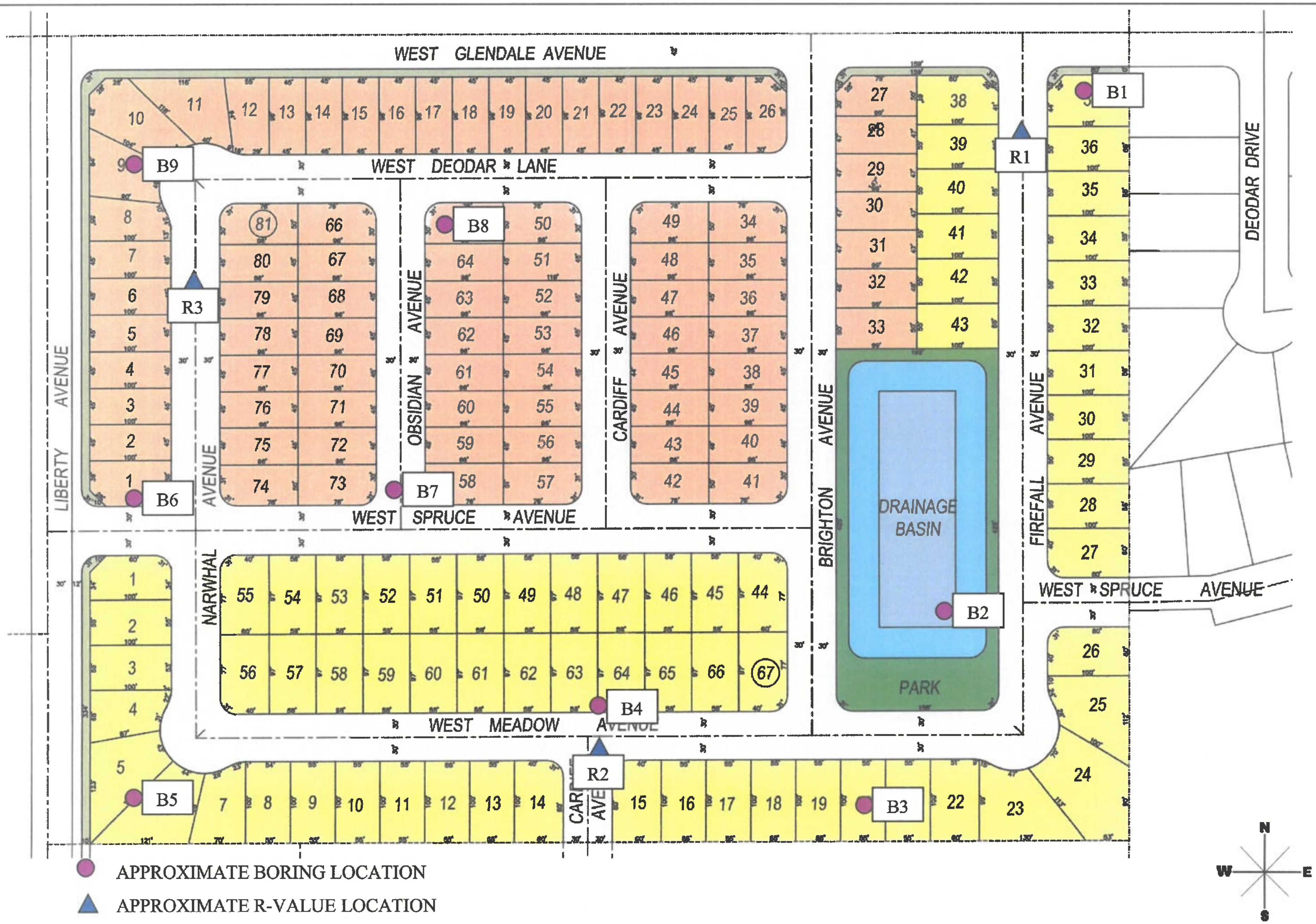
MKW/DRJ:ht



SITE MAP	Scale: NTS	Date: March 2021	Krazan GEOTECHNICAL ENGINEERING
Schlickheiser Residential Development 18¾ Avenue and Glendale Avenue Lemoore, California	Drawn by: HT	Approved by: DJ	
	Project No. 012-21056	Figure No. 1	

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

The field investigation consisted of a surface reconnaissance and a subsurface exploratory program. Nine 4½-inch exploratory borings were advanced. The boring locations are shown on the site plan.

The soils encountered were logged in the field during the exploration and, with supplementary laboratory test data, are described in accordance with the Unified Soil Classification System.

Modified standard penetration tests were performed at selected depths. This test represents the resistance to driving a 2½-inch diameter core barrel sampler. The driving energy was provided by a hammer weighing 140 pounds falling 30 inches. Relatively undisturbed soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the auger cuttings. All samples were returned to our Clovis laboratory for evaluation.

Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the foundation soil underlying the site. Test results were used as criteria for determining the engineering suitability of the surface and subsurface materials encountered.

In-situ moisture content, dry density, consolidation, direct shear and sieve analysis tests were determined for the undisturbed samples representative of the subsurface material. Expansion index and R-value tests were completed for select bag samples obtained from the auger cuttings. These tests, supplemented by visual observation, comprised the basis for our evaluation of the site material.

The logs of the exploratory borings and laboratory determinations are presented in this Appendix.

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
	Clean Gravels (Less than 5% fines)	
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
	Clean Sands (Less than 5% fines)	
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	SW	Well-graded sands, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
SILTS AND CLAYS Liquid limit less than 50%	ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
	CH	Inorganic clays of high plasticity, fat clays
	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils

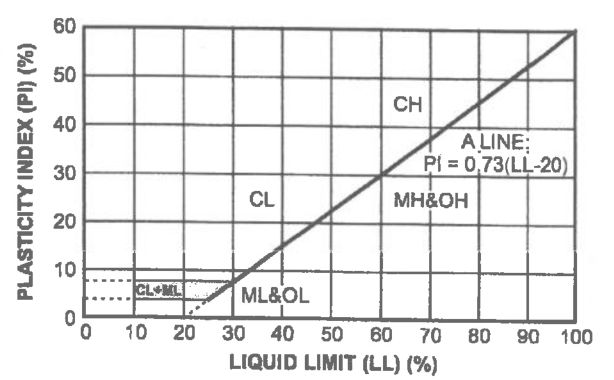
CONSISTENCY CLASSIFICATION

Description	Blows per Foot
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION

Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.042
Fine-grained	No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074

PLASTICITY CHART



Log of Boring B1

Project: Schlickheiser Residential Development

Project No: 012-21056

Client: Lennar Central Valley

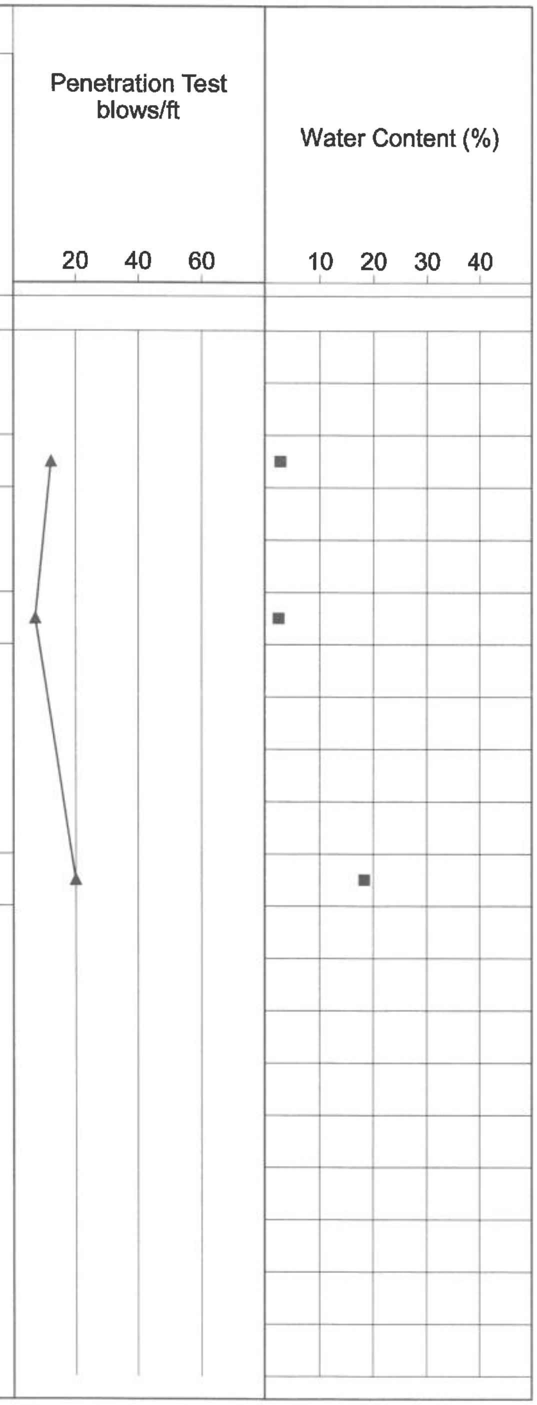
Figure No.: A-1

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California

Logged By: R. Alexander

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
0	Ground Surface				
0–2	***SILTY SAND (SM)*** Very loose, fine- to medium-grained; brown, damp, drills easily. Loose below 12 inches				
2–8	***SAND (SP)*** Loose, fine- to medium-grained; tan, damp, drills easily	99.1	2.8		12
		99.3	2.5		7
8–15	***SILTY SAND (SM)*** Medium dense, fine- to medium-grained; brown, moist, drills easily	110.6	18.4		20
15	End of Borehole				



Drill Method: Solid Flight

Drill Date: 3-5-21

Drill Rig: CME 45B

Krazan and Associates

Hole Size: 4½ Inches

Driller: Brent Snyder

Elevation: 15 Feet

Sheet: 1 of 1

Log of Boring B2

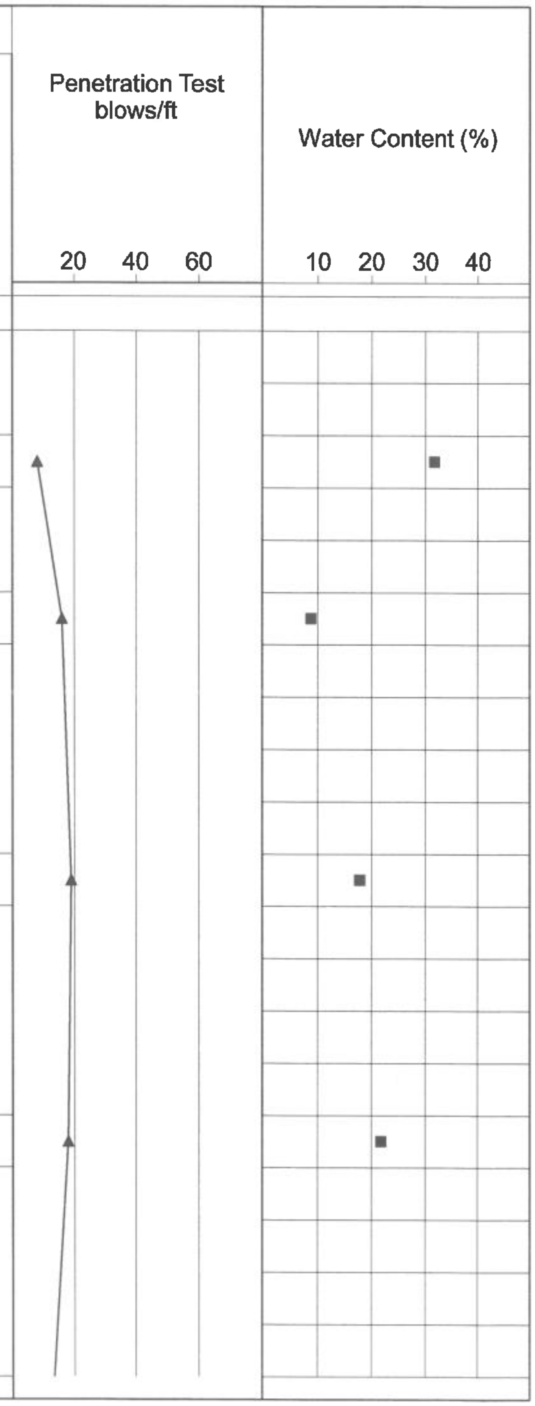
Project: Schlickheiser Residential Development
Project No: 012-21056

Client: Lennar Central Valley
Figure No.: A-2

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California
Logged By: R. Alexander

Depth to Water> **Initial:** 16½ Feet **At Completion:** 16½ Feet

SUBSURFACE PROFILE		SAMPLE			
Depth (ft)	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
	Ground Surface				
0	***SILTY SAND (SM)*** Very loose, fine- to medium-grained; brown, moist, drills easily. Loose below 12 inches				
2–3		83.6	31.8		8
4	Medium dense and light brown below 4 feet				
5–6		112.4	8.8		16
8½	***SANDY SILT (ML)*** Medium dense, fine-grained; light grayish-brown, moist, drills easily				
10–11		112.0	17.9		19
14	***SAND (SP)*** Medium dense, fine- to medium-grained; tan/light brown, moist, drills easily				
15–16			21.9		18
16½	Saturated below 16½ feet				
20	Loose below 20 feet				



Drill Method: Solid Flight
Drill Date: 3-5-21

Drill Rig: CME 45B
Krazan and Associates
Hole Size: 4½ Inches

Driller: Brent Snyder
Elevation: 21 Feet

Log of Boring B2

Project: Schlickheiser Residential Development | **Project No:** 012-21056

Client: Lennar Central Valley | **Figure No.:** A-2

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California | **Logged By:** R. Alexander

Depth to Water> | **Initial:** 16½ Feet | **At Completion:** 16½ Feet

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft (20, 40, 60)	Water Content (%) (10, 20, 30, 40)
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.		
			107.2	21.4		13		
		End of Borehole						
22								
24								
26								
28								
30								
32								
34								
36								
38								
40								

Drill Method: Solid Flight | **Drill Date:** 3-5-21

Drill Rig: CME 45B | **Krazan and Associates** | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 21 Feet

Log of Boring B3

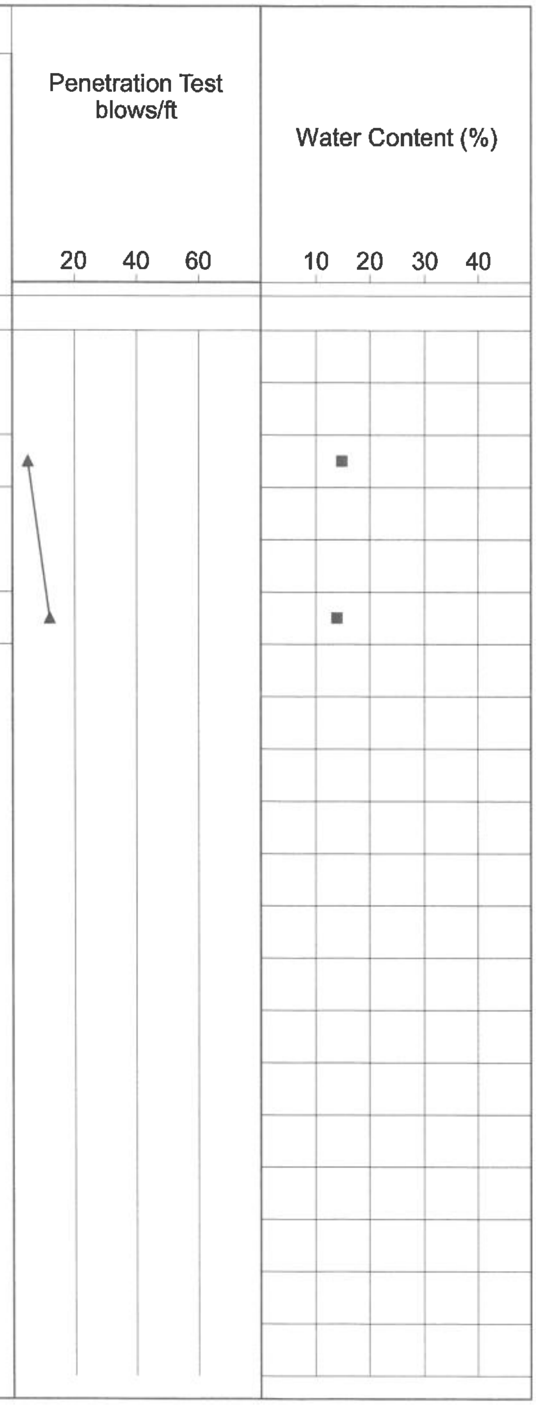
Project: Schlickheiser Residential Development | **Project No:** 012-21056

Client: Lennar Central Valley | **Figure No.:** A-3

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California | **Logged By:** R. Alexander

Depth to Water> | **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description (SUBSURFACE PROFILE)	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Very loose, fine- to medium-grained; brown, moist, drills easily. Loose below 12 inches				
2			90.3	14.9		5
4		***CLAYEY SILT (ML)*** Loose; brown, moist, drills easily				
6		***SILTY SAND (SM)*** Loose, fine- to medium-grained; light brown, moist, drills easily	113.5	14.0		12
8						
10		End of Borehole				
12						
14						
16						
18						
20						



Drill Method: Solid Flight | **Drill Date:** 3-5-21

Drill Rig: CME 45B | **Hole Size:** 4½ Inches

Krazan and Associates

Driller: Brent Snyder | **Elevation:** 10 Feet

Sheet: 1 of 1

Log of Boring B4

Project: Schlickheiser Residential Development | **Project No:** 012-21056

Client: Lennar Central Valley | **Figure No.:** A-4

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California | **Logged By:** R. Alexander

Depth to Water> **Initial:** None | **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20, 40, 60)	Water Content (%) (10, 20, 30, 40)
		Ground Surface						
0	SM	***SILTY SAND (SM)*** Very loose, fine- to medium-grained; brown, moist, drills easily. Loose below 12 inches						
2.5	SP	***SAND (SP)*** Loose, fine- to medium-grained; brown, moist, drills easily	90.9	9.7	■	10		
5.5	SM	***SILTY SAND (SM)*** Loose, fine- to medium-grained; brown, moist, drills easily	92.8	7.0	■	7		
8	SP	***SAND (SP)*** Loose, fine- to medium-grained; brown, moist, drills easily	103.1	11.2	■	14		
15		End of Borehole						

Drill Method: Solid Flight | **Drill Date:** 3-5-21

Drill Rig: CME 45B | **Krazan and Associates** | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 15 Feet

Sheet: 1 of 1

Log of Boring B5

Project: Schlickheiser Residential Development

Project No: 012-21056

Client: Lennar Central Valley

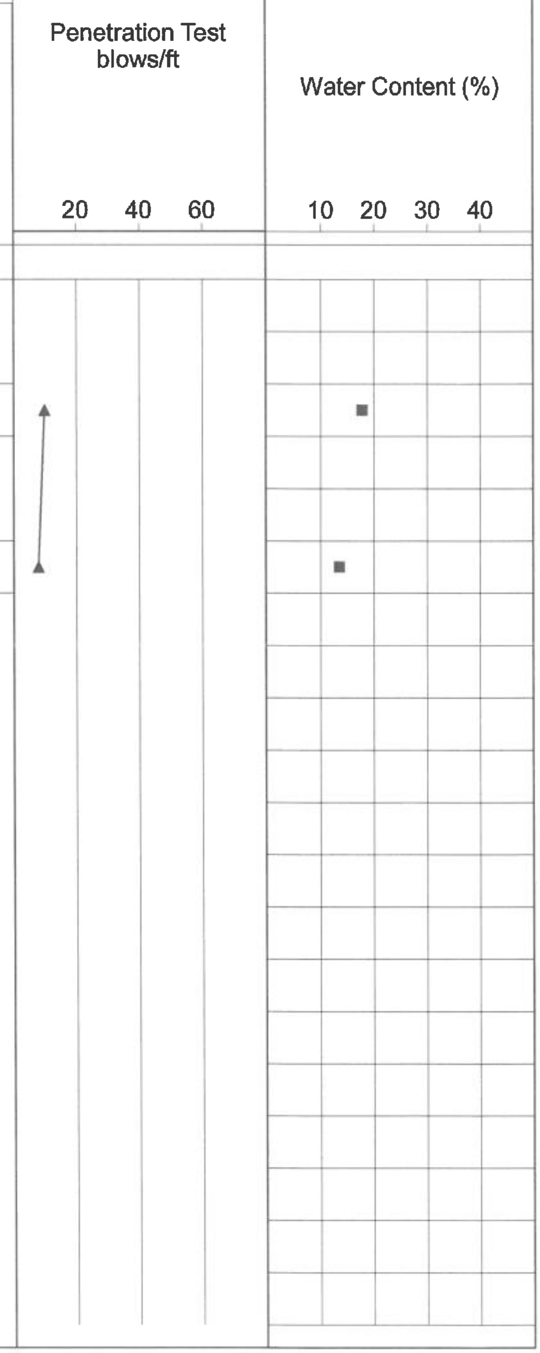
Figure No.: A-5

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California

Logged By: R. Alexander

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Very loose, fine-grained; brown, moist, drills easily Loose below 12 inches				
2			93.5	17.9		10
4		Fine- to medium-grained below 4½ feet				
6			92.7	13.6		8
8						
10		End of Borehole				
12						
14						
16						
18						
20						



Drill Method: Solid Flight

Drill Date: 3-5-21

Drill Rig: CME 45B

Krazan and Associates

Hole Size: 4½ Inches

Driller: Brent Snyder

Elevation: 10 Feet

Sheet: 1 of 1

Log of Boring B6

Project: Schlickheiser Residential Development
Project No: 012-21056

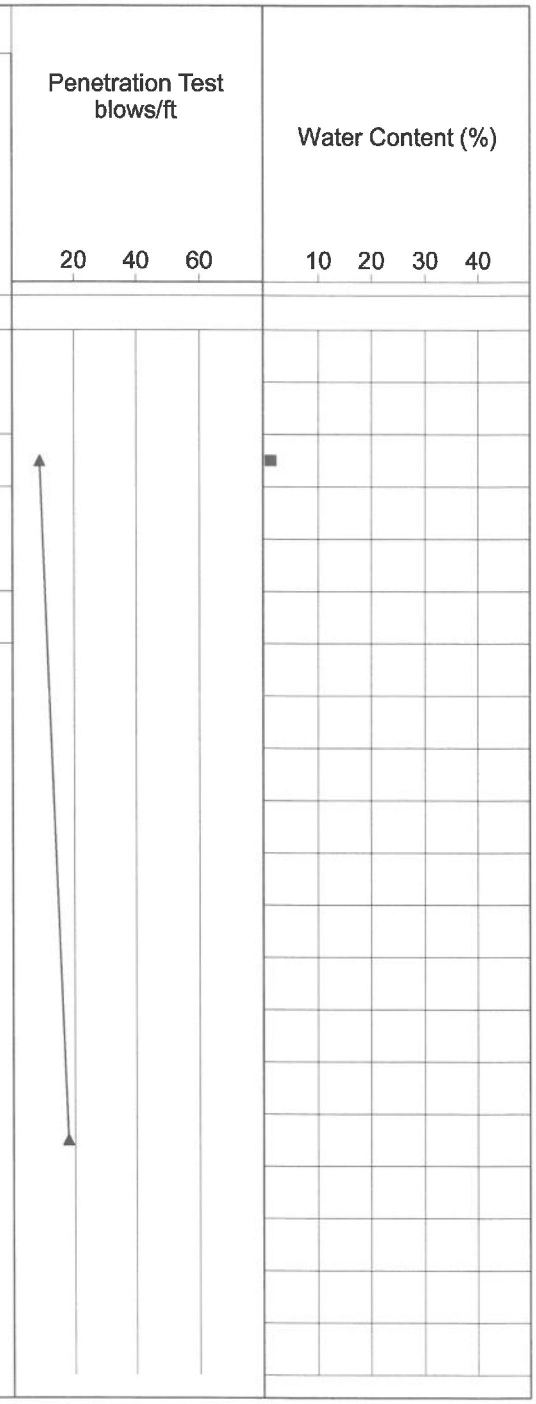
Client: Lennar Central Valley
Figure No.: A-6

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California
Logged By: R. Alexander

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE / SAMPLE

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Very loose, fine-grained; brown, damp, drills easily Loose below 12 inches				
2		***SAND (SP)*** Loose, fine- to medium-grained; tan, damp, drills easily	101.7	1.4		9
4						
5		Medium dense below 5 feet				16
6						
8						
10		End of Borehole				
12						
14						
16						
18						
20						



Drill Method: Solid Flight
Drill Date: 3-5-21

Drill Rig: CME 45B
Krazan and Associates
Hole Size: 4½ Inches

Driller: Brent Snyder
Elevation: 10 Feet

Log of Boring B7

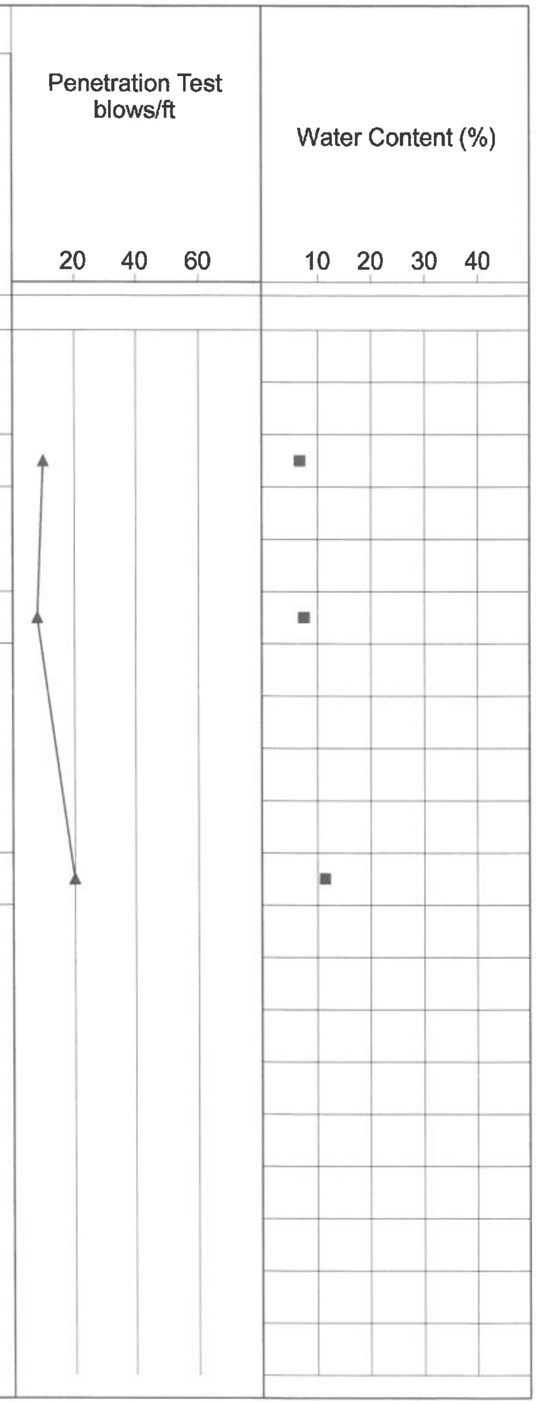
Project: Schlickheiser Residential Development | **Project No:** 012-21056

Client: Lennar Central Valley | **Figure No.:** A-7

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California | **Logged By:** R. Alexander

Depth to Water> | **Initial:** None | **At Completion:** None

SUBSURFACE PROFILE			SAMPLE			
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0	SM	***SILTY SAND (SM)*** Very loose, fine- to medium-grained; brown, moist, drills easily. Loose below 12 inches				
2.5			94.6	6.8		10
5.5			101.6	7.6		8
5.5	SP	***SAND (SP)*** Loose, fine- to medium-grained; brown, moist, drills easily				
8	SM	***SILTY SAND (SM)*** Medium dense, fine- to medium-grained; brown, moist, drills easily				
10.5			120.2	11.5		20
15		End of Borehole				



Drill Method: Solid Flight | **Drill Date:** 3-5-21

Drill Rig: CME 45B | **Krazan and Associates** | **Hole Size:** 4½ Inches

Driller: Brent Snyder | **Elevation:** 15 Feet

Sheet: 1 of 1

Log of Boring B8

Project: Schlickheiser Residential Development
Project No: 012-21056

Client: Lennar Central Valley
Figure No.: A-8

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California
Logged By: R. Alexander

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft (20, 40, 60)	Water Content (%) (10, 20, 30, 40)
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.		
		Ground Surface						
0		***SILTY SAND (SM)*** Very loose, fine- to medium-grained; brown, damp, drills easily. Loose below 12 inches						
2		***SAND (SP)*** Loose, fine- to medium-grained; tan, damp, drills easily	95.8	2.6		14		
5			95.4	2.8		10		
7.5		***SILTY SAND (SM)*** Loose, fine- to medium-grained; brown, damp, drills easily						
10		***SAND (SP)*** Loose, fine- to medium-grained; tan, damp, drills easily	104.3	6.6		8		
15			97.2	4.5		13		
20								

Drill Method: Solid Flight
Drill Date: 3-5-21

Drill Rig: CME 45B
Krazan and Associates
Hole Size: 4½ Inches

Driller: Brent Snyder
Elevation: 20 Feet

Log of Boring B9

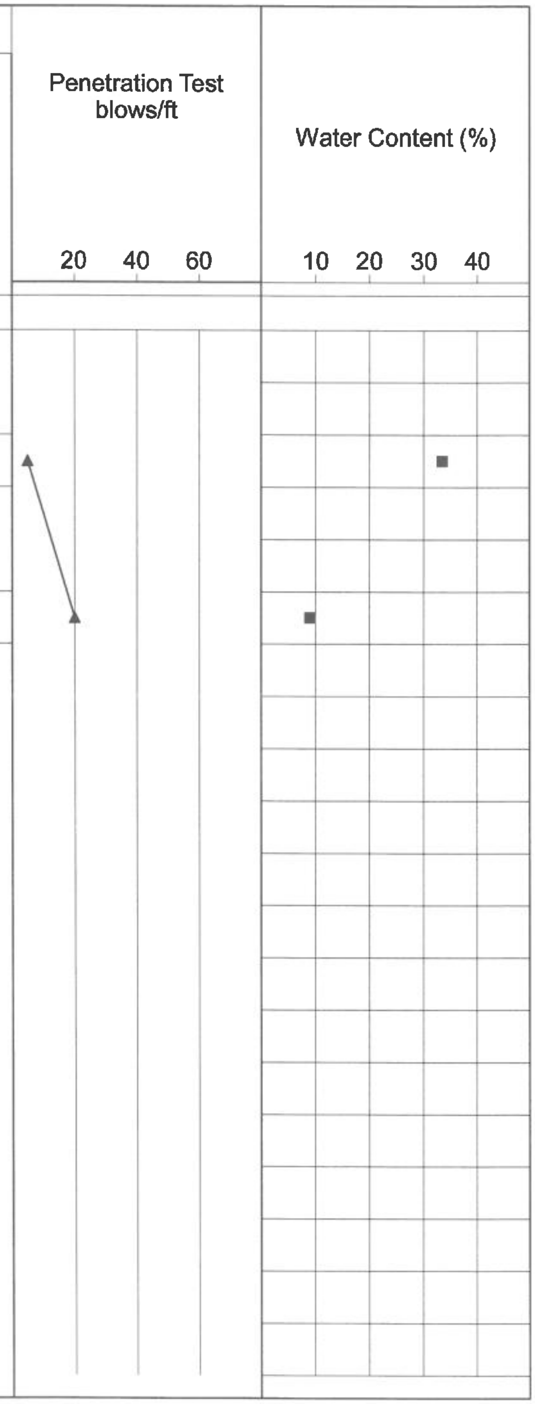
Project: Schlickheiser Residential Development
Project No: 012-21056

Client: Lennar Central Valley
Figure No.: A-9

Location: 18¾ Avenue and Glendale Avenue, Lemoore, California
Logged By: R. Alexander

Depth to Water> **Initial:** None **At Completion:** None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
		Ground Surface				
0		***SILTY SAND (SM)*** Very loose, fine- to medium-grained; brown, moist, drills easily. Loose below 12 inches				
2				33.5		5
4		***SANDY SILT (ML)*** Loose, fine- to medium-grained; brown, moist, drills easily				
6		***SILTY SAND (SM)*** Medium dense, fine- to medium-grained; light brown, moist, drills easily	111.0	9.1		20
8						
10		End of Borehole				
12						
14						
16						
18						
20						



Drill Method: Solid Flight
Drill Date: 3-5-21

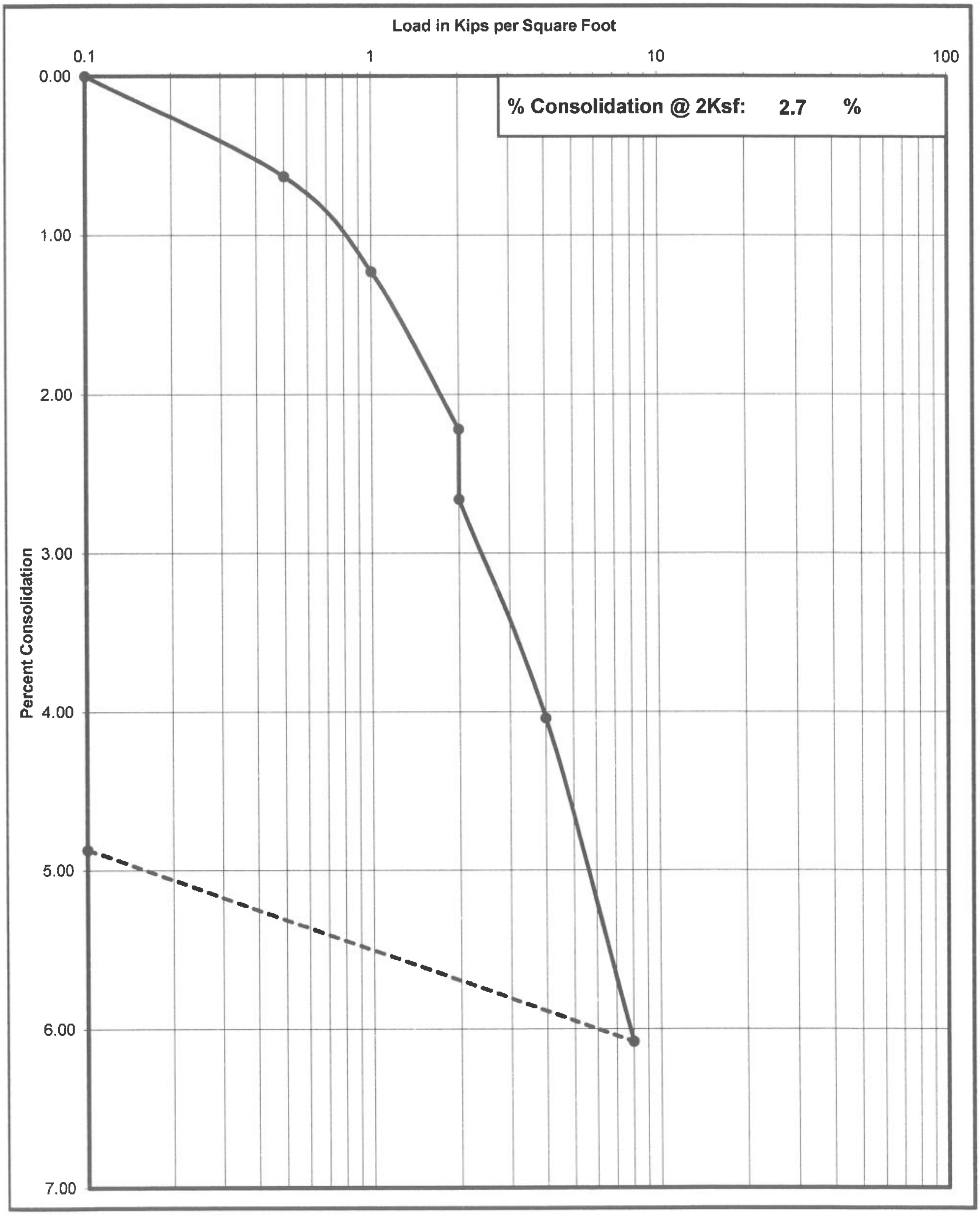
Drill Rig: CME 45B
Krazan and Associates
Hole Size: 4½ Inches

Driller: Brent Snyder
Elevation: 10 Feet

Sheet: 1 of 1

Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
022-21056	B3 @ 2-3'	3/22/2021	SM



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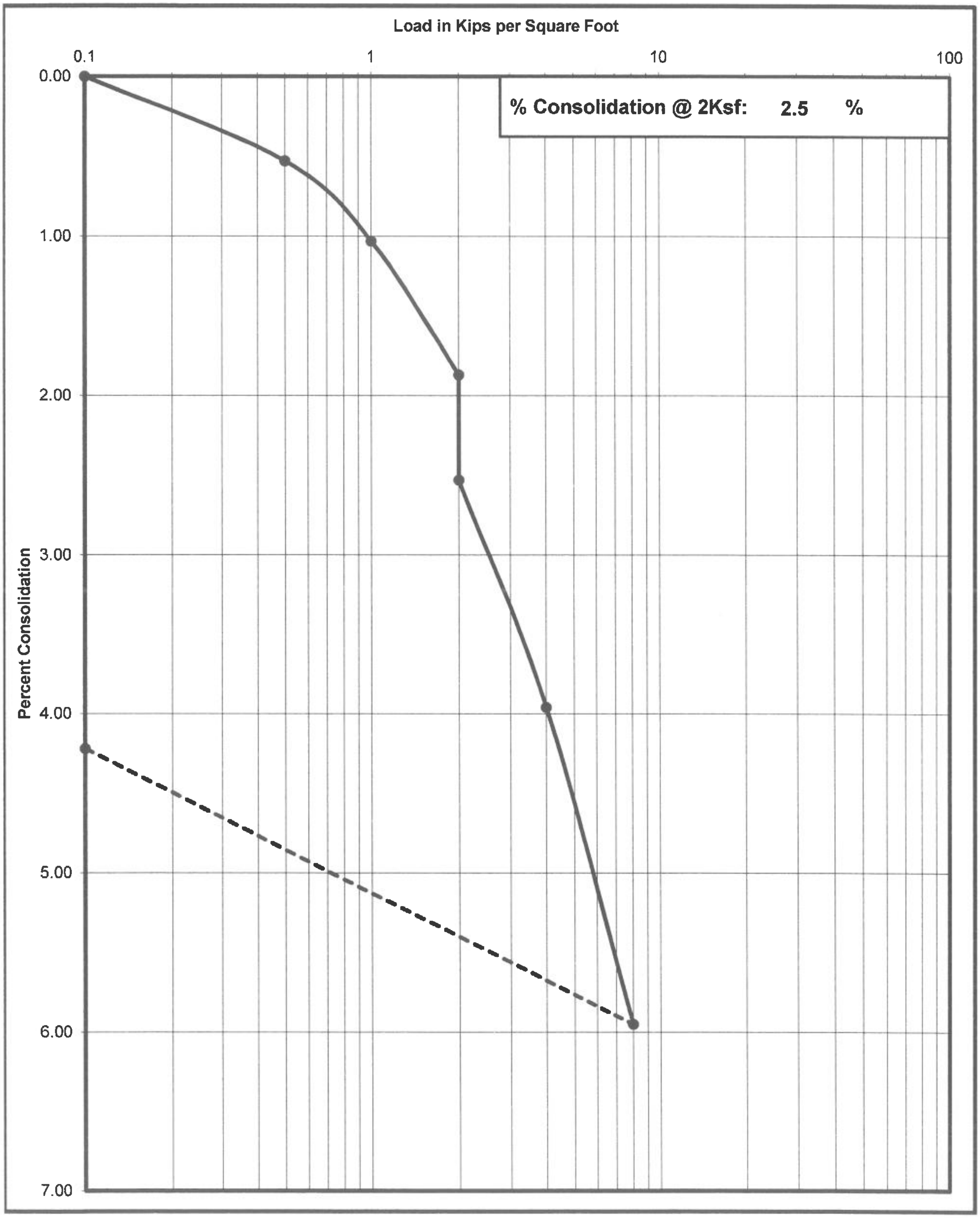
Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
022-21056	B7 @ 2-3'	3/22/2021	SM



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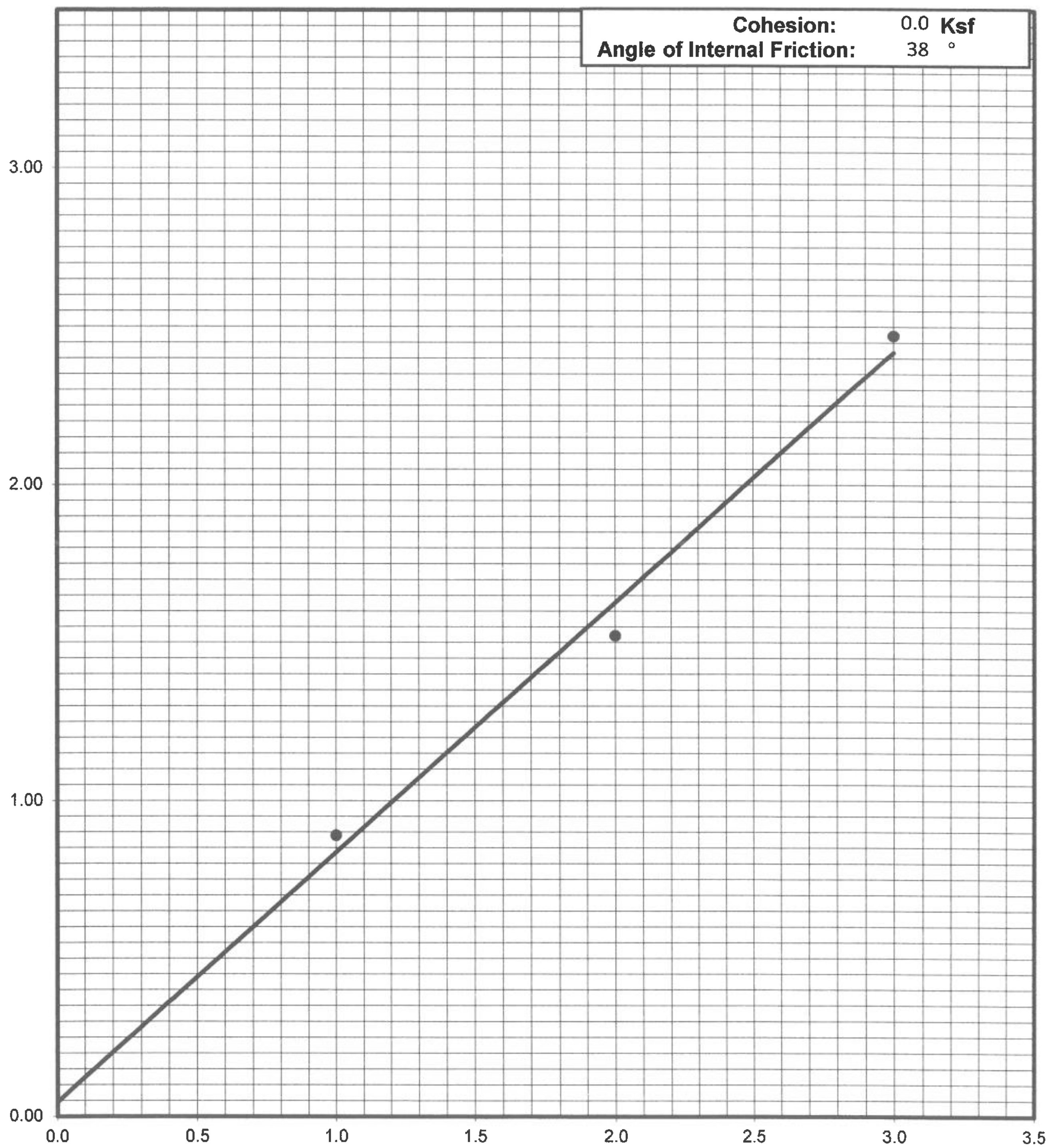
Shear Strength Diagram (Direct Shear)
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
012-21056	B1 @ 2-3'	SP	3/22/2021



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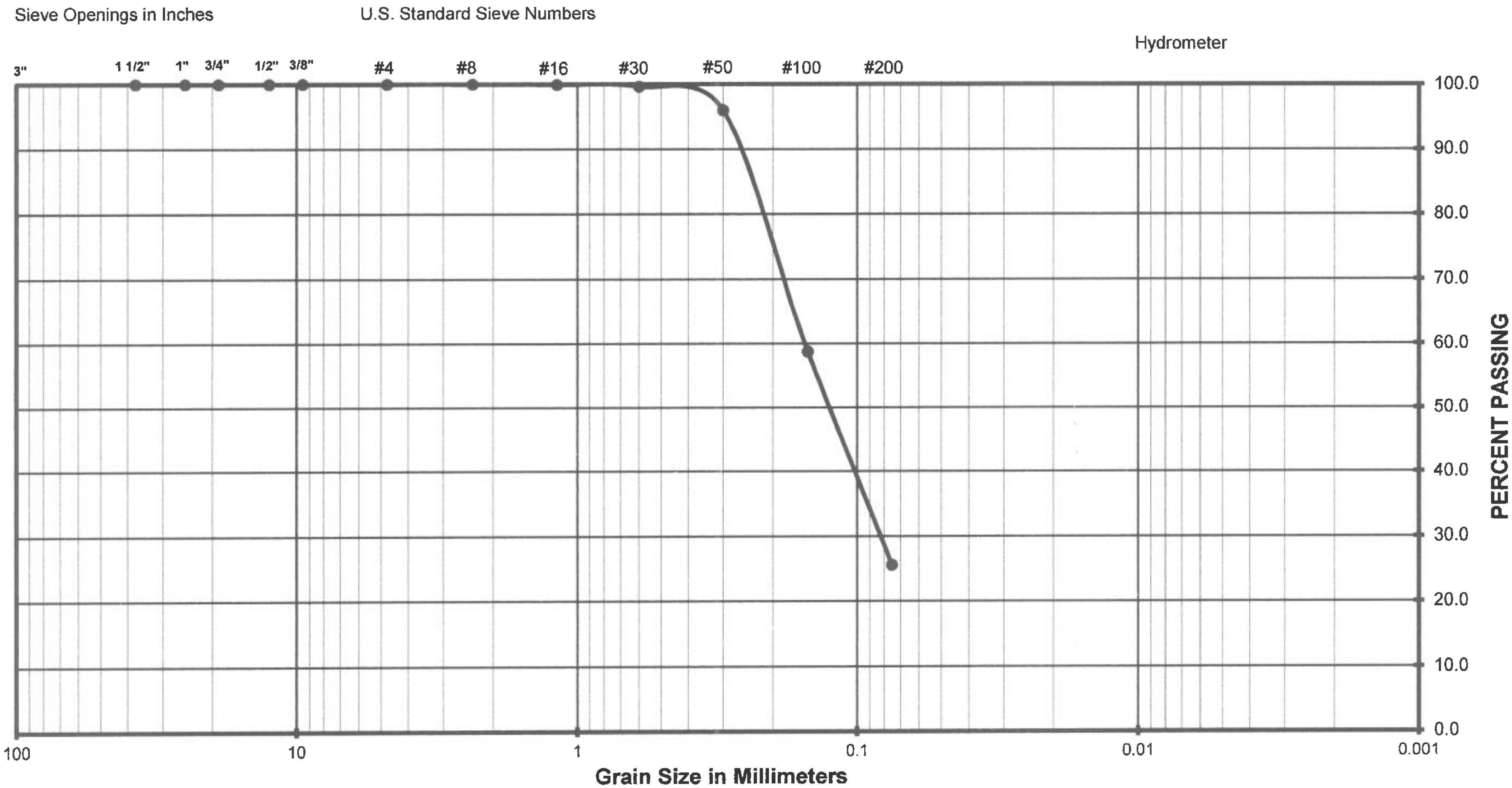
Grain Size Analysis



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

(Unified Soils Classification)

Project Name	Residential Development - Schlickheiser
Project Number	012-21052
Soil Classification	SM
Sample Number	B3 @ 2-3'

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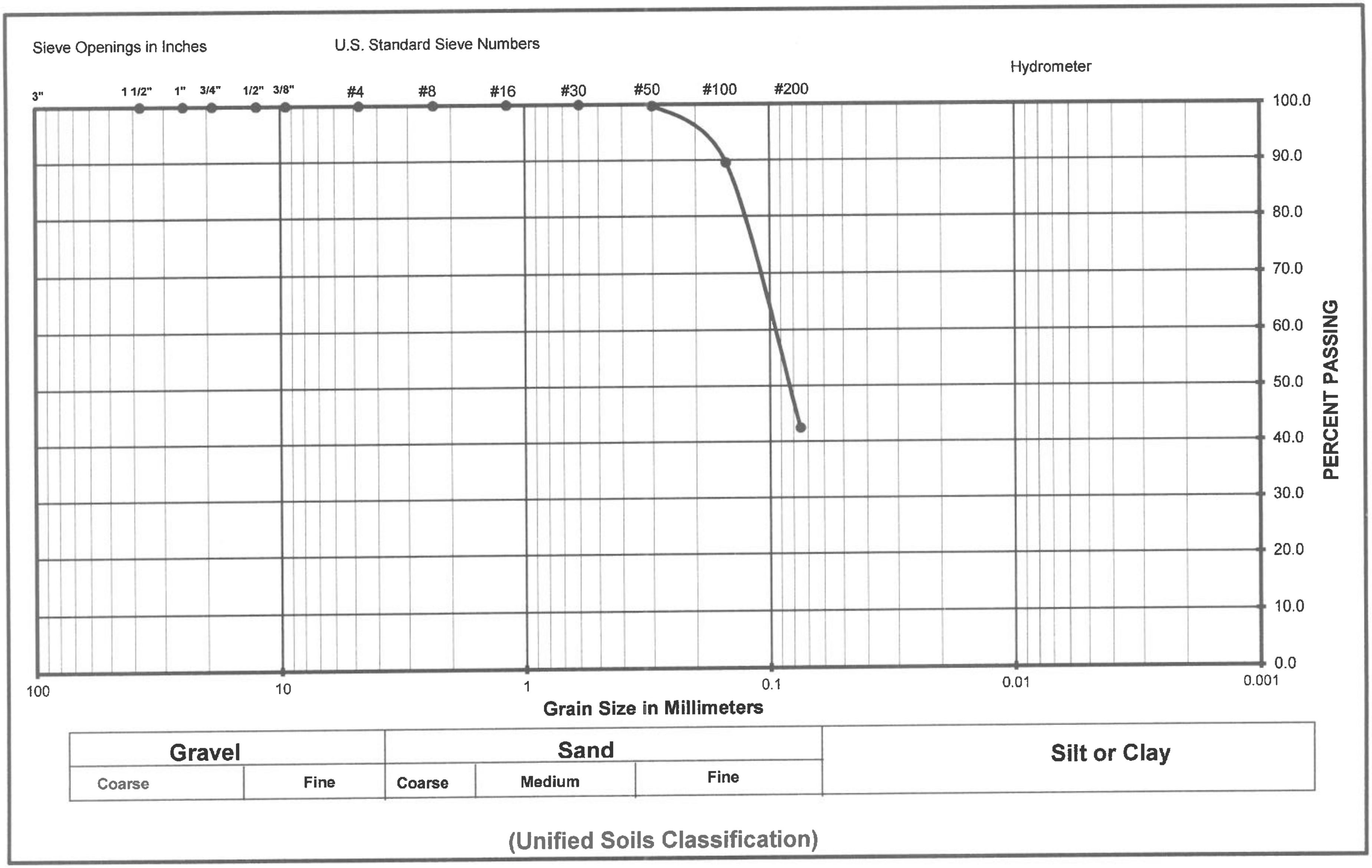
Grain Size Analysis



Project Name	Residential Development - Schlickheiser
Project Number	012-21052
Soil Classification	SM
Sample Number	B7 @ 2-3'

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Expansion Index Test

ASTM D - 4829

Project Number	: 012-21056
Project Name	: Residential Development - Schlickheiser
Date	: 3/22/2021
Sample location/ Depth	: B3 @ 3-4'
Sample Number	: X1
Soil Classification	: ML

Trial #	**1**	**2**	**3**
Weight of Soil & Mold, gms	738.2		
Weight of Mold, gms	369.8		
Weight of Soil, gms	368.4		
Wet Density, Lbs/cu.ft.	111.1		
Weight of Moisture Sample (Wet), gms	200.0		
Weight of Moisture Sample (Dry), gms	175.5		
Moisture Content, %	14.0		
Dry Density, Lbs/cu.ft.	97.5		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	51.8		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0.0234

Expansion Index $_{measured}$ = 23.4

Expansion Index = 23

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

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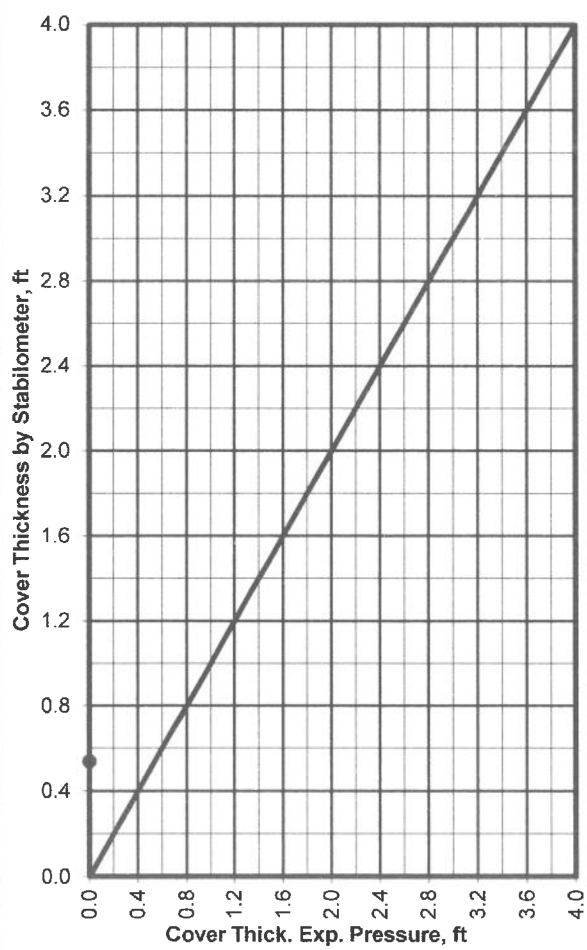
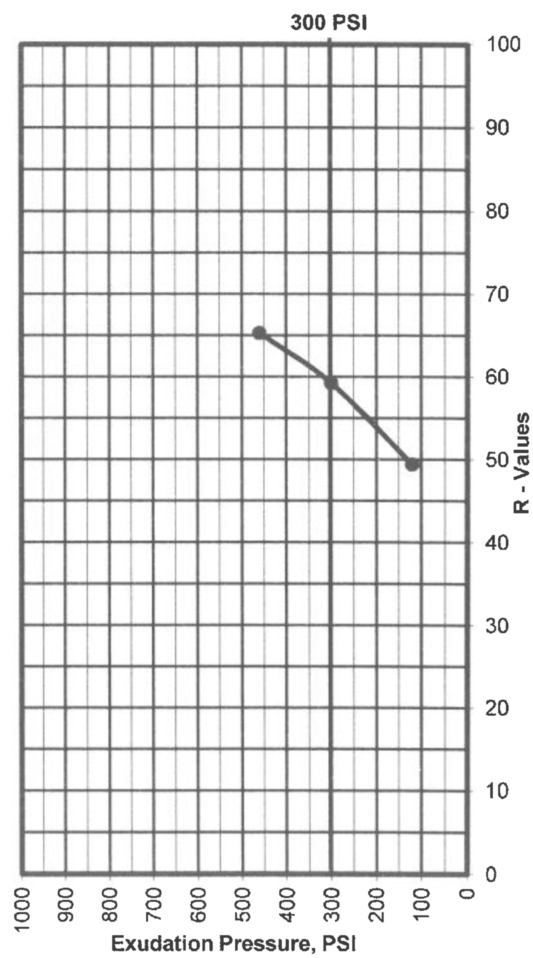
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	012-21056
Project Name	:	Residential Development - Schlickheiser
Date	:	3/12/2021
Sample Location/Curve Number	:	RV#1
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	13.3	12.8	12.3
Dry Density, lbm/cu.ft.	117.1	116.2	115.8
Exudation Pressure, psi	120	300	460
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	49	59	65

R Value at 300 PSI Exudation Pressure	**59**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**





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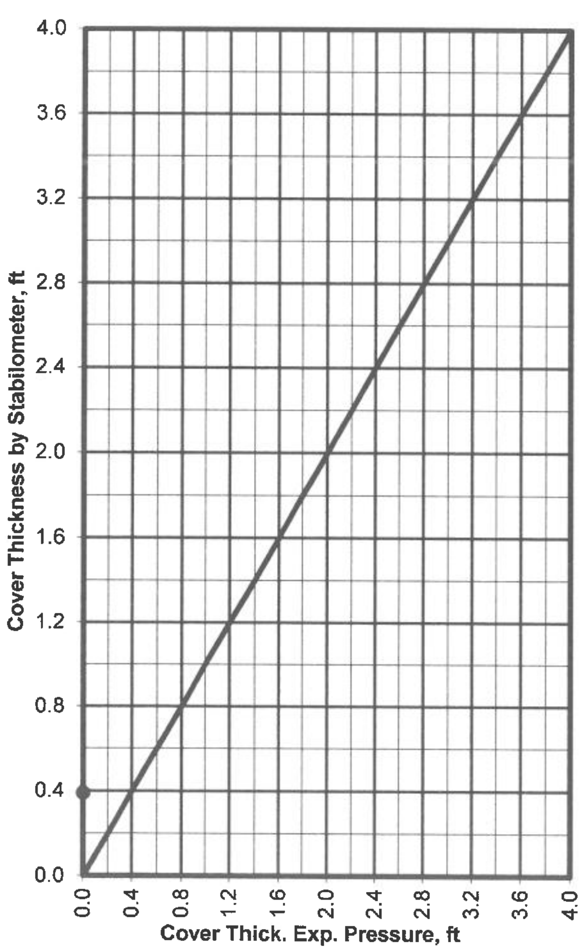
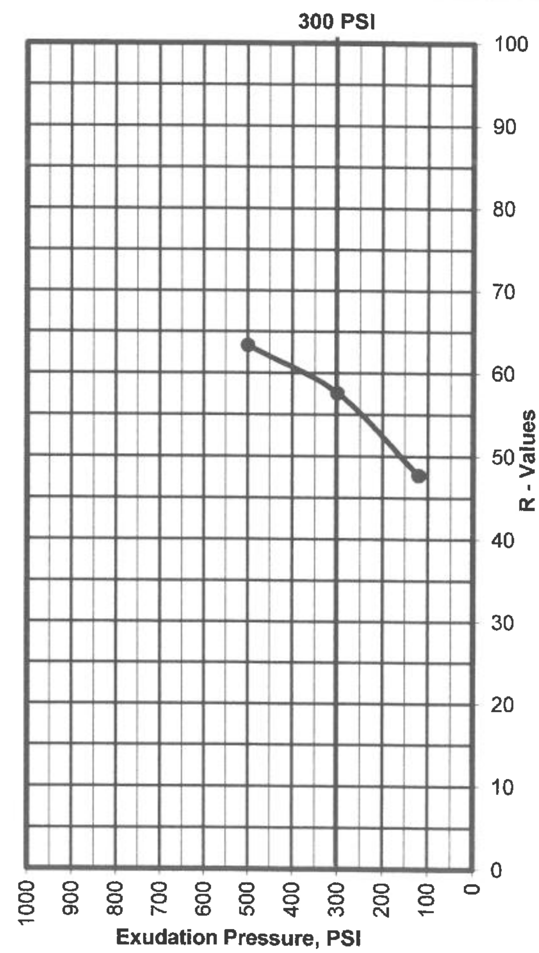
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	012-21056
Project Name	:	Residential Development - Schlickheiser
Date	:	3/12/2021
Sample Location/Curve Number	:	RV#2
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	13.4	13.9	14.4
Dry Density, lbm/cu.ft.	115.9	115.5	114.9
Exudation Pressure, psi	500	300	120
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	63	58	48

R Value at 300 PSI Exudation Pressure	**58**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**





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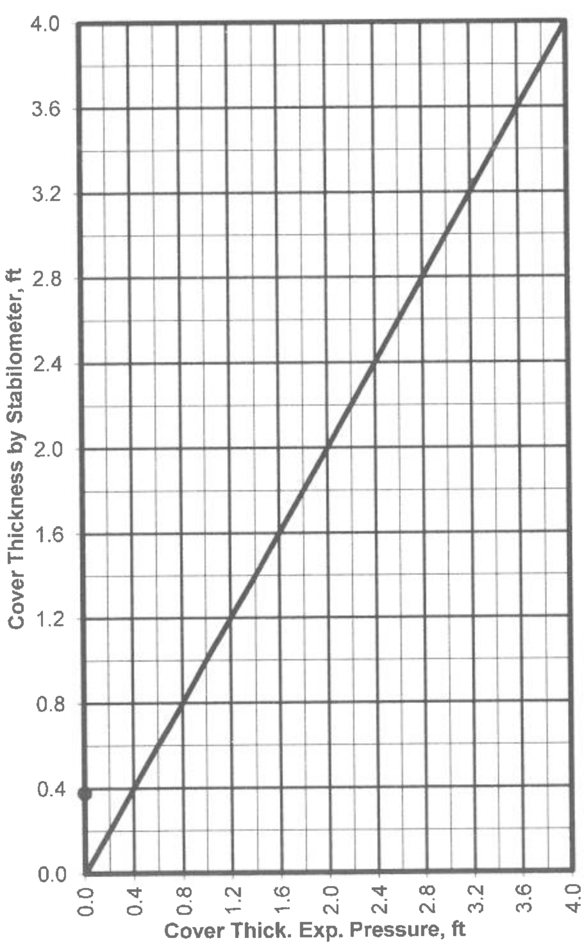
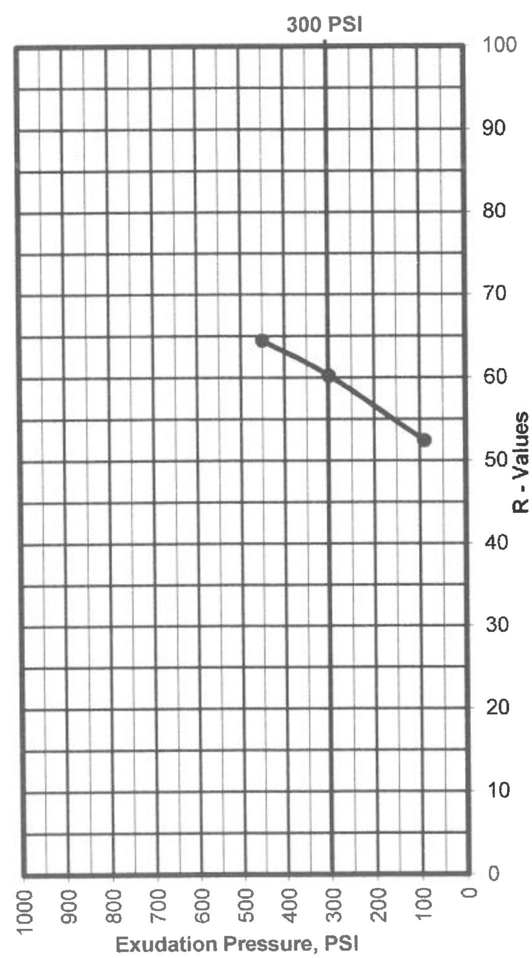
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	012-21056
Project Name	:	Residential Development - Schlickheiser
Date	:	3/12/2021
Sample Location/Curve Number	:	RV#3
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	11.1	11.7	12.4
Dry Density, lbm/cu.ft.	118.0	118.6	119.4
Exudation Pressure, psi	450	300	90
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	64	60	52

R Value at 300 PSI Exudation Pressure	**60**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**





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APPENDIX B

EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including but not limited to the furnishing of all labor, tools, and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans, and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of Krazan and Associates, Inc., hereinafter known as the Soils Engineer and/or Testing Agency. Attainment of design grades when achieved shall be certified to by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the soil negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to a density not less that 90 percent relative compaction based on ASTM Test Method D1557-78, UBC or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the soil report.

The Contractor shall make his own interpretation of the data contained in said report, and the Contractor shall not be relieved of liability under the Contractor for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or windblown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and the preparations of foundation materials for receiving fill.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project, earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter, and all other matter determined by the Soils Engineer to be deleterious. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots larger than 1 inch. Tree root removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill or tree root excavation should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill, building or slab loads shall be prepared as outlined above, scarified to a depth of 6 inches, moisture-conditioned as necessary, and compacted to 90 percent relative compaction.

Loose soil areas, areas of uncertified fill, and/or areas of disturbed soils shall be moisture-conditioned as necessary and recompacted to 90 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas, which are to receive fill materials, shall be approved by the Soils Engineer prior to the placement of any of the fill material.

EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill shall be surface compacted to the satisfaction of the Soils Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill are as specified.

APPENDIX C

PAVEMENT SPECIFICATIONS

1. DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term "Standard Specifications": hereinafter referred to is the 2018 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the applicable tests outlined in the Materials Manual.

2. SCOPE OF WORK - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically notes as "Work Not Included."

3. PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 90 percent. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

4. UNTREATED AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class 2 material, 1½ inches maximum size. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

5. AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class 2 material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

6. ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10. The mineral aggregate shall be Type B, ½ inch maximum size, medium grading, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment, and spreading and compacting the mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50 degrees F. The surfacing shall be rolled with a combination steel-wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphaltic emulsion) shall conform to and be applied in accordance with the requirements of Section 37.

EXTENDED PHASE I SURVEY, SCHLICKEISER PROPERTY PROJECT, FRESNO COUNTY, CALIFORNIA

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April 2021
PN 36850.00

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MANAGEMENT SUMMARY

An Extended Phase I cultural resources survey was conducted for the Lennar Homes Schlickeiser Property Project (Project). The Project study area totals approximately 30-acres (ac) and consists of Assessor's Parcel Numbers (APN) 021-550-001, 021-550-002, and 021-550-003. The study area is located less than one mile north of the City of Lemoore in Section 34, Township 18 South, Range 20 East, Mount Diablo Base and Meridian (T18S/R20E; MDBM), Kings County, California. The Extended Phase I survey include an intensive pedestrian survey of the Project area and shovel test pit (STP) subsurface testing of a portion of the Project area containing a scatter of artifacts on the ground surface. ASM Affiliates, Inc., conducted this study, with David S. Whitley, Ph.D., RPA, serving as principal investigator. The study was undertaken to assist with compliance with the California Environmental Protection Act.

A records search of site files and maps was conducted on February 8th, 2021 at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield. The results indicated that the Project area had not been previously surveyed and no cultural resources had been recorded on it. Three previous surveys had been conducted within a half mile radius of the Project area, with one previously recorded resource known to exist in that same radius. The Santa Rosa Rancheria – Tachi Yokut Tribe Cultural and Historical Preservation Department, however, had previously visited the property and reported the presence of an archaeological site on it.

A Sacred Lands File Request was also completed by the Native American Heritage Commission (NAHC) on February 16th, 2021. Outreach letters were sent to the tribal organizations on the NAHC-provided contact list, with follow-up emails sent. The Santa Rosa Rancheria responded by phone call and email and expressed concerns that the project may adversely affect cultural resources. No other contactees expressed concerns.

The Phase I survey fieldwork was conducted on February 25, 2021 with parallel transects spaced at 5 to 10-meter (m) intervals walked along the approximately 30-ac study area. Members of the Santa Rosa Rancheria Cultural and Historical Preservation Department participated in the survey. The cultural resource that they had previously reported was re-identified, mapped and recorded. Artifacts identified consisted of a scatter of Pismo clam and abalone shell fragments mixed with 1970s-era and later debris, primarily within two bulldozer push-piles. No additional cultural resources of any kind were identified on the Project property.

An extended Phase I survey, consisting of the hand-excavation of 22 STPs, was completed in the location of the newly identified archaeological site on March 23, 2021. Subsurface conditions proved to be heavily disturbed with contemporary/modern debris extending to 100-cmbs in some areas. Based on the STP testing results, the newly discovered site consists of a surface scatter of prehistoric/Native American artifacts, primarily shellfish fragments. The site surface has been heavily disturbed by bulldozing with the extant archaeological specimens concentrated in two bulldozer push-piles. No intact subsurface archaeological deposit is present at this location. The site therefore lacks integrity and does not constitute a significant historical resource, and development of the property will not result in a significant adverse impact to known cultural resources.

It is recommended that, prior to development of this property, a Burial Treatment Plan be signed by the applicant; a cultural sensitivity training session be completed by construction staff prior to grading; and a tribal monitor be present for grading, to ensure that no cultural resources that still may be present are impacted during construction.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates, Inc., was retained by Lennar Homes, Central Valley Division to conduct an Extended Phase I cultural resources survey for the Schlickeiser Property Project. The Project is located in Kings County, California (Figure 1). The study was undertaken to assist with compliance with the California Environmental Protection Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historical resources do not occur as a result of project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project zone and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the study area to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of a previously unrecorded site found within the subject property, consisting of an STP presence/absence test for a subsurface archaeological deposit.

David S. Whitley, Ph.D., RPA, served as principal investigator. ASM Associate Archaeologist Robert Azpitarte B.A., conducted the fieldwork, with assistance in the field from ASM Assistant Archaeologists Stacey Escamilla, B.A., Maria Silva, B.A., and Maggie Lemos, B.A. The Santa Rosa Rancheria – Tachi Yokut Tribe Cultural and Historical Preservation Department provided tribal monitoring for this study.

This document constitutes a report on the Extended Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; Native American consultation; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the study area.

1.1 PROJECT LOCATION

The Project is located a short distance north of the City of Lemoore in Section 34 (T18S/R20E; MDBM), Fresno County, California. This places the Project area on the open flats of the San Joaquin Valley. Elevation within the study area, which is flat, is approximately 212-feet (ft) above mean sea level (amsl).

The study area is currently undeveloped land that is adjacent to existing residential neighborhoods on the east. It is bordered on the west by 18 ¾ Avenue.

1.2 PROJECT AND STUDY AREA DESCRIPTION

Lennar Homes, Central Valley Division proposes the construction of a housing development on APNs 021-550-001, 021-550-002, and 021-550-003. This will include 148 single family residences, roads and a drainage basin. The survey study area totals approximately 30-ac and consists of all construction, staging, and lay-down areas for this Project.

1.3 REGULATORY CONTEXT

1.3.1 California Environmental Quality Act

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

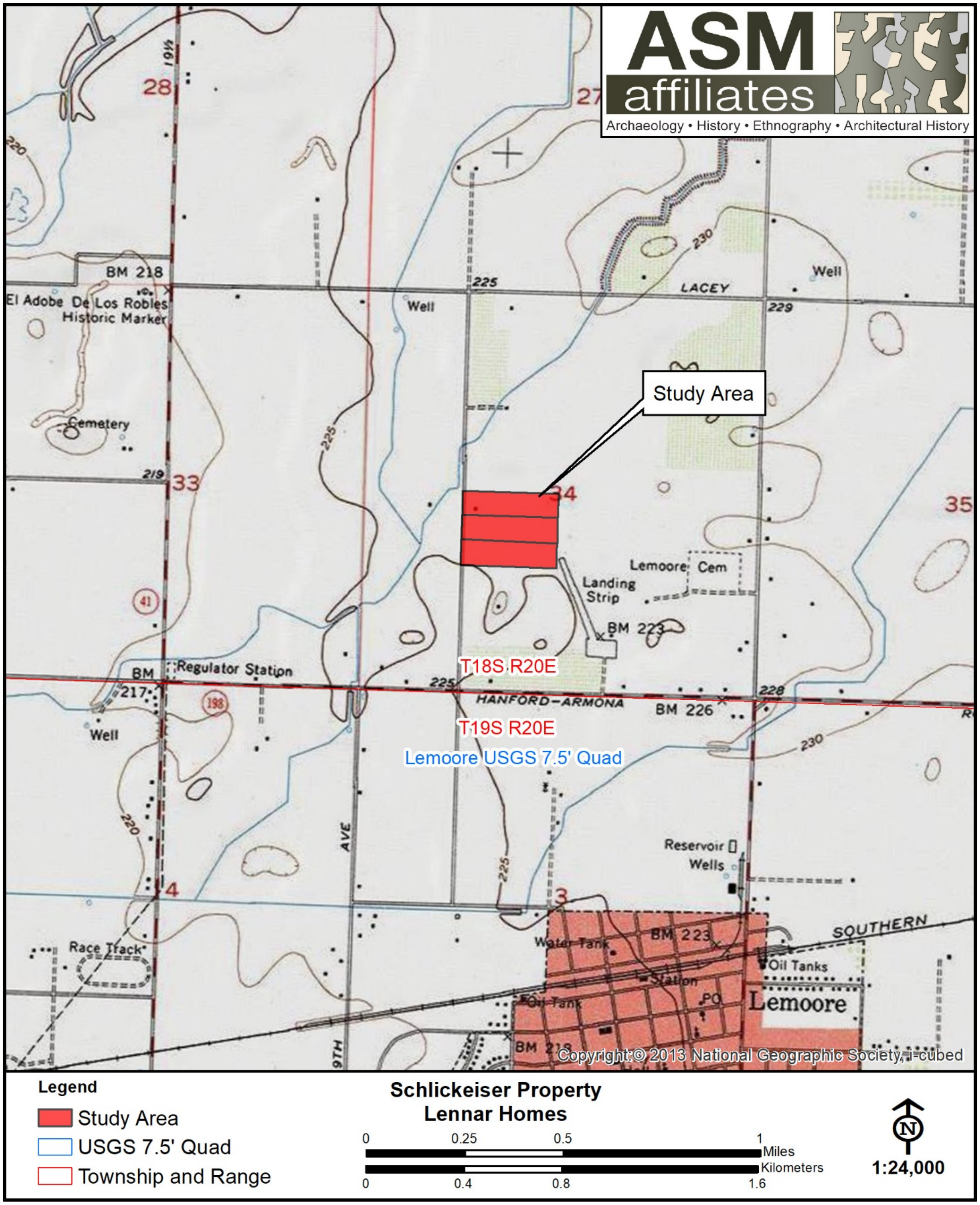


Figure 1. Location of the Lennar Homes Schlikeiser Property Project, Kings County, California.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY

The study area is located at an elevation of 212-ft amsl on the open flats of the San Joaquin Valley north of the City of Lemoore, Kings County, California. Currently this region may be characterized as a dry open valley bottom now utilized for suburban or agricultural uses. The study area is north of the former shoreline of Tulare Lake, at roughly 200-feet amsl. Prior to reclamation and channelization, the region would have been a low lying, water rich area characterized by streams, sloughs, marshes, and swamps. Occasionally inundated by floodwaters, in many years portions of this region would have been swampy during the winter rainy season and marsh land during other parts of the year. Historical and recent land-use has changed the vegetation that was once present within and near the Project area. The immediate Project location historically most likely fell within the Valley Grassland community, however, with Riparian Woodlands present along streams and freshwater marshes common in the area (see Schoenherr 1992).

A Caltrans geoarchaeological study that included the Project area classified this location as having Low to Moderately Low sensitivity for subsurface sites (Meyer et al. 2010). This study involved first determining the location and ages of late Pleistocene (>25,000 years old) landforms in the southern San Joaquin Valley. These were identified by combining a synthesis of 2,400 published paleontological, soils and archaeological chronometric dates with geoarchaeological field testing. The ages of surface landforms were then mapped to provide an assessment for the potential for buried archaeological deposits. These ages were derived primarily from the Soil Survey Geographic Database (SSURGO) and the State Soils Geographic (STATSGO) database. A series of maps were created from this information that ranked locations in 7 ordinal classes for sensitivity for buried soils, from Very Low to Very High. Given its low sensitivity for buried deposits according to this analysis, it is therefore unlikely that the Project study area would contain subsurface archaeological deposits.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), Latta (1977) and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is an unfortunate scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

This scarcity of specific detail is particularly apparent in terms of southern valley tribal group distribution. Latta (1977) places the north shore of Tulare Lake east of Fish Slough in Nutúnutu territory, with the closest village being *Wiu* nearer the Mussel Slough inlet. Kroeber (1925:484), however, indicates that Nutúnutu territory did not include the north shore of Tulare Lake, but that the north shore, including Fish Slough, was Tachi territory. The village of *Wiu* (*Wiau* in Kroeber 1925) remains near the inlet of Cottonwood Creek and Mussel Slough.

The Yokuts settlement pattern was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 peoples (Kroeber 1925).

Each tribelet was headed by a chief who was assisted by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today, including at the nearby Santa Rosa Rancheria.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part, this is because the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time; little else is known about these earliest peoples. Over 250 fluted points have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient Tulare Lake south of the study area, demonstrating the importance of this early occupation in the San Joaquin Valley specifically (see Fenenga 1993). Additional finds consist of a Clovis-like projectile point discovered in a flash-flood cut-bank near White Oak Lodge in 1953 on Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point was found near Bakersfield (Zimmerman et al. 1989), and a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although human occupation of the state is well-established during the Late Pleistocene, relatively little can be inferred about the nature and distribution of this occupation with a few exceptions. First, little evidence exists to support the idea that people at that time were big-game hunters, similar to those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7500 to 4000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool-kits dominated by mullers and grindstones (manos and metates). Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3,800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam and Kitanemuk, may have moved into the region at that time (Sutton 2009, rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W&S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3,500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W&S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W&S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the study area, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about A.D. 1860. It included major droughts matched by intermittent "mega-floods," and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90% of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (ibid). Along Buena Vista Lake, in Kern County, population appears to have been increasingly concentrated towards the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W&S Consultants 2006).

What is then clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierras and the Mojave Desert. Many of these sites are found at locations that lack existing or known historical fresh water sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1500 – 500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located south of the current study area, near the north shore of ancient Tulare Lake. There, Siefkin (1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-sized mound. He found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic life-ways recorded by anthropologists extend roughly 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley (JRP Historical Consulting 2009). The Mexican government granted the first ranchos in the southern part of the San Joaquin Valley in the early 1840s, but these did not result in permanent settlement. It was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley (JRP Historical Consulting 2009). But the Mexican government did not grant ranchos in the San Joaquin Valley until the early 1840s, and even then these did not result in significant permanent settlement. The *Laguna de Tache Rancho* was granted by Governor Pio Pico in 1846 to Manuel de Jesus Castro, a former captain in the Mexican army. The rancho extended for 26-miles down the north bank of the Kings River from modern Kingsburg to approximately Riverdale. It was sometimes called the “River Ranch.” Castro’s ownership of the Laguna de Tache Rancho grant was confirmed by the U.S. Public Land Commission in 1866, at which point it was sold to Jeremiah Clark.

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (JRP Historical Consulting 2009).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora

(Preston 1981). After the passing of the Arkansas Act in 1850, efforts were made to reclaim small tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

Following the passage of state wide 'No-Fence' laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. Settlers began reclamation of swampland in 1866, and built small dams across the Kern River to divert water into the fields. By 1880, 86 different groups were taking water from the Kern River. Ten years later, 15 major canals provided water to thousands of acres in Kern County.

During the period of reclaiming unproductive land in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone. One small agricultural settlement, founded by Colonel Thomas Baker in 1861 after procuring one such grant, took advantage of reclaimed swampland along the Kern River. This settlement became the City of Bakersfield in 1869, and quickly became the center of activity in the southern San Joaquin Valley, and in the newly formed Kern County. Located on the main stage road through the San Joaquin Valley, the town became a primary market and transportation hub for stock and crops, as well as a popular stopping point for travelers on the Los Angeles and Stockton Road. The Southern Pacific Railroad reached the Bakersfield area in 1873, connecting it with important market towns elsewhere in the state, dramatically impacting both agriculture and oil production (Pacific Legacy 2006).

Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (three feet wide by two feet deep), pulled by a 40-mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through the Rosedale area in Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square miles. Miller and Lux's impact extended beyond Kern County, however. They recognized early-on that control of water would have important economic implications, and they played a major role in the water development of the state. They controlled, for example, over 100 miles of the San Joaquin River with the San Joaquin and Kings River Canal and Irrigation System. They were also embroiled for many years in litigation against Haggin and Carr over control of the water rights to the Kern River. Descendants of Henry Miller continue to play a major role in California water rights, with his great grandson, George Nickel, Jr., the first to develop the concept of water banking, thus creating a system to buy and sell water (http://exiledonline.com/california-class-war-history-meet-the-oligarch-family-thats-been-scamming-taxpayers-for-150-years-and-counting/).

The San Joaquin Valley was dominated by agricultural pursuits until the oil boom of the early 1900s, which saw a shift some parts of the region, as some reclaimed lands previously used for farming were leased to oil companies. Nonetheless, the shift of the San Joaquin Valley towards oil production did not halt the continued growth of agriculture (Pacific Legacy 2006). The Great Depression of the 1930s brought with it the arrival of great number of migrants from the drought-affected Dust Bowl region, looking for agricultural labor. These migrants established temporary camps in the valley, staying on long past the end of the drought and the Great Depression, eventually settling in towns such as Bakersfield where their descendants live today (Boyd 1997).

In 1877, what is now Kings County received its first SPRR stop in what would become the town of Hanford. This was named after James Madison Hanford, a rail executive, at what was originally a sheep camp. The rail-stop, with the SPRR tracks running east-west, quickly developed into a small community. A post office opened there in 1887. Lemoore is named after Dr. Lovern Lee Moore who came to the area in 1871, near the north shore of Tulare Lake. Moore developed the first subdivision in 1872, sub-dividing 10-acres near Lemoore High School. A post office was built in 1875 with the town originally called “Latache.” Eventually it was renamed Lemoore, combining Dr. Moore’s first and last names. The town was incorporated in 1900. In 1941 the U.S. Army Air Corps acquired land for an Army Air Force training field. This was eventually converted into Naval Air Station (NAS) Lemoore which is the largest major jet base in the U.S. Navy (https://en.wikipedia.org/wiki/Lemoore,_California). Lemoore today has a population of approximately 28,000 people, many of whom work in direct or indirect support NAS Lemoore. Farming and the Tachi Palace on the Santa Rosa Rancheria are the other major employers in the region.

3. ARCHIVAL RECORDS SEARCH AND TRIBAL COORDINATION

3.1 ARCHIVAL RECORDS SEARCH

In order to determine whether the study area had been previously surveyed for cultural resources, and/or whether any such resources were known to exist on any of them, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (IC), California State University Bakersfield, on February 8, 2021. The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study areas; (ii) if the project area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

According to the IC records search (Confidential Appendix A), the study area had not been previously surveyed, and no resources were known to exist on it. Three previous studies had been conducted within 0.5-mi of the study area (Table 1), and one previously recorded resource was known to exist in that same radius (Table 2).

Table 1. Survey reports within the Study Area.

Report No	Year	Author (s)/Affiliation	Title
KI-00007	1992	Bissonnette, Linda Dick/ Cultural Resources Consulting	Cultural Resources Assessment West Hills Community College Lemoore Campus (Kings County)
KE-00066	1989	Donald G. Wren/ Department of Anthropology at Fresno City College., Fresno, California.	Preliminary Archaeological Survey Report for Irrigation works - Lost Hills Water District
KE-00191	2009	Girado, Amy and Orfila, Rebecca S./ Center for Archaeological Research., California State University, Bakersfield	A Cultural Resources Assessment of Approximately 70 Acres of Land for the City of Lemoore Arsenic Mitigation Program, Kings County, California

Table 2. Resources within 0.5-mi of the Study Area.

Primary #	Type	Description
P-16-000013	Site, Habitation	Large Burial and Habitation Debris partially destroyed.

3.2 TRIBAL COORDINATION

A search of the NAHC sacred lands file was requested and a contact list returned on February 16, 2021 (Confidential Appendix A). According to the NAHC records, no sacred sites or tribal cultural resources are known in or near the study area. Outreach letters were sent to the tribal organizations on the NAHC-provided contact list on 7 February 2020. Follow-up emails were sent on 5 March 2020. The Santa Rosa Santa Rosa Rancheria expressed concerns that the project would adversely affect cultural resources. No other contactees responded or expressed concerns.

The Santa Rosa Rancheria Cultural and Historical Preservation Department had visited the Project area previously, based on concerns over the proximity of the property to P-16-13, a habitation site with human burials located to the south. They had identified an archaeological site on the west side of the Project area. Although the IC did not have this site in their site files, this cultural resource was then known to be present within the Project area based on background information.

4. METHODS AND RESULTS

4.1 FIELD METHODS

An intensive Phase I cultural resources survey for the Lennar Homes Schlickeiser Property Project study area was conducted by ASM Associate Archaeologist Robert Azpitarte, B.A., with the help of ASM Assistant Archaeologist Stacey Escamilla, B.A., on February 25th, 2021. Three members of the Santa Rosa Rancheria – Tachi Yokut Tribe Cultural and Historical Preservation Department also joined the field survey.

The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources, using DPR 523 forms.

Figure 2. Overview of Project area from south boundary looking west.

4.2 SURVEY RESULTS

Field conditions for the Schlickeiser Project survey varied from excellent to poor (Figure 2). Introduced grasses and nettles covered large portions of the Project area, making ground surface visibility difficult. Other portions of the survey area had been recently graded or disked, facilitating ground visibility. Because of the ground cover, survey transect spacing was reduced to 5 – 10-m, depending upon visibility, to ensure coverage adequate for an intensive level survey.

One archaeological site was identified within the Project area. This was the site previously discovered by the Santa Rosa Rancheria – Tachi Yokut Tribe Cultural and Historical Preservation Department on the west side of the property, north of known site P-16-13. The newly identified site has been given the temporary designation SCHLIKEISER-SITE-1 (Confidential Appendix B). It was estimated to cover an area roughly 125-m north – south by 50-m east – west located in a heavily disturbed/graded area containing substantial contemporary/modern debris (Figure 3). Seven Pismo clam and one abalone shell fragments were identified on the site, primarily within two bulldozer push-piles.

Figure 3. Archaeological site SCHLICKEISER-SITE-1, looking north. This shows Concentration 1, which contains prehistoric shell fragments mixed with contemporary/modern debris in a bulldozer push-pile.

4.3 EXTENDED PHASE I SURVEY

Based on the presence but disturbed nature of cultural resource SCHLIKEISER-SITE-1, an extended Phase I survey was conducted on March 23, 2021. In light of the heavily disturbed surface component of the site, this constituted a presence/absence test to determine whether a subsurface archaeological deposit occurred at this location and, if so, whether it appeared to be intact. A tribal monitor from the Santa Rosa Rancheria – Tachi Yokut Tribe Cultural and Historical Preservation Department was present during the testing.

Testing involved the hand excavation of 22 STPs, each about 30-cm in diameter, placed across the site area (Confidential Appendix B). These were excavated in approximate 20-cm levels with all spoils screened through 1/8th-in mesh. A 3-in soil auger was used to extend the excavations below 50-cmbs, with all removed spoils again screened through 1/8th-in mesh. The STPs were excavated to 80 to 100-cmbs, depending upon location and conditions. All cultural specimens, including potential prehistoric artifacts and contemporary/modern debris, were tabulated by STP and approximate 20-cm level.

Table 3 provides a tabulation of the STP testing results. As this shows, contemporary/modern debris is present in 12 of the STPs, extending to a depth of 100-cmbs.

Table 3. STP Results

STP No.	Max Depth (CM):	Historic Refuse:		Prehistoric Artifacts:
Type:	Depth:	Type:		Depth:
STP-01	80-cmbs	5 glass fragments 2 plastic pieces 1 tin fragments	(0-20-cmbs)	–
		5 glass fragments 1 tin fragments	(20-40-cmbs)	
		2 plastic pieces	(40-60-cmbs)	
STP-02	80-cmbs	3 glass fragments 3 plastic pieces 2 metal fragments	(0-20-cmbs)	–
		1 plastic pieces 3 tin fragments	(20-40-cmbs)	
		2 glass fragments 2 plastic pieces	(40-60-cmbs)	
		1 glass fragments 1 metal fragments	(60-80-cmbs)	
STP-03	100-cmbs	6 glass fragments 2 plastic pieces	(0-20-cmbs)	–
		2 glass fragments 1 metal fragments	(20-40-cmbs)	
		1 metal fragments	(40-60-cmbs)	
		1 glass fragments	(60-80-cmbs)	
		2 glass fragments	(80-100-cmbs)	
STP-04	100-cmbs	1 metal fragments	(0-20-cmbs)	

STP No.	Max Depth (CM):	Historic Refuse:		Prehistoric Artifacts:	
		Type:	Depth:	Type:	Depth:
		3 glass fragments	(20-40-cmbs)	1 Pismo Clam Fragment	(40-60-cmbs)
		1 glass fragments 2 plastic pieces	(40-60-cmbs)		
		2 glass fragments	(60-80-cmbs)		
STP-05	100-cmbs	2 glass fragments	(20-40-cmbs)	–	
		2 plastic pieces	(40-60-cmbs)		
		2 glass fragments 2 tin fragments	(80-100-cmbs)		
STP-06	100-cmbs	–		–	
STP-07	100-cmbs	–		–	
STP-08	100-cmbs	1 glass fragment	(0-20-cmbs)	–	
STP-09	100-cmbs	–		–	
STP-10	100-cmbs	2 glass fragment	(0-20-cmbs)	–	
STP-11	100-cmbs	–		–	
STP-12	100-cmbs	–		–	
STP-13	100-cmbs	–		–	
STP-14	100-cmbs	–		–	
STP-15	100-cmbs	1 glass fragment 2 plastic pieces	(0-20-cmbs)	–	
		1 tin fragments	(20-40-cmbs)		
STP-16	80-cmbs	–		–	
STP-17	100-cmbs	2 glass fragments 1 tin fragments	(0-20-cmbs)	1 Pismo Clam Fragment	(40-60-cmbs)
		1 plastic pieces	(40-60-cmbs)		
		1 glass fragment	(60-80-cmbs)		
STP-18	100-cmbs	–		–	
STP-19	100-cmbs	–		–	
STP-20	100-cmbs	1 glass fragment	(20-40-cmbs)	–	
STP-21	100-cmbs	2 glass fragments	(0-20-cmbs)	–	
		1 glass fragments	(20-40-cmbs)		
		2 glass fragments	(40-60-cmbs)		
STP-22	100-cmbs	2 glass fragments	(0-20-cmbs)	–	
		2 glass fragments 1 metal fragments	(20-40-cmbs)		

Two fragments of Pismo clam shell were identified during the testing, both in STPs that contained contemporary/modern debris. The subsurface presence of the shell fragments is then clearly due to disturbance, and no subsurface archaeological deposit is present at the site.

Both fragments of shell were re-buried in the STPs, and no artifacts or specimens were collected during the extended Phase I survey.

5. SUMMARY AND RECOMMENDATIONS

An extended Phase I cultural resources survey was conducted for the Schlickeiser Property Project, Kings County, California. A records search conducted at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield indicated that the study area had not been previously surveyed and that no cultural resources were known to exist on it. A search of the NAHC Sacred Lands Files was also conducted and contacts with designated tribal organizations were also completed. The Santa Rosa Rancheria – Tachi Yokut Tribe Cultural and Historical Preservation Department had identified an archaeological site on the property, however, and they expressed concern that this would be adversely impacted by the proposed Project.

The Phase I survey fieldwork was conducted on February 25th, 2021, with parallel transects spaced at 5 to 10-m intervals walked across the entire Project study area. The site identified by the Tachi Yokut Tribe Cultural and Historical Preservation Department was re-identified and found to consist primarily of a scatter of shell fragments within a heavily disturbed portion of the Project area. This cultural resource was given the temporary designation SCHLIKEISER-SITE-1.

Due to this discovery, an extended Phase I survey was conducted in the site area on March 23, 2021. Twenty-two STPs were excavated as a presence/absence test for subsurface archaeological remains. Twelve of the 22 STPs contained intrusive modern debris (glass, metal and plastic fragments) extending to as much as 100-cmbs, indicating that the site area is highly disturbed. Two of these 12 STPs also had single fragments of Pismo shell mixed with the modern debris. Ten of the STPs contained no cultural material of any kind.

Based on the STP testing results, SCHLIKEISER-SITE-1 consists of a low-density surface scatter of prehistoric/Native American artifacts, primarily shellfish fragments. The site surface has been heavily disturbed by grading with the extant archaeological specimens concentrated in two bulldozer push-piles. No intact subsurface archaeological deposit is present at this location. The site therefore consists of a heavily disturbed surface scatter primarily of shellfish fragments. It lacks integrity and does not constitute a significant historical resource, and development of the property will not result in a significant adverse impact to known cultural resources.

5.1 RECOMMENDATIONS

Based on a discussion with Shana Powers, Director of the Santa Rosa Rancheria Cultural and Historical Preservation Department on 26 March 2021, it is recommended that, prior to development of this property, a Burial Treatment Plan be signed by the applicant; a cultural sensitivity training session be completed by construction staff prior to grading; and a tribal monitor be present for grading, to ensure that no cultural resources that still may be present are adversely impacted during construction.

REFERENCES

Boyd, W.H.

1997 Lower Kern River Country 1850-1950: Wilderness to Empire. Kings River Press, Lemoore.

Cook, S. F.

1978 Historical Demography. In *Handbook of North American Indians, Volume 8, California*, R. F. Heizer, editor, pp. 91-98. Washington, D.C., Smithsonian Institute.

Culleton, Brendan J.

2006 Implications of a freshwater radiocarbon reservoir correction for the timing of the late Holocene settlement of the Elk Hills, Kern County, California. *Journal of Science* 33:1331-1339.

Driver, H.E.

1937 Cultural Element Distributions: VI, Southern Sierra Nevada. *University of California Anthropological Records* 1(2):53-154. Berkeley

Elsasser, A.

1962 *Indians of Sequoia and Kings Canyon National Parks*. Three Rivers: Sequoia Natural History Association.

Fenenga, F.

1952 The Archaeology of the Slick Rock Village, Tulare County, California. *American Antiquity* 17:339-347.

Fredrickson, D.A. and J. Grossman

1977 A San Dieguito component at Buena Vista Lake, California. *Journal of California and Great Basin Anthropology* 4:173-190.

Gayton, A.H.

1930 Yokuts-Mono Chiefs and Shamans. *University of California Publications in American Archaeology and Ethnology* 24. Berkeley, 361-420.

1948 Yokuts and Western Mono Ethnography. *University of California Anthropological Records* 10:1–290. Berkeley.

Gifford, E.W. and W.E. Schenck

1926 Archaeology of the Southern San Joaquin Valley. *University of California Publications in American Archaeology and Ethnology* 23(1):1-122.

Harrington, John Peabody

n.d. Yokuts ethnographic notes. National Anthropological Archives.

Hewes, G.
1941 Archaeological reconnaissance of the central San Joaquin Valley. *American Antiquity* 7:123-133.

Horne, S.P.
1981 *The Inland Chumash: Ethnography, Ethnohistory and Archaeology*. Ph.D. dissertation, UCSB. University Microfilms, Ann Arbor.

Jones, T.L., G.M. Brown, L.M. Raab, J.L. McVickar, W.G. Spaulding. D.J. Kennett, A. York and P.L. Walker
1999 Demographic Crisis in Western North America during the Medieval Climatic Anomaly. *Current Anthropology* 40:137-170.

JRP Historical Consulting
2009 North Kern Water Storage District, Lateral Canal 8-1: Inventory and Evaluations, Kern County, California. Prepared for North Kern Water Storage District.

King, C., C. Smith and T. King
n.d. Archaeological Report Related to the Interpretation of Archaeological Resources Present at the Vasquez Rocks County Park. Report on file, UCLA AIC.

Kroeber, A.L.
1925 Handbook of the Indians of California. *Bureau of American Ethnology, Bulletin 78*. Washington, D.C.

Latta, F. F.
1977 *Handbook of the Yokuts Indians*. Bear State Books, Santa Cruz.

Moratto, M.
1984 *California Archaeology*. New York: Academic Press.

Morgan, W.A.
1914 *History of Kern County, California with Biographical Sketches*. Los Angeles: Historic Record Company.

Pacific Legacy, Inc.
2006 Southern San Joaquin Valley Oil Fields Comprehensive Study. Manuscript on file, BLM Bakersfield office.

Powers, Stephen
1971 The Yokuts Dance for the Dead. In R.F. Heizer and M.A. Whipple, editors, pp. 513-519, *The California Indians: A Source Book* (second edition). Berkeley, University of California Press (original 1877).
1976 *Tribes of California*. Berkeley, University of California Press (original 1877).

Preston, William L.

1981 *Vanishing Landscapes: Land and Life in the Tulare Lake Basin*. Berkeley, University of California Press.

Schiffman, R.A. and A.P. Garfinkel

1981 Prehistory of Kern County: An Overview. *Bakersfield College Publications in Archaeology, Number 1*.

Siefkin, Nelson

1999 Archaeology of the Redfeldt Mound (CA-KIN-66), Tulare Basin, California. M.A. Thesis, Department of Sociology and Anthropology, California State University, Bakersfield.

Sutton, M.Q.

1988a An Introduction to the Archaeology of the Western Mojave Desert, California. *Archives of California Prehistory, No. 14*. Salinas: Coyote Press.

1988b On the Late Prehistory of the Western Mojave Desert. *Pacific Coast Archaeological Society Quarterly* 24(1):22-29.

2009 People and Language: Defining the Takic Expansion into the Southern California. *Pacific Coast Archaeological Society Quarterly* 40(2, 3): 31-73.

W&S Consultants

1994 Phase II Test Excavations and Determinations of Significance at CA- LAN-2133, -2233, -2234, -2235, -2236, -2240, -2241 and -2242, Los Angeles County, California. Manuscript on file, CSUF AIC.

1999 Class III Inventory/Limited Archaeological Testing Program for the Ducor Telephone Project, Kennedy Meadows, Tulare County, California. Manuscript on file, CSUB AIC.

2004 *Class II Inventory of the Carrizo Plain National Monument, San Luis Obispo County, California*. Report on file, BLM Bakersfield office.

2006 Phase II Test Excavations and Determinations of Significance for the Tejon Mountain Village Project, Kern County, California. Report on file, Tejon Ranch Company.

Wedel, W.

1941 Archaeological Investigations at Buena Vista Lake, Kern County, California. *Bureau of American Ethnology Bulletin* 130.

Whitley, D.S.

1992 Shamanism and Rock Art in Far Western North America. *Cambridge Archaeological Journal* 2(1):89-113.

2000 *The Art of the Shaman: Rock Art of California*. Salt Lake City: University of Utah Press.

Whitley, D.S. and M.P. Beaudry

1991 Chiefs on the Coast: The Development of Complex Society in the Tiquisate Region in Ethnographic Perspective. *The Development of Complex Civilizations in Southeastern Mesoamerica*, W. Fowler, ed., pp. 101-120. Orlando: CRC Press.

Whitley, D.S., G. Gumerman IV, J. Simon and E. Rose
1988 The Late Prehistoric Period in the Coso Range and Environs. *Pacific Coast Archaeological Society Quarterly* 24(1):2-10.

Whitley, D.S., J. Simon and J.H.N. Loubser
2007 The Carrizo Collapse: Art and Politics in the Past. In *A Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*, ed RL Kaldenberg, pp. 199-208. Ridgecrest: Maturango Museum Publication 20.

CONFIDENTIAL APPENDICES

TRAFFIC STUDY

Proposed Tract 935

Southeast of the Intersection of
Liberty Drive and Glendale Avenue

Lemoore, California

Prepared For:
Lennar Homes, Inc.
8080 North Palm Avenue, Suite 110
Fresno, California 93711

Date:
January 14, 2022

Job No.:
21-044.01

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 14, 2022

Subject: Traffic Study
Proposed Tract 935
Southeast of the Intersection of Liberty Drive and Glendale Avenue
Lemoore, California

Dear Mr. Diamond:

1.0 INTRODUCTION

This report presents the results of a traffic study for a single-family residential project in Lemoore, 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 148-lot single-family residential subdivision on approximately 30.25 acres located southeast of the intersection of Liberty Drive and Glendale Avenue in Lemoore, California. Site access will be via one local street connecting to Liberty Drive, two local streets connecting to Glendale Avenue, one connection at Spruce Avenue to the east, and one stub street for a future connection to the south. 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 Lemoore staff. This report includes analysis of the following intersections:

1. State Route (SR) 41 / Hanford-Armona Road
2. 19th Avenue / Hanford-Armona Road
3. 19th Avenue / Cinnamon Drive
4. Liberty Drive / Hanford-Armona Road
5. Fox Street (Antelope Drive) / Hanford-Armona Road
6. Lemoore Avenue / Glendale Avenue
7. Lemoore Avenue / Hanford-Armona Road

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 and Intersection Control. The year 2042 analyses include the assumption that the existing lane configurations and intersection control will be maintained through the year 2042.

5.0 GENERAL PLAN ROADWAY DESIGNATIONS

The City of Lemoore 2030 General Plan designates the major roadways at the study intersections as follows:

Glendale Avenue: local

Hanford-Armona Road: arterial (landscaped median parkway between SR 41 and Liberty Drive)

Cinnamon Drive: collector

SR 41: highway

19th Avenue: arterial south of Hanford-Armona Road, future collector north of Hanford-Armona Road

Liberty Drive: collector south of Hanford-Armona Road, local north of Hanford-Armona Road

Fox Street: collector (landscaped median parkway between Hanford-Armona Road and D Street)

Antelope Drive: local

Lemoore Avenue: arterial

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 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, 11th 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)	148	9.43	1,396	0.70	26:74	27	77	104	0.94	63:37	88	52	140

Reference: *Trip Generation Manual, 11th Edition*, Institute of Transportation Engineers 2021
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 Kittelson & Associates, Inc. to perform Project-specific traffic modeling using the Kings County travel model maintained by the Kings County Association of Governments (KCAG). 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 Lemoore 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 920 – Phase 2: 88 single-family homes northeast of the intersection of Liberty Drive and Hanford-Armona Road.
2. Lacey Ranch: 621 single-family homes, 204 multi-family units, and a 9.54-acre public park on the east side of Lemoore Avenue between Lacey Boulevard and Glendale Avenue.
3. Cinnamon Villa II
4. Hanford-Armona Commercial

5. Tract 848
6. Master Storage
7. Silva Estates #11
8. Victory Village

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

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 4 and 5: *Highway Capacity Manual, 6th Edition,* Transportation Research Board, 2016

The State of California does not recognize traffic congestion and delay as an environmental impact per CEQA. The Lemoore General Plan Circulation Element presents the following applicable policies:

> Policy C-G-9: Maintain acceptable levels of service and ensure that future development and the circulation system are in balance.

> Policy C-G-10: Ensure that new development pays its fair share of the costs of transportation facilities.

The Lemoore General Plan Circulation Element presents the following applicable implementing action:

> Implementing Action C-I-7: Develop and manage the roadway system to obtain Level of Service (LOS) D or better for two hour peak periods (a.m. and p.m.) on all major roadways and arterial intersections in the City. This policy does not extend to local residential streets (i.e., streets with direct driveway access to homes) or state highways and their intersections, where Caltrans policies apply. Exceptions to LOS D policy may be allowed by the City Council in areas, such as Downtown, where allowing a lower LOS

would result in clear public benefits, social interaction and economic vitality, and help reduce overall automobile use. No new development will be approved unless it can be shown that required LOS can be maintained on affected roadways either through this General Plan documentation or more specific traffic studies conducted through the City where appropriate.

For purposes of this study, a traffic issue will be recognized at City intersections if the Project will decrease the LOS below D at an intersection. A traffic issue will also be recognized if the Project will exacerbate conditions at an intersection already operating below the target LOS D by increasing the average delay at the intersection by 5.0 seconds or more.

Caltrans does not specifically acknowledge a target LOS. Operational analyses of facilities would generally be performed to identify potential safety and queuing issues.

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

The screening map included in Appendix B entitled *Average VMT Per Capita by TAZ, Kings County, CA* was generated using the tool available at the Kings County web site: https://www.arcgis.com/apps/webappviewer/index.html?id=84b4b47b08ac41af88779212180ff36c). The map indicates that the Project site is located in an area that is expected to generate VMT at a rate less than 15 percent below the Countywide average per capita. Therefore, the Project may be presumed to cause a less-than-significant transportation impact.

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 and all-way stop-controlled 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. Delays and LOS that are worse than the target are identified in bold type and are underlined.

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
SR 41 / Hanford-Armona	Signals	21.9	C	19.0	B	22.7	C	19.9	B
19th Ave / Hanford-Armona	OWS	22.3	C	21.1	C	23.8	C	22.6	C
19th Ave / Cinnamon	AWS	19.1	C	10.8	B	19.5	C	10.9	B
Liberty / Hanford-Armona	TWS	**67.5**	**F**	23.0	C	**104.6**	**F**	27.6	D
Fox-Antelope / Hanford-Armona	Signals	17.1	B	15.8	B	17.2	B	15.9	B
Lemoore / Glendale	TWS	14.2	B	12.7	B	14.6	B	13.1	B
Lemoore / Hanford-Armona	Signals	23.6	C	21.8	C	24.0	C	22.0	C

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
SR 41 / Hanford-Armona	Signals	21.9	C	19.0	B	30.6	C	25.9	C
19th Ave / Hanford-Armona	OWS	22.3	C	21.1	C	**72.7**	**F**	**55.4**	**F**
19th Ave / Cinnamon	AWS	19.1	C	10.8	B	22.6	C	11.4	B
Liberty / Hanford-Armona	TWS	**67.5**	**F**	23.0	C	**>300**	**F**	**119.2**	**F**
Fox-Antelope / Hanford-Armona	Signals	17.1	B	15.8	B	20.1	C	16.9	B
Lemoore / Glendale	TWS	14.2	B	12.7	B	23.8	C	25.9	D
Lemoore / Hanford-Armona	Signals	23.6	C	21.8	C	30.5	C	24.8	C

Table 6
Intersection LOS Summary - Existing and Year 2042 Conditions

Intersection	Control	Existing				Cumulative Year 2042			
		A.M.		P.M.		A.M.		P.M.	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
SR 41 / Hanford-Armona	Signals	21.9	C	19.0	B	43.4	D	39.1	D
19th Ave / Hanford-Armona	OWS	22.3	C	21.1	C	**76.0**	**F**	**76.8**	**F**
19th Ave / Cinnamon	AWS	19.1	C	10.8	B	**38.6**	**E**	12.7	B
Liberty / Hanford-Armona	TWS	**67.5**	**F**	23.0	C	**>300**	**F**	**>300**	**F**
Fox-Antelope / Hanford-Armona	Signals	17.1	B	15.8	B	21.6	C	17.8	B
Lemoore / Glendale	TWS	14.2	B	12.7	B	31.5	D	33.9	D
Lemoore / Hanford-Armona	Signals	23.6	C	21.8	C	32.3	C	27.3	C

Note for Tables 4 through 6:
DNE: does not exist OWS: one-way stop TWS: two-way stop AWS: all-way stop

The results of the intersection operational analyses include an estimate of the 95th-percentile queue lengths at the study intersections.

Queue lengths (95th-percentile) are reported for signalized intersections to reveal possible deficiencies that would not be apparent based only on LOS results. For example, if a left-turn lane is not long enough to contain the queues, then the vehicles waiting to turn left will back up into the through traffic lanes and potentially block through traffic while the through traffic signal phase is being served with green time. This type of deficiency may not be apparent based on LOS calculations alone for signalized intersections. On the other hand, at stop-sign-controlled intersections a queuing analysis would not likely reveal any additional deficiencies that are not already revealed in the LOS analysis. Therefore, queuing analyses are not summarized for stop-sign controlled intersections.

The calculated 95th-percentile queue lengths are presented in Tables 7 and 8. Calculated queues exceeding the available storage length are identified in bold type and are underlined.

Table 7
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
SR 41 / Hanford-Armona					
Eastbound	>1,000	71	75	92	101
Westbound	>1,000	463	498	743	759
Northbound L	860	23	22	24	28
Northbound T (2)	>1,000	302	313	358	588
Northbound R	500	55	56	60	54
Southbound L	860	213	224	317	348
Southbound T(2)R(S)	>1,000	320	332	381	492
Fox-Antelope / Hanford-Armona					
Eastbound L	100+	28	28	34	37
Eastbound T(2)R(S)	>1,000	116	122	162	178
Westbound L	100+	73	73	73	92
Westbound TR(S)	>1,000	184	188	255	259
Northbound L	95	40	41	56	53
Northbound T	>1,000	31	31	31	38
Northbound R	95	26	26	26	27
Southbound L	50	28	28	28	37
Southbound T	700	41	41	41	52
Southbound R	50	4	4	6	16
Lemoore / Hanford-Armona					
Eastbound L	155+	146	146	233	223
Eastbound T(2)R(S)	>1,000	119	125	150	175
Westbound L	100	**125**	**125**	**125**	**159**
Westbound T(2)R(S)	>1,000	102	103	110	140
Northbound L	225	102	110	130	141
Northbound T(2)R(S)	>1,000	85	85	93	123
Southbound L	175	47	47	69	74
Southbound T(2)R(S)	>1,000	95	95	118	133

\+ Connects to a two-way left-turn lane that provides additional storage capacity beyond the striped turn lane.
The reported storage capacities include deceleration length.
Numbers in parentheses indicate number of lanes if more than one.
S: movement is shared with the through lane.

Table 8
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
SR 41 / Hanford-Armona					
Eastbound	>1,000	92	100	125	173
Westbound	>1,000	225	258	388	415
Northbound L	860	12	12	13	18
Northbound T (2)	>1,000	352	372	458	519
Northbound R	500	56	59	66	58
Southbound L	860	280	305	428	408
Southbound T(2)R(S)	>1,000	173	182	218	332
Fox-Antelope / Hanford-Armona					
Eastbound L	100+	35	35	40	41
Eastbound T(2)R(S)	>1,000	94	98	130	132
Westbound L	100+	71	71	71	96
Westbound TR(S)	>1,000	174	188	304	320
Northbound L	95	58	60	65	78
Northbound T	>1,000	34	34	34	39
Northbound R	95	46	46	46	50
Southbound L	50	28	28	28	34
Southbound T	700	22	22	22	25
Southbound R	50	0	0	0	0
Lemoore / Hanford-Armona					
Eastbound L	155+	106	107	168	176
Eastbound T(2)R(S)	>1,000	105	108	134	146
Westbound L	100	**143**	**144**	**161**	**219**
Westbound T(2)R(S)	>1,000	86	91	117	119
Northbound L	225	102	115	149	141
Northbound T(2)R(S)	>1,000	75	76	89	90
Southbound L	175	61	61	80	92
Southbound T(2)R(S)	>1,000	77	77	91	96

\+ Connects to a two-way left-turn lane that provides additional storage capacity beyond the striped turn lane.
The reported storage capacities include deceleration length.
Numbers in parentheses indicate number of lanes if more than one.
S: movement is shared with the through lane.

17.0 DISCUSSION OF OPERATIONAL ANALYSES

17.1 Existing Conditions

The results of the intersection operational analyses indicate that the study locations are currently operating at acceptable levels of service, with the exception of the intersection of Liberty Drive and Hanford-Armona Road. The northbound and southbound left-turn movements at the intersection of Liberty Drive and Hanford-Armona Road are currently operating at LOS F during the a.m. peak hour, but all movements operate at an acceptable LOS C or better during the p.m. peak hour.

The calculated 95th-percentile queues at the signalized study intersections are shorter than the available storage length, with the exception of the westbound-to-northbound left-turn lane at the intersection of Lemoore Avenue and Hanford-Armona Road. At this location the calculated 95th-percentile queues exceed the storage capacity by approximately one to two vehicles during both the a.m. and p.m. peak hours.

17.2 Existing-Plus-Project Conditions

The existing-plus-Project conditions analyses represent conditions that would occur after occupancy of the Project if none of the pending and approved projects were constructed. This scenario isolates the specific effects of the Project.

The analyses indicate that the study locations are expected to continue to operate at levels of service similar to the existing levels of service. Delays at the intersection of Liberty Drive and Hanford-Armona Road, which is currently operating at LOS F during the a.m. peak hour, are expected to be exacerbated by a substantial amount.

The calculated 95th-percentile queues at the signalized study intersections will be similar to the existing conditions, and the Project is not expected to cause queuing issues.

In order to operate at an acceptable LOS, the intersection of Liberty Drive and Hanford-Armona Road would require improvements. All-way stop control was investigated, but the LOS and delay on Hanford-Armona Road (eastbound and westbound approaches) would be worse than LOS D and the traffic issues would essentially be shifted from the minor street to the major street. Therefore, it is anticipated that signalization would be required for the intersection to operate at acceptable LOS. The intersection analysis sheets for the improved conditions are presented in Appendix D.

17.3 Near-Term With-Project Conditions

The near-term with-Project conditions analyses represent conditions that are expected after occupancy of the Project and other the pending and approved projects. This scenario isolates the near-term cumulative effects of the Project and other known projects.

The analyses indicate that the study locations are expected to continue to operate at levels of service similar to the existing levels of service, with the following exceptions:

- Delays at the intersection of Liberty Drive and Hanford-Armona Road, which is currently operating at LOS F during the a.m. peak hour, are expected to be exacerbated by a substantial amount. As indicated by the existing-plus-Project analyses, the Project contributes substantially to the increased delays.
- The LOS at the intersection of 19th Avenue and Hanford-Armona Road is expected to decrease from the existing LOS C or better to LOS F during both the a.m. and p.m. peak hours. As indicated by the existing-plus-Project analyses, the Project does not contribute substantially to the increased delays.

The calculated 95th-percentile queues at the signalized study intersections will be similar to the existing conditions, and the cumulative projects are not expected to cause new queuing issues.

In order to operate at an acceptable LOS, the intersection of Liberty Drive and Hanford-Armona Road would require improvements. All-way stop control was investigated, but the LOS and delay on Hanford-Armona Road (eastbound and westbound approaches) would be worse than LOS D and the traffic issues would essentially be shifted from the minor street to the major street. Therefore, it is anticipated that signalization would be required for the intersection to operate at acceptable LOS. The intersection analysis sheets for the improved conditions are presented in Appendix D.

In order to operate at an acceptable LOS, the intersection of 19th Avenue and Hanford-Armona Road would require improvements. All-way stop control was investigated, but the LOS and delay on Hanford-Armona Road (eastbound and westbound approaches) would be worse than LOS D and the traffic issues would essentially be shifted from the minor street to the major street. Therefore, it is anticipated that signalization would be required for the intersection to operate at acceptable LOS. It is noted that the Project does not contribute substantially to the increased delays. The intersection analysis sheets for the improved conditions are presented in Appendix D.

17.4 Cumulative Year 2042 Conditions

The year 2042 cumulative conditions analyses are based on the assumption that the Project site is developed with the proposed Project, that the approved and pending projects have been completed, and that 20 years of regional growth has occurred as projected in the KCAG travel model. The analyses indicate that the following study intersections, if maintained in their current configurations, are expected to operate worse than the target LOS D:

- Liberty Drive and Hanford-Armona Road (LOS F on the northbound and southbound approaches during both a.m. and p.m. peak hours). In order to operate at an acceptable LOS, the intersection would require signalization as described above for the existing-plus-Project and near-term scenarios.
- 19th Avenue and Cinnamon Drive (LOS E during the a.m. peak hour). In order to operate at an acceptable LOS, the intersection would require signalization.
- 19th Avenue and Hanford-Armona Road (LOS F on the northbound and southbound approaches during both a.m. and p.m. peak hours). In order to operate at an acceptable LOS, the intersection would require signalization as described above for the near-term scenario.

The intersection analysis sheets for the improved conditions are presented in Appendix D.

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 traffic study revealed that the all of the study intersections are currently operating at acceptable levels of service, with the exception of the intersection of Liberty Drive and

Hanford-Armona Road. The calculated 95th-percentile queues at the signalized study intersections are shorter than the available storage length, with the exception of the westbound-to-northbound left-turn lane at the intersection of Lemoore Avenue and Hanford-Armona Road. At this location the calculated 95th-percentile queues exceed the storage capacity by approximately one to two vehicles during both the a.m. and p.m. peak hours.

The Project will not cause any of the study intersections to operate below the target LOS, but will cause additional delays at the intersection of Liberty Drive and Hanford-Armona Road where the left-turn movements from the northbound and southbound approaches operate at LOS F during the a.m. peak hour. The intersection would operate at acceptable LOS with the installation of traffic signals.

The study revealed that the intersection of 19th Avenue and Hanford-Armona Road will operate at LOS F in the near-term condition. As indicated by the existing-plus-Project analyses, the Project does not contribute substantially to the increased delays. The intersection would operate at acceptable LOS with the installation of traffic signals.

By the year 2042, the intersection of 19th Avenue and Cinnamon Drive is expected to operate at LOS E during the a.m. peak hour. The intersection would operate at acceptable LOS with the installation of traffic signals. The traffic signals should not be installed until future traffic volumes cause levels of service to decrease below the target LOS.

The following study intersections are expected to operate at acceptable levels of service through the year 2042:

- State Route (SR) 41 / Hanford-Armona Road
- Fox Street (Antelope Drive) / Hanford-Armona Road
- Lemoore Avenue / Glendale Avenue
- Lemoore Avenue / Hanford-Armona Road

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.

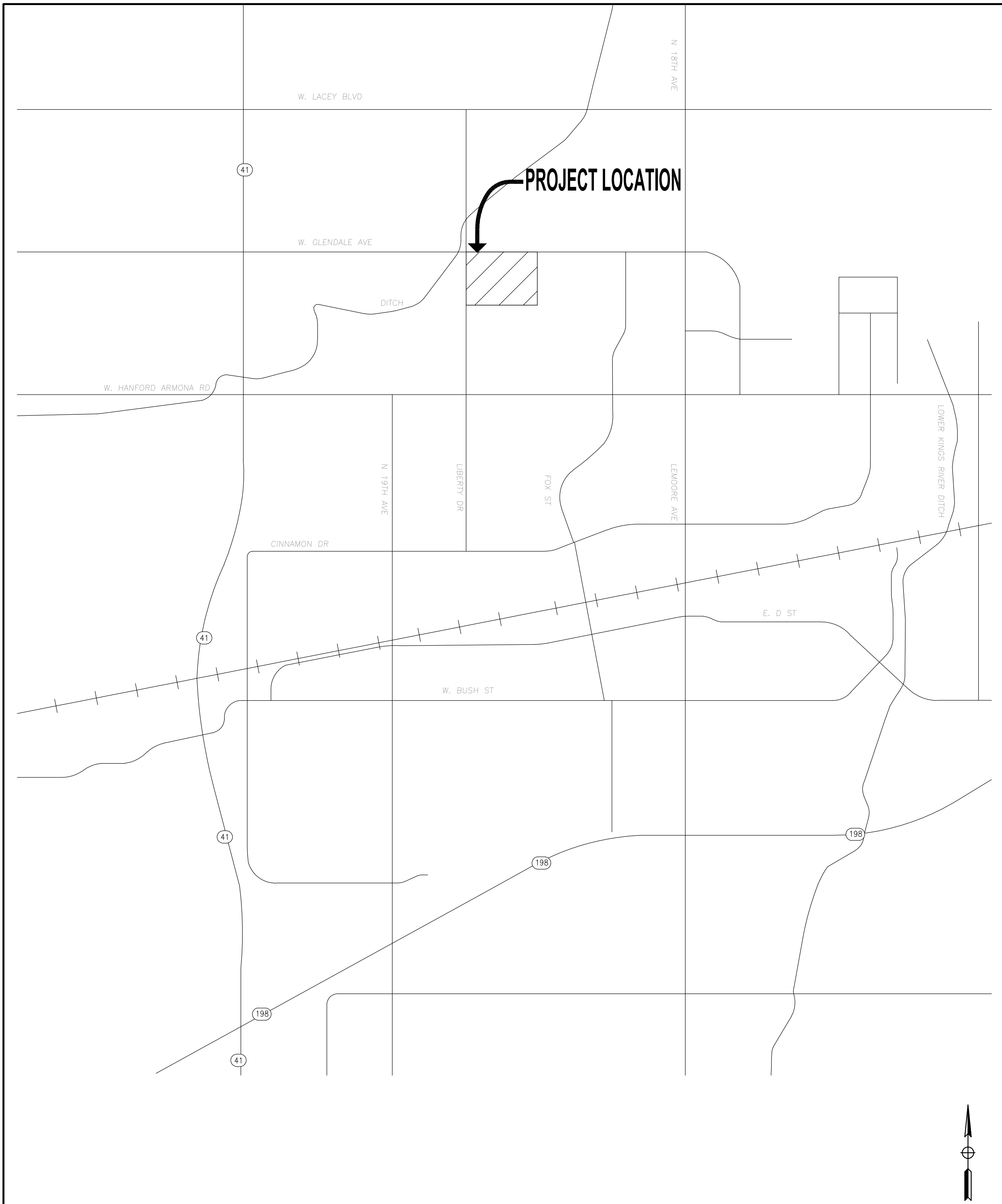
PETERS ENGINEERING GROUP

John Rowland, PE, TE

Attachments: Figures
Appendix A – Traffic Count Data Sheets
Appendix B – Kings County Travel Model Output
Appendix C – Intersection Analyses
Appendix D – Intersection Analyses With Improvements

FIGURES

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

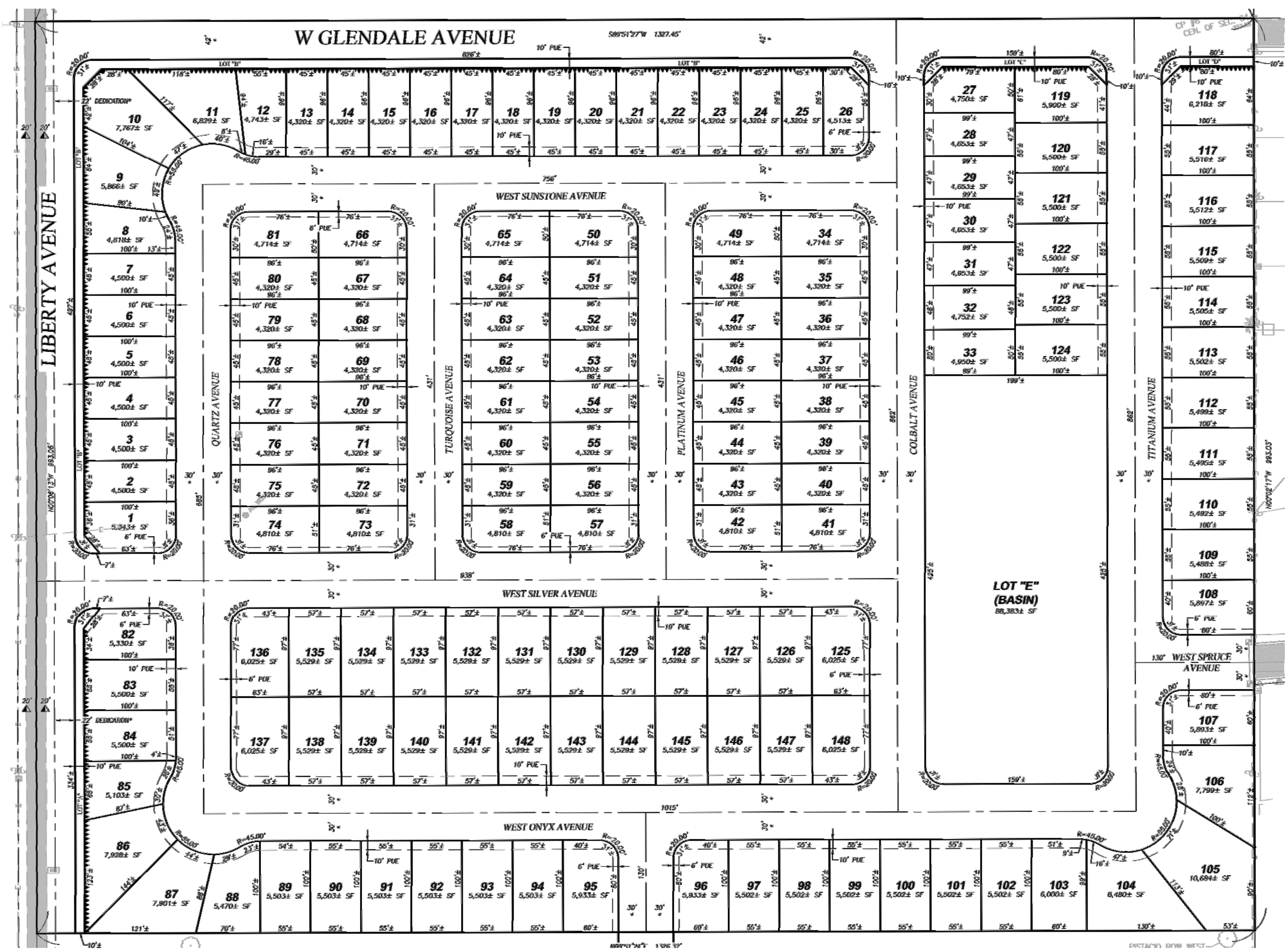


Proposed Tract 935
Lemoore, California

SITE VICINITY MAP

PETERS ENGINEERING GROUP

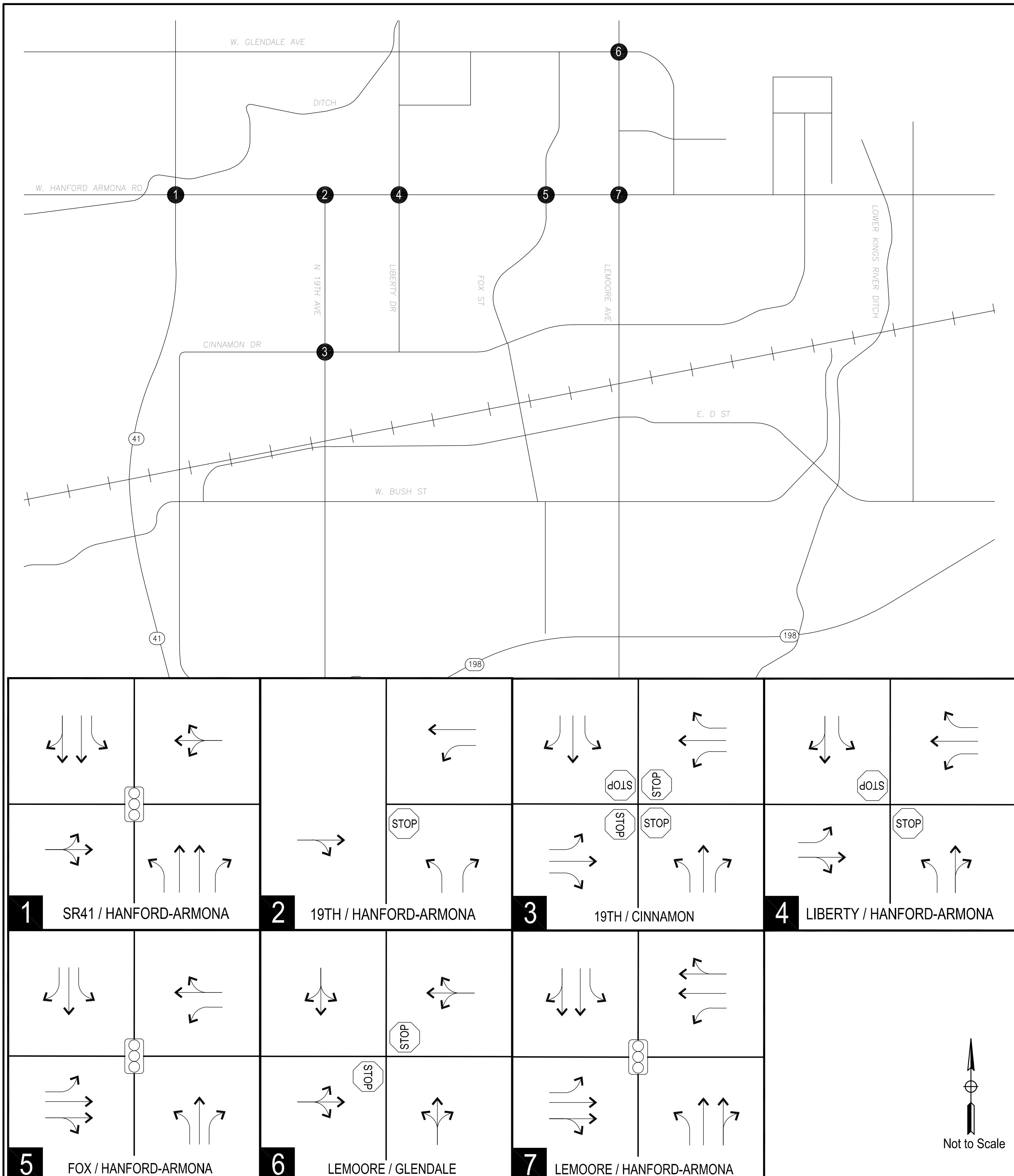
Figure 1



Proposed Tract 935
Lemoore, California

SITE PLAN

Not to Scale

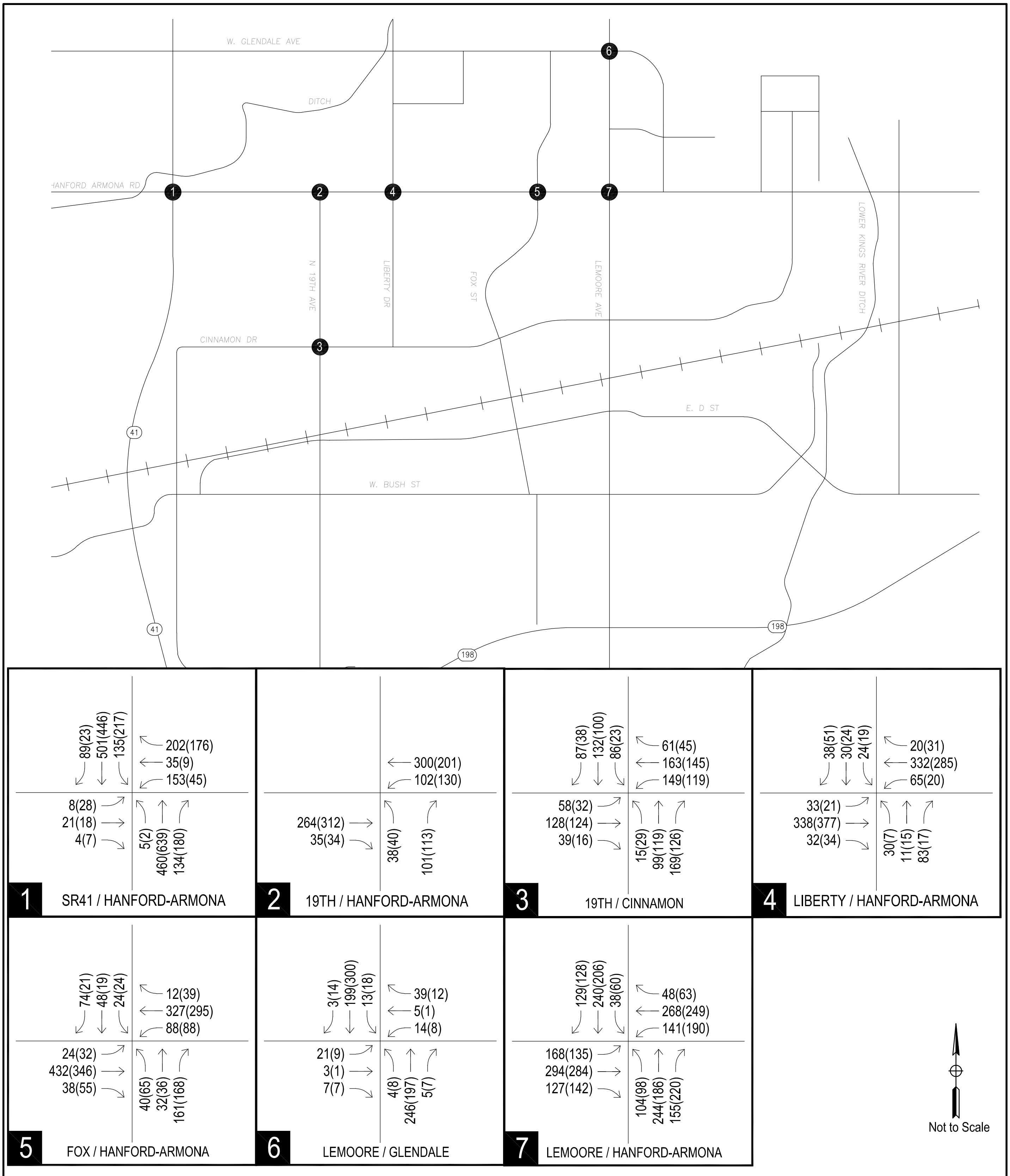


LEGEND

XX STUDY AREA INTERSECTIONS
PROJECT SITE
SIGNALIZED INTERSECTION
STOP STOP SIGN
DIRECTION OF TRAVEL

Proposed Tract 935
Lemoore, California

LANE CONFIGURATIONS

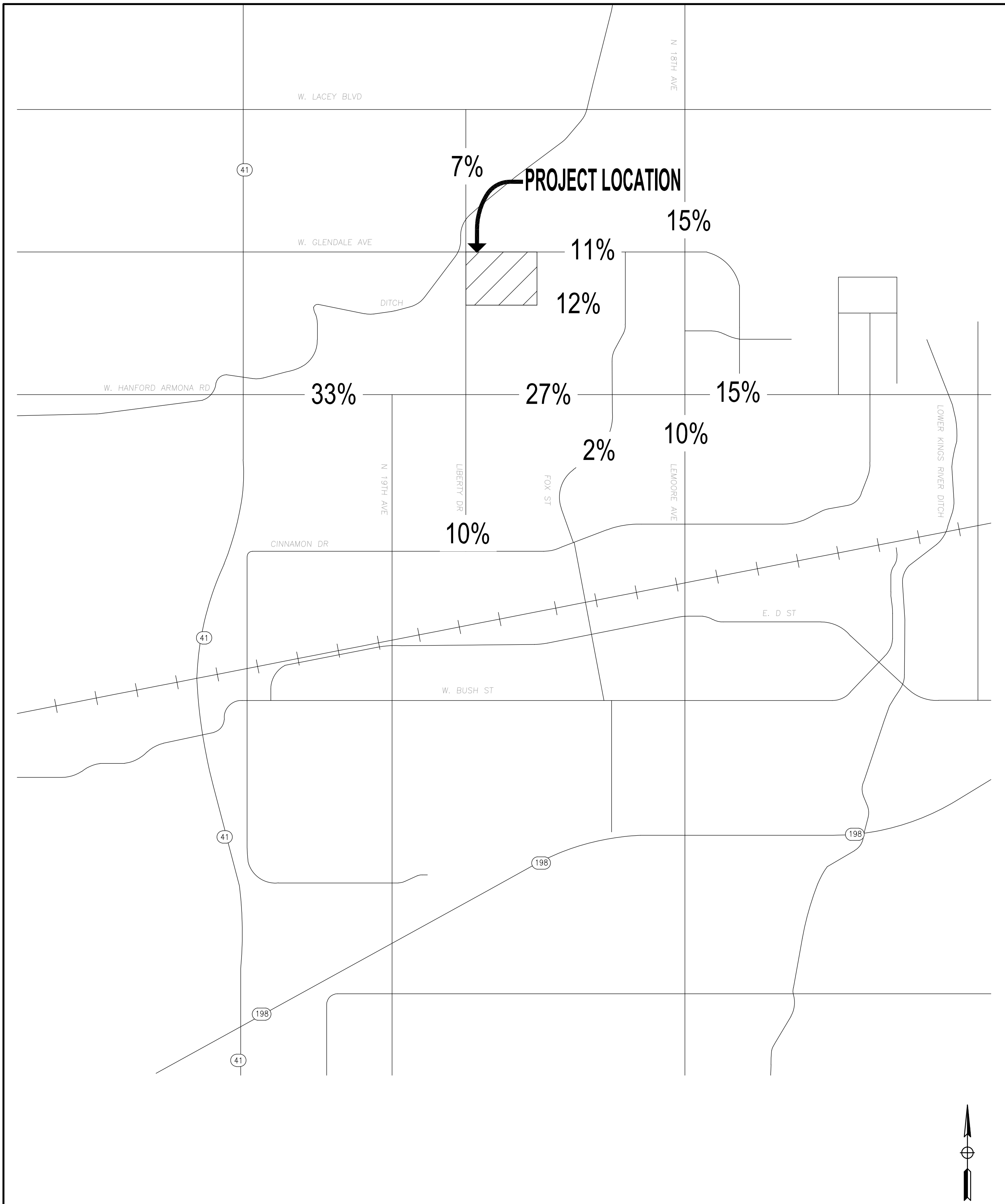


LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

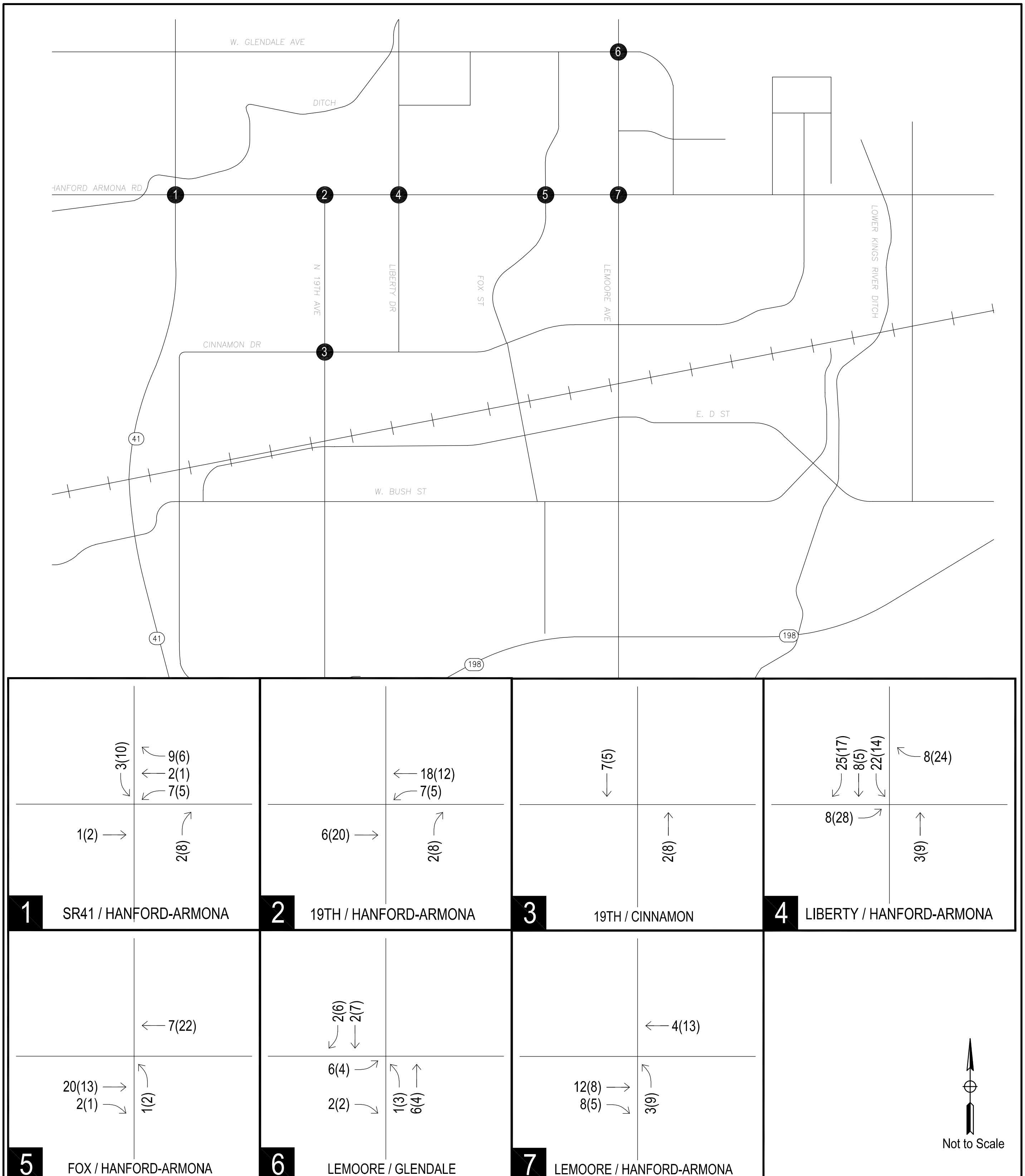
Proposed Tract 935
Lemoore, California

EXISTING PEAK-HOUR TRAFFIC VOLUMES



Proposed Tract 935
Lemoore, California

PROJECT TRIP DISTRIBUTION PERCENTAGES



LEGEND

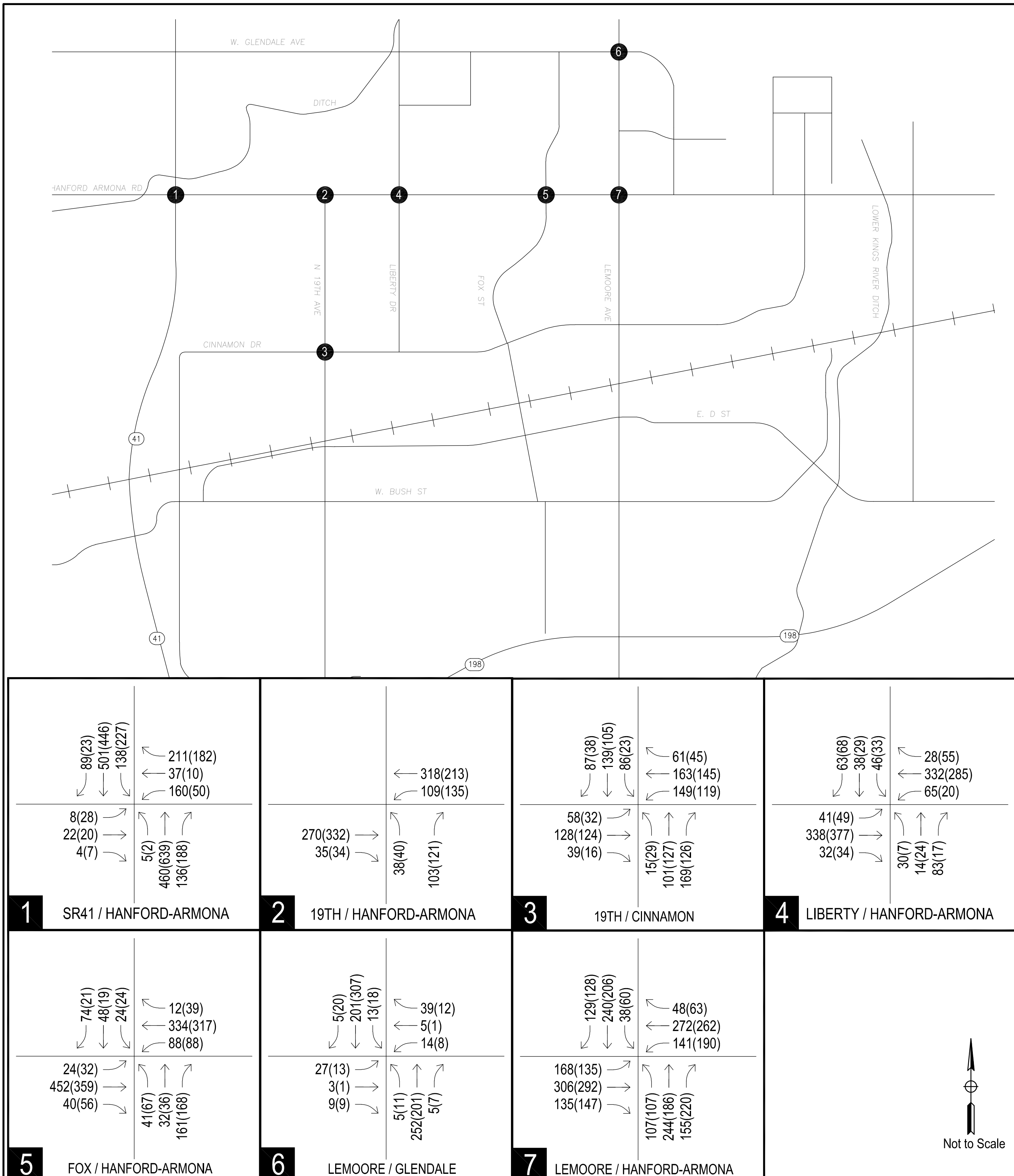
XX STUDY AREA INTERSECTIONS

PROJECT SITE

XX (YY) AM (PM) VOLUMES

Proposed Tract 935
Lemoore, California

PEAK-HOUR TRAFFIC VOLUMES

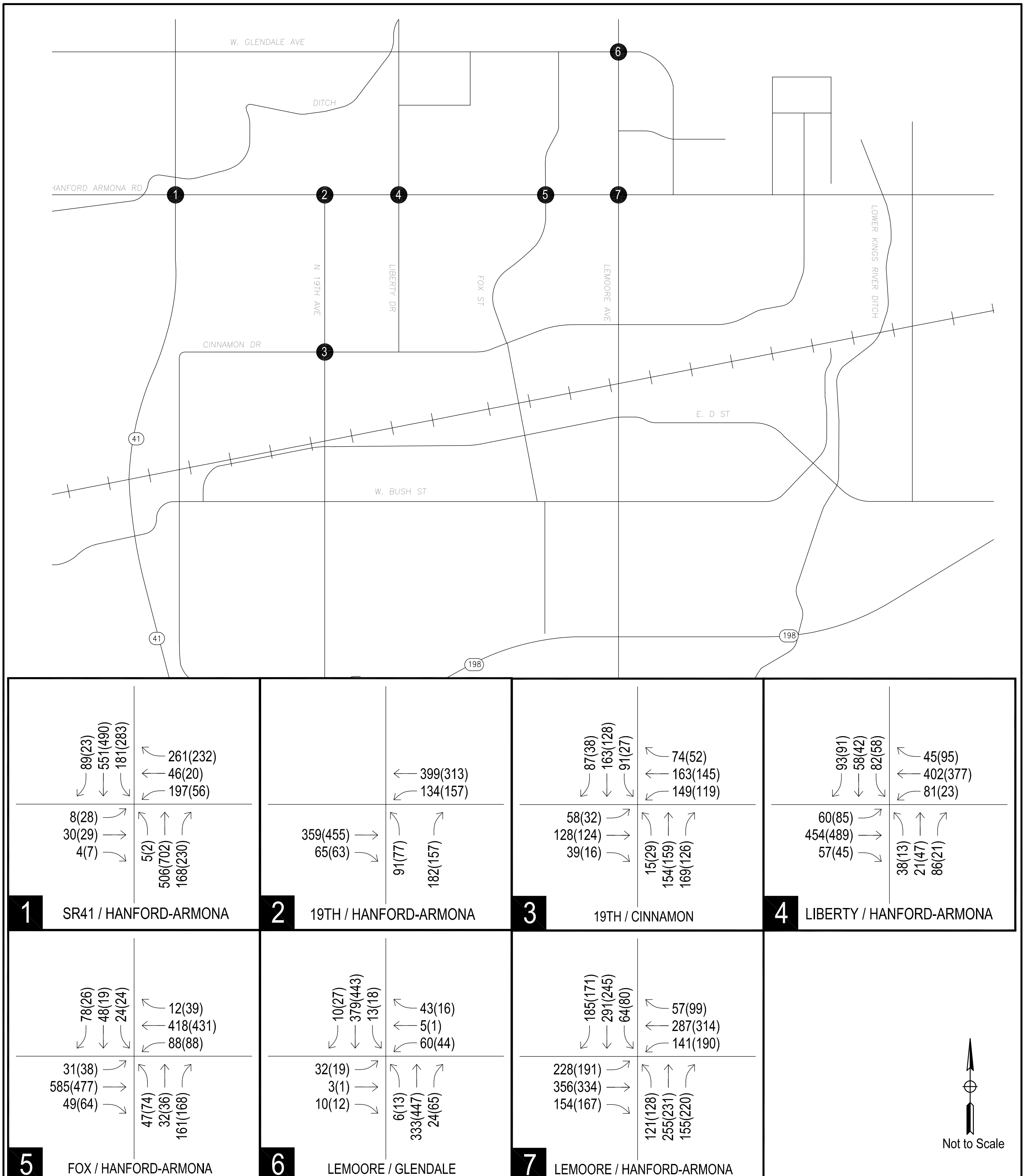


LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

Proposed Tract 935
Lemoore, California

EXISTING PLUS PROJECT PEAK-HOUR TRAFFIC VOLUMES



LEGEND

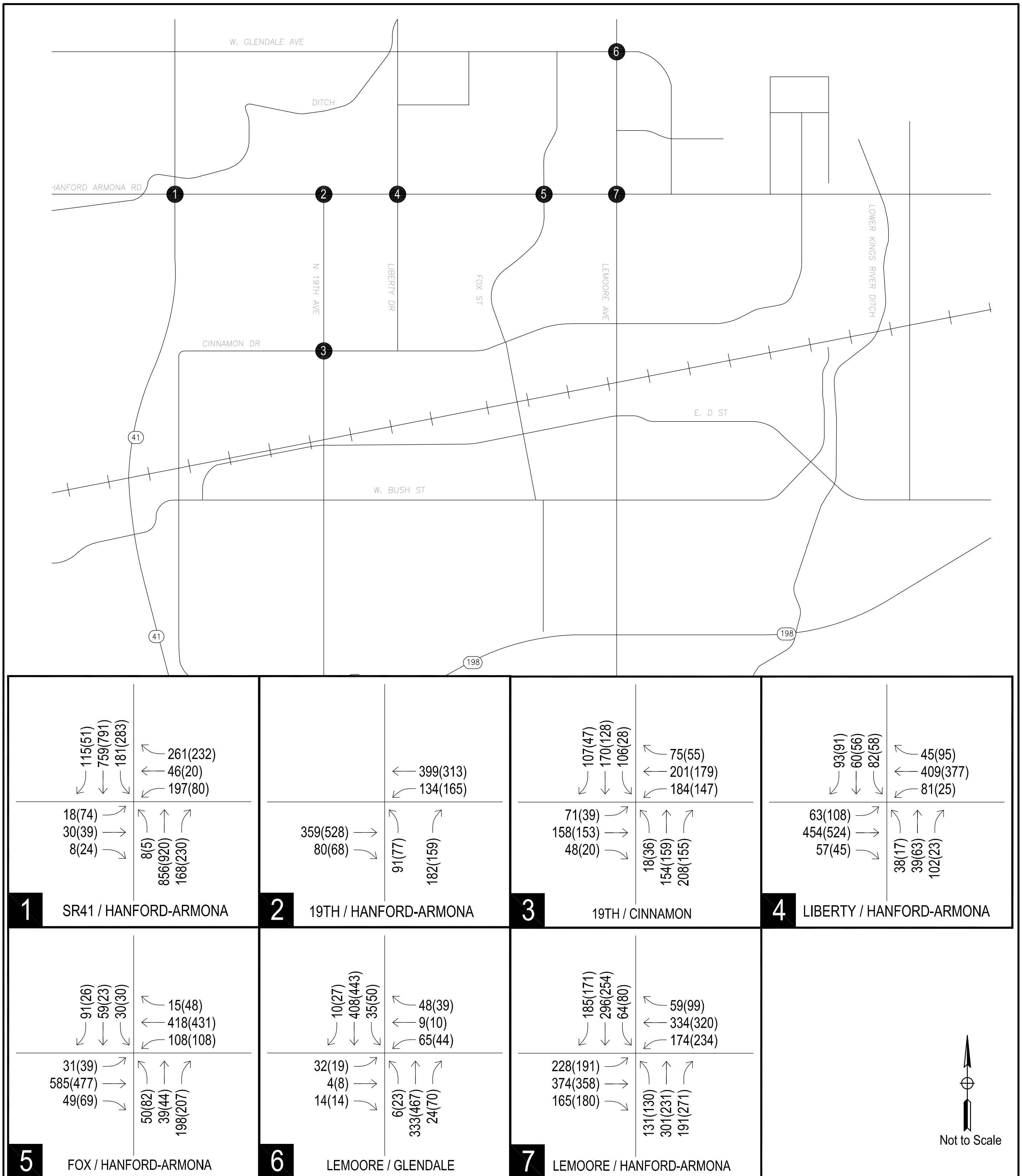
XX STUDY AREA INTERSECTIONS

PROJECT SITE

XX (YY) AM (PM) VOLUMES

Proposed Tract 935
Lemoore, California

NEAR-TERM WITH PROJECT PEAK-HOUR TRAFFIC VOLUMES



LEGEND

XX	STUDY AREA INTERSECTIONS
	PROJECT SITE
XX (YY)	AM (PM) VOLUMES

Proposed Tract 935
Lemoore, California

CUMULATIVE (YEAR 2042) WITH PROJECT PEAK-HOUR TRAFFIC VOLUMES

APPENDIX A

TRAFFIC COUNT DATA SHEETS

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

Turning Movement Report

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

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

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

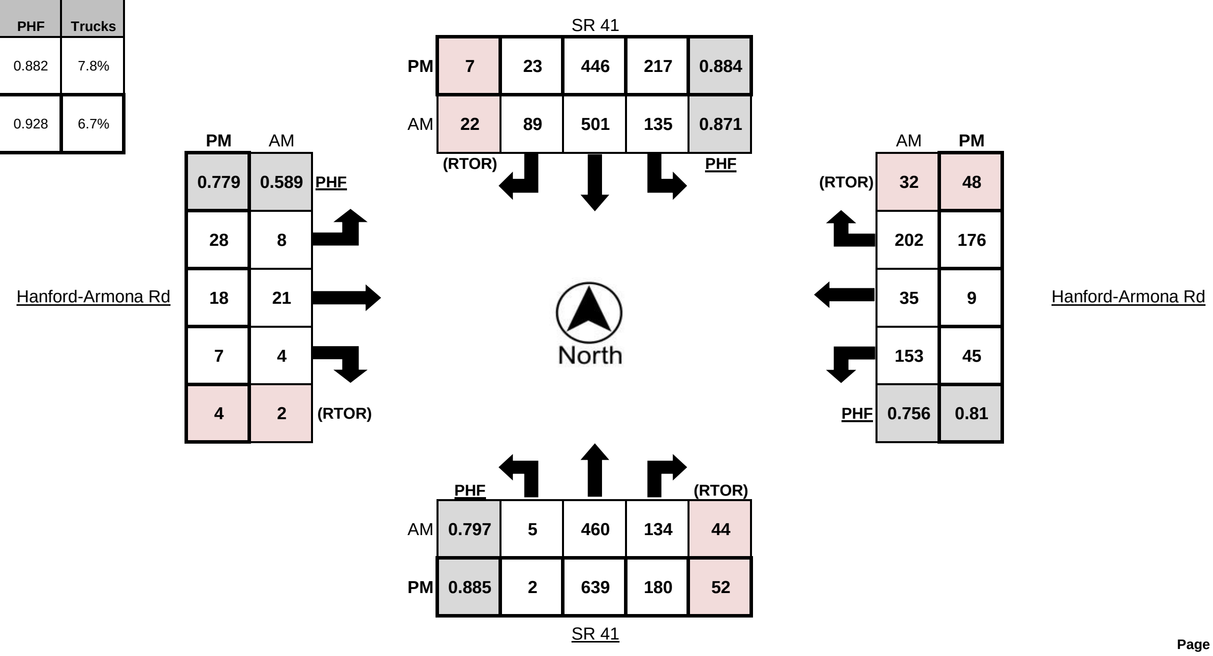
LOCATION SR 41 @ Hanford-Armona Rd
COUNTY Kings
COLLECTION DATE Tuesday, November 9, 2021
LATITUDE 36.3134
LONGITUDE -119.8079
WEATHER Clear

	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	92	7	2	8	14	124	7	1	23	2	0	0	0	2	26	2	50	16	0
7:15 AM - 7:30 AM	1	124	14	3	15	11	130	15	5	22	1	2	0	0	0	49	1	55	8	0
7:30 AM - 7:45 AM	1	109	34	10	10	39	135	34	11	22	5	7	2	1	1	53	15	61	10	0
7:45 AM - 8:00 AM	3	134	51	20	19	47	134	22	3	20	1	6	0	0	1	33	13	37	5	1
8:00 AM - 8:15 AM	0	93	35	11	10	38	102	18	3	14	1	6	2	1	1	18	6	49	9	0
8:15 AM - 8:30 AM	2	80	15	6	17	26	107	4	1	20	8	5	2	1	3	20	3	41	10	0
8:30 AM - 8:45 AM	1	90	8	0	17	26	101	5	1	19	5	3	1	0	4	13	2	38	10	1
8:45 AM - 9:00 AM	2	100	13	3	21	30	87	4	1	18	1	1	2	1	1	6	1	43	15	1
TOTAL	**10**	**822**	**177**	**55**	**117**	**231**	**920**	**109**	**26**	**158**	**24**	**30**	**9**	**4**	**13**	**218**	**43**	**374**	**83**	**3**

	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	169	63	20	22	55	125	8	2	13	4	5	1	1	0	10	2	40	9	0
4:15 PM - 4:30 PM	0	147	40	13	10	52	94	11	4	16	10	7	0	0	1	13	1	34	9	0
4:30 PM - 4:45 PM	1	173	45	13	11	42	104	1	0	12	7	5	4	2	0	12	4	55	11	4
4:45 PM - 5:00 PM	1	150	32	6	18	68	123	3	1	11	7	1	2	1	2	10	2	47	19	0
5:00 PM - 5:15 PM	0	122	62	22	15	54	123	4	1	7	5	6	2	1	0	11	2	64	19	2
5:15 PM - 5:30 PM	0	155	53	17	14	48	97	3	1	7	1	2	0	0	0	13	4	45	9	2
5:30 PM - 5:45 PM	1	111	50	19	13	58	114	2	0	2	7	4	0	0	1	19	0	50	16	0
5:45 PM - 6:00 PM	0	91	26	7	8	57	81	3	0	10	1	3	0	0	1	14	4	48	19	1
TOTAL	**3**	**1118**	**371**	**117**	**111**	**434**	**861**	**35**	**9**	**78**	**42**	**33**	**9**	**5**	**5**	**102**	**19**	**383**	**111**	**9**

	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
7:15 AM - 8:15 AM	5	460	134	44	54	135	501	89	22	78	8	21	4	2	3	153	35	202	32	1
4:00 PM - 5:00 PM	2	639	180	52	61	217	446	23	7	52	28	18	7	4	3	45	9	176	48	4

	PHF	Trucks
AM	0.882	7.8%
PM	0.928	6.7%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

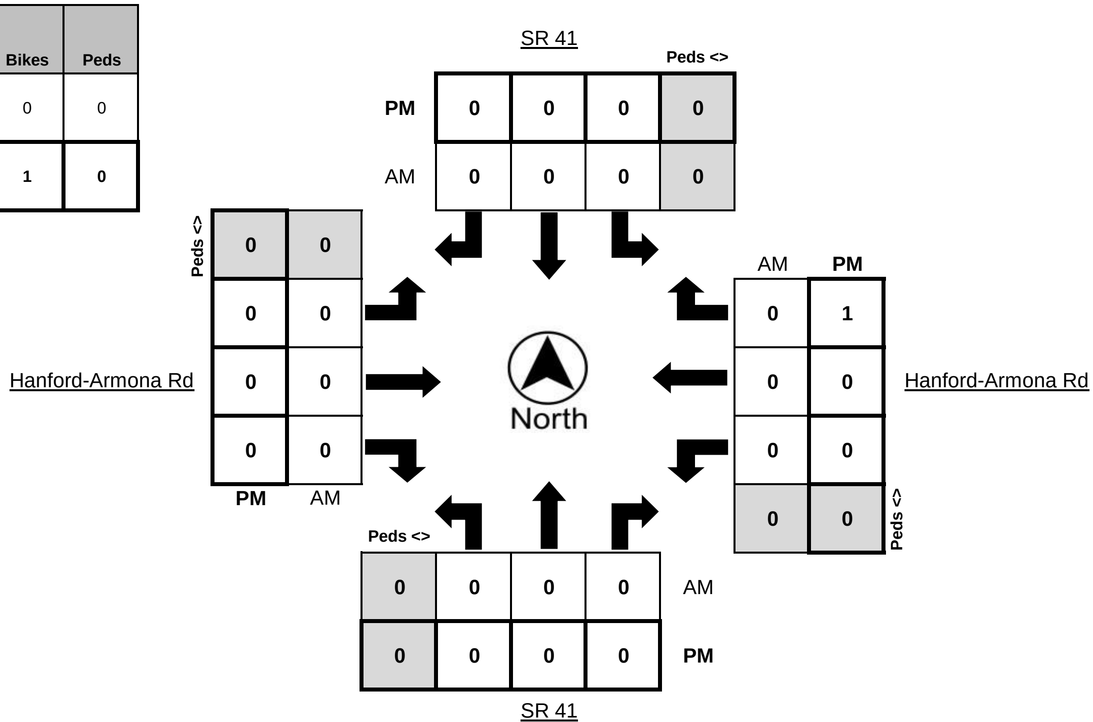
LOCATION SR 41 @ Hanford-Armona Rd
LATITUDE 36.3134
COUNTY Kings
LONGITUDE -119.8079
COLLECTION DATE Tuesday, November 9, 2021
WEATHER Clear

	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	1	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**	**1**	**0**

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

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



Metro Traffic Data Inc.
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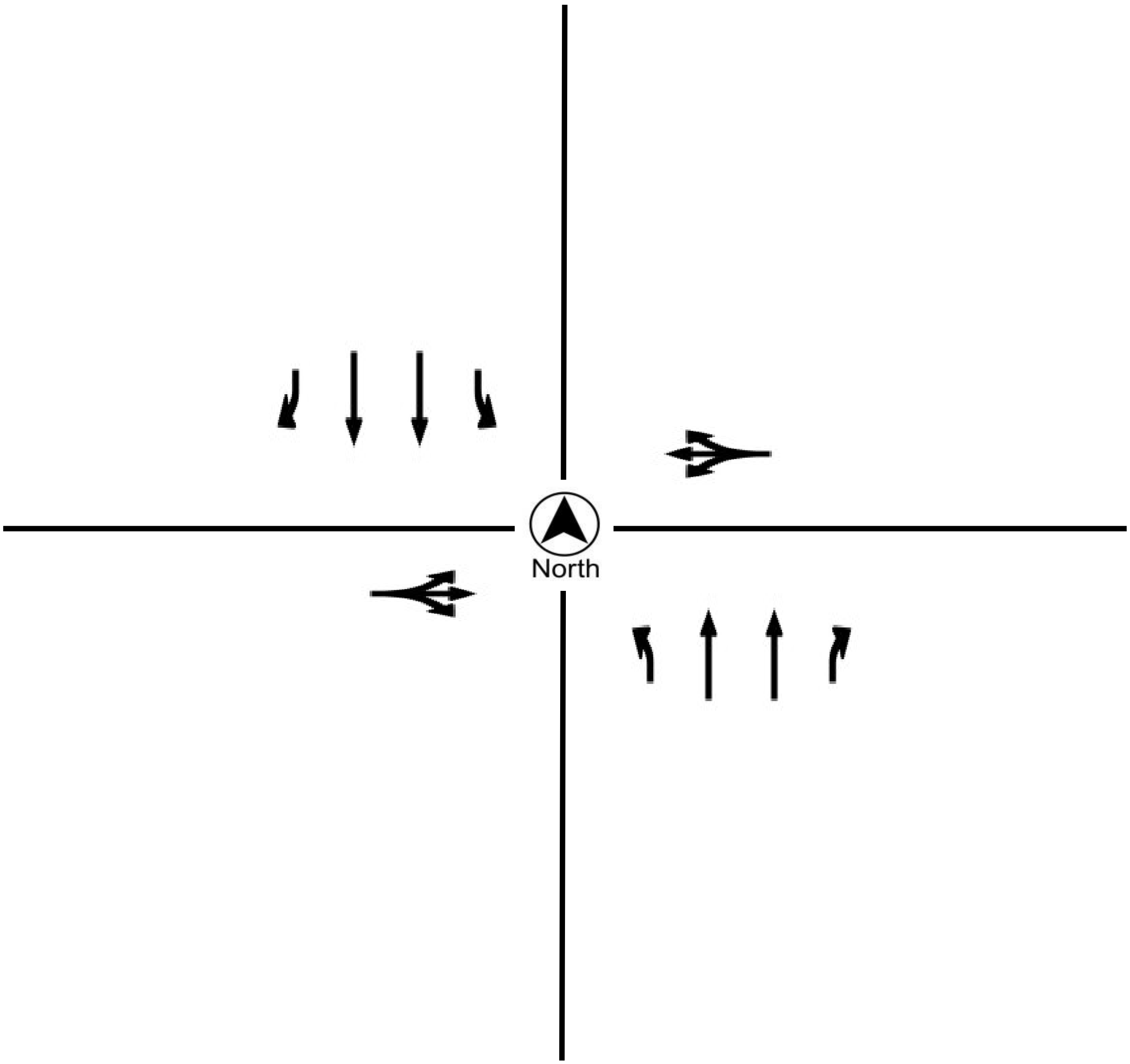
Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION	SR 41 @ Hanford-Armona Rd	**N/S STREET**	SR 41
COUNTY	Kings	**E/W STREET**	Hanford-Armona Rd
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear
CYCLE TIME	171 Seconds	**CONTROL TYPE**	Signal

COMMENTS Northbound/southbound left turns are protected.
Eastbound/westbound approaches are split.



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Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

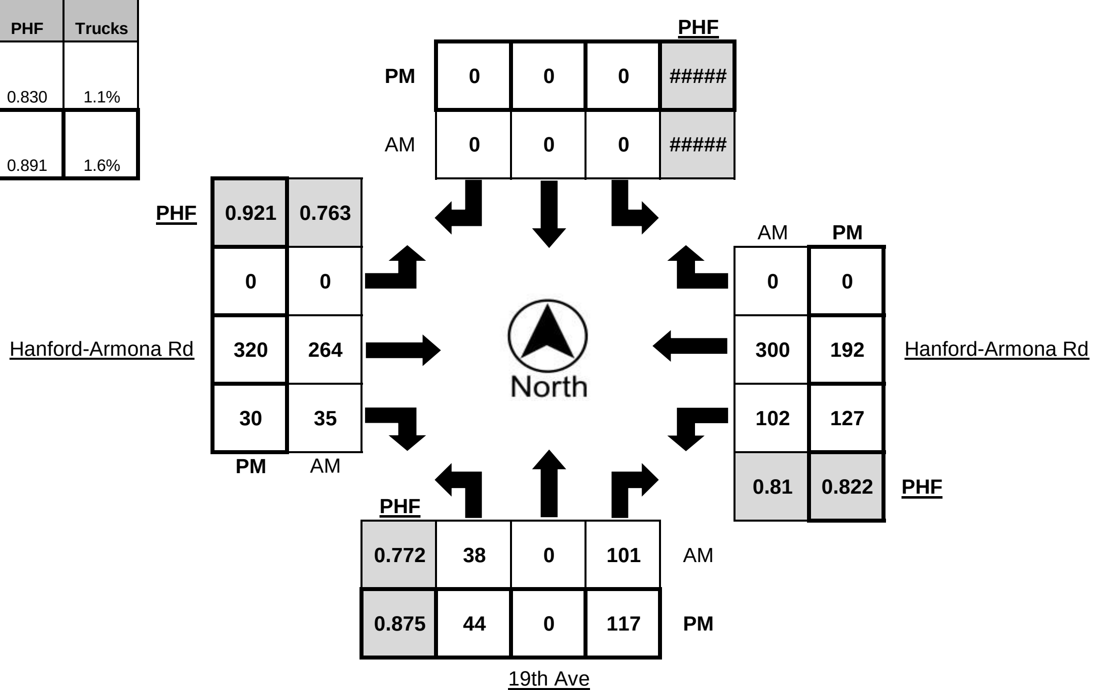
LOCATION	19th Ave @ Hanford-Armona Rd	**LATITUDE**	36.3134
COUNTY	Kings	**LONGITUDE**	-119.7988
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	7	0	7	0	0	0	0	0	0	22	5	0	12	62	0	0
7:15 AM - 7:30 AM	9	0	17	0	0	0	0	0	0	39	3	0	12	86	0	1
7:30 AM - 7:45 AM	7	0	21	1	0	0	0	0	0	72	11	1	30	94	0	0
7:45 AM - 8:00 AM	8	0	37	0	0	0	0	0	0	86	12	4	33	77	0	2
8:00 AM - 8:15 AM	14	0	26	0	0	0	0	0	0	67	9	0	27	43	0	0
8:15 AM - 8:30 AM	4	0	13	0	0	0	0	0	0	37	6	0	10	49	0	1
8:30 AM - 8:45 AM	1	0	11	0	0	0	0	0	0	36	5	0	13	48	0	1
8:45 AM - 9:00 AM	4	0	13	0	0	0	0	0	0	36	3	1	15	36	0	1
TOTAL	**54**	**0**	**145**	**1**	**0**	**0**	**0**	**0**	**0**	**395**	**54**	**6**	**152**	**495**	**0**	**6**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	3	0	26	0	0	0	0	0	0	93	10	0	27	47	0	0
4:15 PM - 4:30 PM	9	0	27	0	0	0	0	0	0	68	5	1	21	45	0	0
4:30 PM - 4:45 PM	14	0	32	3	0	0	0	0	0	78	8	1	31	46	0	1
4:45 PM - 5:00 PM	4	0	24	1	0	0	0	0	0	74	5	2	24	46	0	0
5:00 PM - 5:15 PM	12	0	29	2	0	0	0	0	0	82	13	1	25	50	0	0
5:15 PM - 5:30 PM	14	0	32	1	0	0	0	0	0	86	4	0	47	50	0	1
5:30 PM - 5:45 PM	8	0	25	1	0	0	0	0	0	85	5	0	33	50	0	1
5:45 PM - 6:00 PM	6	0	27	0	0	0	0	0	0	59	12	0	25	51	0	1
TOTAL	**70**	**0**	**222**	**8**	**0**	**0**	**0**	**0**	**0**	**625**	**62**	**5**	**233**	**385**	**0**	**4**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	38	0	101	1	0	0	0	0	0	264	35	5	102	300	0	3
4:30 PM - 5:30 PM	44	0	117	7	0	0	0	0	0	320	30	4	127	192	0	2

	PHF	Trucks
AM	0.830	1.1%
PM	0.891	1.6%



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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

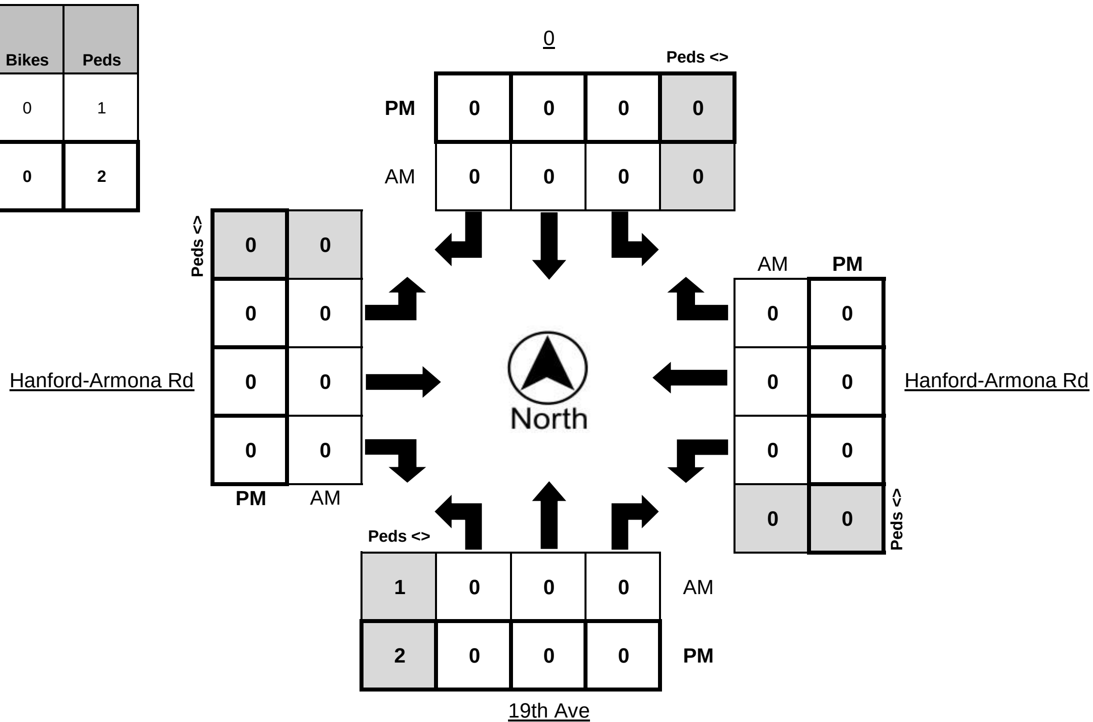
LOCATION	19th Ave @ Hanford-Armona Rd	**LATITUDE**	36.3134
COUNTY	Kings	**LONGITUDE**	-119.7988
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear

	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	1	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**	**1**	**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	1	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	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**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**

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

	Bikes	Peds
AM Peak Total	0	1
PM Peak Total	**0**	**2**



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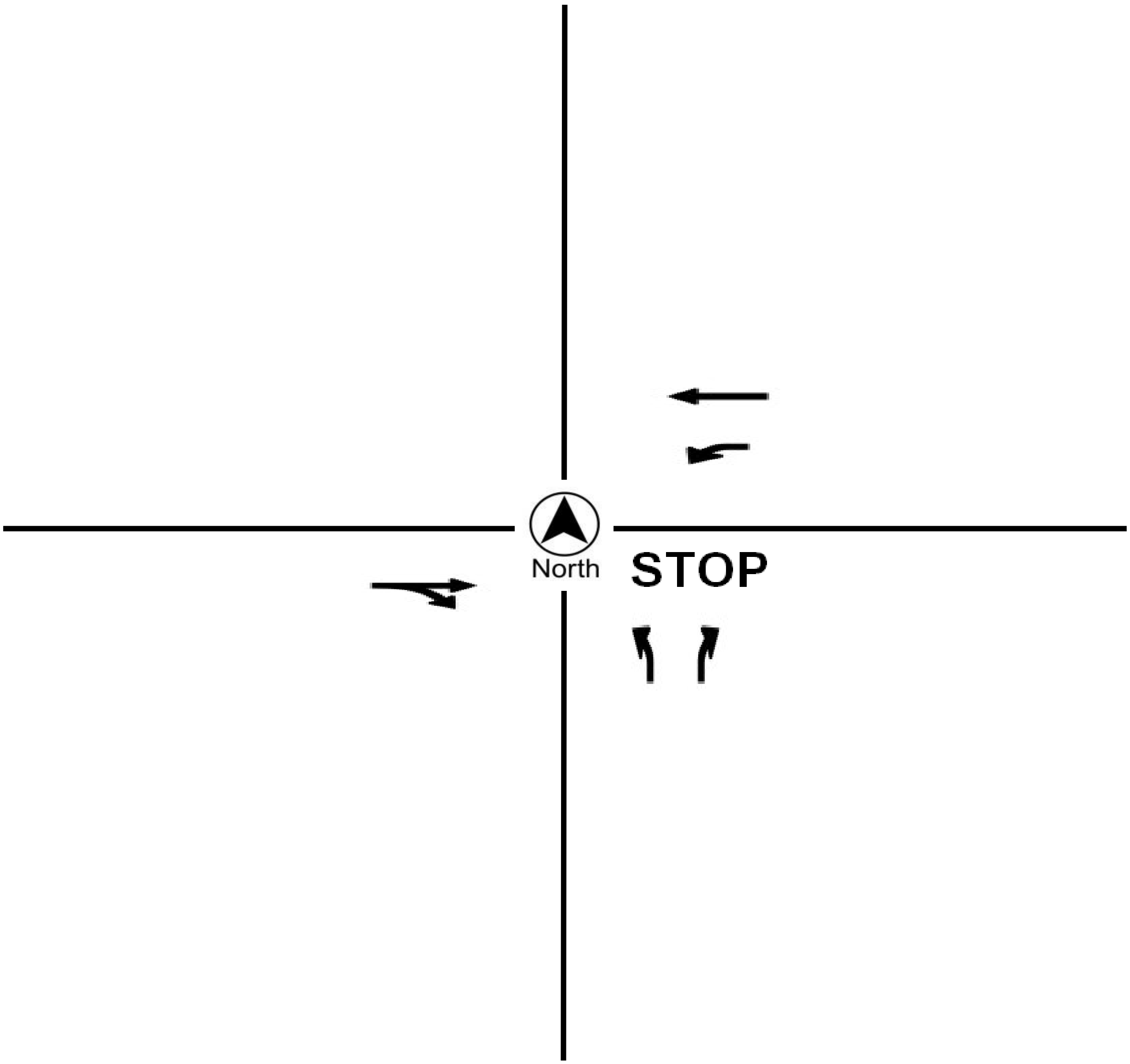
Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

LOCATION	19th Ave @ Hanford-Armona Rd	**N/S STREET**	19th Ave
COUNTY	Kings	**E/W STREET**	Hanford-Armona Rd
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	One-Way Stop

COMMENTS



Turning Movement Report

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Prepared For:

Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

LOCATION 19th Ave @ Cinnamon Dr

COUNTY Kings

COLLECTION DATE Tuesday, November 9, 2021

LATITUDE 36.3056

LONGITUDE -119.7988

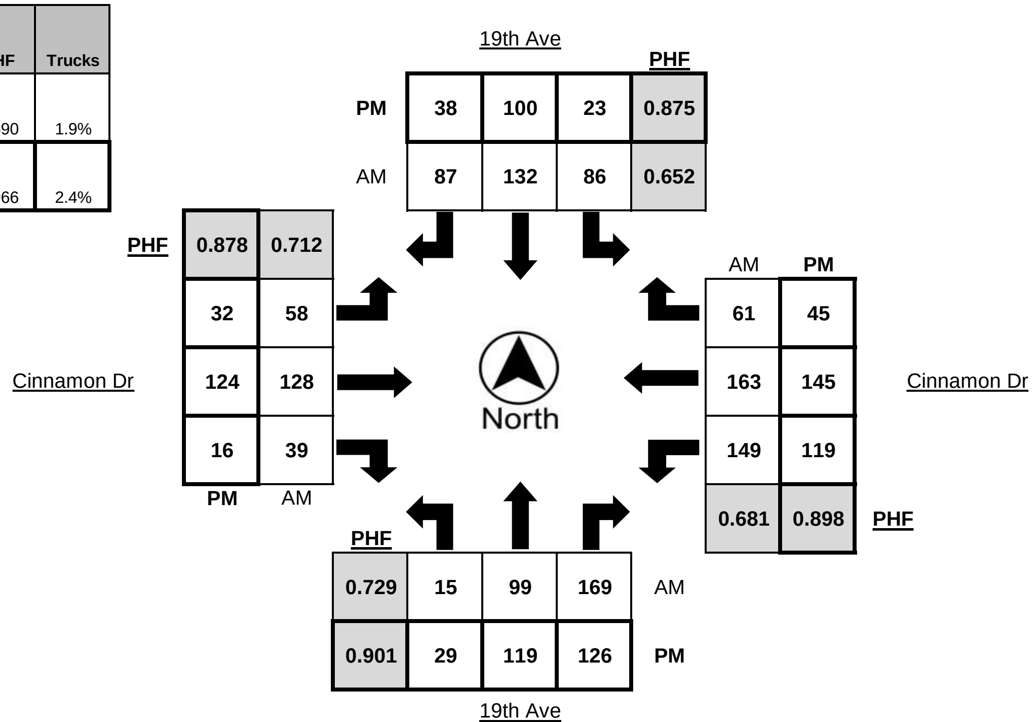
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	3	9	13	2	3	14	7	0	4	27	3	1	17	24	7	1
7:15 AM - 7:30 AM	8	20	28	1	6	14	4	0	5	21	9	1	16	36	6	1
7:30 AM - 7:45 AM	1	23	47	1	18	39	11	1	13	47	12	2	44	44	9	0
7:45 AM - 8:00 AM	4	27	66	2	35	44	38	7	25	42	12	0	58	51	28	2
8:00 AM - 8:15 AM	2	29	28	1	27	35	34	2	15	18	6	1	31	32	18	0
8:15 AM - 8:30 AM	4	15	20	1	5	15	3	1	4	14	2	1	15	21	5	2
8:30 AM - 8:45 AM	3	8	20	0	8	11	1	0	1	11	4	0	15	26	4	0
8:45 AM - 9:00 AM	5	8	18	1	1	12	5	1	6	17	7	1	16	21	3	1
TOTAL	**30**	**139**	**240**	**9**	**103**	**184**	**103**	**12**	**73**	**197**	**55**	**7**	**212**	**255**	**80**	**7**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	7	28	16	0	3	20	7	0	9	39	0	1	29	34	6	1
4:15 PM - 4:30 PM	11	23	30	3	7	22	9	1	10	26	8	0	18	22	5	0
4:30 PM - 4:45 PM	1	31	29	2	6	26	8	1	13	29	5	0	32	35	13	6
4:45 PM - 5:00 PM	11	27	38	1	5	21	6	0	6	38	5	0	32	25	10	2
5:00 PM - 5:15 PM	10	31	29	1	7	25	11	1	6	28	4	0	27	39	10	4
5:15 PM - 5:30 PM	7	30	30	1	5	28	13	0	7	29	2	1	28	46	12	2
5:30 PM - 5:45 PM	6	18	25	1	2	30	9	1	8	27	6	1	29	35	7	1
5:45 PM - 6:00 PM	12	26	35	1	13	24	6	0	4	34	7	1	31	31	8	1
TOTAL	**65**	**214**	**232**	**10**	**48**	**196**	**69**	**4**	**63**	**250**	**37**	**4**	**226**	**267**	**71**	**17**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	15	99	169	5	86	132	87	10	58	128	39	4	149	163	61	3
4:30 PM - 5:30 PM	29	119	126	5	23	100	38	2	32	124	16	1	119	145	45	14

	PHF	Trucks
AM	0.690	1.9%
PM	0.966	2.4%



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Turning Movement Report

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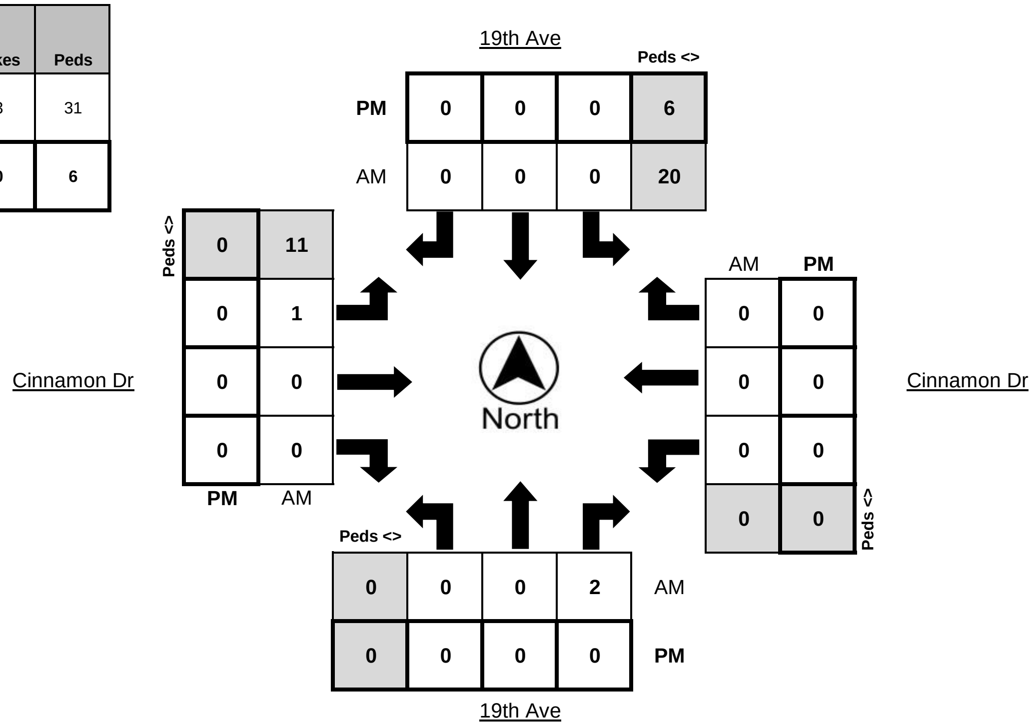
LOCATION 19th Ave @ Cinnamon Dr
COUNTY Kings
COLLECTION DATE Tuesday, November 9, 2021
LATITUDE 36.3056
LONGITUDE -119.7988
WEATHER Clear

	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	1	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	1	4	0	0	0	0	1	0	0	0	0	0	0	4
7:45 AM - 8:00 AM	0	0	1	12	0	0	0	0	0	0	0	0	0	0	0	6
8:00 AM - 8:15 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1
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**	**2**	**20**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**11**

	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	2	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	1	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	5	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	1	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:15 AM - 8:15 AM	0	0	2	20	0	0	0	0	1	0	0	0	0	0	0	11
4:30 PM - 5:30 PM	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	3	31
PM Peak Total	**0**	**6**



Metro Traffic Data Inc.

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Hanford, CA 93230

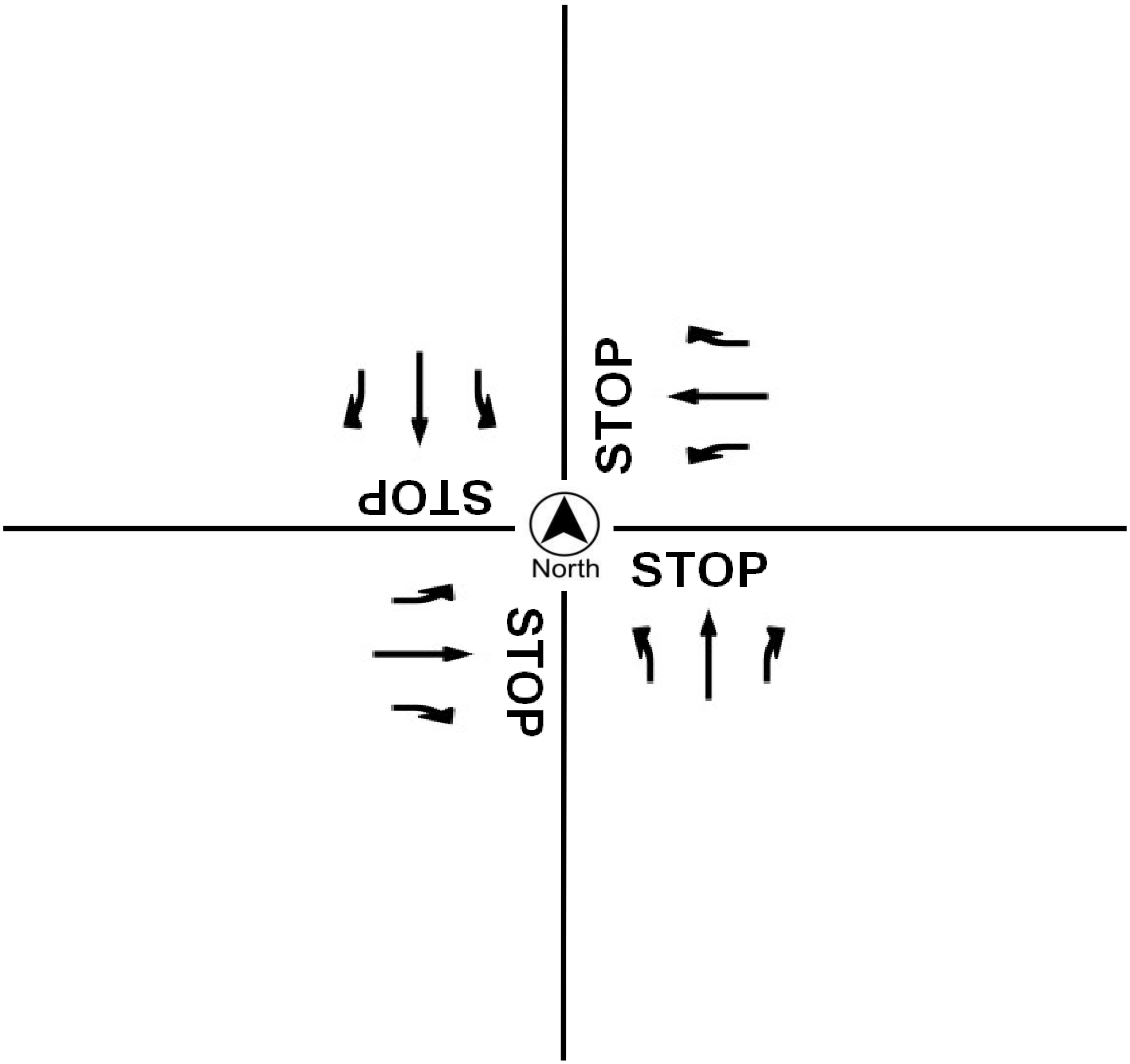
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

LOCATION	19th Ave @ Cinnamon Dr	**N/S STREET**	19th Ave
COUNTY	Kings	**E/W STREET**	Cinnamon Dr
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	All-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

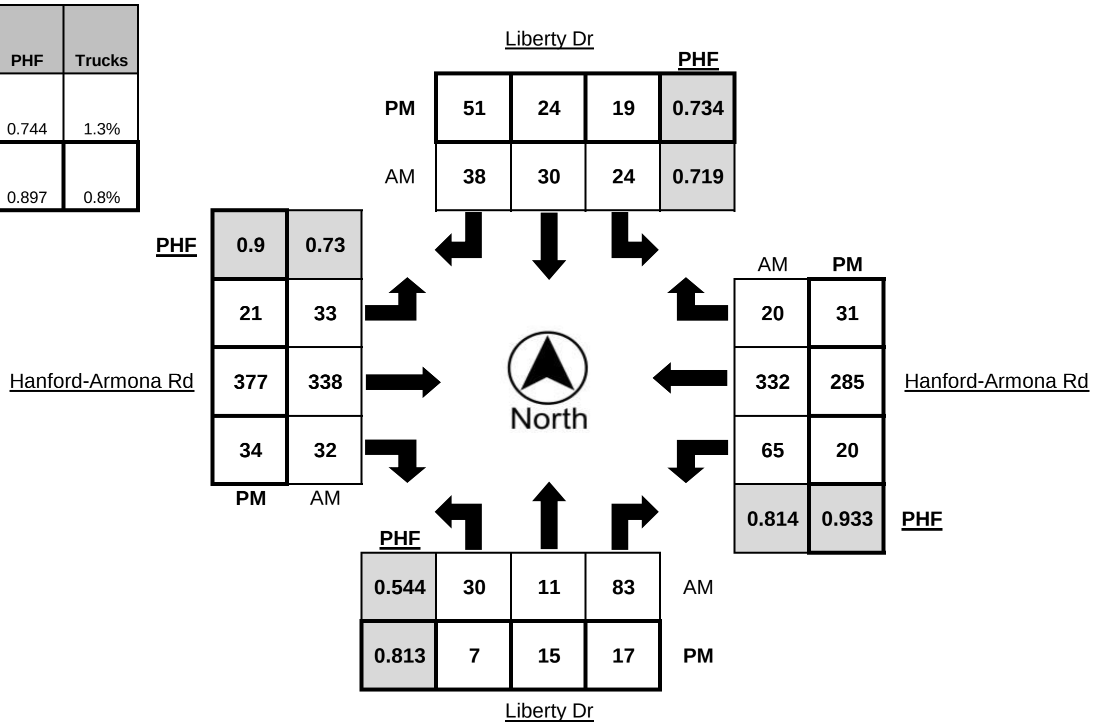
LOCATION	Liberty Dr @ Hanford-Armona Rd	**LATITUDE**	36.3134
COUNTY	Kings	**LONGITUDE**	-119.7943
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	7	4	5	1	4	5	7	0	5	22	2	0	4	61	1	0
7:15 AM - 7:30 AM	11	4	6	1	8	10	7	1	9	52	1	0	7	78	3	1
7:30 AM - 7:45 AM	9	2	18	1	7	11	14	1	8	81	15	0	23	96	2	0
7:45 AM - 8:00 AM	7	4	46	1	5	6	14	0	9	114	15	4	30	89	9	1
8:00 AM - 8:15 AM	3	1	13	0	4	3	3	1	7	91	1	0	5	69	6	1
8:15 AM - 8:30 AM	2	2	3	1	0	3	3	0	4	48	1	0	5	59	3	1
8:30 AM - 8:45 AM	3	2	7	4	4	5	5	0	8	45	0	1	3	55	3	1
8:45 AM - 9:00 AM	3	1	4	1	1	1	1	0	7	37	3	2	2	38	2	2
TOTAL	**45**	**20**	**102**	**10**	**33**	**44**	**54**	**3**	**57**	**490**	**38**	**7**	**79**	**545**	**29**	**7**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	4	3	5	0	6	7	9	0	8	99	4	1	5	68	6	1
4:15 PM - 4:30 PM	4	9	6	2	4	4	8	1	11	92	5	1	5	58	3	1
4:30 PM - 4:45 PM	1	3	6	0	7	6	11	0	12	93	6	0	3	52	3	1
4:45 PM - 5:00 PM	1	8	2	1	5	8	10	1	7	85	4	1	4	48	3	3
5:00 PM - 5:15 PM	3	7	2	0	3	9	13	0	5	94	12	1	3	67	11	0
5:15 PM - 5:30 PM	1	4	4	1	6	6	20	0	3	108	9	1	6	75	9	1
5:30 PM - 5:45 PM	2	2	8	0	4	7	10	0	7	99	7	0	5	73	5	2
5:45 PM - 6:00 PM	1	2	3	1	6	2	8	0	6	76	6	0	6	70	6	0
TOTAL	**17**	**38**	**36**	**5**	**41**	**49**	**89**	**2**	**59**	**746**	**53**	**5**	**37**	**511**	**46**	**9**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	30	11	83	3	24	30	38	3	33	338	32	4	65	332	20	3
5:00 PM - 6:00 PM	7	15	17	2	19	24	51	0	21	377	34	2	20	285	31	3

	PHF	Trucks
AM	0.744	1.3%
PM	0.897	0.8%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

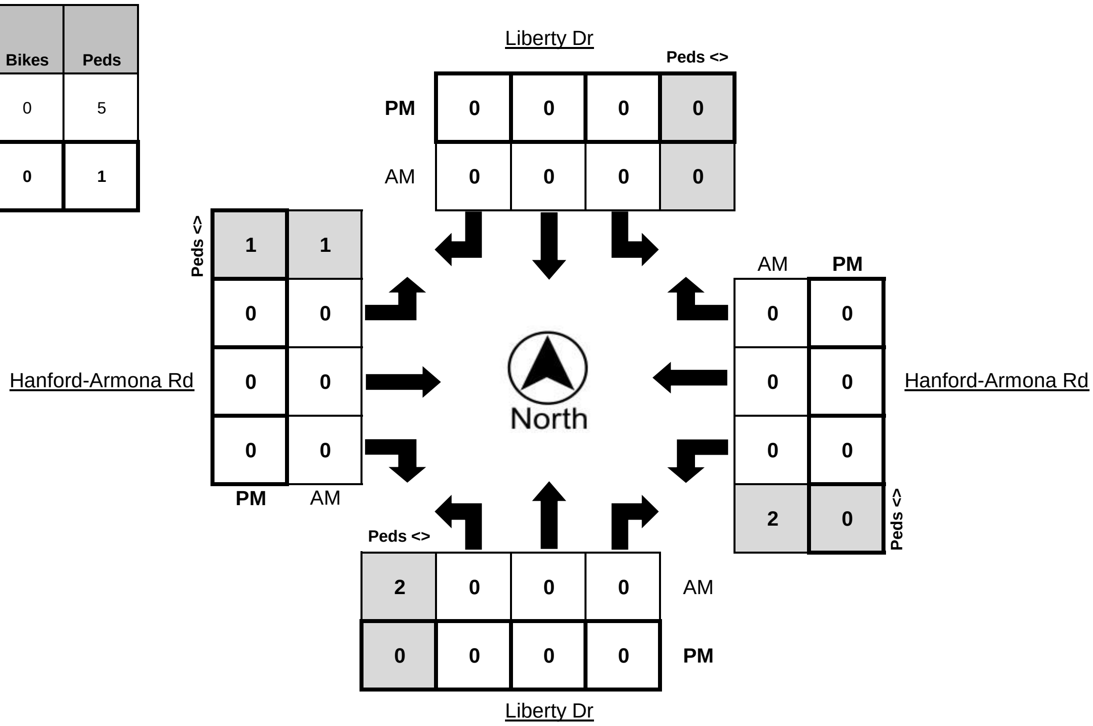
LOCATION Liberty Dr @ Hanford-Armona Rd
LATITUDE 36.3134
COUNTY Kings
LONGITUDE -119.7943
COLLECTION DATE Tuesday, November 9, 2021
WEATHER Clear

	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	1	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	1	0	0	0	0	0	0	0	1
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	1	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	2	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**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**

	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	1	0	0	0	1	0	0	0	0	0	0	1	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	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	1
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	1
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

	Bikes	Peds
AM Peak Total	0	5
PM Peak Total	**0**	**1**



Turning Movement Report

Metro Traffic Data Inc.
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Hanford, CA 93230

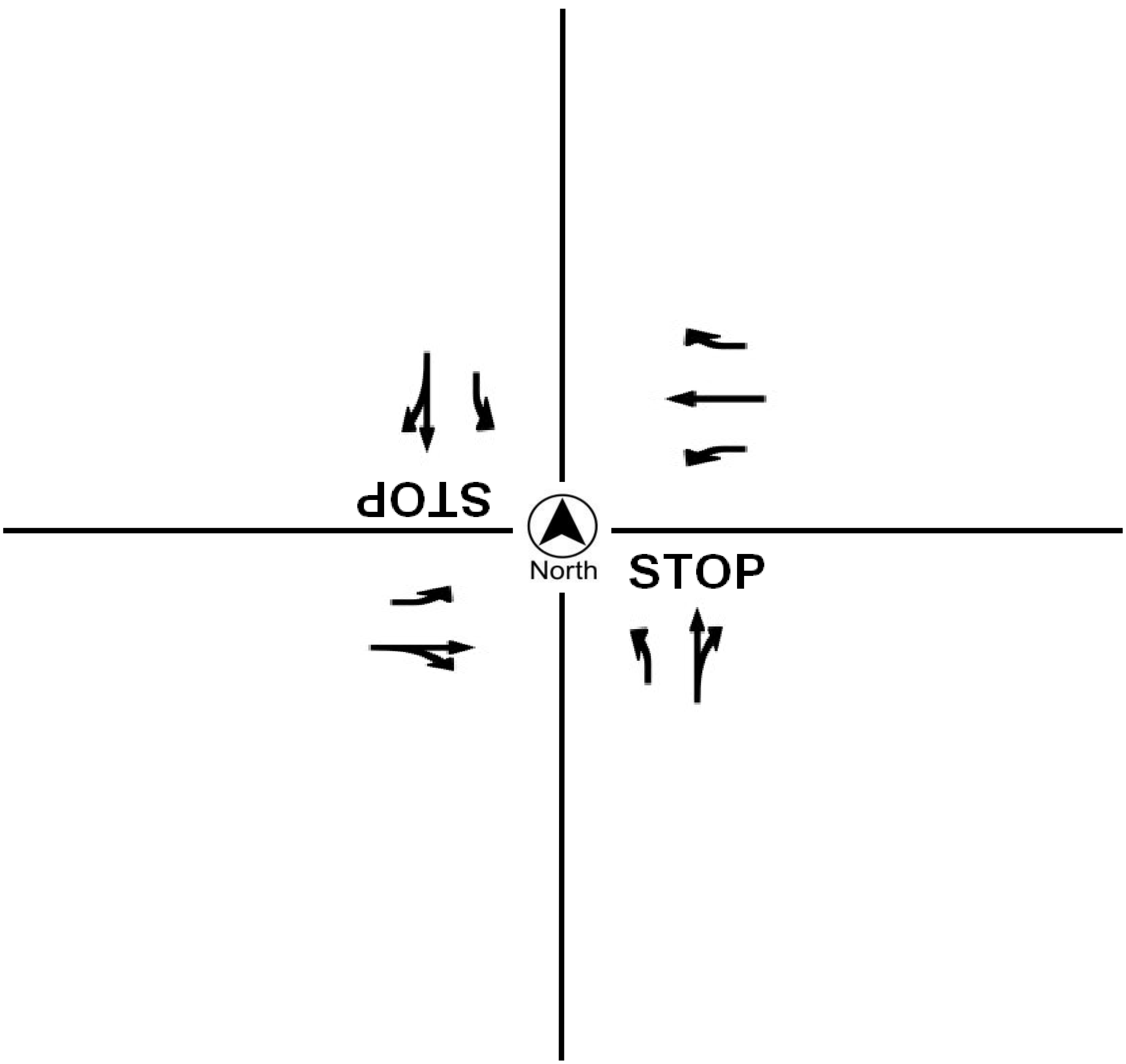
800-975-6938 Phone/Fax
www.metrotrafficdata.com

Prepared For:

Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

LOCATION	Liberty Dr @ Hanford-Armona Rd	**N/S STREET**	Liberty Dr
COUNTY	Kings	**E/W STREET**	Hanford-Armona Rd
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	Two-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

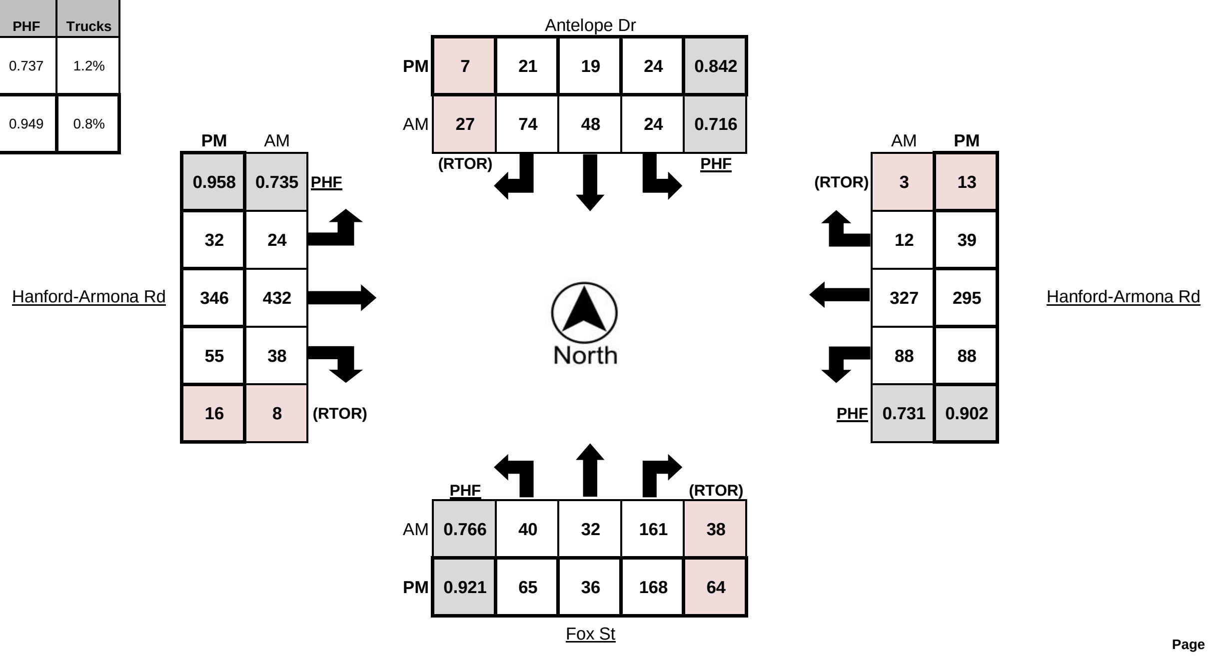
LOCATION	Antelope Dr / Fox St @ Hanford-Armona Rd	**LATITUDE**	36.3135
COUNTY	Kings	**LONGITUDE**	-119.7853
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear

	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	6	1	28	10	0	1	7	3	1	0	2	33	2	0	0	10	58	0	0	0
7:15 AM - 7:30 AM	7	3	37	10	0	2	7	17	6	0	6	64	2	0	2	11	71	0	0	1
7:30 AM - 7:45 AM	12	2	35	10	2	7	16	28	13	0	4	115	11	2	1	21	86	3	1	1
7:45 AM - 8:00 AM	9	13	54	12	0	12	15	24	7	0	9	148	11	2	4	35	106	5	2	2
8:00 AM - 8:15 AM	12	14	35	6	0	3	10	5	1	0	5	105	14	4	2	21	64	4	0	0
8:15 AM - 8:30 AM	8	3	26	8	0	6	5	3	1	0	2	60	8	3	1	11	66	3	1	1
8:30 AM - 8:45 AM	13	4	26	10	1	3	3	5	2	0	2	48	13	4	7	18	43	1	0	0
8:45 AM - 9:00 AM	8	2	17	6	1	3	3	8	3	0	6	31	12	3	2	11	41	3	0	2
TOTAL	**75**	**42**	**258**	**72**	**4**	**37**	**66**	**93**	**34**	**0**	**36**	**604**	**73**	**18**	**19**	**138**	**535**	**19**	**4**	**7**

	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	15	7	32	10	1	7	8	9	3	0	5	97	14	3	0	24	70	10	3	0
4:15 PM - 4:30 PM	9	11	25	7	0	6	1	7	2	0	8	95	15	2	2	16	62	13	5	1
4:30 PM - 4:45 PM	16	4	51	19	1	3	3	6	2	0	12	89	12	3	0	23	71	12	5	2
4:45 PM - 5:00 PM	12	10	35	12	0	8	5	5	2	0	9	77	18	4	2	20	73	9	1	0
5:00 PM - 5:15 PM	17	12	44	17	0	9	6	0	0	0	3	92	12	5	1	22	71	4	2	0
5:15 PM - 5:30 PM	20	10	38	16	0	4	5	10	3	0	8	88	13	4	3	23	80	14	5	1
5:30 PM - 5:45 PM	16	12	31	10	0	2	4	4	1	0	9	89	21	5	0	20	72	15	4	2
5:45 PM - 6:00 PM	10	5	43	17	0	5	6	11	4	0	5	76	12	2	1	22	71	8	2	0
TOTAL	**115**	**71**	**299**	**108**	**2**	**44**	**38**	**52**	**17**	**0**	**59**	**703**	**117**	**28**	**9**	**170**	**570**	**85**	**27**	**6**

	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
7:15 AM - 8:15 AM	40	32	161	38	2	24	48	74	27	0	24	432	38	8	9	88	327	12	3	4
4:30 PM - 5:30 PM	65	36	168	64	1	24	19	21	7	0	32	346	55	16	6	88	295	39	13	3

	PHF	Trucks
AM	0.737	1.2%
PM	0.949	0.8%



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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

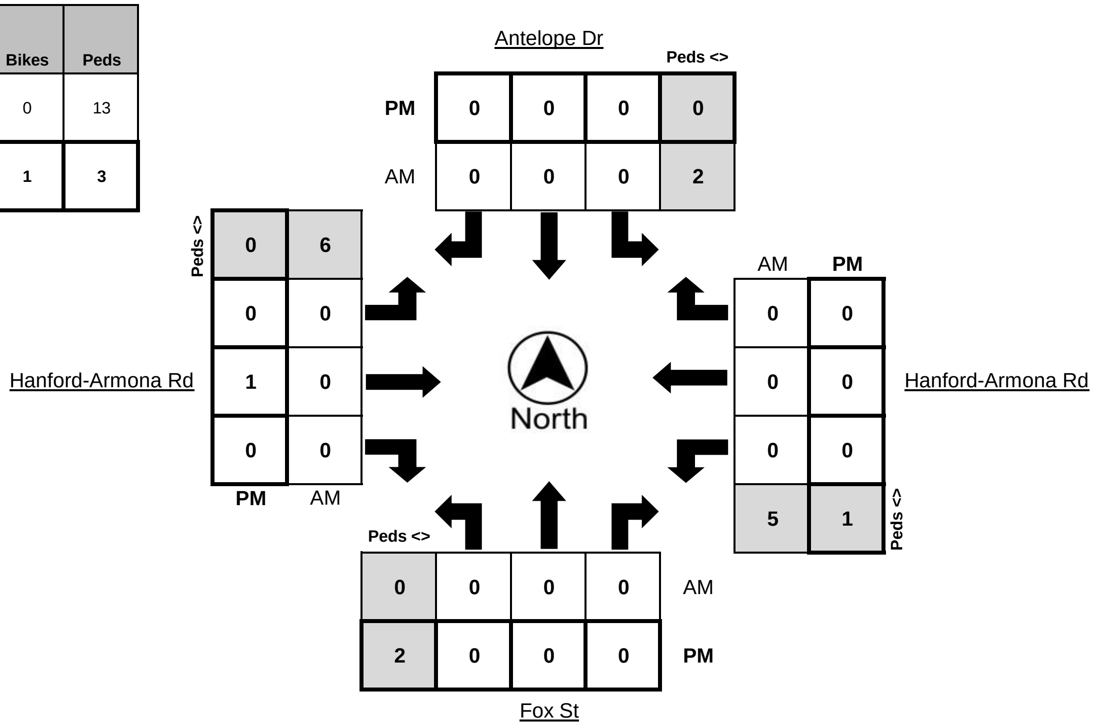
LOCATION Antelope Dr / Fox St @ Hanford-Armona Rd
LATITUDE 36.3135
COUNTY Kings
LONGITUDE -119.7853
COLLECTION DATE Tuesday, November 9, 2021
WEATHER Clear

	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	2	0	0	0	0	0	0	0	2	0	0	0	3
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
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	1
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**8**

	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	2	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	1	0	1	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	1	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**	**1**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**3**	**0**	**1**	**0**	**1**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	6
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	2	0	1	0	1	0	0	0	0

	Bikes	Peds
AM Peak Total	0	13
PM Peak Total	**1**	**3**



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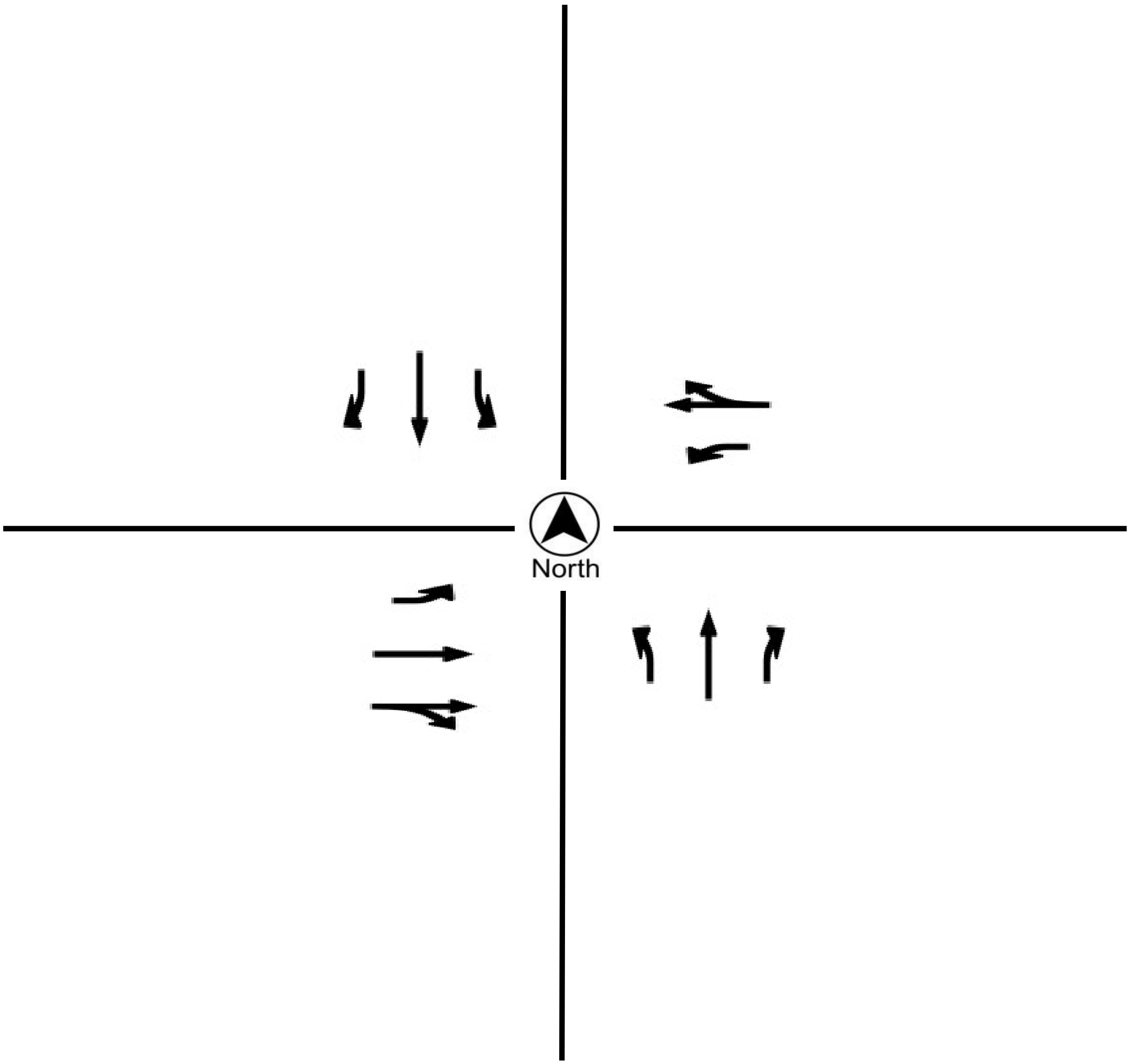
Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION	Antelope Dr / Fox St @ Hanford-Armona Rd	**N/S STREET**	Antelope Dr / Fox St
COUNTY	Kings	**E/W STREET**	Hanford-Armona Rd
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear
CYCLE TIME	33 Seconds	**CONTROL TYPE**	Signal

COMMENTS All approaches have protected left turns.



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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

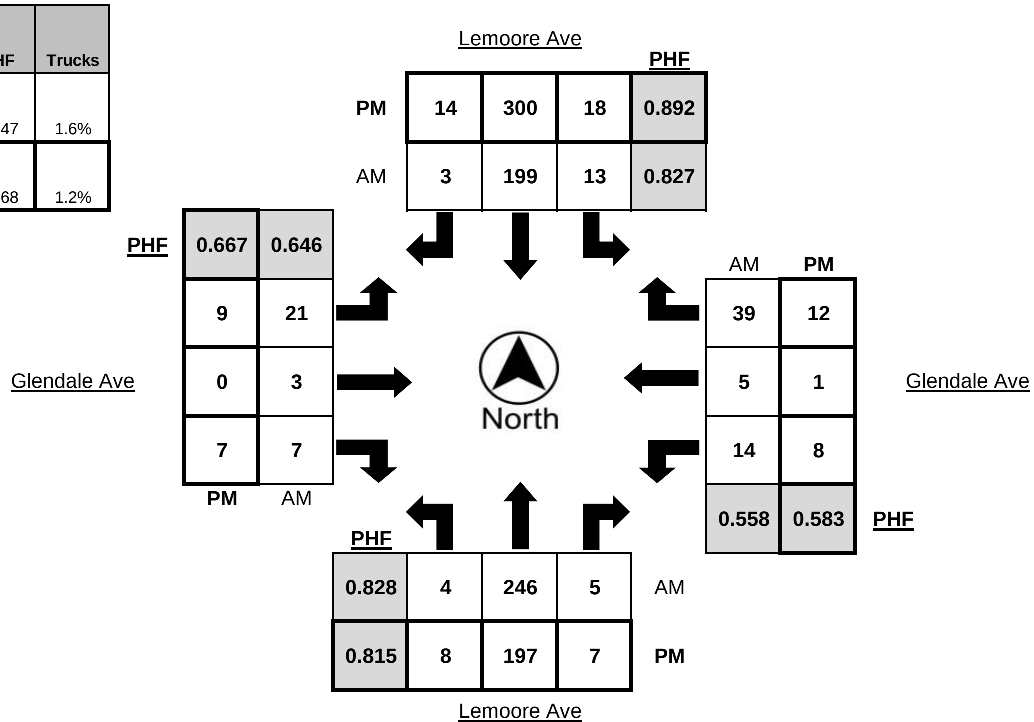
LOCATION	Lemoore Ave @ Glendale Ave	**LATITUDE**	36.3207
COUNTY	Kings	**LONGITUDE**	-119.7808
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	1	40	0	0	2	34	0	0	2	0	2	0	1	0	5	0
7:15 AM - 7:30 AM	2	59	0	1	2	36	2	1	5	0	0	0	2	0	9	0
7:30 AM - 7:45 AM	0	74	3	1	3	57	0	1	8	1	3	0	3	1	5	1
7:45 AM - 8:00 AM	2	62	1	0	6	59	0	2	4	1	4	0	7	2	17	1
8:00 AM - 8:15 AM	0	51	1	1	2	47	1	0	4	1	0	0	2	2	8	0
8:15 AM - 8:30 AM	1	45	1	0	1	31	1	0	2	0	1	0	1	0	2	0
8:30 AM - 8:45 AM	0	48	0	1	2	33	0	2	0	0	1	0	1	0	1	0
8:45 AM - 9:00 AM	1	31	0	0	0	31	0	0	2	1	1	0	1	0	4	0
TOTAL	**7**	**410**	**6**	**4**	**18**	**328**	**4**	**6**	**27**	**4**	**12**	**0**	**18**	**5**	**51**	**2**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	1	56	0	0	3	76	0	0	3	0	2	0	3	0	3	0
4:15 PM - 4:30 PM	2	42	2	1	2	56	1	1	2	0	1	0	2	0	0	0
4:30 PM - 4:45 PM	2	56	2	1	6	70	4	0	3	0	3	0	0	0	4	0
4:45 PM - 5:00 PM	3	40	2	1	4	85	4	0	2	0	4	1	3	0	2	0
5:00 PM - 5:15 PM	1	61	3	0	5	68	3	1	2	0	0	0	1	0	2	0
5:15 PM - 5:30 PM	2	40	0	2	3	77	3	1	2	0	0	0	4	1	4	0
5:30 PM - 5:45 PM	0	38	0	1	2	48	2	0	3	0	2	0	2	2	2	1
5:45 PM - 6:00 PM	1	44	2	0	2	49	3	0	1	1	1	0	3	0	2	0
TOTAL	**12**	**377**	**11**	**6**	**27**	**529**	**20**	**3**	**18**	**1**	**13**	**1**	**18**	**3**	**19**	**1**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	4	246	5	3	13	199	3	4	21	3	7	0	14	5	39	2
4:30 PM - 5:30 PM	8	197	7	4	18	300	14	2	9	0	7	1	8	1	12	0

	PHF	Trucks
AM	0.847	1.6%
PM	0.968	1.2%



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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

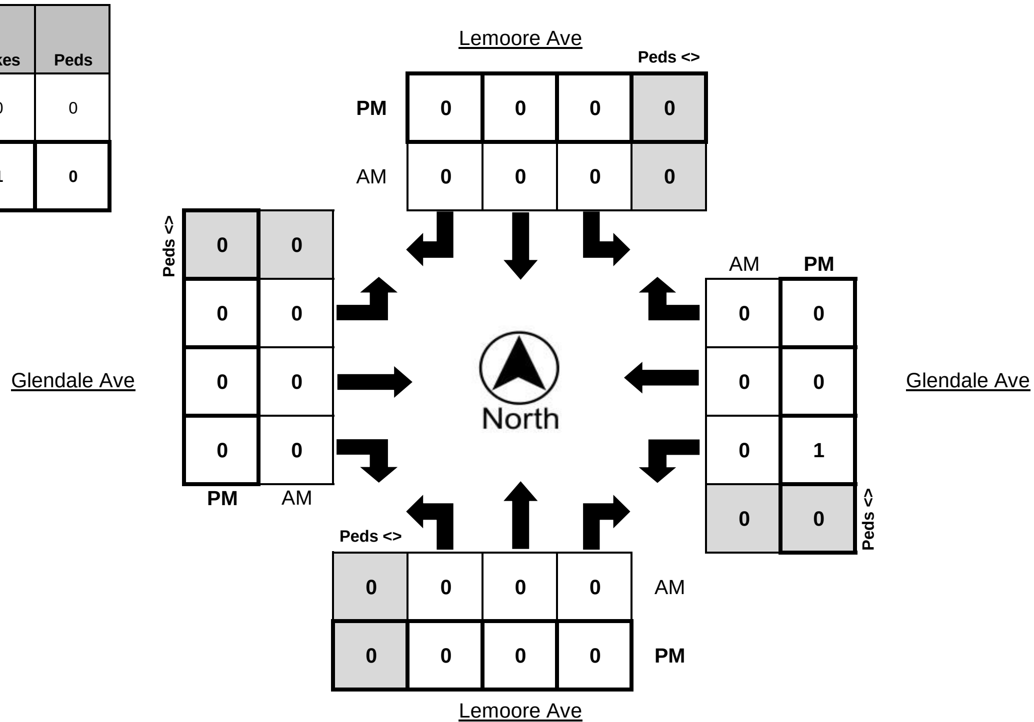
LOCATION Lemoore Ave @ Glendale Ave
LATITUDE 36.3207
COUNTY Kings
LONGITUDE -119.7808
COLLECTION DATE Tuesday, November 9, 2021
WEATHER Clear

	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	5	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	1	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**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**

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

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



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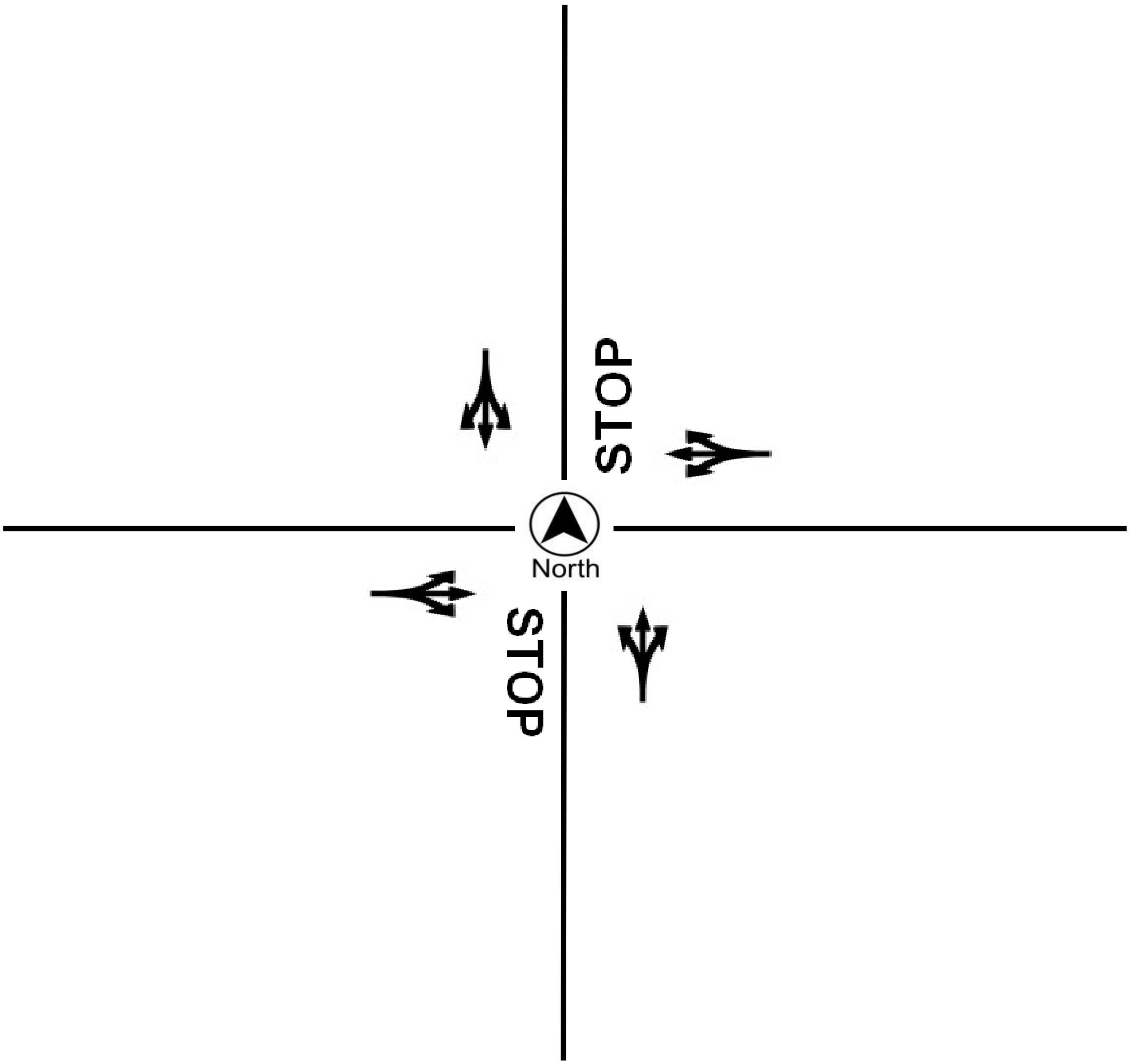
Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Avenue
Clovis, CA 93612

LOCATION	Lemoore Ave @ Glendale Ave	**N/S STREET**	Lemoore Ave
COUNTY	Kings	**E/W STREET**	Glendale Ave
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear
CYCLE TIME	N/A	**CONTROL TYPE**	Two-Way Stop

COMMENTS



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Turning Movement Report

Prepared For:

Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

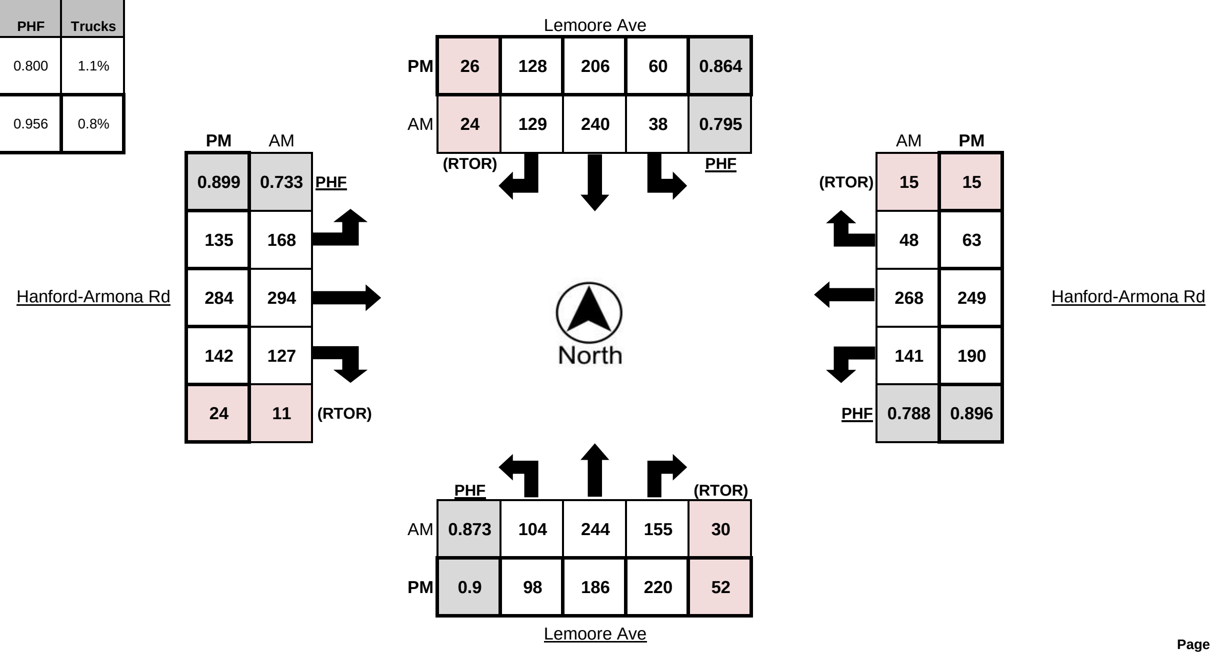
LOCATION	Lemoore Ave @ Hanford-Armona Rd	**LATITUDE**	36.3135
COUNTY	Kings	**LONGITUDE**	-119.7808
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear

	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	10	21	15	5	0	10	25	19	4	0	15	19	18	8	0	40	50	19	6	0
7:15 AM - 7:30 AM	16	39	20	7	2	7	35	24	7	0	32	34	15	1	2	25	65	14	3	2
7:30 AM - 7:45 AM	23	60	23	4	2	13	74	23	4	1	33	65	44	6	3	41	77	17	5	1
7:45 AM - 8:00 AM	18	74	45	8	0	6	64	58	8	2	65	99	37	2	2	42	92	11	3	4
8:00 AM - 8:15 AM	37	61	46	9	1	13	65	32	8	0	43	76	25	2	1	32	51	16	6	0
8:15 AM - 8:30 AM	26	49	41	9	1	6	37	16	4	0	27	54	21	1	1	26	48	4	1	3
8:30 AM - 8:45 AM	18	34	24	5	1	12	38	23	9	0	17	36	9	2	4	31	40	13	2	0
8:45 AM - 9:00 AM	18	29	30	11	2	6	29	13	4	0	12	28	17	4	3	37	41	6	1	2
TOTAL	**166**	**367**	**244**	**58**	**9**	**73**	**367**	**208**	**48**	**3**	**244**	**411**	**186**	**26**	**16**	**274**	**464**	**100**	**27**	**12**

	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	28	54	63	17	0	14	44	36	8	0	36	80	30	3	1	37	62	16	3	2
4:15 PM - 4:30 PM	12	55	54	15	0	13	51	28	7	1	30	68	24	4	2	59	51	16	2	2
4:30 PM - 4:45 PM	26	39	44	11	1	18	52	22	1	0	37	82	37	3	0	42	75	18	2	2
4:45 PM - 5:00 PM	18	42	60	18	1	17	49	32	8	1	31	58	28	3	2	42	55	17	4	1
5:00 PM - 5:15 PM	29	55	51	9	1	11	53	26	6	1	33	68	41	8	0	58	69	13	3	0
5:15 PM - 5:30 PM	25	50	65	14	4	14	52	48	11	0	34	76	36	10	1	48	50	15	6	1
5:30 PM - 5:45 PM	16	36	50	11	1	13	41	30	8	1	25	68	27	6	2	41	81	14	3	1
5:45 PM - 6:00 PM	25	57	42	10	0	14	56	29	6	0	27	57	35	9	1	34	53	22	9	1
TOTAL	**179**	**388**	**429**	**105**	**8**	**114**	**398**	**251**	**55**	**4**	**253**	**557**	**258**	**46**	**9**	**361**	**496**	**131**	**32**	**10**

	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	104	244	155	30	4	38	240	129	24	3	168	294	127	11	7	141	268	48	15	8
4:30 PM - 5:30 PM	98	186	220	52	7	60	206	128	26	2	135	284	142	24	3	190	249	63	15	4

	PHF	Trucks
AM	0.800	1.1%
PM	0.956	0.8%



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Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

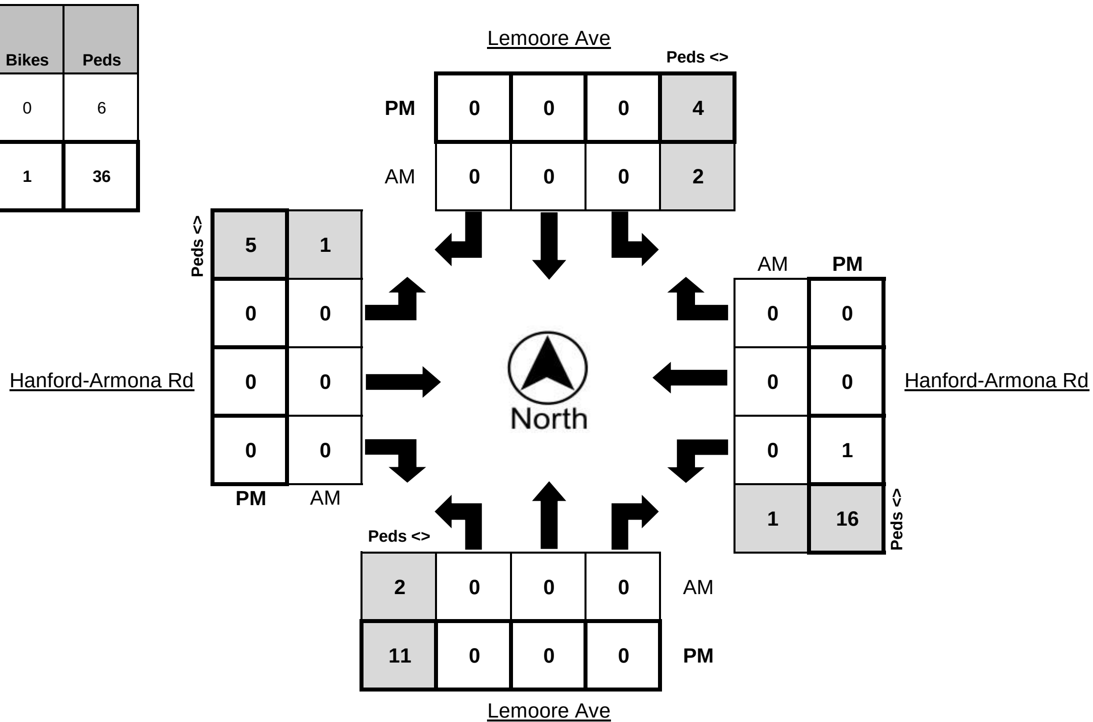
LOCATION	Lemoore Ave @ Hanford-Armona Rd	**LATITUDE**	36.3135
COUNTY	Kings	**LONGITUDE**	-119.7808
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear

	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	2	0	0	0	0	0	0	0	0	0	0	0	4
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	2	0	0	0	1	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	1	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	1
8:30 AM - 8:45 AM	0	0	0	1	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	2
TOTAL	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**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	2	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	6	0	0	0	1	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	5	0	0	0	2	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	3	0	0	0	2	0	0	0	1	0	0	0	4
5:00 PM - 5:15 PM	0	0	0	1	0	0	0	4	0	0	0	4	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	9	1	0	0	1
5:30 PM - 5:45 PM	0	0	0	1	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**	**7**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**17**	**1**	**0**	**0**	**7**

	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	2	0	0	0	2	0	0	0	1	0	0	0	1
4:30 PM - 5:30 PM	0	0	0	4	0	0	0	11	0	0	0	16	1	0	0	5

	Bikes	Peds
AM Peak Total	0	6
PM Peak Total	**1**	**36**



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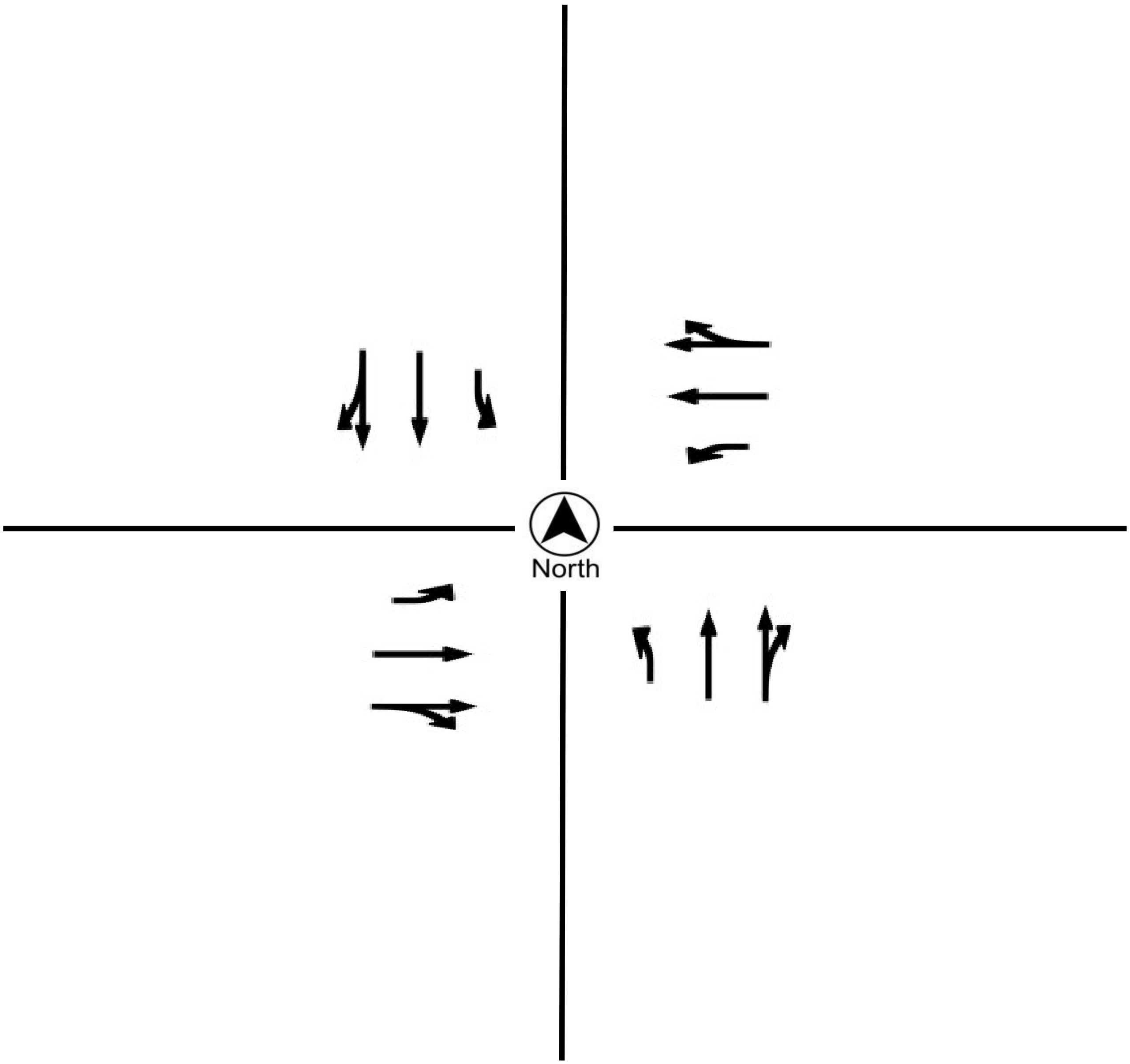
Turning Movement Report

Prepared For:
Peters Engineering Group
862 Pollasky Ave
Clovis, CA 93612

LOCATION	Lemoore Ave @ Hanford-Armona Rd	**N/S STREET**	Lemoore Ave
COUNTY	Kings	**E/W STREET**	Hanford-Armona Rd
COLLECTION DATE	Tuesday, November 9, 2021	**WEATHER**	Clear
CYCLE TIME	74 Seconds	**CONTROL TYPE**	Signal

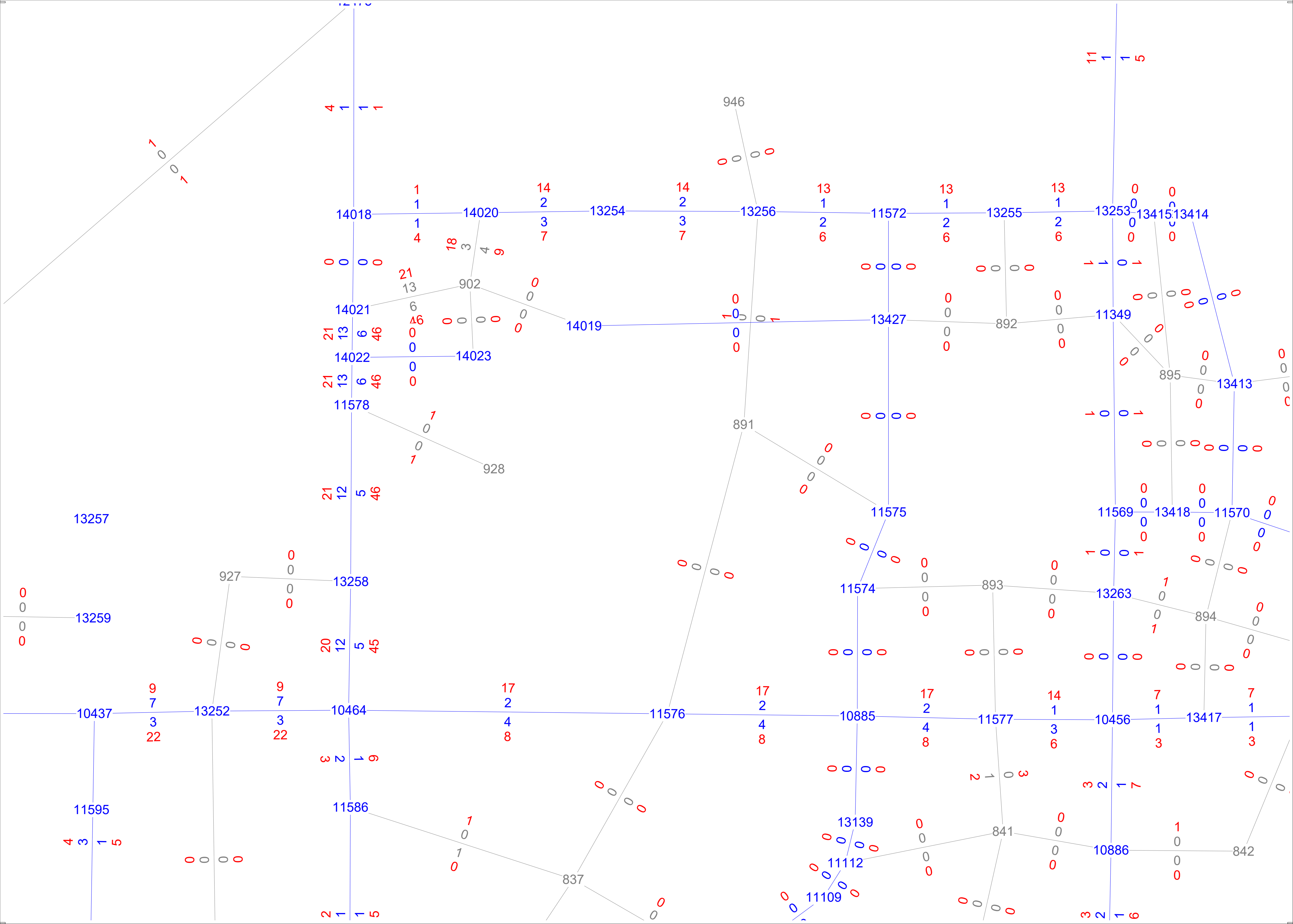
COMMENTS All approaches have protected left turns.



APPENDIX B

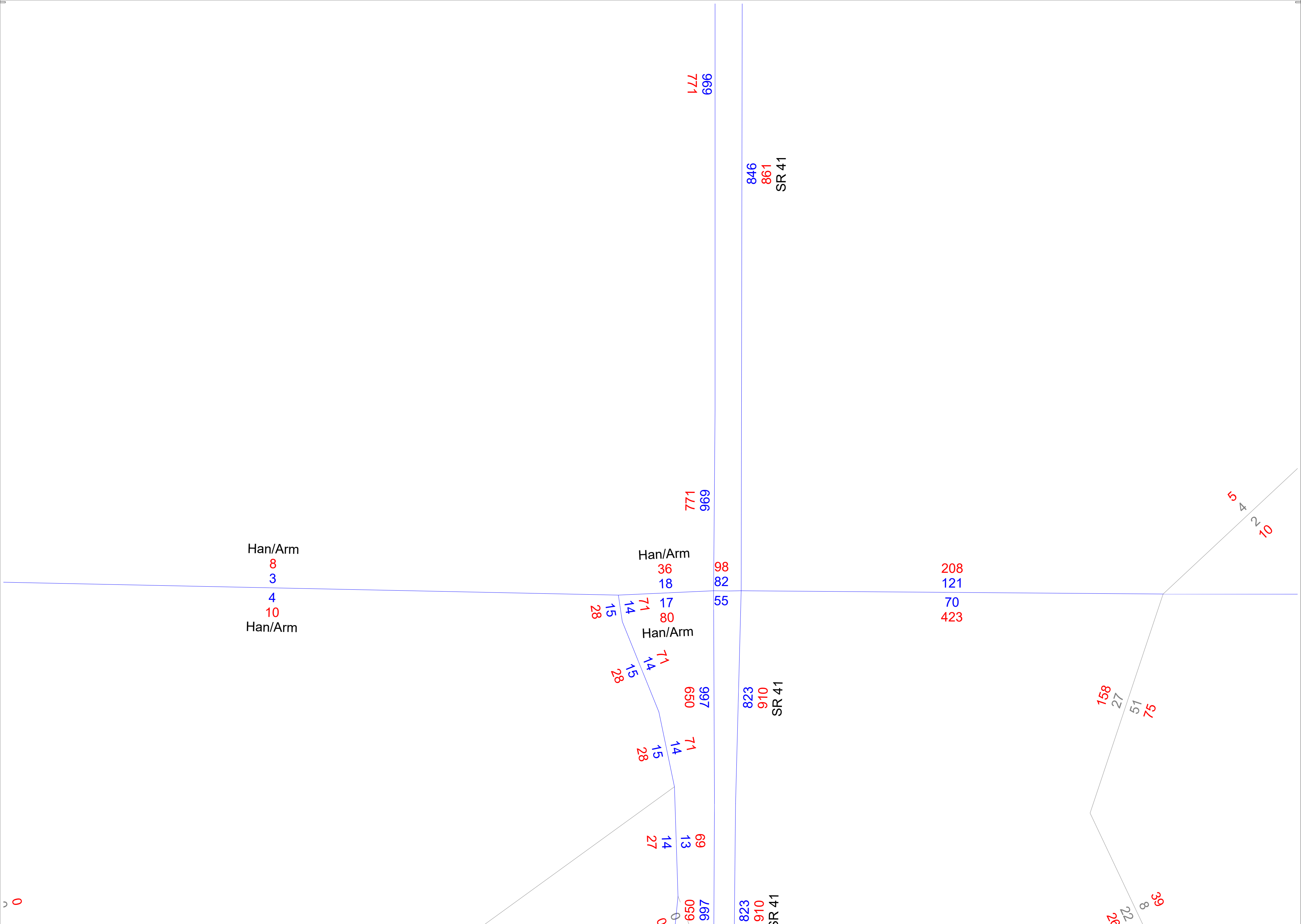
KINGS COUNTY TRAVEL MODEL OUTPUT

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

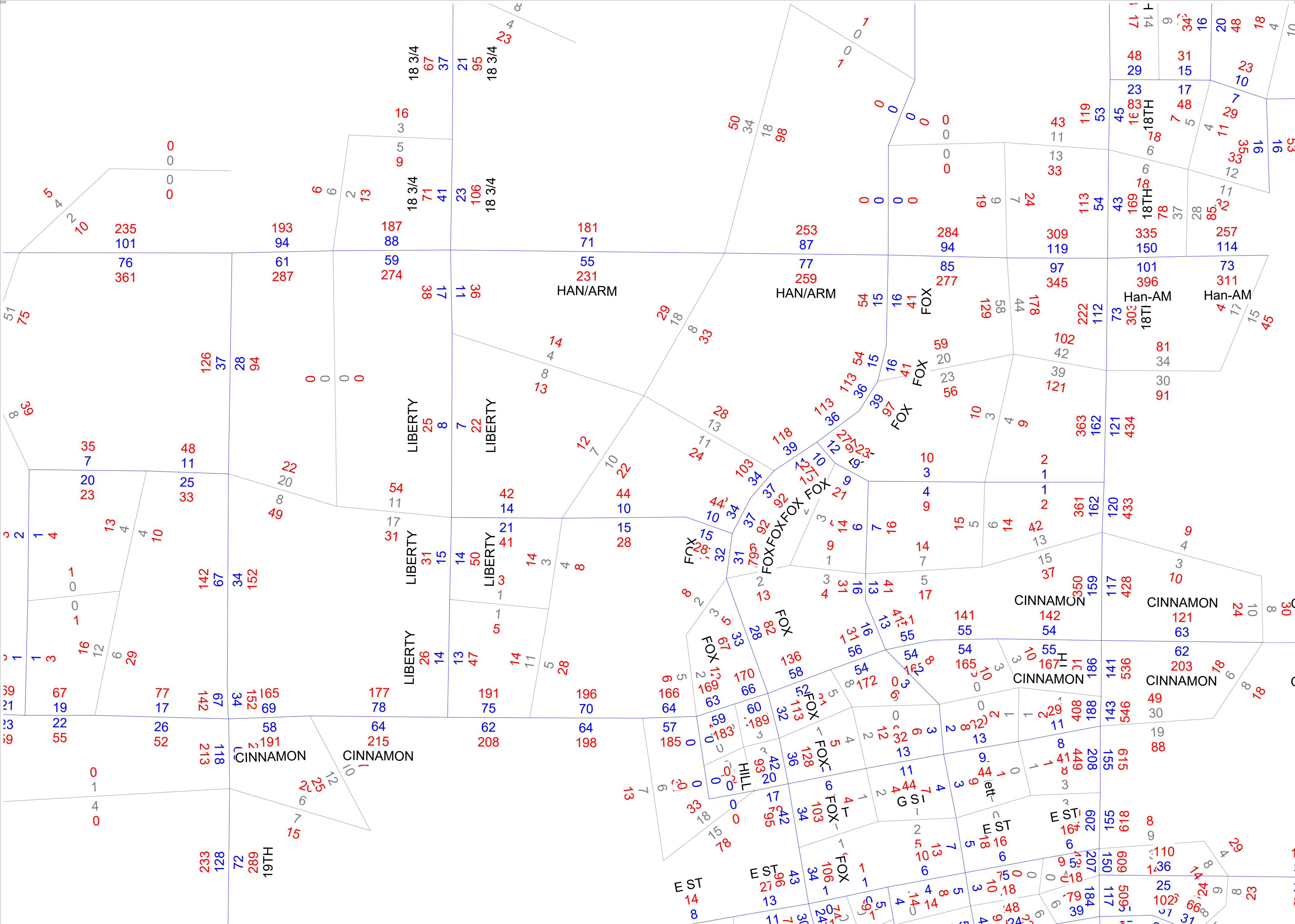


Kings County Travel Model

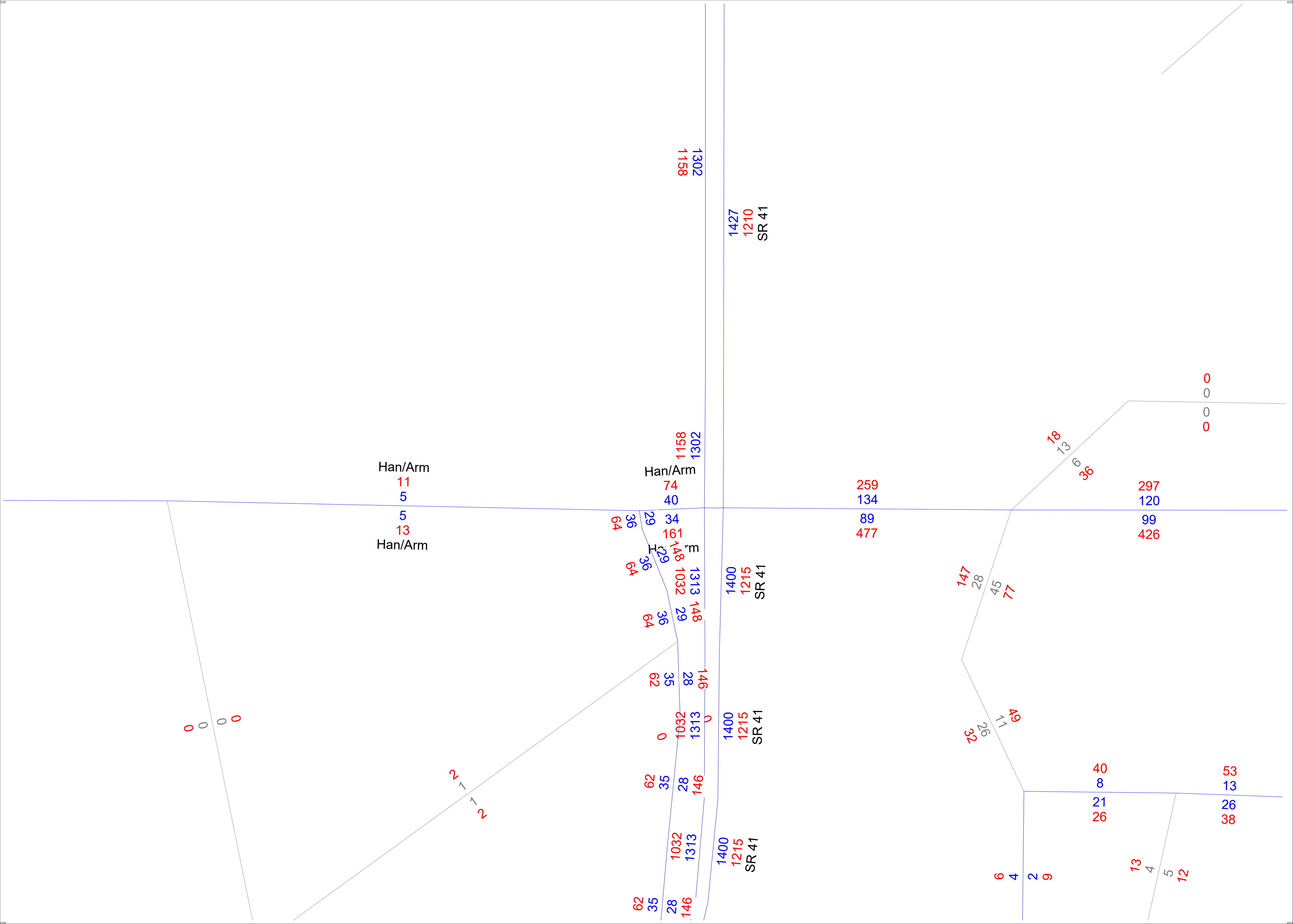
Select Zone Analysis AM and PM Peak Hour Traffic Volumes



2021 Kings County Travel Model
AM and PM Peak Hour Traffic Volumes



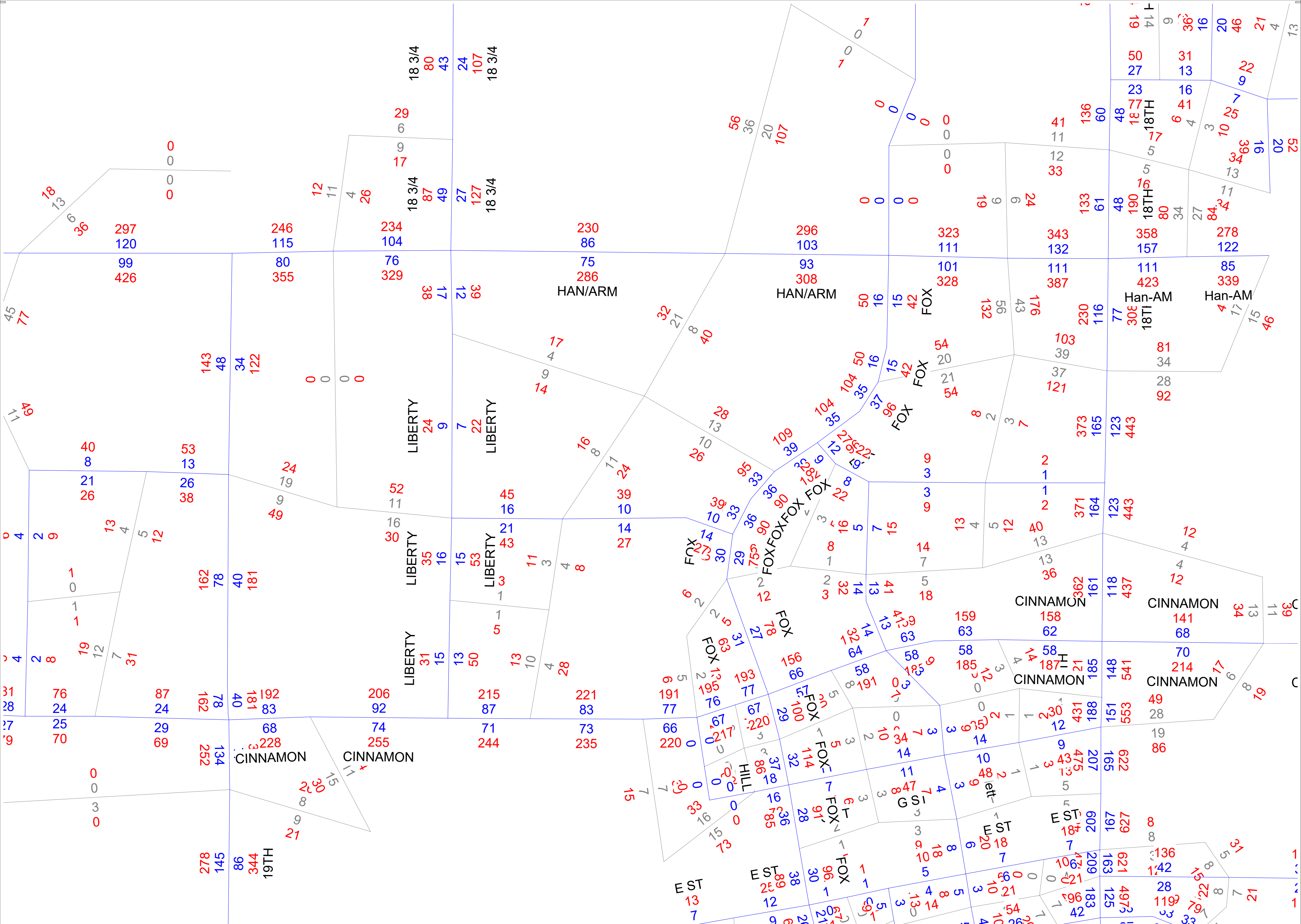
2021 Kings County Travel Model
AM and PM Peak Hour Traffic Volumes



2042 Kings County Travel Model
AM and PM Peak Hour Traffic Volumes

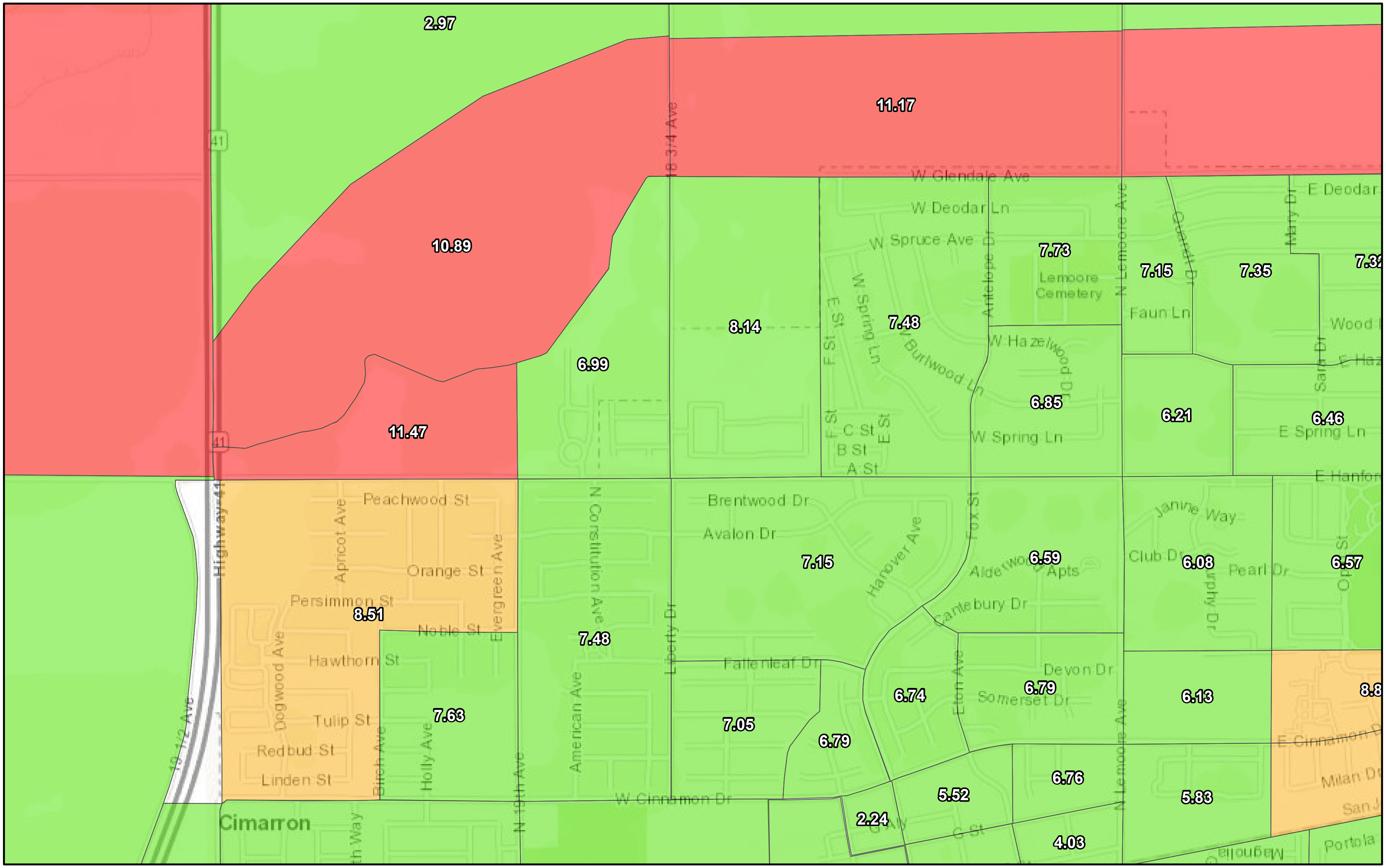
cube

Licensed to Peters Engineering



2042 Kings County Travel Model
AM and PM Peak Hour Traffic Volumes

Tract 935 Screening Map



1/14/2022, 9:26:30 AM

Vehicle Miles Traveled per Capita

< 8.2 (15% or More Below County Average)

8.2 – 9.6 (14% Below County Average to Average)

> 9.6 (Above County Average)

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

ArcGIS Web AppBuilder

APPENDIX C

INTERSECTION ANALYSES

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	21	4	153	35	202	5	460	134	135	501	89
Future Volume (veh/h)	8	21	4	153	35	202	5	460	134	135	501	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	9	24	3	174	40	194	6	523	91	153	569	76
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, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	16	43	5	214	49	239	13	777	347	198	1015	135
Arrive On Green	0.04	0.04	0.04	0.31	0.31	0.31	0.01	0.23	0.23	0.12	0.34	0.34
Sat Flow, veh/h	433	1156	144	686	158	765	1697	3385	1510	1697	3002	400
Grp Volume(v), veh/h	36	0	0	408	0	0	6	523	91	153	320	325
Grp Sat Flow(s),veh/h/ln	1734	0	0	1609	0	0	1697	1692	1510	1697	1692	1709
Q Serve(g_s), s	1.3	0.0	0.0	14.3	0.0	0.0	0.2	8.6	3.0	5.4	9.5	9.5
Cycle Q Clear(g_c), s	1.3	0.0	0.0	14.3	0.0	0.0	0.2	8.6	3.0	5.4	9.5	9.5
Prop In Lane	0.25		0.08	0.43		0.48	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	65	0	0	502	0	0	13	777	347	198	572	578
V/C Ratio(X)	0.56	0.00	0.00	0.81	0.00	0.00	0.45	0.67	0.26	0.77	0.56	0.56
Avail Cap(c_a), veh/h	511	0	0	1680	0	0	166	2321	1035	746	1739	1757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	0.0	0.0	19.5	0.0	0.0	30.3	21.5	19.4	26.3	16.6	16.6
Incr Delay (d2), s/veh	7.2	0.0	0.0	3.2	0.0	0.0	21.5	1.0	0.4	6.4	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	5.0	0.0	0.0	0.2	2.9	0.9	2.2	3.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.0	0.0	22.7	0.0	0.0	51.8	22.6	19.8	32.7	17.4	17.5
LnGrp LOS	D	A	A	C	A	A	D	C	B	C	B	B
Approach Vol, veh/h		36			408			620			798	
Approach Delay, s/veh		36.3			22.7			22.4			20.4	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	19.0		7.2	4.5	25.7		24.1				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	27.0	42.1		18.1	6.0	63.1		64.1				
Max Q Clear Time (g_c+I1), s	7.4	10.6		3.3	2.2	11.5		16.3				
Green Ext Time (p_c), s	0.3	3.5		0.1	0.0	3.6		2.8				
Intersection Summary												
HCM 6th Ctrl Delay			21.9									
HCM 6th LOS			C									

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	38	444	6	523	152	153	670
v/c Ratio	0.25	0.76	0.05	0.63	0.31	0.54	0.45
Control Delay	54.4	37.6	62.2	40.8	8.6	52.4	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	37.6	62.2	40.8	8.6	52.4	23.2
Queue Length 50th (ft)	21	233	4	158	0	91	151
Queue Length 95th (ft)	71	463	23	302	55	213	320
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	361	1133	116	1631	807	522	2262
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.39	0.05	0.32	0.19	0.29	0.30

Intersection Summary

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	264	35	102	300	38	101
Future Vol, veh/h	264	35	102	300	38	101
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	318	42	123	361	46	122

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	365	0	956	349
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	612	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1194	-	286	694
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	541	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1188	-	254	687
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	483	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	14.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	254	687	-	-	1188	-
HCM Lane V/C Ratio	0.18	0.177	-	-	0.103	-
HCM Control Delay (s)	22.3	11.4	-	-	8.4	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.6	-	-	0.3	-

Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	128	39	149	163	61	15	99	169	86	132	87
Future Vol, veh/h	58	128	39	149	163	61	15	99	169	86	132	87
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	186	57	216	236	88	22	143	245	125	191	126
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	17.7	21.1	19.6	17.4
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	99	169	58	128	39	149	163	61	86	132
LT Vol	15	0	0	58	0	0	149	0	0	86	0
Through Vol	0	99	0	0	128	0	0	163	0	0	132
RT Vol	0	0	169	0	0	39	0	0	61	0	0
Lane Flow Rate	22	143	245	84	186	57	216	236	88	125	191
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.058	0.362	0.571	0.228	0.478	0.135	0.554	0.573	0.197	0.329	0.478
Departure Headway (Hd)	9.595	9.095	8.395	9.778	9.278	8.578	9.231	8.731	8.031	9.489	8.989
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	373	396	429	367	388	418	391	413	446	379	402
Service Time	7.35	6.85	6.15	7.537	7.037	6.337	6.984	6.484	5.784	7.244	6.744
HCM Lane V/C Ratio	0.059	0.361	0.571	0.229	0.479	0.136	0.552	0.571	0.197	0.33	0.475
HCM Control Delay	12.9	17	21.8	15.4	20.3	12.7	22.9	22.6	12.8	16.9	19.8
HCM Lane LOS	B	C	C	C	C	B	C	C	B	C	C
HCM 95th-tile Q	0.2	1.6	3.5	0.9	2.5	0.5	3.2	3.5	0.7	1.4	2.5

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	338	32	65	332	20	30	11	83	24	30	38
Future Vol, veh/h	33	338	32	65	332	20	30	11	83	24	30	38
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	457	43	88	449	27	41	15	112	32	41	51

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	481	0	0	505	0	0	1264	1231	489	1267	1225	459
Stage 1	-	-	-	-	-	-	574	574	-	630	630	-
Stage 2	-	-	-	-	-	-	690	657	-	637	595	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1082	-	-	1060	-	-	146	177	579	146	179	602
Stage 1	-	-	-	-	-	-	504	503	-	470	475	-
Stage 2	-	-	-	-	-	-	435	462	-	465	492	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1077	-	-	1055	-	-	96	154	573	98	156	596
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	154	-	98	156	-
Stage 1	-	-	-	-	-	-	481	479	-	448	433	-
Stage 2	-	-	-	-	-	-	329	421	-	346	469	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.4	29	34.2
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	96	435	1077	-	-	1055	-	-	98	266
HCM Lane V/C Ratio	0.422	0.292	0.041	-	-	0.083	-	-	0.331	0.345
HCM Control Delay (s)	67.5	16.7	8.5	-	-	8.7	-	-	58.9	25.5
HCM Lane LOS	F	C	A	-	-	A	-	-	F	D
HCM 95th %tile Q(veh)	1.8	1.2	0.1	-	-	0.3	-	-	1.3	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	432	38	88	327	12	40	32	161	24	48	74
Future Volume (veh/h)	24	432	38	88	327	12	40	32	161	24	48	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.96	1.00		0.93
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	32	584	40	119	442	12	54	43	167	32	65	64
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	943	64	154	598	16	98	364	297	65	331	262
Arrive On Green	0.04	0.28	0.28	0.09	0.33	0.33	0.05	0.19	0.19	0.04	0.18	0.18
Sat Flow, veh/h	1781	3362	230	1781	1810	49	1781	1870	1526	1781	1870	1480
Grp Volume(v), veh/h	32	308	316	119	0	454	54	43	167	32	65	64
Grp Sat Flow(s),veh/h/ln	1781	1777	1815	1781	0	1859	1781	1870	1526	1781	1870	1480
Q Serve(g_s), s	0.8	6.7	6.7	2.9	0.0	9.6	1.3	0.8	4.4	0.8	1.3	1.7
Cycle Q Clear(g_c), s	0.8	6.7	6.7	2.9	0.0	9.6	1.3	0.8	4.4	0.8	1.3	1.7
Prop In Lane	1.00		0.13	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	65	498	509	154	0	614	98	364	297	65	331	262
V/C Ratio(X)	0.49	0.62	0.62	0.77	0.00	0.74	0.55	0.12	0.56	0.49	0.20	0.24
Avail Cap(c_a), veh/h	237	805	822	301	0	909	241	789	643	237	784	621
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	13.9	13.9	19.8	0.0	13.2	20.4	14.7	16.1	21.0	15.6	15.7
Incr Delay (d2), s/veh	5.6	1.3	1.2	7.9	0.0	1.8	4.8	0.1	1.7	5.6	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.2	2.3	1.3	0.0	3.2	0.6	0.3	1.4	0.4	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	15.1	15.1	27.7	0.0	14.9	25.3	14.9	17.8	26.5	15.9	16.2
LnGrp LOS	C	B	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		656			573			264			161	
Approach Delay, s/veh		15.7			17.6			18.9			18.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	13.5	7.8	17.3	6.4	12.7	5.6	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	5.9	18.7	7.5	20.1	6.0	18.6	5.9	21.7
Max Q Clear Time (g_c+I1), s	2.8	6.4	4.9	8.7	3.3	3.7	2.8	11.6
Green Ext Time (p_c), s	0.0	0.6	0.1	2.7	0.0	0.4	0.0	1.9

Intersection Summary			
HCM 6th Ctrl Delay			17.1
HCM 6th LOS			B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	32	635	119	458	54	43	218	32	65	100
v/c Ratio	0.14	0.56	0.41	0.57	0.22	0.11	0.45	0.14	0.21	0.26
Control Delay	26.5	17.0	29.2	16.6	27.2	20.9	7.5	26.5	23.4	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	17.0	29.2	16.6	27.2	20.9	7.5	26.5	23.4	3.6
Queue Length 50th (ft)	10	90	36	89	16	9	0	10	19	0
Queue Length 95th (ft)	28	116	73	184	40	31	26	28	41	4
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	245	1648	311	995	249	817	795	245	813	742
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.39	0.38	0.46	0.22	0.05	0.27	0.13	0.08	0.13

Intersection Summary

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	3	7	14	5	39	4	246	5	13	199	3
Future Vol, veh/h	21	3	7	14	5	39	4	246	5	13	199	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	4	8	16	6	46	5	289	6	15	234	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	604	581	246	584	580	302	243	0	0	300	0	0
Stage 1	271	271	-	307	307	-	-	-	-	-	-	-
Stage 2	333	310	-	277	273	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	410	425	793	423	426	738	1323	-	-	1261	-	-
Stage 1	735	685	-	703	661	-	-	-	-	-	-	-
Stage 2	681	659	-	729	684	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	371	413	785	406	414	731	1317	-	-	1255	-	-
Mov Cap-2 Maneuver	371	413	-	406	414	-	-	-	-	-	-	-
Stage 1	728	672	-	696	654	-	-	-	-	-	-	-
Stage 2	626	652	-	704	671	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.2	12	0.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1317	-	-	426	581	1255	-	-
HCM Lane V/C Ratio	0.004	-	-	0.086	0.117	0.012	-	-
HCM Control Delay (s)	7.7	0	-	14.2	12	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.4	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	294	127	141	268	48	104	244	155	38	240	129
Future Volume (veh/h)	168	294	127	141	268	48	104	244	155	38	240	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.89	1.00		0.95	1.00		0.90
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	210	368	145	176	335	41	130	305	157	48	300	131
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	609	235	222	712	86	167	638	318	82	554	233
Arrive On Green	0.15	0.25	0.25	0.12	0.23	0.23	0.09	0.28	0.28	0.05	0.24	0.24
Sat Flow, veh/h	1781	2458	948	1781	3146	380	1781	2250	1121	1781	2351	987
Grp Volume(v), veh/h	210	264	249	176	187	189	130	239	223	48	224	207
Grp Sat Flow(s),veh/h/ln	1781	1777	1630	1781	1777	1749	1781	1777	1594	1781	1777	1560
Q Serve(g_s), s	6.8	7.8	8.1	5.7	5.4	5.6	4.3	6.6	7.0	1.6	6.6	7.0
Cycle Q Clear(g_c), s	6.8	7.8	8.1	5.7	5.4	5.6	4.3	6.6	7.0	1.6	6.6	7.0
Prop In Lane	1.00		0.58	1.00		0.22	1.00		0.70	1.00		0.63
Lane Grp Cap(c), veh/h	260	441	404	222	402	396	167	504	452	82	419	368
V/C Ratio(X)	0.81	0.60	0.62	0.79	0.47	0.48	0.78	0.47	0.49	0.59	0.53	0.56
Avail Cap(c_a), veh/h	370	577	529	328	536	527	257	610	547	188	542	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	19.8	19.9	25.4	20.0	20.0	26.5	17.7	17.8	27.9	20.0	20.1
Incr Delay (d2), s/veh	8.5	1.3	1.5	7.8	0.8	0.9	8.0	0.7	0.8	6.5	1.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	3.0	2.9	2.7	2.1	2.1	2.1	2.6	2.4	0.8	2.6	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	21.1	21.5	33.2	20.8	20.9	34.4	18.4	18.7	34.4	21.0	21.5
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	C	C
Approach Vol, veh/h		723			552			592			479	
Approach Delay, s/veh		24.7			24.8			22.0			22.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	21.8	11.4	19.7	9.6	19.0	12.7	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	6.3	20.5	11.0	19.4	8.6	18.2	12.4	18.0				
Max Q Clear Time (g_c+I1), s	3.6	9.0	7.7	10.1	6.3	9.0	8.8	7.6				
Green Ext Time (p_c), s	0.0	2.2	0.1	2.0	0.1	1.8	0.2	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			23.6									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	210	527	176	395	130	499	48	461
v/c Ratio	0.63	0.64	0.59	0.54	0.53	0.49	0.26	0.60
Control Delay	36.6	22.5	36.9	24.3	38.2	14.4	33.6	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	22.5	36.9	24.3	38.2	14.4	33.6	20.6
Queue Length 50th (ft)	74	81	63	67	47	54	17	62
Queue Length 95th (ft)	#146	119	#125	102	#102	85	47	95
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	388	1196	344	1101	268	1323	197	1125
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.44	0.51	0.36	0.49	0.38	0.24	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	18	7	45	9	176	2	639	180	217	446	23
Future Volume (veh/h)	28	18	7	45	9	176	2	639	180	217	446	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	30	19	4	48	10	137	2	687	138	233	480	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	48	30	6	64	13	182	5	1011	451	293	1564	55
Arrive On Green	0.05	0.05	0.05	0.16	0.16	0.16	0.00	0.30	0.30	0.17	0.47	0.47
Sat Flow, veh/h	976	618	130	388	81	1108	1711	3413	1522	1711	3362	119
Grp Volume(v), veh/h	53	0	0	195	0	0	2	687	138	233	243	254
Grp Sat Flow(s),veh/h/ln	1724	0	0	1577	0	0	1711	1706	1522	1711	1706	1775
Q Serve(g_s), s	1.8	0.0	0.0	6.9	0.0	0.0	0.1	10.4	4.1	7.7	5.2	5.2
Cycle Q Clear(g_c), s	1.8	0.0	0.0	6.9	0.0	0.0	0.1	10.4	4.1	7.7	5.2	5.2
Prop In Lane	0.57		0.08	0.25		0.70	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	85	0	0	259	0	0	5	1011	451	293	794	825
V/C Ratio(X)	0.62	0.00	0.00	0.75	0.00	0.00	0.43	0.68	0.31	0.79	0.31	0.31
Avail Cap(c_a), veh/h	561	0	0	1024	0	0	175	3146	1403	1166	2562	2665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	0.0	23.4	0.0	0.0	29.2	18.2	16.0	23.3	9.8	9.8
Incr Delay (d2), s/veh	7.3	0.0	0.0	4.4	0.0	0.0	51.8	0.8	0.4	4.9	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	2.6	0.0	0.0	0.1	3.3	1.2	3.0	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	0.0	27.8	0.0	0.0	81.0	19.0	16.4	28.2	10.0	10.0
LnGrp LOS	C	A	A	C	A	A	F	B	B	C	B	B
Approach Vol, veh/h		53			195			827			730	
Approach Delay, s/veh		34.6			27.8			18.7			15.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.1	22.3		7.8	4.2	32.2		14.5				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	40.0	54.1		19.1	6.0	88.1		38.1				
Max Q Clear Time (g_c+I1), s	9.7	12.4		3.8	2.1	7.2		8.9				
Green Ext Time (p_c), s	0.6	5.0		0.1	0.0	2.6		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			19.0									
HCM 6th LOS			B									

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	247	2	687	194	233	505
v/c Ratio	0.32	0.67	0.02	0.67	0.33	0.62	0.27
Control Delay	50.6	35.7	57.0	34.5	6.3	45.4	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	35.7	57.0	34.5	6.3	45.4	13.0
Queue Length 50th (ft)	29	86	1	184	0	125	74
Queue Length 95th (ft)	92	225	12	352	56	280	173
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	399	781	123	2140	1028	824	2948
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.32	0.02	0.32	0.19	0.28	0.17

Intersection Summary

Intersection						
Int Delay, s/veh	4					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	312	34	130	201	40	113
Future Vol, veh/h	312	34	130	201	40	113
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	351	38	146	226	45	127

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	394	0	898	380
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	523	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1165	-	310	667
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	595	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1159	-	268	661
Mov Cap-2 Maneuver	-	-	-	-	268	-
Stage 1	-	-	-	-	692	-
Stage 2	-	-	-	-	518	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	268	661	-	-	1159	-
HCM Lane V/C Ratio	0.168	0.192	-	-	0.126	-
HCM Control Delay (s)	21.1	11.7	-	-	8.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.7	-	-	0.4	-

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	124	16	119	145	45	29	119	126	23	100	38
Future Vol, veh/h	32	124	16	119	145	45	29	119	126	23	100	38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	128	16	123	149	46	30	123	130	24	103	39
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	11	11.1	10.5	10.5
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	119	126	32	124	16	119	145	45	23	100
LT Vol	29	0	0	32	0	0	119	0	0	23	0
Through Vol	0	119	0	0	124	0	0	145	0	0	100
RT Vol	0	0	126	0	0	16	0	0	45	0	0
Lane Flow Rate	30	123	130	33	128	16	123	149	46	24	103
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.058	0.22	0.208	0.065	0.235	0.027	0.233	0.263	0.073	0.047	0.192
Departure Headway (Hd)	6.967	6.467	5.767	7.129	6.629	5.929	6.839	6.339	5.639	7.19	6.69
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	555	621	501	541	602	524	565	634	497	535
Service Time	4.72	4.22	3.52	4.887	4.387	3.687	4.589	4.089	3.389	4.95	4.45
HCM Lane V/C Ratio	0.058	0.222	0.209	0.066	0.237	0.027	0.235	0.264	0.073	0.048	0.193
HCM Control Delay	10.2	11	10	10.4	11.4	8.9	11.7	11.4	8.8	10.3	11
HCM Lane LOS	B	B	A	B	B	A	B	B	A	B	B
HCM 95th-tile Q	0.2	0.8	0.8	0.2	0.9	0.1	0.9	1	0.2	0.1	0.7

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	377	34	20	285	31	7	15	17	19	24	51
Future Vol, veh/h	21	377	34	20	285	31	7	15	17	19	24	51
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	419	38	22	317	34	8	17	19	21	27	57

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	356	0	0	462	0	0	914	889	448	873	874	327
Stage 1	-	-	-	-	-	-	489	489	-	366	366	-
Stage 2	-	-	-	-	-	-	425	400	-	507	508	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1203	-	-	1099	-	-	254	282	611	271	288	714
Stage 1	-	-	-	-	-	-	561	549	-	653	623	-
Stage 2	-	-	-	-	-	-	607	602	-	548	539	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1197	-	-	1094	-	-	208	268	605	240	274	707
Mov Cap-2 Maneuver	-	-	-	-	-	-	208	268	-	240	274	-
Stage 1	-	-	-	-	-	-	548	536	-	637	607	-
Stage 2	-	-	-	-	-	-	521	587	-	502	526	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.5	16.8	15.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	208	381	1197	-	-	1094	-	-	240	470
HCM Lane V/C Ratio	0.037	0.093	0.019	-	-	0.02	-	-	0.088	0.177
HCM Control Delay (s)	23	15.4	8.1	-	-	8.4	-	-	21.4	14.3
HCM Lane LOS	C	C	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	0.1	-	-	0.1	-	-	0.3	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	346	55	88	295	39	65	36	168	24	19	21
Future Volume (veh/h)	32	346	55	88	295	39	65	36	168	24	19	21
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		0.96	1.00		0.93
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	34	364	41	93	311	27	68	38	110	25	20	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	757	85	144	469	41	118	385	315	54	318	251
Arrive On Green	0.04	0.24	0.24	0.08	0.28	0.28	0.07	0.21	0.21	0.03	0.17	0.17
Sat Flow, veh/h	1781	3201	357	1781	1688	147	1781	1870	1528	1781	1870	1477
Grp Volume(v), veh/h	34	201	204	93	0	338	68	38	110	25	20	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1782	1781	0	1835	1781	1870	1528	1781	1870	1477
Q Serve(g_s), s	0.7	3.9	3.9	2.0	0.0	6.5	1.5	0.7	2.5	0.6	0.4	0.3
Cycle Q Clear(g_c), s	0.7	3.9	3.9	2.0	0.0	6.5	1.5	0.7	2.5	0.6	0.4	0.3
Prop In Lane	1.00		0.20	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	70	420	421	144	0	510	118	385	315	54	318	251
V/C Ratio(X)	0.49	0.48	0.49	0.65	0.00	0.66	0.58	0.10	0.35	0.46	0.06	0.06
Avail Cap(c_a), veh/h	264	847	849	357	0	971	268	906	740	264	901	712
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	13.1	13.1	17.8	0.0	12.7	18.1	12.8	13.5	19.0	13.9	13.9
Incr Delay (d2), s/veh	5.1	0.8	0.9	4.8	0.0	1.5	4.4	0.1	0.7	6.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.3	0.9	0.0	2.1	0.7	0.2	0.7	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.9	13.9	14.0	22.6	0.0	14.2	22.4	12.9	14.2	25.1	14.0	14.0
LnGrp LOS	C	B	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		439			431			216			60	
Approach Delay, s/veh		14.7			16.0			16.6			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	5.2	13.1	7.2	14.3	6.6	11.7	5.6	16.0
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	19.3	8.0	19.0	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	2.6	4.5	4.0	5.9	3.5	2.4	2.7	8.5
Green Ext Time (p_c), s	0.0	0.4	0.1	1.8	0.0	0.1	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	34	422	93	352	68	38	177	25	20	22
v/c Ratio	0.12	0.40	0.27	0.53	0.23	0.08	0.34	0.09	0.06	0.06
Control Delay	24.0	14.5	23.0	15.6	24.5	17.1	6.2	24.1	21.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	14.5	23.0	15.6	24.5	17.1	6.2	24.1	21.4	0.3
Queue Length 50th (ft)	9	52	24	58	18	7	0	6	5	0
Queue Length 95th (ft)	35	94	71	174	58	34	46	28	22	0
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	295	1857	399	1100	299	1090	972	295	1010	884
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.23	0.23	0.32	0.23	0.03	0.18	0.08	0.02	0.02

Intersection Summary

Intersection												
Int Delay, s/veh	1.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	1	7	8	1	12	8	197	7	18	300	14
Future Vol, veh/h	9	1	7	8	1	12	8	197	7	18	300	14
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	7	8	1	12	8	203	7	19	309	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	593	590	326	591	594	217	328	0	0	215	0	0
Stage 1	359	359	-	228	228	-	-	-	-	-	-	-
Stage 2	234	231	-	363	366	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	417	420	715	419	418	823	1232	-	-	1355	-	-
Stage 1	659	627	-	775	715	-	-	-	-	-	-	-
Stage 2	769	713	-	656	623	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	399	406	708	403	404	815	1226	-	-	1349	-	-
Mov Cap-2 Maneuver	399	406	-	403	404	-	-	-	-	-	-	-
Stage 1	651	613	-	766	706	-	-	-	-	-	-	-
Stage 2	747	704	-	634	609	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.7			11.6			0.3			0.4		
HCM LOS	B			B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1226	-	-	487	567	1349	-	-
HCM Lane V/C Ratio	0.007	-	-	0.036	0.038	0.014	-	-
HCM Control Delay (s)	8	0	-	12.7	11.6	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	284	142	190	249	63	98	186	220	60	206	128
Future Volume (veh/h)	135	284	142	190	249	63	98	186	220	60	206	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.91	1.00		0.94	1.00		0.89
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	141	296	123	198	259	50	102	194	175	62	215	106
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	581	234	250	814	153	131	435	362	99	511	236
Arrive On Green	0.10	0.24	0.24	0.14	0.28	0.28	0.07	0.24	0.24	0.06	0.23	0.23
Sat Flow, veh/h	1781	2423	975	1781	2932	552	1781	1784	1485	1781	2266	1047
Grp Volume(v), veh/h	141	214	205	198	154	155	102	193	176	62	165	156
Grp Sat Flow(s),veh/h/ln	1781	1777	1621	1781	1777	1707	1781	1777	1492	1781	1777	1536
Q Serve(g_s), s	4.3	5.8	6.1	6.0	3.8	4.0	3.1	5.1	5.6	1.9	4.4	4.8
Cycle Q Clear(g_c), s	4.3	5.8	6.1	6.0	3.8	4.0	3.1	5.1	5.6	1.9	4.4	4.8
Prop In Lane	1.00		0.60	1.00		0.32	1.00		1.00	1.00		0.68
Lane Grp Cap(c), veh/h	183	426	389	250	493	474	131	433	364	99	401	346
V/C Ratio(X)	0.77	0.50	0.53	0.79	0.31	0.33	0.78	0.45	0.48	0.63	0.41	0.45
Avail Cap(c_a), veh/h	401	576	525	417	592	568	224	617	518	221	614	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	18.3	18.4	23.1	15.9	15.9	25.3	17.8	18.0	25.7	18.4	18.5
Incr Delay (d2), s/veh	6.7	0.9	1.1	5.5	0.4	0.4	9.5	0.7	1.0	6.4	0.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.2	2.1	2.6	1.4	1.4	1.6	2.0	1.9	0.9	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	19.2	19.5	28.6	16.2	16.3	34.7	18.5	19.0	32.1	19.1	19.4
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		560			507			471			383	
Approach Delay, s/veh		22.2			21.1			22.2			21.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	18.4	11.8	18.2	8.1	17.4	9.7	20.3				
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	19.3	13.0	18.0	7.0	19.2	12.5	18.5				
Max Q Clear Time (g_c+I1), s	3.9	7.6	8.0	8.1	5.1	6.8	6.3	6.0				
Green Ext Time (p_c), s	0.0	1.7	0.2	1.7	0.0	1.5	0.2	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			21.8									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	141	444	198	325	102	423	63	348
v/c Ratio	0.41	0.53	0.51	0.38	0.40	0.46	0.26	0.47
Control Delay	27.6	18.2	28.0	18.4	32.8	11.9	29.6	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	18.2	28.0	18.4	32.8	11.9	29.6	16.1
Queue Length 50th (ft)	44	54	61	43	33	31	20	35
Queue Length 95th (ft)	106	105	143	86	#102	75	61	77
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	489	1377	509	1399	273	1474	270	1439
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.32	0.39	0.23	0.37	0.29	0.23	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	22	4	160	37	211	5	460	136	138	501	89
Future Volume (veh/h)	8	22	4	160	37	211	5	460	136	138	501	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	9	25	3	182	42	204	6	523	94	157	569	76
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, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	16	44	5	221	51	248	13	768	343	202	1014	135
Arrive On Green	0.04	0.04	0.04	0.32	0.32	0.32	0.01	0.23	0.23	0.12	0.34	0.34
Sat Flow, veh/h	422	1172	141	684	158	767	1697	3385	1510	1697	3002	400
Grp Volume(v), veh/h	37	0	0	428	0	0	6	523	94	157	320	325
Grp Sat Flow(s),veh/h/ln	1735	0	0	1609	0	0	1697	1692	1510	1697	1692	1709
Q Serve(g_s), s	1.3	0.0	0.0	15.6	0.0	0.0	0.2	9.0	3.3	5.7	9.9	9.9
Cycle Q Clear(g_c), s	1.3	0.0	0.0	15.6	0.0	0.0	0.2	9.0	3.3	5.7	9.9	9.9
Prop In Lane	0.24		0.08	0.43		0.48	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	65	0	0	520	0	0	13	768	343	202	572	578
V/C Ratio(X)	0.57	0.00	0.00	0.82	0.00	0.00	0.45	0.68	0.27	0.78	0.56	0.56
Avail Cap(c_a), veh/h	492	0	0	1617	0	0	160	2234	997	718	1674	1691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	0.0	19.9	0.0	0.0	31.5	22.5	20.3	27.3	17.2	17.3
Incr Delay (d2), s/veh	7.5	0.0	0.0	3.3	0.0	0.0	21.6	1.1	0.4	6.4	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	5.5	0.0	0.0	0.2	3.1	1.0	2.4	3.2	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	0.0	0.0	23.2	0.0	0.0	53.1	23.6	20.8	33.7	18.1	18.1
LnGrp LOS	D	A	A	C	A	A	D	C	C	C	B	B
Approach Vol, veh/h		37			428			623			802	
Approach Delay, s/veh		37.6			23.2			23.5			21.2	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	19.4		7.3	4.5	26.4		25.5				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	27.0	42.1		18.1	6.0	63.1		64.1				
Max Q Clear Time (g_c+I1), s	7.7	11.0		3.3	2.2	11.9		17.6				
Green Ext Time (p_c), s	0.4	3.5		0.1	0.0	3.6		3.0				

Intersection Summary			
HCM 6th Ctrl Delay			22.7
HCM 6th LOS			C

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	39	464	6	523	155	157	670
v/c Ratio	0.27	0.79	0.06	0.65	0.33	0.58	0.47
Control Delay	58.3	41.1	64.8	43.9	8.7	56.3	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	41.1	64.8	43.9	8.7	56.3	25.4
Queue Length 50th (ft)	23	256	4	165	0	98	158
Queue Length 95th (ft)	75	498	22	313	56	224	332
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	337	1065	108	1521	765	487	2124
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.44	0.06	0.34	0.20	0.32	0.32

Intersection Summary

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	270	35	109	318	38	103
Future Vol, veh/h	270	35	109	318	38	103
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	325	42	131	383	46	124

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	372	0	1001	356
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	650	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1186	-	269	688
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1180	-	237	681
Mov Cap-2 Maneuver	-	-	-	-	237	-
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	460	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	237	681	-	-	1180	-
HCM Lane V/C Ratio	0.193	0.182	-	-	0.111	-
HCM Control Delay (s)	23.8	11.5	-	-	8.4	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0.7	-	-	0.4	-

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	128	39	149	163	61	15	101	169	86	139	87
Future Vol, veh/h	58	128	39	149	163	61	15	101	169	86	139	87
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	186	57	216	236	88	22	146	245	125	201	126
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	17.9	21.4	19.9	17.9
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	101	169	58	128	39	149	163	61	86	139
LT Vol	15	0	0	58	0	0	149	0	0	86	0
Through Vol	0	101	0	0	128	0	0	163	0	0	139
RT Vol	0	0	169	0	0	39	0	0	61	0	0
Lane Flow Rate	22	146	245	84	186	57	216	236	88	125	201
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.058	0.372	0.575	0.23	0.481	0.136	0.557	0.577	0.199	0.33	0.505
Departure Headway (Hd)	9.648	9.148	8.448	9.842	9.342	8.642	9.291	8.791	8.091	9.524	9.024
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	371	394	426	365	386	414	389	411	443	378	399
Service Time	7.404	6.904	6.204	7.602	7.102	6.402	7.045	6.545	5.845	7.278	6.778
HCM Lane V/C Ratio	0.059	0.371	0.575	0.23	0.482	0.138	0.555	0.574	0.199	0.331	0.504
HCM Control Delay	13	17.3	22.1	15.5	20.5	12.8	23.2	22.9	12.9	16.9	20.7
HCM Lane LOS	B	C	C	C	C	B	C	C	B	C	C
HCM 95th-tile Q	0.2	1.7	3.5	0.9	2.5	0.5	3.3	3.5	0.7	1.4	2.8

Intersection	
Int Delay, s/veh	12

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	338	32	65	332	28	30	14	83	46	38	63
Future Vol, veh/h	41	338	32	65	332	28	30	14	83	46	38	63
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	457	43	88	449	38	41	19	112	62	51	85

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	492	0	0	505	0	0	1311	1262	489	1289	1245	459
Stage 1	-	-	-	-	-	-	594	594	-	630	630	-
Stage 2	-	-	-	-	-	-	717	668	-	659	615	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1071	-	-	1060	-	-	136	170	579	141	174	602
Stage 1	-	-	-	-	-	-	491	493	-	470	475	-
Stage 2	-	-	-	-	-	-	421	456	-	453	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1066	-	-	1055	-	-	77	146	573	91	150	596
Mov Cap-2 Maneuver	-	-	-	-	-	-	77	146	-	91	150	-
Stage 1	-	-	-	-	-	-	464	465	-	444	433	-
Stage 2	-	-	-	-	-	-	290	416	-	330	455	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	1.3	36.3	52.9
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	77	403	1066	-	-	1055	-	-	91	281
HCM Lane V/C Ratio	0.527	0.325	0.052	-	-	0.083	-	-	0.683	0.486
HCM Control Delay (s)	95	18.2	8.6	-	-	8.7	-	-	104.6	29.3
HCM Lane LOS	F	C	A	-	-	A	-	-	F	D
HCM 95th %tile Q(veh)	2.2	1.4	0.2	-	-	0.3	-	-	3.4	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	452	40	88	334	12	41	32	161	24	48	74
Future Volume (veh/h)	24	452	40	88	334	12	41	32	161	24	48	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.96	1.00		0.93
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	32	611	43	119	451	12	55	43	167	32	65	64
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	963	68	153	609	16	98	363	296	65	328	259
Arrive On Green	0.04	0.29	0.29	0.09	0.34	0.34	0.06	0.19	0.19	0.04	0.18	0.18
Sat Flow, veh/h	1781	3355	236	1781	1811	48	1781	1870	1526	1781	1870	1480
Grp Volume(v), veh/h	32	323	331	119	0	463	55	43	167	32	65	64
Grp Sat Flow(s),veh/h/ln	1781	1777	1814	1781	0	1859	1781	1870	1526	1781	1870	1480
Q Serve(g_s), s	0.8	7.1	7.1	2.9	0.0	9.9	1.4	0.9	4.4	0.8	1.3	1.7
Cycle Q Clear(g_c), s	0.8	7.1	7.1	2.9	0.0	9.9	1.4	0.9	4.4	0.8	1.3	1.7
Prop In Lane	1.00		0.13	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	65	510	520	153	0	625	98	363	296	65	328	259
V/C Ratio(X)	0.49	0.63	0.64	0.78	0.00	0.74	0.56	0.12	0.56	0.49	0.20	0.25
Avail Cap(c_a), veh/h	234	795	812	297	0	898	238	779	635	234	775	613
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	14.0	14.0	20.1	0.0	13.2	20.7	14.9	16.4	21.2	15.8	16.0
Incr Delay (d2), s/veh	5.6	1.3	1.3	8.1	0.0	1.9	4.9	0.1	1.7	5.6	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.4	2.4	1.4	0.0	3.4	0.6	0.3	1.4	0.4	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	15.3	15.3	28.2	0.0	15.1	25.6	15.1	18.1	26.8	16.1	16.5
LnGrp LOS	C	B	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		686			582			265			161	
Approach Delay, s/veh		15.8			17.8			19.1			18.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	13.6	7.9	17.8	6.5	12.8	5.6	20.0
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	5.9	18.7	7.5	20.1	6.0	18.6	5.9	21.7
Max Q Clear Time (g_c+I1), s	2.8	6.4	4.9	9.1	3.4	3.7	2.8	11.9
Green Ext Time (p_c), s	0.0	0.6	0.1	2.8	0.0	0.4	0.0	1.9

Intersection Summary		
HCM 6th Ctrl Delay		17.2
HCM 6th LOS		B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	32	665	119	467	55	43	218	32	65	100
v/c Ratio	0.14	0.58	0.41	0.58	0.23	0.11	0.45	0.14	0.21	0.26
Control Delay	26.5	17.3	29.3	16.9	27.4	20.9	7.5	26.5	23.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	17.3	29.3	16.9	27.4	20.9	7.5	26.5	23.5	3.6
Queue Length 50th (ft)	10	95	36	91	17	10	0	10	19	0
Queue Length 95th (ft)	28	122	73	188	41	31	26	28	41	4
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	243	1639	309	995	247	812	791	243	808	738
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.41	0.39	0.47	0.22	0.05	0.28	0.13	0.08	0.14

Intersection Summary

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	3	9	14	5	39	5	252	5	13	201	5
Future Vol, veh/h	27	3	9	14	5	39	5	252	5	13	201	5
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	4	11	16	6	46	6	296	6	15	236	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	616	593	249	598	593	309	247	0	0	307	0	0
Stage 1	274	274	-	316	316	-	-	-	-	-	-	-
Stage 2	342	319	-	282	277	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	403	418	790	414	418	731	1319	-	-	1254	-	-
Stage 1	732	683	-	695	655	-	-	-	-	-	-	-
Stage 2	673	653	-	725	681	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	364	406	782	396	406	724	1313	-	-	1248	-	-
Mov Cap-2 Maneuver	364	406	-	396	406	-	-	-	-	-	-	-
Stage 1	725	670	-	688	648	-	-	-	-	-	-	-
Stage 2	619	646	-	698	668	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	12.2	0.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1313	-	-	419	571	1248	-	-
HCM Lane V/C Ratio	0.004	-	-	0.11	0.12	0.012	-	-
HCM Control Delay (s)	7.8	0	-	14.6	12.2	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.4	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	306	135	141	272	48	107	244	155	38	240	129
Future Volume (veh/h)	168	306	135	141	272	48	107	244	155	38	240	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.90	1.00		0.95	1.00		0.90
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	210	382	155	176	340	41	134	305	157	48	300	131
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	609	243	222	722	86	172	641	319	82	550	231
Arrive On Green	0.15	0.25	0.25	0.12	0.23	0.23	0.10	0.28	0.28	0.05	0.23	0.23
Sat Flow, veh/h	1781	2434	968	1781	3153	375	1781	2250	1121	1781	2350	986
Grp Volume(v), veh/h	210	277	260	176	190	191	134	239	223	48	224	207
Grp Sat Flow(s),veh/h/ln	1781	1777	1625	1781	1777	1751	1781	1777	1595	1781	1777	1560
Q Serve(g_s), s	6.9	8.4	8.6	5.8	5.6	5.7	4.4	6.7	7.0	1.6	6.7	7.1
Cycle Q Clear(g_c), s	6.9	8.4	8.6	5.8	5.6	5.7	4.4	6.7	7.0	1.6	6.7	7.1
Prop In Lane	1.00		0.60	1.00		0.21	1.00		0.70	1.00		0.63
Lane Grp Cap(c), veh/h	260	445	407	222	407	401	172	506	454	82	416	365
V/C Ratio(X)	0.81	0.62	0.64	0.79	0.47	0.48	0.78	0.47	0.49	0.59	0.54	0.57
Avail Cap(c_a), veh/h	366	571	522	324	529	522	254	603	541	186	535	470
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	25.0	20.1	20.2	25.7	20.1	20.2	26.7	17.9	18.0	28.3	20.3	20.4
Incr Delay (d2), s/veh	8.8	1.4	1.7	8.1	0.8	0.9	8.9	0.7	0.8	6.6	1.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.2	3.0	2.7	2.1	2.2	2.2	2.6	2.5	0.8	2.7	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.8	21.5	21.9	33.8	20.9	21.0	35.6	18.5	18.8	34.9	21.3	21.8
LnGrp LOS	C	C	C	C	C	C	D	B	B	C	C	C
Approach Vol, veh/h		747			557			596			479	
Approach Delay, s/veh		25.1			25.0			22.5			22.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	22.1	11.5	20.0	9.8	19.0	12.8	18.7				
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	6.3	20.5	11.0	19.4	8.6	18.2	12.4	18.0				
Max Q Clear Time (g_c+I1), s	3.6	9.0	7.8	10.6	6.4	9.1	8.9	7.7				
Green Ext Time (p_c), s	0.0	2.2	0.1	2.1	0.1	1.8	0.2	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			24.0									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	210	552	176	400	134	499	48	461
v/c Ratio	0.64	0.64	0.60	0.52	0.55	0.50	0.26	0.60
Control Delay	37.2	22.5	37.5	24.0	39.6	14.6	34.1	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	22.5	37.5	24.0	39.6	14.6	34.1	20.8
Queue Length 50th (ft)	77	86	65	69	51	56	18	64
Queue Length 95th (ft)	#146	125	#125	103	#110	85	47	95
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	378	1167	335	1073	262	1295	191	1099
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.47	0.53	0.37	0.51	0.39	0.25	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	20	7	50	10	182	2	639	188	227	446	23
Future Volume (veh/h)	28	20	7	50	10	182	2	639	188	227	446	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	30	22	4	54	11	144	2	687	146	244	480	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	46	34	6	71	14	189	5	1000	446	304	1572	56
Arrive On Green	0.05	0.05	0.05	0.17	0.17	0.17	0.00	0.29	0.29	0.18	0.47	0.47
Sat Flow, veh/h	926	679	123	408	83	1089	1711	3413	1522	1711	3362	119
Grp Volume(v), veh/h	56	0	0	209	0	0	2	687	146	244	243	254
Grp Sat Flow(s),veh/h/ln	1728	0	0	1580	0	0	1711	1706	1522	1711	1706	1775
Q Serve(g_s), s	1.9	0.0	0.0	7.7	0.0	0.0	0.1	10.9	4.6	8.4	5.4	5.4
Cycle Q Clear(g_c), s	1.9	0.0	0.0	7.7	0.0	0.0	0.1	10.9	4.6	8.4	5.4	5.4
Prop In Lane	0.54		0.07	0.26		0.69	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	87	0	0	274	0	0	5	1000	446	304	798	830
V/C Ratio(X)	0.65	0.00	0.00	0.76	0.00	0.00	0.43	0.69	0.33	0.80	0.30	0.31
Avail Cap(c_a), veh/h	540	0	0	985	0	0	168	3020	1347	1119	2459	2558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	0.0	0.0	24.1	0.0	0.0	30.4	19.1	16.9	24.1	10.1	10.1
Incr Delay (d2), s/veh	7.8	0.0	0.0	4.4	0.0	0.0	51.8	0.9	0.4	5.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	2.9	0.0	0.0	0.1	3.6	1.3	3.2	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.0	0.0	28.4	0.0	0.0	82.3	20.0	17.3	29.1	10.3	10.3
LnGrp LOS	D	A	A	C	A	A	F	B	B	C	B	B
Approach Vol, veh/h		56			209			835			741	
Approach Delay, s/veh		36.3			28.4			19.7			16.5	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.8	22.8		8.0	4.2	33.5		15.5				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	40.0	54.1		19.1	6.0	88.1		38.1				
Max Q Clear Time (g_c+I1), s	10.4	12.9		3.9	2.1	7.4		9.7				
Green Ext Time (p_c), s	0.7	5.0		0.1	0.0	2.6		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			19.9									
HCM 6th LOS			B									

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	60	261	2	687	202	244	505
v/c Ratio	0.34	0.69	0.02	0.68	0.34	0.64	0.27
Control Delay	53.6	38.4	60.5	36.4	6.5	47.6	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	38.4	60.5	36.4	6.5	47.6	13.6
Queue Length 50th (ft)	33	103	1	195	0	138	78
Queue Length 95th (ft)	100	258	12	372	59	305	182
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	382	748	118	2073	1005	788	2872
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.35	0.02	0.33	0.20	0.31	0.18

Intersection Summary

Intersection						
Int Delay, s/veh	4.1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	332	34	135	213	40	121
Future Vol, veh/h	332	34	135	213	40	121
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	373	38	152	239	45	136

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	416	0	945	402
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	548	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1143	-	291	648
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1138	-	249	642
Mov Cap-2 Maneuver	-	-	-	-	249	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	249	642	-	-	1138	-
HCM Lane V/C Ratio	0.18	0.212	-	-	0.133	-
HCM Control Delay (s)	22.6	12.1	-	-	8.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.8	-	-	0.5	-

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	124	16	119	145	45	29	127	126	23	105	38
Future Vol, veh/h	32	124	16	119	145	45	29	127	126	23	105	38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	128	16	123	149	46	30	131	130	24	108	39
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	11.1	11.2	10.7	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	127	126	32	124	16	119	145	45	23	105
LT Vol	29	0	0	32	0	0	119	0	0	23	0
Through Vol	0	127	0	0	124	0	0	145	0	0	105
RT Vol	0	0	126	0	0	16	0	0	45	0	0
Lane Flow Rate	30	131	130	33	128	16	123	149	46	24	108
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.058	0.236	0.209	0.066	0.237	0.027	0.235	0.265	0.073	0.048	0.202
Departure Headway (Hd)	6.99	6.49	5.79	7.175	6.675	5.975	6.883	6.383	5.683	7.22	6.72
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	511	551	617	498	537	597	520	562	628	495	533
Service Time	4.747	4.247	3.547	4.937	4.437	3.737	4.639	4.139	3.439	4.982	4.482
HCM Lane V/C Ratio	0.059	0.238	0.211	0.066	0.238	0.027	0.237	0.265	0.073	0.048	0.203
HCM Control Delay	10.2	11.3	10.1	10.4	11.5	8.9	11.8	11.4	8.9	10.3	11.2
HCM Lane LOS	B	B	B	B	B	A	B	B	A	B	B
HCM 95th-tile Q	0.2	0.9	0.8	0.2	0.9	0.1	0.9	1.1	0.2	0.2	0.7

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	377	34	20	285	55	7	24	17	33	29	68
Future Vol, veh/h	49	377	34	20	285	55	7	24	17	33	29	68
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	419	38	22	317	61	8	27	19	37	32	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	383	0	0	462	0	0	1002	978	448	940	936	327
Stage 1	-	-	-	-	-	-	551	551	-	366	366	-
Stage 2	-	-	-	-	-	-	451	427	-	574	570	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1175	-	-	1099	-	-	221	250	611	244	265	714
Stage 1	-	-	-	-	-	-	519	515	-	653	623	-
Stage 2	-	-	-	-	-	-	588	585	-	504	505	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1169	-	-	1094	-	-	167	232	605	203	245	707
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	232	-	203	245	-
Stage 1	-	-	-	-	-	-	493	489	-	620	607	-
Stage 2	-	-	-	-	-	-	485	570	-	438	479	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.5	19.8	18.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	167	312	1169	-	-	1094	-	-	203	452
HCM Lane V/C Ratio	0.047	0.146	0.047	-	-	0.02	-	-	0.181	0.238
HCM Control Delay (s)	27.6	18.5	8.2	-	-	8.4	-	-	26.6	15.4
HCM Lane LOS	D	C	A	-	-	A	-	-	D	C
HCM 95th %tile Q(veh)	0.1	0.5	0.1	-	-	0.1	-	-	0.6	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	359	56	88	317	39	67	36	168	24	19	21
Future Volume (veh/h)	32	359	56	88	317	39	67	36	168	24	19	21
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		0.96	1.00		0.93
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	34	378	42	93	334	27	71	38	110	25	20	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	790	87	142	488	39	121	384	314	54	313	247
Arrive On Green	0.04	0.25	0.25	0.08	0.29	0.29	0.07	0.21	0.21	0.03	0.17	0.17
Sat Flow, veh/h	1781	3207	353	1781	1700	137	1781	1870	1528	1781	1870	1476
Grp Volume(v), veh/h	34	208	212	93	0	361	71	38	110	25	20	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1783	1781	0	1837	1781	1870	1528	1781	1870	1476
Q Serve(g_s), s	0.8	4.1	4.1	2.1	0.0	7.1	1.6	0.7	2.5	0.6	0.4	0.3
Cycle Q Clear(g_c), s	0.8	4.1	4.1	2.1	0.0	7.1	1.6	0.7	2.5	0.6	0.4	0.3
Prop In Lane	1.00		0.20	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	70	438	439	142	0	528	121	384	314	54	313	247
V/C Ratio(X)	0.49	0.48	0.48	0.65	0.00	0.68	0.59	0.10	0.35	0.46	0.06	0.06
Avail Cap(c_a), veh/h	259	831	834	351	0	954	263	889	726	259	884	698
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	13.1	13.1	18.1	0.0	12.8	18.4	13.1	13.8	19.4	14.2	14.2
Incr Delay (d2), s/veh	5.2	0.8	0.8	5.0	0.0	1.6	4.5	0.1	0.7	6.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.3	0.9	0.0	2.3	0.7	0.2	0.7	0.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	13.9	13.9	23.1	0.0	14.4	22.9	13.2	14.5	25.5	14.3	14.3
LnGrp LOS	C	B	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		454			454			219			60	
Approach Delay, s/veh		14.7			16.2			17.0			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	5.2	13.2	7.2	14.9	6.8	11.7	5.6	16.6
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	19.3	8.0	19.0	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	2.6	4.5	4.1	6.1	3.6	2.4	2.8	9.1
Green Ext Time (p_c), s	0.0	0.4	0.1	1.8	0.0	0.1	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	34	437	93	375	71	38	177	25	20	22
v/c Ratio	0.12	0.40	0.28	0.54	0.25	0.08	0.34	0.09	0.06	0.06
Control Delay	24.2	14.4	23.2	15.7	25.0	17.4	6.3	24.3	21.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	14.4	23.2	15.7	25.0	17.4	6.3	24.3	21.6	0.3
Queue Length 50th (ft)	9	54	24	63	19	7	0	7	5	0
Queue Length 95th (ft)	35	98	71	188	60	34	46	28	22	0
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	286	1805	388	1072	290	985	895	286	980	863
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.24	0.24	0.35	0.24	0.04	0.20	0.09	0.02	0.03

Intersection Summary

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1	9	8	1	12	11	201	7	18	307	20
Future Vol, veh/h	13	1	9	8	1	12	11	201	7	18	307	20
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	1	9	8	1	12	11	207	7	19	316	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	614	611	337	613	618	221	342	0	0	219	0	0
Stage 1	370	370	-	238	238	-	-	-	-	-	-	-
Stage 2	244	241	-	375	380	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	404	409	705	405	405	819	1217	-	-	1350	-	-
Stage 1	650	620	-	765	708	-	-	-	-	-	-	-
Stage 2	760	706	-	646	614	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	385	394	698	387	390	811	1211	-	-	1344	-	-
Mov Cap-2 Maneuver	385	394	-	387	390	-	-	-	-	-	-	-
Stage 1	640	606	-	754	697	-	-	-	-	-	-	-
Stage 2	736	695	-	623	600	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	11.8	0.4	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1211	-	-	467	552	1344	-	-
HCM Lane V/C Ratio	0.009	-	-	0.051	0.039	0.014	-	-
HCM Control Delay (s)	8	0	-	13.1	11.8	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	292	147	190	262	63	107	186	220	60	206	128
Future Volume (veh/h)	135	292	147	190	262	63	107	186	220	60	206	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.91	1.00		0.94	1.00		0.89
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	141	304	128	198	273	50	111	194	175	62	215	106
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	579	236	250	822	147	143	444	370	98	507	234
Arrive On Green	0.10	0.24	0.24	0.14	0.28	0.28	0.08	0.25	0.25	0.06	0.22	0.22
Sat Flow, veh/h	1781	2411	984	1781	2960	530	1781	1785	1486	1781	2265	1046
Grp Volume(v), veh/h	141	221	211	198	161	162	111	193	176	62	166	155
Grp Sat Flow(s),veh/h/ln	1781	1777	1619	1781	1777	1713	1781	1777	1494	1781	1777	1535
Q Serve(g_s), s	4.4	6.1	6.4	6.1	4.1	4.2	3.4	5.2	5.7	1.9	4.5	4.9
Cycle Q Clear(g_c), s	4.4	6.1	6.4	6.1	4.1	4.2	3.4	5.2	5.7	1.9	4.5	4.9
Prop In Lane	1.00		0.61	1.00		0.31	1.00		0.99	1.00		0.68
Lane Grp Cap(c), veh/h	183	427	389	250	494	476	143	442	372	98	398	343
V/C Ratio(X)	0.77	0.52	0.54	0.79	0.33	0.34	0.78	0.44	0.47	0.63	0.42	0.45
Avail Cap(c_a), veh/h	395	567	516	411	583	562	221	608	511	218	605	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	18.6	18.7	23.5	16.2	16.2	25.5	17.9	18.0	26.1	18.7	18.9
Incr Delay (d2), s/veh	6.7	1.0	1.2	5.6	0.4	0.4	8.9	0.7	0.9	6.5	0.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.3	2.2	2.6	1.5	1.5	1.7	2.0	1.9	0.9	1.8	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	19.6	19.9	29.1	16.6	16.7	34.3	18.5	19.0	32.6	19.4	19.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		573			521			480			383	
Approach Delay, s/veh		22.6			21.3			22.4			21.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	18.9	11.9	18.5	8.5	17.5	9.8	20.6				
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	19.3	13.0	18.0	7.0	19.2	12.5	18.5				
Max Q Clear Time (g_c+I1), s	3.9	7.7	8.1	8.4	5.4	6.9	6.4	6.2				
Green Ext Time (p_c), s	0.0	1.7	0.2	1.7	0.0	1.5	0.2	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	141	457	198	339	111	423	63	348
v/c Ratio	0.42	0.53	0.51	0.39	0.43	0.46	0.26	0.48
Control Delay	28.0	18.2	28.4	18.5	34.5	12.1	30.0	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	18.2	28.4	18.5	34.5	12.1	30.0	16.4
Queue Length 50th (ft)	45	56	62	46	37	32	20	35
Queue Length 95th (ft)	107	108	#144	91	#115	76	61	77
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	485	1504	505	1391	272	1465	268	1430
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.30	0.39	0.24	0.41	0.29	0.24	0.24

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	30	4	197	46	261	5	506	168	181	551	89
Future Volume (veh/h)	8	30	4	197	46	261	5	506	168	181	551	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	9	34	3	224	52	261	6	575	130	206	626	76
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, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	13	49	4	254	59	296	13	762	340	246	1101	134
Arrive On Green	0.04	0.04	0.04	0.38	0.38	0.38	0.01	0.23	0.23	0.14	0.36	0.36
Sat Flow, veh/h	341	1289	114	670	156	781	1697	3385	1510	1697	3039	368
Grp Volume(v), veh/h	46	0	0	537	0	0	6	575	130	206	348	354
Grp Sat Flow(s),veh/h/ln	1744	0	0	1607	0	0	1697	1692	1510	1697	1692	1715
Q Serve(g_s), s	2.3	0.0	0.0	27.4	0.0	0.0	0.3	13.9	6.4	10.4	14.5	14.6
Cycle Q Clear(g_c), s	2.3	0.0	0.0	27.4	0.0	0.0	0.3	13.9	6.4	10.4	14.5	14.6
Prop In Lane	0.20		0.07	0.42		0.49	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	67	0	0	609	0	0	13	762	340	246	613	622
V/C Ratio(X)	0.69	0.00	0.00	0.88	0.00	0.00	0.46	0.75	0.38	0.84	0.57	0.57
Avail Cap(c_a), veh/h	359	0	0	1171	0	0	116	1620	723	521	1214	1230
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	0.0	0.0	25.5	0.0	0.0	43.5	31.8	28.9	36.6	22.5	22.5
Incr Delay (d2), s/veh	11.8	0.0	0.0	4.4	0.0	0.0	22.7	1.5	0.7	7.4	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	10.3	0.0	0.0	0.2	5.3	2.2	4.5	5.2	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	0.0	0.0	29.9	0.0	0.0	66.2	33.4	29.6	44.0	23.3	23.4
LnGrp LOS	D	A	A	C	A	A	E	C	C	D	C	C
Approach Vol, veh/h		46			537			711			908	
Approach Delay, s/veh		53.6			29.9			32.9			28.0	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.8	24.7		8.3	4.7	36.8		38.2				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	27.0	42.1		18.1	6.0	63.1		64.1				
Max Q Clear Time (g_c+I1), s	12.4	15.9		4.3	2.3	16.6		29.4				
Green Ext Time (p_c), s	0.4	3.9		0.1	0.0	4.0		3.9				
Intersection Summary												
HCM 6th Ctrl Delay			30.6									
HCM 6th LOS			C									

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	573	6	575	191	206	727
v/c Ratio	0.38	0.86	0.08	0.74	0.39	0.73	0.52
Control Delay	73.0	50.6	76.4	55.8	8.6	72.7	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.0	50.6	76.4	55.8	8.6	72.7	31.8
Queue Length 50th (ft)	41	450	6	266	0	183	257
Queue Length 95th (ft)	92	#743	24	358	60	#317	381
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	260	869	83	1166	645	374	1733
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.66	0.07	0.49	0.30	0.55	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	8.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	359	65	134	399	91	182
Future Vol, veh/h	359	65	134	399	91	182
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	78	161	481	110	219

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	516	0	1285	482
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	808	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1050	-	182	584
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	438	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1045	-	153	578
Mov Cap-2 Maneuver	-	-	-	-	153	-
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	369	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	34.2
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	153	578	-	-	1045	-
HCM Lane V/C Ratio	0.717	0.379	-	-	0.154	-
HCM Control Delay (s)	72.7	15	-	-	9.1	-
HCM Lane LOS	F	C	-	-	A	-
HCM 95th %tile Q(veh)	4.3	1.8	-	-	0.5	-

Intersection	
Intersection Delay, s/veh	22.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	128	39	149	163	74	15	154	169	91	163	87
Future Vol, veh/h	58	128	39	149	163	74	15	154	169	91	163	87
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	186	57	216	236	107	22	223	245	132	236	126
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	19.7	23.7	24.3	21.7
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	154	169	58	128	39	149	163	74	91	163
LT Vol	15	0	0	58	0	0	149	0	0	91	0
Through Vol	0	154	0	0	128	0	0	163	0	0	163
RT Vol	0	0	169	0	0	39	0	0	74	0	0
Lane Flow Rate	22	223	245	84	186	57	216	236	107	132	236
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.061	0.592	0.602	0.244	0.514	0.145	0.59	0.613	0.257	0.366	0.623
Departure Headway (Hd)	10.044	9.544	8.844	10.466	9.966	9.266	9.836	9.336	8.636	10.001	9.501
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	356	377	407	342	362	386	367	385	415	359	380
Service Time	7.819	7.319	6.619	8.249	7.749	7.049	7.609	7.109	6.409	7.779	7.279
HCM Lane V/C Ratio	0.062	0.592	0.602	0.246	0.514	0.148	0.589	0.613	0.258	0.368	0.621
HCM Control Delay	13.5	25.4	24.2	16.6	22.9	13.6	25.9	25.9	14.4	18.5	26.9
HCM Lane LOS	B	D	C	C	C	B	D	D	B	C	D
HCM 95th-tile Q	0.2	3.7	3.8	0.9	2.8	0.5	3.6	3.9	1	1.6	4

Intersection	
Int Delay, s/veh	206.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	454	57	81	402	45	38	21	86	82	58	93
Future Vol, veh/h	60	454	57	81	402	45	38	21	86	82	58	93
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	614	77	109	543	61	51	28	116	111	78	126

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	609	0	0	696	0	0	1719	1647	663	1658	1624	553
Stage 1	-	-	-	-	-	-	820	820	-	766	766	-
Stage 2	-	-	-	-	-	-	899	827	-	892	858	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	970	-	-	900	-	-	71	99	461	~ 78	102	533
Stage 1	-	-	-	-	-	-	369	389	-	395	412	-
Stage 2	-	-	-	-	-	-	334	386	-	337	374	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	965	-	-	896	-	-	~ 6	79	457	~ 36	81	528
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 6	79	-	~ 36	81	-
Stage 1	-	-	-	-	-	-	337	354	-	360	360	-
Stage 2	-	-	-	-	-	-	174	337	-	211	341	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	1.5	$ 1232.8	$ 535.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	6	236	965	-	-	896	-	-	36	169
HCM Lane V/C Ratio	8.559	0.613	0.084	-	-	0.122	-	-	3.078	1.207
HCM Control Delay (s)	$ 4586.7	41.7	9.1	-	-	9.6	-	-	$ 1170.2	190.2
HCM Lane LOS	F	E	A	-	-	A	-	-	F	F
HCM 95th %tile Q(veh)	8.1	3.6	0.3	-	-	0.4	-	-	12.6	11.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	585	49	88	418	12	47	32	161	24	48	78
Future Volume (veh/h)	31	585	49	88	418	12	47	32	161	24	48	78
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		0.96	1.00		0.93
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	791	55	119	565	12	64	43	167	32	65	69
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	1084	75	153	664	14	106	353	288	64	309	244
Arrive On Green	0.04	0.32	0.32	0.09	0.36	0.36	0.06	0.19	0.19	0.04	0.17	0.17
Sat Flow, veh/h	1781	3359	233	1781	1823	39	1781	1870	1525	1781	1870	1475
Grp Volume(v), veh/h	42	418	428	119	0	577	64	43	167	32	65	69
Grp Sat Flow(s),veh/h/ln	1781	1777	1815	1781	0	1861	1781	1870	1525	1781	1870	1475
Q Serve(g_s), s	1.1	10.1	10.1	3.2	0.0	13.9	1.7	0.9	4.8	0.9	1.5	2.0
Cycle Q Clear(g_c), s	1.1	10.1	10.1	3.2	0.0	13.9	1.7	0.9	4.8	0.9	1.5	2.0
Prop In Lane	1.00		0.13	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	574	586	153	0	678	106	353	288	64	309	244
V/C Ratio(X)	0.53	0.73	0.73	0.78	0.00	0.85	0.60	0.12	0.58	0.50	0.21	0.28
Avail Cap(c_a), veh/h	216	735	751	275	0	832	220	720	587	216	716	565
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	14.6	14.6	21.7	0.0	14.2	22.3	16.4	18.0	23.0	17.5	17.8
Incr Delay (d2), s/veh	5.4	2.7	2.6	8.1	0.0	7.1	5.4	0.2	1.9	5.8	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.6	3.7	1.5	0.0	5.7	0.8	0.4	1.6	0.4	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	17.3	17.2	29.9	0.0	21.3	27.7	16.5	19.8	28.8	17.9	18.4
LnGrp LOS	C	B	B	C	A	C	C	B	B	C	B	B
Approach Vol, veh/h		888			696			274			166	
Approach Delay, s/veh		17.7			22.8			21.1			20.2	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	14.1	8.2	20.6	6.9	12.9	6.2	22.6
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	18.7	7.5	20.1	6.0	18.6	5.9	21.7
Max Q Clear Time (g_c+I1), s	2.9	6.8	5.2	12.1	3.7	4.0	3.1	15.9
Green Ext Time (p_c), s	0.0	0.6	0.1	3.1	0.0	0.4	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	42	857	119	581	64	43	218	32	65	105
v/c Ratio	0.21	0.63	0.47	0.64	0.31	0.13	0.47	0.16	0.23	0.30
Control Delay	28.0	18.0	31.9	19.3	29.6	21.5	8.0	27.3	24.5	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	18.0	31.9	19.3	29.6	21.5	8.0	27.3	24.5	4.3
Queue Length 50th (ft)	14	133	40	124	22	11	0	11	21	0
Queue Length 95th (ft)	34	162	73	#255	46	31	26	28	41	6
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	208	1425	264	917	211	695	709	208	691	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.60	0.45	0.63	0.30	0.06	0.31	0.15	0.09	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	32	3	10	60	5	43	6	333	24	13	379	10
Future Vol, veh/h	32	3	10	60	5	43	6	333	24	13	379	10
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	4	12	71	6	51	7	392	28	15	446	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	941	926	462	920	918	416	463	0	0	425	0	0
Stage 1	487	487	-	425	425	-	-	-	-	-	-	-
Stage 2	454	439	-	495	493	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	243	269	600	251	272	637	1098	-	-	1134	-	-
Stage 1	562	550	-	607	586	-	-	-	-	-	-	-
Stage 2	586	578	-	556	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	213	259	594	236	262	631	1093	-	-	1129	-	-
Mov Cap-2 Maneuver	213	259	-	236	262	-	-	-	-	-	-	-
Stage 1	555	537	-	599	578	-	-	-	-	-	-	-
Stage 2	527	570	-	529	534	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23	23.8	0.1	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1093	-	-	252	316	1129	-	-
HCM Lane V/C Ratio	0.006	-	-	0.21	0.402	0.014	-	-
HCM Control Delay (s)	8.3	0	-	23	23.8	8.2	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	1.9	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	356	154	141	287	57	121	255	155	64	291	185
Future Volume (veh/h)	228	356	154	141	287	57	121	255	155	64	291	185
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		0.89	1.00		0.95	1.00		0.90
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	285	445	178	176	359	52	151	319	157	80	364	201
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	660	261	218	647	92	189	659	315	103	513	275
Arrive On Green	0.18	0.27	0.27	0.12	0.21	0.21	0.11	0.29	0.29	0.06	0.24	0.24
Sat Flow, veh/h	1781	2442	965	1781	3066	438	1781	2287	1093	1781	2140	1149
Grp Volume(v), veh/h	285	322	301	176	206	205	151	246	230	80	300	265
Grp Sat Flow(s),veh/h/ln	1781	1777	1630	1781	1777	1727	1781	1777	1602	1781	1777	1512
Q Serve(g_s), s	10.6	11.0	11.2	6.6	7.0	7.3	5.6	7.8	8.1	3.0	10.5	11.0
Cycle Q Clear(g_c), s	10.6	11.0	11.2	6.6	7.0	7.3	5.6	7.8	8.1	3.0	10.5	11.0
Prop In Lane	1.00		0.59	1.00		0.25	1.00		0.68	1.00		0.76
Lane Grp Cap(c), veh/h	324	480	441	218	375	364	189	512	462	103	426	362
V/C Ratio(X)	0.88	0.67	0.68	0.81	0.55	0.56	0.80	0.48	0.50	0.78	0.71	0.73
Avail Cap(c_a), veh/h	324	506	464	288	469	456	225	535	482	165	475	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	22.2	22.2	29.1	24.0	24.1	29.7	20.0	20.2	31.7	23.7	23.9
Incr Delay (d2), s/veh	23.0	3.2	3.8	11.8	1.3	1.4	15.6	0.7	0.8	11.9	4.2	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	4.5	4.3	3.3	2.8	2.8	3.1	3.1	2.9	1.6	4.7	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	25.4	26.1	40.9	25.2	25.4	45.3	20.7	21.0	43.6	27.9	29.8
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		908			587			627			645	
Approach Delay, s/veh		33.4			30.0			26.7			30.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	24.5	12.3	23.3	11.2	21.2	16.4	19.3
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	6.3	20.5	11.0	19.4	8.6	18.2	12.4	18.0
Max Q Clear Time (g_c+I1), s	5.0	10.1	8.6	13.2	7.6	13.0	12.6	9.3
Green Ext Time (p_c), s	0.0	2.1	0.1	1.9	0.0	1.7	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	285	638	176	430	151	513	80	595
v/c Ratio	0.88	0.71	0.67	0.57	0.69	0.49	0.50	0.72
Control Delay	59.5	25.7	43.4	25.8	49.9	16.4	44.0	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	25.7	43.4	25.8	49.9	16.4	44.0	22.9
Queue Length 50th (ft)	124	115	73	80	65	66	34	87
Queue Length 95th (ft)	#233	150	#125	110	#130	93	69	118
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	325	1015	288	925	225	1108	165	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.63	0.61	0.46	0.67	0.46	0.48	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	29	7	56	20	232	2	702	230	283	490	23
Future Volume (veh/h)	28	29	7	56	20	232	2	702	230	283	490	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	30	31	4	60	22	197	2	755	191	304	527	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	39	41	5	73	27	238	5	1012	451	353	1688	54
Arrive On Green	0.05	0.05	0.05	0.21	0.21	0.21	0.00	0.30	0.30	0.21	0.50	0.50
Sat Flow, veh/h	802	828	107	339	124	1115	1711	3413	1522	1711	3374	109
Grp Volume(v), veh/h	65	0	0	279	0	0	2	755	191	304	266	278
Grp Sat Flow(s),veh/h/ln	1737	0	0	1579	0	0	1711	1706	1522	1711	1706	1777
Q Serve(g_s), s	3.0	0.0	0.0	13.5	0.0	0.0	0.1	16.0	8.1	13.7	7.4	7.4
Cycle Q Clear(g_c), s	3.0	0.0	0.0	13.5	0.0	0.0	0.1	16.0	8.1	13.7	7.4	7.4
Prop In Lane	0.46		0.06	0.22		0.71	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	85	0	0	337	0	0	5	1012	451	353	854	889
V/C Ratio(X)	0.76	0.00	0.00	0.83	0.00	0.00	0.43	0.75	0.42	0.86	0.31	0.31
Avail Cap(c_a), veh/h	415	0	0	753	0	0	129	2312	1031	857	1882	1960
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	0.0	30.0	0.0	0.0	39.8	25.4	22.6	30.6	11.8	11.8
Incr Delay (d2), s/veh	13.1	0.0	0.0	5.2	0.0	0.0	52.4	1.1	0.6	6.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	5.3	0.0	0.0	0.1	5.8	2.6	5.6	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	0.0	0.0	35.1	0.0	0.0	92.2	26.5	23.2	36.7	12.0	12.0
LnGrp LOS	D	A	A	D	A	A	F	C	C	D	B	B
Approach Vol, veh/h		65			279			948			848	
Approach Delay, s/veh		50.6			35.1			26.0			20.9	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.5	28.6		8.8	4.2	44.9		22.0				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	40.0	54.1		19.1	6.0	88.1		38.1				
Max Q Clear Time (g_c+I1), s	15.7	18.0		5.0	2.1	9.4		15.5				
Green Ext Time (p_c), s	0.8	5.7		0.2	0.0	2.9		1.6				
Intersection Summary												
HCM 6th Ctrl Delay			25.9									
HCM 6th LOS			C									

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	69	331	2	755	247	304	552
v/c Ratio	0.44	0.79	0.02	0.73	0.39	0.75	0.29
Control Delay	68.9	50.9	73.0	45.0	6.5	60.1	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	50.9	73.0	45.0	6.5	60.1	15.8
Queue Length 50th (ft)	51	193	2	287	0	229	113
Queue Length 95th (ft)	125	388	13	458	66	428	218
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	299	601	92	1659	867	613	2473
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.55	0.02	0.46	0.28	0.50	0.22

Intersection Summary

Intersection						
Int Delay, s/veh	6.7					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	455	63	157	313	77	157
Future Vol, veh/h	455	63	157	313	77	157
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	511	71	176	352	87	176

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	587	0	1261	557
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	709	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	988	-	188	530
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	488	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	983	-	153	525
Mov Cap-2 Maneuver	-	-	-	-	153	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	399	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	28.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	153	525	-	-	983	-
HCM Lane V/C Ratio	0.565	0.336	-	-	0.179	-
HCM Control Delay (s)	55.4	15.3	-	-	9.5	-
HCM Lane LOS	F	C	-	-	A	-
HCM 95th %tile Q(veh)	2.9	1.5	-	-	0.7	-

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	124	16	119	145	52	29	159	126	27	128	38
Future Vol, veh/h	32	124	16	119	145	52	29	159	126	27	128	38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	128	16	123	149	54	30	164	130	28	132	39
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	11.4	11.5	11.3	11.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	29	159	126	32	124	16	119	145	52	27	128
LT Vol	29	0	0	32	0	0	119	0	0	27	0
Through Vol	0	159	0	0	124	0	0	145	0	0	128
RT Vol	0	0	126	0	0	16	0	0	52	0	0
Lane Flow Rate	30	164	130	33	128	16	123	149	54	28	132
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.059	0.301	0.213	0.068	0.245	0.028	0.241	0.273	0.088	0.057	0.251
Departure Headway (Hd)	7.115	6.615	5.915	7.397	6.897	6.197	7.085	6.585	5.885	7.354	6.854
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	502	541	604	482	518	574	505	543	606	485	521
Service Time	4.883	4.383	3.683	5.172	4.672	3.972	4.853	4.353	3.653	5.127	4.627
HCM Lane V/C Ratio	0.06	0.303	0.215	0.068	0.247	0.028	0.244	0.274	0.089	0.058	0.253
HCM Control Delay	10.3	12.2	10.3	10.7	11.9	9.2	12.1	11.8	9.2	10.6	11.9
HCM Lane LOS	B	B	B	B	B	A	B	B	A	B	B
HCM 95th-tile Q	0.2	1.3	0.8	0.2	1	0.1	0.9	1.1	0.3	0.2	1

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	489	45	23	377	95	13	47	21	58	42	91
Future Vol, veh/h	85	489	45	23	377	95	13	47	21	58	42	91
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	94	543	50	26	419	106	14	52	23	64	47	101

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	530	0	0	598	0	0	1364	1343	578	1275	1262	429
Stage 1	-	-	-	-	-	-	761	761	-	476	476	-
Stage 2	-	-	-	-	-	-	603	582	-	799	786	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1037	-	-	979	-	-	125	152	516	144	170	626
Stage 1	-	-	-	-	-	-	398	414	-	570	557	-
Stage 2	-	-	-	-	-	-	486	499	-	379	403	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1032	-	-	974	-	-	72	133	511	87	149	620
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	133	-	87	149	-
Stage 1	-	-	-	-	-	-	360	374	-	516	539	-
Stage 2	-	-	-	-	-	-	360	483	-	281	364	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.4	45.5	54.9
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	72	172	1032	-	-	974	-	-	87	310
HCM Lane V/C Ratio	0.201	0.439	0.092	-	-	0.026	-	-	0.741	0.477
HCM Control Delay (s)	67.1	41.4	8.8	-	-	8.8	-	-	119.2	26.8
HCM Lane LOS	F	E	A	-	-	A	-	-	F	D
HCM 95th %tile Q(veh)	0.7	2	0.3	-	-	0.1	-	-	3.7	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	477	64	88	431	39	74	36	168	24	19	26
Future Volume (veh/h)	38	477	64	88	431	39	74	36	168	24	19	26
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		0.96	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	502	50	93	454	27	78	38	110	25	20	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	976	97	136	581	35	124	365	298	53	292	229
Arrive On Green	0.04	0.30	0.30	0.08	0.33	0.33	0.07	0.20	0.20	0.03	0.16	0.16
Sat Flow, veh/h	1781	3248	322	1781	1742	104	1781	1870	1526	1781	1870	1471
Grp Volume(v), veh/h	40	274	278	93	0	481	78	38	110	25	20	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1794	1781	0	1846	1781	1870	1526	1781	1870	1471
Q Serve(g_s), s	1.0	5.7	5.8	2.3	0.0	10.5	1.9	0.7	2.8	0.6	0.4	0.5
Cycle Q Clear(g_c), s	1.0	5.7	5.8	2.3	0.0	10.5	1.9	0.7	2.8	0.6	0.4	0.5
Prop In Lane	1.00		0.18	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	534	539	136	0	615	124	365	298	53	292	229
V/C Ratio(X)	0.51	0.51	0.52	0.68	0.00	0.78	0.63	0.10	0.37	0.47	0.07	0.09
Avail Cap(c_a), veh/h	235	754	762	318	0	870	239	807	658	235	803	631
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	12.9	13.0	20.1	0.0	13.5	20.3	14.8	15.6	21.4	16.1	16.2
Incr Delay (d2), s/veh	5.1	0.8	0.8	5.9	0.0	3.0	5.2	0.1	0.8	6.3	0.1	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(50%),veh/ln	0.5	1.8	1.9	1.0	0.0	3.7	0.9	0.3	0.8	0.3	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	13.7	13.7	26.0	0.0	16.5	25.5	14.9	16.4	27.7	16.2	16.3
LnGrp LOS	C	B	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		592			574			226			65	
Approach Delay, s/veh		14.6			18.0			19.3			20.7	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	13.6	7.4	18.3	7.1	11.9	6.0	19.8
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	5.9	19.3	8.0	19.0	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	2.6	4.8	4.3	7.8	3.9	2.5	3.0	12.5
Green Ext Time (p_c), s	0.0	0.4	0.1	2.4	0.0	0.1	0.0	1.8

Intersection Summary			
HCM 6th Ctrl Delay			16.9
HCM 6th LOS			B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	569	93	495	78	38	177	25	20	27
v/c Ratio	0.16	0.44	0.31	0.63	0.31	0.09	0.36	0.10	0.07	0.07
Control Delay	25.4	14.5	24.9	18.0	27.1	18.2	6.6	25.2	22.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	14.5	24.9	18.0	27.1	18.2	6.6	25.2	22.4	0.4
Queue Length 50th (ft)	11	75	26	92	23	8	0	7	6	0
Queue Length 95th (ft)	40	130	71	#304	65	34	46	28	22	0
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	255	1615	346	984	259	879	817	255	874	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.35	0.27	0.50	0.30	0.04	0.22	0.10	0.02	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	1	12	44	1	16	13	447	65	18	443	27
Future Vol, veh/h	19	1	12	44	1	16	13	447	65	18	443	27
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	1	12	45	1	16	13	461	67	19	457	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1048	1073	481	1047	1054	505	490	0	0	533	0	0
Stage 1	514	514	-	526	526	-	-	-	-	-	-	-
Stage 2	534	559	-	521	528	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	206	220	585	206	226	567	1073	-	-	1035	-	-
Stage 1	543	535	-	535	529	-	-	-	-	-	-	-
Stage 2	530	511	-	539	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	191	209	579	193	214	562	1068	-	-	1030	-	-
Mov Cap-2 Maneuver	191	209	-	193	214	-	-	-	-	-	-	-
Stage 1	531	519	-	523	517	-	-	-	-	-	-	-
Stage 2	502	500	-	511	512	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.1	25.9	0.2	0.3
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1068	-	-	256	234	1030	-	-
HCM Lane V/C Ratio	0.013	-	-	0.129	0.269	0.018	-	-
HCM Control Delay (s)	8.4	0	-	21.1	25.9	8.6	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	1.1	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	334	167	190	314	99	128	231	220	80	245	171
Future Volume (veh/h)	191	334	167	190	314	99	128	231	220	80	245	171
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.90	1.00		0.94	1.00		0.90
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	199	348	149	198	327	87	133	241	175	83	255	151
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	578	242	247	657	170	169	519	357	110	487	272
Arrive On Green	0.14	0.24	0.24	0.14	0.24	0.24	0.09	0.26	0.26	0.06	0.23	0.23
Sat Flow, veh/h	1781	2392	1000	1781	2722	706	1781	1962	1348	1781	2102	1174
Grp Volume(v), veh/h	199	256	241	198	211	203	133	217	199	83	213	193
Grp Sat Flow(s),veh/h/ln	1781	1777	1615	1781	1777	1651	1781	1777	1533	1781	1777	1499
Q Serve(g_s), s	6.6	7.8	8.1	6.5	6.2	6.5	4.4	6.2	6.7	2.8	6.4	6.9
Cycle Q Clear(g_c), s	6.6	7.8	8.1	6.5	6.2	6.5	4.4	6.2	6.7	2.8	6.4	6.9
Prop In Lane	1.00		0.62	1.00		0.43	1.00		0.88	1.00		0.78
Lane Grp Cap(c), veh/h	248	429	390	247	429	398	169	470	406	110	412	347
V/C Ratio(X)	0.80	0.60	0.62	0.80	0.49	0.51	0.79	0.46	0.49	0.75	0.52	0.56
Avail Cap(c_a), veh/h	366	526	478	381	541	502	205	564	487	202	561	474
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	25.3	20.4	20.5	25.4	19.8	20.0	26.9	18.7	18.9	28.0	20.4	20.6
Incr Delay (d2), s/veh	7.7	1.3	1.6	6.7	0.9	1.0	15.2	0.7	0.9	9.8	1.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.0	2.9	3.0	2.4	2.3	2.5	2.4	2.3	1.4	2.6	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	21.8	22.2	32.1	20.7	21.0	42.1	19.4	19.8	37.8	21.4	22.0
LnGrp LOS	C	C	C	C	C	C	D	B	B	D	C	C
Approach Vol, veh/h		696			612			549			489	
Approach Delay, s/veh		25.1			24.5			25.0			24.4	
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	21.0	12.4	19.6	9.8	19.0	12.5	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	19.3	13.0	18.0	7.0	19.2	12.5	18.5				
Max Q Clear Time (g_c+I1), s	4.8	8.7	8.5	10.1	6.4	8.9	8.6	8.5				
Green Ext Time (p_c), s	0.0	1.9	0.2	1.8	0.0	1.8	0.2	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			24.8									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	199	522	198	430	133	470	83	433
v/c Ratio	0.62	0.65	0.61	0.56	0.64	0.52	0.43	0.59
Control Delay	34.8	21.9	34.0	22.1	46.2	13.9	35.9	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	21.9	34.0	22.1	46.2	13.9	35.9	17.1
Queue Length 50th (ft)	67	73	67	66	48	42	29	44
Queue Length 95th (ft)	#168	134	#161	117	#149	89	#80	91
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	372	1074	387	1073	208	1189	205	1149
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.49	0.51	0.40	0.64	0.40	0.40	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	30	8	197	46	261	8	856	168	181	759	115
Future Volume (veh/h)	18	30	8	197	46	261	8	856	168	181	759	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	20	34	7	224	52	227	9	973	77	206	862	81
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, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	26	44	9	242	56	245	18	1102	491	232	1412	133
Arrive On Green	0.05	0.05	0.05	0.34	0.34	0.34	0.01	0.33	0.33	0.14	0.45	0.45
Sat Flow, veh/h	563	957	197	719	167	729	1697	3385	1510	1697	3127	294
Grp Volume(v), veh/h	61	0	0	503	0	0	9	973	77	206	467	476
Grp Sat Flow(s),veh/h/ln	1718	0	0	1614	0	0	1697	1692	1510	1697	1692	1729
Q Serve(g_s), s	4.2	0.0	0.0	36.2	0.0	0.0	0.6	32.8	4.4	14.4	25.2	25.2
Cycle Q Clear(g_c), s	4.2	0.0	0.0	36.2	0.0	0.0	0.6	32.8	4.4	14.4	25.2	25.2
Prop In Lane	0.33		0.11	0.45		0.45	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	79	0	0	543	0	0	18	1102	491	232	764	781
V/C Ratio(X)	0.77	0.00	0.00	0.93	0.00	0.00	0.49	0.88	0.16	0.89	0.61	0.61
Avail Cap(c_a), veh/h	256	0	0	657	0	0	83	1268	565	267	817	835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	38.6	0.0	0.0	59.4	38.5	28.9	51.2	25.1	25.1
Incr Delay (d2), s/veh	14.6	0.0	0.0	17.2	0.0	0.0	19.0	6.9	0.1	25.9	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	16.4	0.0	0.0	0.4	13.8	1.5	7.5	9.5	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.5	0.0	0.0	55.8	0.0	0.0	78.3	45.4	29.1	77.1	26.3	26.2
LnGrp LOS	E	A	A	E	A	A	E	D	C	E	C	C
Approach Vol, veh/h		61			503			1059			1149	
Approach Delay, s/veh		71.5			55.8			44.5			35.4	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.5	44.2		10.5	5.3	59.4		45.5				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	19.0	45.2		18.0	5.9	58.3		49.1				
Max Q Clear Time (g_c+I1), s	16.4	34.8		6.2	2.6	27.2		38.2				
Green Ext Time (p_c), s	0.1	4.5		0.1	0.0	5.7		2.4				
Intersection Summary												
HCM 6th Ctrl Delay			43.4									
HCM 6th LOS			D									

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	63	573	9	973	191	206	994
v/c Ratio	0.49	0.96	0.13	0.92	0.32	0.90	0.64
Control Delay	71.1	70.6	71.4	60.6	6.2	97.4	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	70.6	71.4	60.6	6.2	97.4	31.4
Queue Length 50th (ft)	53	501	8	456	0	191	350
Queue Length 95th (ft)	101	#759	28	#588	54	#348	492
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	225	595	71	1095	618	230	1543
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.96	0.13	0.89	0.31	0.90	0.64

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection						
Int Delay, s/veh	8.7					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	359	80	134	399	91	182
Future Vol, veh/h	359	80	134	399	91	182
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	96	161	481	110	219

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	534	0	1294	491
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	808	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1034	-	179	578
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	438	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1029	-	150	573
Mov Cap-2 Maneuver	-	-	-	-	150	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	368	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	35.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	150	573	-	-	1029	-
HCM Lane V/C Ratio	0.731	0.383	-	-	0.157	-
HCM Control Delay (s)	76	15.1	-	-	9.1	-
HCM Lane LOS	F	C	-	-	A	-
HCM 95th %tile Q(veh)	4.4	1.8	-	-	0.6	-

Intersection	
Intersection Delay, s/veh	38.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	71	158	48	184	201	75	18	154	208	106	170	107
Future Vol, veh/h	71	158	48	184	201	75	18	154	208	106	170	107
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	229	70	267	291	109	26	223	301	154	246	155
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	30.3	46.3	43.3	30.6
HCM LOS	D	E	E	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	154	208	71	158	48	184	201	75	106	170
LT Vol	18	0	0	71	0	0	184	0	0	106	0
Through Vol	0	154	0	0	158	0	0	201	0	0	170
RT Vol	0	0	208	0	0	48	0	0	75	0	0
Lane Flow Rate	26	223	301	103	229	70	267	291	109	154	246
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.083	0.681	0.861	0.339	0.723	0.206	0.825	0.861	0.3	0.489	0.75
Departure Headway (Hd)	11.488	10.988	10.288	11.87	11.37	10.67	11.136	10.636	9.936	11.454	10.954
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	312	328	353	304	318	336	325	341	362	315	330
Service Time	9.254	8.754	8.054	9.638	9.138	8.438	8.899	8.399	7.699	9.219	8.719
HCM Lane V/C Ratio	0.083	0.68	0.853	0.339	0.72	0.208	0.822	0.853	0.301	0.489	0.745
HCM Control Delay	15.3	34.4	52.4	20.6	39	16.2	50.1	53.7	16.9	24.8	40.4
HCM Lane LOS	C	D	F	C	E	C	F	F	C	C	E
HCM 95th-tile Q	0.3	4.7	8	1.5	5.3	0.8	7.1	7.9	1.2	2.5	5.8

Intersection	
Int Delay, s/veh	153.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	454	57	81	409	45	38	39	102	82	60	93
Future Vol, veh/h	63	454	57	81	409	45	38	39	102	82	60	93
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	85	614	77	109	553	61	51	53	138	111	81	126

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	619	0	0	696	0	0	1738	1665	663	1699	1642	563
Stage 1	-	-	-	-	-	-	828	828	-	776	776	-
Stage 2	-	-	-	-	-	-	910	837	-	923	866	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	961	-	-	900	-	-	68	97	461	~ 73	100	526
Stage 1	-	-	-	-	-	-	365	386	-	390	407	-
Stage 2	-	-	-	-	-	-	329	382	-	323	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	956	-	-	896	-	-	-	77	457	~ 20	~ 79	521
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	77	-	~ 20	~ 79	-
Stage 1	-	-	-	-	-	-	331	350	-	354	356	-
Stage 2	-	-	-	-	-	-	169	334	-	174	335	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	1.4		$ 987.3
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	193	956	-	-	896	-	-	20	163
HCM Lane V/C Ratio	-	0.987	0.089	-	-	0.122	-	-	5.541	1.268
HCM Control Delay (s)	-	111.9	9.1	-	-	9.6	-	-	$ 2428.3	215
HCM Lane LOS	-	F	A	-	-	A	-	-	F	F
HCM 95th %tile Q(veh)	-	8.3	0.3	-	-	0.4	-	-	14.3	12

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	585	49	108	418	15	50	39	198	30	59	91
Future Volume (veh/h)	31	585	49	108	418	15	50	39	198	30	59	91
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		0.96	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	42	791	55	146	565	16	68	53	217	41	80	87
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1056	73	188	681	19	105	390	319	76	359	285
Arrive On Green	0.04	0.31	0.31	0.11	0.38	0.38	0.06	0.21	0.21	0.04	0.19	0.19
Sat Flow, veh/h	1781	3358	233	1781	1807	51	1781	1870	1529	1781	1870	1486
Grp Volume(v), veh/h	42	418	428	146	0	581	68	53	217	41	80	87
Grp Sat Flow(s),veh/h/ln	1781	1777	1815	1781	0	1859	1781	1870	1529	1781	1870	1486
Q Serve(g_s), s	1.2	11.4	11.4	4.3	0.0	15.3	2.0	1.2	7.1	1.2	2.0	2.7
Cycle Q Clear(g_c), s	1.2	11.4	11.4	4.3	0.0	15.3	2.0	1.2	7.1	1.2	2.0	2.7
Prop In Lane	1.00		0.13	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	559	571	188	0	700	105	390	319	76	359	285
V/C Ratio(X)	0.55	0.75	0.75	0.78	0.00	0.83	0.65	0.14	0.68	0.54	0.22	0.30
Avail Cap(c_a), veh/h	198	739	755	316	0	897	198	660	540	198	660	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	16.6	16.6	23.6	0.0	15.3	24.9	17.4	19.7	25.4	18.5	18.8
Incr Delay (d2), s/veh	5.9	3.0	2.9	6.8	0.0	5.3	6.5	0.2	2.6	5.9	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.3	4.4	2.0	0.0	6.1	1.0	0.5	2.4	0.6	0.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	19.6	19.6	30.3	0.0	20.6	31.4	17.6	22.3	31.3	18.8	19.4
LnGrp LOS	C	B	B	C	A	C	C	B	C	C	B	B
Approach Vol, veh/h		888			727			338			208	
Approach Delay, s/veh		20.2			22.5			23.4			21.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	16.2	9.7	21.9	7.2	15.3	6.3	25.3
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	6.0	19.1	9.6	22.5	6.0	19.1	6.0	26.1
Max Q Clear Time (g_c+I1), s	3.2	9.1	6.3	13.4	4.0	4.7	3.2	17.3
Green Ext Time (p_c), s	0.0	0.7	0.1	3.4	0.0	0.6	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	42	857	146	585	68	53	268	41	80	123
v/c Ratio	0.20	0.65	0.48	0.64	0.33	0.15	0.52	0.20	0.27	0.34
Control Delay	30.8	19.4	32.3	18.6	32.9	23.3	8.1	30.7	26.5	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	19.4	32.3	18.6	32.9	23.3	8.1	30.7	26.5	6.7
Queue Length 50th (ft)	15	145	53	129	25	15	0	15	29	0
Queue Length 95th (ft)	37	178	92	259	53	38	27	37	52	16
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	214	1588	343	1081	214	718	755	214	718	665
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.54	0.43	0.54	0.32	0.07	0.35	0.19	0.11	0.18

Intersection Summary

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	4	14	65	9	48	6	333	24	35	408	10
Future Vol, veh/h	32	4	14	65	9	48	6	333	24	35	408	10
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	5	16	76	11	56	7	392	28	41	480	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1032	1012	496	1009	1004	416	497	0	0	425	0	0
Stage 1	573	573	-	425	425	-	-	-	-	-	-	-
Stage 2	459	439	-	584	579	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	211	239	574	219	242	637	1067	-	-	1134	-	-
Stage 1	505	504	-	607	586	-	-	-	-	-	-	-
Stage 2	582	578	-	498	501	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	175	223	569	198	226	631	1062	-	-	1129	-	-
Mov Cap-2 Maneuver	175	223	-	198	226	-	-	-	-	-	-	-
Stage 1	498	476	-	599	578	-	-	-	-	-	-	-
Stage 2	513	570	-	453	473	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27	31.5	0.1	0.6
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1062	-	-	222	275	1129	-	-
HCM Lane V/C Ratio	0.007	-	-	0.265	0.522	0.036	-	-
HCM Control Delay (s)	8.4	0	-	27	31.5	8.3	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1	2.8	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	374	165	174	334	59	131	301	191	64	296	185
Future Volume (veh/h)	228	374	165	174	334	59	131	301	191	64	296	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.89	1.00		0.95	1.00		0.90
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	285	468	192	218	418	55	164	376	202	80	370	201
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	610	248	263	667	87	203	644	339	103	507	268
Arrive On Green	0.19	0.25	0.25	0.15	0.21	0.21	0.11	0.29	0.29	0.06	0.24	0.24
Sat Flow, veh/h	1781	2417	982	1781	3110	405	1781	2204	1160	1781	2152	1138
Grp Volume(v), veh/h	285	343	317	218	237	236	164	302	276	80	304	267
Grp Sat Flow(s),veh/h/ln	1781	1777	1622	1781	1777	1738	1781	1777	1587	1781	1777	1513
Q Serve(g_s), s	11.0	12.7	12.9	8.4	8.6	8.8	6.4	10.3	10.6	3.1	11.2	11.7
Cycle Q Clear(g_c), s	11.0	12.7	12.9	8.4	8.6	8.8	6.4	10.3	10.6	3.1	11.2	11.7
Prop In Lane	1.00		0.61	1.00		0.23	1.00		0.73	1.00		0.75
Lane Grp Cap(c), veh/h	330	448	409	263	381	373	203	519	464	103	419	356
V/C Ratio(X)	0.86	0.76	0.78	0.83	0.62	0.63	0.81	0.58	0.60	0.78	0.73	0.75
Avail Cap(c_a), veh/h	376	488	445	338	450	440	251	570	509	160	480	409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	24.6	24.7	29.4	25.3	25.4	30.7	21.4	21.6	33.0	25.0	25.2
Incr Delay (d2), s/veh	16.9	6.6	7.8	12.7	2.0	2.2	14.4	1.3	1.6	11.9	4.6	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	5.7	5.4	4.3	3.5	3.6	3.5	4.2	3.9	1.7	5.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	31.2	32.5	42.1	27.3	27.6	45.1	22.7	23.2	44.9	29.7	31.8
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		945			691			742			651	
Approach Delay, s/veh		35.8			32.1			27.8			32.4	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	25.7	14.5	22.8	12.1	21.6	17.2	20.1
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	6.4	22.8	13.5	19.5	10.0	19.2	15.0	18.0
Max Q Clear Time (g_c+I1), s	5.1	12.6	10.4	14.9	8.4	13.7	13.0	10.8
Green Ext Time (p_c), s	0.0	2.7	0.2	1.6	0.1	1.8	0.2	1.5

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	285	674	218	492	164	615	80	601
v/c Ratio	0.83	0.79	0.73	0.66	0.71	0.57	0.53	0.74
Control Delay	51.8	31.1	46.8	30.6	51.6	18.9	48.8	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	31.1	46.8	30.6	51.6	18.9	48.8	25.9
Queue Length 50th (ft)	135	140	101	107	78	96	38	104
Queue Length 95th (ft)	#223	175	#159	140	#141	123	#74	133
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	366	952	330	864	244	1146	156	967
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.71	0.66	0.57	0.67	0.54	0.51	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	39	24	80	20	232	5	920	230	283	791	51
Future Volume (veh/h)	74	39	24	80	20	232	5	920	230	283	791	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	80	42	17	86	22	184	5	989	139	304	851	40
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	98	52	21	94	24	201	11	1116	498	334	1711	80
Arrive On Green	0.10	0.10	0.10	0.20	0.20	0.20	0.01	0.33	0.33	0.20	0.52	0.52
Sat Flow, veh/h	984	517	209	469	120	1003	1711	3413	1522	1711	3319	156
Grp Volume(v), veh/h	139	0	0	292	0	0	5	989	139	304	438	453
Grp Sat Flow(s),veh/h/ln	1709	0	0	1592	0	0	1711	1706	1522	1711	1706	1768
Q Serve(g_s), s	8.4	0.0	0.0	19.0	0.0	0.0	0.3	29.0	7.1	18.4	17.6	17.6
Cycle Q Clear(g_c), s	8.4	0.0	0.0	19.0	0.0	0.0	0.3	29.0	7.1	18.4	17.6	17.6
Prop In Lane	0.58		0.12	0.29		0.63	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	171	0	0	320	0	0	11	1116	498	334	880	912
V/C Ratio(X)	0.81	0.00	0.00	0.91	0.00	0.00	0.45	0.89	0.28	0.91	0.50	0.50
Avail Cap(c_a), veh/h	291	0	0	338	0	0	96	1225	546	373	889	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	0.0	0.0	41.3	0.0	0.0	52.3	33.7	26.3	41.6	16.7	16.7
Incr Delay (d2), s/veh	8.9	0.0	0.0	27.5	0.0	0.0	26.3	7.6	0.3	24.4	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	9.6	0.0	0.0	0.2	12.1	2.4	9.5	6.1	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	0.0	0.0	68.8	0.0	0.0	78.5	41.3	26.6	65.9	17.1	17.1
LnGrp LOS	E	A	A	E	A	A	E	D	C	E	B	B
Approach Vol, veh/h		139			292			1133			1195	
Approach Delay, s/veh		55.4			68.8			39.7			29.5	
Approach LOS		E			E			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.6	39.4		15.5	4.7	59.3		26.1				
Change Period (Y+Rc), s	4.0	4.9		4.9	4.0	4.9		4.9				
Max Green Setting (Gmax), s	23.0	37.9		18.0	5.9	55.0		22.4				
Max Q Clear Time (g_c+I1), s	20.4	31.0		10.4	2.3	19.6		21.0				
Green Ext Time (p_c), s	0.2	3.5		0.3	0.0	5.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			39.1
HCM 6th LOS			D

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	148	357	5	989	247	304	906
v/c Ratio	0.69	0.94	0.06	0.92	0.38	0.92	0.51
Control Delay	62.2	69.7	55.8	51.8	5.5	79.0	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	69.7	55.8	51.8	5.5	79.0	19.0
Queue Length 50th (ft)	102	211	4	374	0	227	207
Queue Length 95th (ft)	173	#415	18	#519	58	#408	332
Internal Link Dist (ft)	2522	2625		1955			2598
Turn Bay Length (ft)			860		500	860	
Base Capacity (vph)	272	379	87	1118	665	339	1791
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.94	0.06	0.88	0.37	0.90	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection						
Int Delay, s/veh	7.9					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	528	68	165	313	77	159
Future Vol, veh/h	528	68	165	313	77	159
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	1	-	260	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	593	76	185	352	87	179

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	674	0	1363	641
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	727	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	917	-	163	475
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	478	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	913	-	129	470
Mov Cap-2 Maneuver	-	-	-	-	129	-
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	379	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	36.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	129	470	-	-	913	-
HCM Lane V/C Ratio	0.671	0.38	-	-	0.203	-
HCM Control Delay (s)	76.8	17.3	-	-	9.9	-
HCM Lane LOS	F	C	-	-	A	-
HCM 95th %tile Q(veh)	3.6	1.8	-	-	0.8	-

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	153	20	147	179	55	36	159	155	28	128	47
Future Vol, veh/h	39	153	20	147	179	55	36	159	155	28	128	47
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	158	21	152	185	57	37	164	160	29	132	48
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	12.8	13.1	12.4	12.1
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	159	155	39	153	20	147	179	55	28	128
LT Vol	36	0	0	39	0	0	147	0	0	28	0
Through Vol	0	159	0	0	153	0	0	179	0	0	128
RT Vol	0	0	155	0	0	20	0	0	55	0	0
Lane Flow Rate	37	164	160	40	158	21	152	185	57	29	132
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.079	0.324	0.285	0.088	0.323	0.038	0.317	0.361	0.1	0.064	0.273
Departure Headway (Hd)	7.621	7.121	6.421	7.881	7.381	6.681	7.533	7.033	6.333	7.938	7.438
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	471	505	559	455	487	536	480	515	569	452	483
Service Time	5.359	4.859	4.159	5.622	5.122	4.422	5.233	4.733	4.033	5.677	5.177
HCM Lane V/C Ratio	0.079	0.325	0.286	0.088	0.324	0.039	0.317	0.359	0.1	0.064	0.273
HCM Control Delay	11	13.3	11.7	11.4	13.6	9.7	13.7	13.7	9.7	11.2	13
HCM Lane LOS	B	B	B	B	B	A	B	B	A	B	B
HCM 95th-tile Q	0.3	1.4	1.2	0.3	1.4	0.1	1.3	1.6	0.3	0.2	1.1

Intersection	
Int Delay, s/veh	23.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	108	524	45	25	377	95	17	63	23	58	56	91
Future Vol, veh/h	108	524	45	25	377	95	17	63	23	58	56	91
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	200	-	200	1	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	120	582	50	28	419	106	19	70	26	64	62	101

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	530	0	0	637	0	0	1467	1438	617	1380	1357	429
Stage 1	-	-	-	-	-	-	852	852	-	480	480	-
Stage 2	-	-	-	-	-	-	615	586	-	900	877	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1037	-	-	947	-	-	106	133	490	122	149	626
Stage 1	-	-	-	-	-	-	354	376	-	567	554	-
Stage 2	-	-	-	-	-	-	479	497	-	333	366	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1032	-	-	942	-	-	49	113	485	~ 52	127	620
Mov Cap-2 Maneuver	-	-	-	-	-	-	49	113	-	~ 52	127	-
Stage 1	-	-	-	-	-	-	312	331	-	499	535	-
Stage 2	-	-	-	-	-	-	342	480	-	219	322	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.4	79	124.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	49	142	1032	-	-	942	-	-	52	250
HCM Lane V/C Ratio	0.385	0.673	0.116	-	-	0.029	-	-	1.239	0.653
HCM Control Delay (s)	118.7	71.2	8.9	-	-	8.9	-	-	$ 331.8	43
HCM Lane LOS	F	F	A	-	-	A	-	-	F	E
HCM 95th %tile Q(veh)	1.4	3.8	0.4	-	-	0.1	-	-	5.8	4.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	477	69	108	431	48	82	44	207	30	23	26
Future Volume (veh/h)	39	477	69	108	431	48	82	44	207	30	23	26
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		0.96	1.00		0.93
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	41	502	56	114	454	37	86	46	151	32	24	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	953	106	150	572	47	130	356	290	65	288	227
Arrive On Green	0.04	0.30	0.30	0.08	0.34	0.34	0.07	0.19	0.19	0.04	0.15	0.15
Sat Flow, veh/h	1781	3206	356	1781	1699	138	1781	1870	1525	1781	1870	1470
Grp Volume(v), veh/h	41	277	281	114	0	491	86	46	151	32	24	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1785	1781	0	1838	1781	1870	1525	1781	1870	1470
Q Serve(g_s), s	1.0	5.9	6.0	2.8	0.0	11.0	2.1	0.9	4.0	0.8	0.5	0.5
Cycle Q Clear(g_c), s	1.0	5.9	6.0	2.8	0.0	11.0	2.1	0.9	4.0	0.8	0.5	0.5
Prop In Lane	1.00		0.20	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	528	531	150	0	619	130	356	290	65	288	227
V/C Ratio(X)	0.52	0.52	0.53	0.76	0.00	0.79	0.66	0.13	0.52	0.49	0.08	0.09
Avail Cap(c_a), veh/h	231	766	770	290	0	853	235	794	648	231	790	621
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	13.3	13.3	20.4	0.0	13.6	20.5	15.3	16.5	21.5	16.5	16.5
Incr Delay (d2), s/veh	5.2	0.8	0.8	7.8	0.0	3.6	5.7	0.2	1.4	5.6	0.1	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(50%),veh/ln	0.5	1.9	2.0	1.3	0.0	4.0	1.0	0.4	1.3	0.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	14.1	14.1	28.2	0.0	17.2	26.2	15.4	18.0	27.1	16.6	16.6
LnGrp LOS	C	B	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		599			605			283			76	
Approach Delay, s/veh		15.0			19.3			20.1			21.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	13.6	7.8	18.4	7.3	11.9	6.0	20.2
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	5.9	19.3	7.4	19.6	6.0	19.2	5.9	21.1
Max Q Clear Time (g_c+I1), s	2.8	6.0	4.8	8.0	4.1	2.5	3.0	13.0
Green Ext Time (p_c), s	0.0	0.6	0.1	2.4	0.0	0.1	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	575	114	505	86	46	218	32	24	27
v/c Ratio	0.18	0.51	0.42	0.65	0.38	0.11	0.42	0.14	0.09	0.08
Control Delay	26.5	16.8	29.3	19.7	30.1	20.3	7.0	26.0	22.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	16.8	29.3	19.7	30.1	20.3	7.0	26.0	22.2	0.4
Queue Length 50th (ft)	12	75	32	95	25	10	0	9	7	0
Queue Length 95th (ft)	41	132	#96	#320	#78	39	50	34	25	0
Internal Link Dist (ft)		2576		1234		596			278	
Turn Bay Length (ft)	1		1		95		95	50		50
Base Capacity (vph)	229	1496	287	895	233	789	775	229	785	722
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.38	0.40	0.56	0.37	0.06	0.28	0.14	0.03	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	8	14	44	10	39	23	467	70	50	443	27
Future Vol, veh/h	19	8	14	44	10	39	23	467	70	50	443	27
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	8	14	45	10	40	24	481	72	52	457	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1175	1186	481	1161	1164	527	490	0	0	558	0	0
Stage 1	580	580	-	570	570	-	-	-	-	-	-	-
Stage 2	595	606	-	591	594	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	168	189	585	172	194	551	1073	-	-	1013	-	-
Stage 1	500	500	-	506	505	-	-	-	-	-	-	-
Stage 2	491	487	-	493	493	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	136	168	579	148	172	546	1068	-	-	1008	-	-
Mov Cap-2 Maneuver	136	168	-	148	172	-	-	-	-	-	-	-
Stage 1	481	462	-	487	486	-	-	-	-	-	-	-
Stage 2	428	468	-	437	456	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.7	33.9	0.3	0.8
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1068	-	-	194	218	1008	-	-
HCM Lane V/C Ratio	0.022	-	-	0.218	0.44	0.051	-	-
HCM Control Delay (s)	8.4	0	-	28.7	33.9	8.8	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	2.1	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	358	180	234	320	99	130	231	271	80	254	171
Future Volume (veh/h)	191	358	180	234	320	99	130	231	271	80	254	171
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.91	1.00		0.94	1.00		0.89
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	199	373	163	244	333	87	135	241	228	83	265	151
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	568	243	292	728	186	171	464	390	107	479	258
Arrive On Green	0.14	0.24	0.24	0.16	0.27	0.27	0.10	0.26	0.26	0.06	0.22	0.22
Sat Flow, veh/h	1781	2372	1015	1781	2738	699	1781	1777	1495	1781	2131	1149
Grp Volume(v), veh/h	199	277	259	244	213	207	135	241	228	83	218	198
Grp Sat Flow(s),veh/h/ln	1781	1777	1611	1781	1777	1660	1781	1777	1495	1781	1777	1503
Q Serve(g_s), s	7.0	9.1	9.4	8.6	6.5	6.7	4.8	7.5	8.6	3.0	7.0	7.6
Cycle Q Clear(g_c), s	7.0	9.1	9.4	8.6	6.5	6.7	4.8	7.5	8.6	3.0	7.0	7.6
Prop In Lane	1.00		0.63	1.00		0.42	1.00		1.00	1.00		0.76
Lane Grp Cap(c), veh/h	245	425	386	292	472	441	171	464	390	107	399	337
V/C Ratio(X)	0.81	0.65	0.67	0.83	0.45	0.47	0.79	0.52	0.58	0.78	0.55	0.59
Avail Cap(c_a), veh/h	328	495	449	358	525	491	221	550	463	171	501	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	22.1	22.3	26.1	19.8	19.9	28.5	20.4	20.8	29.9	22.1	22.4
Incr Delay (d2), s/veh	10.7	2.4	3.1	13.2	0.7	0.8	13.3	0.9	1.4	11.4	1.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.7	3.5	4.4	2.5	2.4	2.6	3.0	2.9	1.6	2.9	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	24.6	25.4	39.3	20.5	20.7	41.9	21.3	22.2	41.3	23.3	24.0
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		735			664			604			499	
Approach Delay, s/veh		28.4			27.4			26.2			26.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.8	14.6	20.4	10.2	19.4	12.9	22.1				
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	6.2	20.0	13.0	18.0	8.0	18.2	11.9	19.1				
Max Q Clear Time (g_c+I1), s	5.0	10.6	10.6	11.4	6.8	9.6	9.0	8.7				
Green Ext Time (p_c), s	0.0	2.0	0.2	1.7	0.0	1.7	0.1	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			27.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	199	561	244	436	135	523	83	443
v/c Ratio	0.63	0.66	0.68	0.49	0.58	0.60	0.45	0.60
Control Delay	37.2	22.3	37.9	20.5	41.9	13.8	39.8	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	22.3	37.9	20.5	41.9	13.8	39.8	18.2
Queue Length 50th (ft)	73	83	90	67	52	44	32	50
Queue Length 95th (ft)	#176	146	#219	119	#141	90	#92	96
Internal Link Dist (ft)		1234		2718		1635		581
Turn Bay Length (ft)	1		100		225		175	
Base Capacity (vph)	360	1092	394	1126	242	1263	187	1117
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.51	0.62	0.39	0.56	0.41	0.44	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX D

INTERSECTION ANALYSES WITH IMPROVEMENTS

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	359	80	134	399	91	182
Future Volume (veh/h)	359	80	134	399	91	182
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	433	72	161	481	110	189
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	556	92	210	1106	315	281
Arrive On Green	0.36	0.36	0.12	0.59	0.18	0.18
Sat Flow, veh/h	1555	259	1781	1870	1781	1585
Grp Volume(v), veh/h	0	505	161	481	110	189
Grp Sat Flow(s),veh/h/ln	0	1814	1781	1870	1781	1585
Q Serve(g_s), s	0.0	10.5	3.7	6.0	2.3	4.7
Cycle Q Clear(g_c), s	0.0	10.5	3.7	6.0	2.3	4.7
Prop In Lane		0.14	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	649	210	1106	315	281
V/C Ratio(X)	0.00	0.78	0.77	0.44	0.35	0.67
Avail Cap(c_a), veh/h	0	1076	425	1813	847	753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.1	18.1	4.8	15.3	16.3
Incr Delay (d2), s/veh	0.0	2.1	5.8	0.3	0.7	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	1.6	1.0	0.9	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	14.2	23.9	5.0	15.9	19.1
LnGrp LOS	A	B	C	A	B	B
Approach Vol, veh/h	505			642	299	
Approach Delay, s/veh	14.2			9.8	17.9	
Approach LOS	B			A	B	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		12.4	9.9	20.0				29.9
Change Period (Y+Rc), s		4.9	4.9	4.9				* 4.9
Max Green Setting (Gmax), s		20.1	10.1	25.1				* 41
Max Q Clear Time (g_c+I1), s		6.7	5.7	12.5				8.0
Green Ext Time (p_c), s		0.8	0.1	2.5				3.0

Intersection Summary			
HCM 6th Ctrl Delay			13.0
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	529	161	481	110	219
v/c Ratio	0.72	0.49	0.41	0.35	0.49
Control Delay	20.3	28.0	5.6	24.8	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	28.0	5.6	24.8	8.0
Queue Length 50th (ft)	138	49	53	33	0
Queue Length 95th (ft)	228	101	101	69	38
Internal Link Dist (ft)	2625		1220	2758	
Turn Bay Length (ft)		1		260	
Base Capacity (vph)	978	382	1462	760	780
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.42	0.33	0.14	0.28

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	158	48	184	201	75	18	154	208	106	170	107
Future Volume (veh/h)	71	158	48	184	201	75	18	154	208	106	170	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	1.00		0.92	1.00		0.91	1.00		0.92
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	103	229	70	267	291	109	26	223	301	154	246	155
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	381	287	312	569	443	51	469	360	192	617	483
Arrive On Green	0.07	0.20	0.20	0.18	0.30	0.30	0.03	0.25	0.25	0.11	0.33	0.33
Sat Flow, veh/h	1781	1870	1412	1781	1870	1458	1781	1870	1438	1781	1870	1466
Grp Volume(v), veh/h	103	229	70	267	291	109	26	223	301	154	246	155
Grp Sat Flow(s),veh/h/ln	1781	1870	1412	1781	1870	1458	1781	1870	1438	1781	1870	1466
Q Serve(g_s), s	3.8	7.5	2.8	9.8	8.7	3.8	1.0	6.9	13.4	5.7	6.9	5.4
Cycle Q Clear(g_c), s	3.8	7.5	2.8	9.8	8.7	3.8	1.0	6.9	13.4	5.7	6.9	5.4
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	133	381	287	312	569	443	51	469	360	192	617	483
V/C Ratio(X)	0.77	0.60	0.24	0.86	0.51	0.25	0.51	0.48	0.84	0.80	0.40	0.32
Avail Cap(c_a), veh/h	260	497	375	342	583	454	155	503	387	210	617	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	24.5	22.6	27.1	19.4	17.7	32.4	21.6	24.1	29.5	17.5	17.0
Incr Delay (d2), s/veh	9.1	1.5	0.4	17.6	0.7	0.3	7.7	0.8	13.9	18.2	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.3	0.9	5.5	3.6	1.2	0.5	2.9	5.7	3.3	2.8	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	26.0	23.0	44.7	20.1	18.0	40.1	22.3	38.0	47.7	17.9	17.4
LnGrp LOS	D	C	C	D	C	B	D	C	D	D	B	B
Approach Vol, veh/h		402			667			550			555	
Approach Delay, s/veh		29.0			29.6			31.7			26.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	21.9	15.9	18.7	5.9	27.2	9.1	25.5
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	8.0	18.2	13.0	18.0	5.9	20.3	9.9	21.1
Max Q Clear Time (g_c+I1), s	7.7	15.4	11.8	9.5	3.0	8.9	5.8	10.7
Green Ext Time (p_c), s	0.0	0.7	0.1	1.0	0.0	1.5	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	103	229	70	267	291	109	26	223	301	154	246	155
v/c Ratio	0.45	0.61	0.17	0.78	0.52	0.20	0.16	0.59	0.57	0.70	0.39	0.26
Control Delay	35.3	32.2	0.9	45.5	25.2	3.2	33.6	30.9	7.9	50.2	21.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	32.2	0.9	45.5	25.2	3.2	33.6	30.9	7.9	50.2	21.4	5.6
Queue Length 50th (ft)	39	85	0	103	103	0	10	81	0	61	67	0
Queue Length 95th (ft)	68	115	0	#152	136	4	26	112	16	#108	118	18
Internal Link Dist (ft)		1414			1240			1537			2758	
Turn Bay Length (ft)	100		100	1		100	1		100	140		140
Base Capacity (vph)	272	522	504	357	624	576	162	527	621	220	635	590
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.44	0.14	0.75	0.47	0.19	0.16	0.42	0.48	0.70	0.39	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	454	57	81	409	45	38	39	102	82	60	93
Future Volume (veh/h)	63	454	57	81	409	45	38	39	102	82	60	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
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	85	614	77	109	553	61	51	53	138	111	81	126
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	693	87	139	827	697	80	73	190	142	128	198
Arrive On Green	0.06	0.43	0.43	0.08	0.44	0.44	0.05	0.16	0.16	0.08	0.19	0.19
Sat Flow, veh/h	1781	1628	204	1781	1870	1576	1781	456	1187	1781	654	1018
Grp Volume(v), veh/h	85	0	691	109	553	61	51	0	191	111	0	207
Grp Sat Flow(s),veh/h/ln	1781	0	1832	1781	1870	1576	1781	0	1643	1781	0	1672
Q Serve(g_s), s	3.3	0.0	24.2	4.2	16.3	1.6	2.0	0.0	7.7	4.2	0.0	7.9
Cycle Q Clear(g_c), s	3.3	0.0	24.2	4.2	16.3	1.6	2.0	0.0	7.7	4.2	0.0	7.9
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.72	1.00		0.61
Lane Grp Cap(c), veh/h	109	0	779	139	827	697	80	0	263	142	0	326
V/C Ratio(X)	0.78	0.00	0.89	0.78	0.67	0.09	0.64	0.00	0.73	0.78	0.00	0.64
Avail Cap(c_a), veh/h	185	0	979	185	999	842	174	0	471	205	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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	18.4	31.4	15.3	11.2	32.6	0.0	27.7	31.4	0.0	25.7
Incr Delay (d2), s/veh	11.1	0.0	8.4	14.4	1.3	0.1	8.0	0.0	3.8	11.3	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	10.4	2.2	6.1	0.5	1.0	0.0	3.2	2.2	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	0.0	26.8	45.8	16.6	11.3	40.6	0.0	31.5	42.6	0.0	27.7
LnGrp LOS	D	A	C	D	B	B	D	A	C	D	A	C
Approach Vol, veh/h		776			723			242			318	
Approach Delay, s/veh		28.6			20.6			33.4			32.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	16.0	9.4	34.4	7.1	18.4	8.3	35.6
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	8.0	19.9	7.2	37.1	6.8	21.1	7.2	37.1
Max Q Clear Time (g_c+I1), s	6.2	9.7	6.2	26.2	4.0	9.9	5.3	18.3
Green Ext Time (p_c), s	0.0	0.7	0.0	3.4	0.0	0.9	0.0	3.4

Intersection Summary		
HCM 6th Ctrl Delay		27.0
HCM 6th LOS		C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	691	109	553	61	51	191	111	207
v/c Ratio	0.50	0.84	0.61	0.60	0.07	0.32	0.56	0.58	0.57
Control Delay	47.7	30.9	53.5	20.4	0.4	42.1	18.3	50.1	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	30.9	53.5	20.4	0.4	42.1	18.3	50.1	25.4
Queue Length 50th (ft)	42	285	54	205	0	25	26	55	60
Queue Length 95th (ft)	75	358	#103	267	0	51	55	#93	92
Internal Link Dist (ft)		1220		2576			1559		599
Turn Bay Length (ft)	1		200		200	1		60	
Base Capacity (vph)	179	955	179	971	856	169	554	198	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.72	0.61	0.57	0.07	0.30	0.34	0.56	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	528	68	165	313	77	159
Future Volume (veh/h)	528	68	165	313	77	159
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	593	76	185	352	87	179
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	702	90	236	1208	285	253
Arrive On Green	0.43	0.43	0.13	0.65	0.16	0.16
Sat Flow, veh/h	1618	207	1781	1870	1781	1585
Grp Volume(v), veh/h	0	669	185	352	87	179
Grp Sat Flow(s),veh/h/ln	0	1825	1781	1870	1781	1585
Q Serve(g_s), s	0.0	16.5	5.1	4.1	2.2	5.4
Cycle Q Clear(g_c), s	0.0	16.5	5.1	4.1	2.2	5.4
Prop In Lane		0.11	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	792	236	1208	285	253
V/C Ratio(X)	0.00	0.84	0.78	0.29	0.31	0.71
Avail Cap(c_a), veh/h	0	1090	389	1673	710	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.8	21.2	3.9	18.7	20.1
Incr Delay (d2), s/veh	0.0	4.6	5.6	0.1	0.6	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	2.2	0.7	0.9	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	17.3	26.8	4.0	19.3	23.7
LnGrp LOS	A	B	C	A	B	C
Approach Vol, veh/h	669			537	266	
Approach Delay, s/veh	17.3			11.9	22.2	
Approach LOS	B			B	C	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		13.0	10.7	26.8				37.5
Change Period (Y+Rc), s		4.9	4.0	4.9				4.9
Max Green Setting (Gmax), s		20.1	11.0	30.1				45.1
Max Q Clear Time (g_c+I1), s		7.4	7.1	18.5				6.1
Green Ext Time (p_c), s		0.7	0.2	3.4				2.1

Intersection Summary			
HCM 6th Ctrl Delay			16.2
HCM 6th LOS			B

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	669	185	352	87	179
v/c Ratio	0.81	0.61	0.27	0.35	0.49
Control Delay	24.0	34.4	4.3	28.6	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	34.4	4.3	28.6	9.6
Queue Length 50th (ft)	196	66	37	31	0
Queue Length 95th (ft)	#395	#143	76	67	46
Internal Link Dist (ft)	2625		1220	2758	
Turn Bay Length (ft)		1		260	
Base Capacity (vph)	950	334	1443	611	643
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.55	0.24	0.14	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	153	20	147	179	55	36	159	155	28	128	47
Future Volume (veh/h)	39	153	20	147	179	55	36	159	155	28	128	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	1.00		0.92	1.00		0.90	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	158	21	152	185	57	37	164	160	29	132	48
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	406	309	198	532	413	73	450	345	60	437	334
Arrive On Green	0.04	0.22	0.22	0.11	0.28	0.28	0.04	0.24	0.24	0.03	0.23	0.23
Sat Flow, veh/h	1781	1870	1421	1781	1870	1452	1781	1870	1434	1781	1870	1430
Grp Volume(v), veh/h	40	158	21	152	185	57	37	164	160	29	132	48
Grp Sat Flow(s),veh/h/ln	1781	1870	1421	1781	1870	1452	1781	1870	1434	1781	1870	1430
Q Serve(g_s), s	1.0	3.2	0.5	3.7	3.5	1.3	0.9	3.3	4.3	0.7	2.6	1.2
Cycle Q Clear(g_c), s	1.0	3.2	0.5	3.7	3.5	1.3	0.9	3.3	4.3	0.7	2.6	1.2
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	78	406	309	198	532	413	73	450	345	60	437	334
V/C Ratio(X)	0.51	0.39	0.07	0.77	0.35	0.14	0.50	0.36	0.46	0.48	0.30	0.14
Avail Cap(c_a), veh/h	235	751	571	398	922	716	235	764	586	235	764	584
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	21.0	15.0	13.9	19.4	12.7	11.9	21.0	14.2	14.5	21.3	14.2	13.6
Incr Delay (d2), s/veh	5.1	0.6	0.1	6.2	0.4	0.2	5.3	0.5	1.0	5.9	0.4	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(50%),veh/ln	0.5	1.2	0.2	1.7	1.3	0.4	0.4	1.2	1.3	0.4	1.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	15.6	14.0	25.5	13.1	12.1	26.3	14.6	15.5	27.1	14.5	13.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		219			394			361			209	
Approach Delay, s/veh		17.4			17.8			16.2			16.1	
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	15.7	9.0	14.6	5.8	15.4	6.0	17.6
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	18.3	10.0	18.0	5.9	18.3	5.9	22.1
Max Q Clear Time (g_c+I1), s	2.7	6.3	5.7	5.2	2.9	4.6	3.0	5.5
Green Ext Time (p_c), s	0.0	1.2	0.1	0.7	0.0	0.7	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	158	21	152	185	57	37	164	160	29	132	48
v/c Ratio	0.15	0.37	0.04	0.41	0.26	0.09	0.14	0.23	0.24	0.11	0.19	0.07
Control Delay	24.8	21.0	0.1	23.9	14.2	0.3	24.8	18.9	2.5	24.7	18.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	21.0	0.1	23.9	14.2	0.3	24.8	18.9	2.5	24.7	18.6	0.2
Queue Length 50th (ft)	8	31	0	30	18	0	8	32	0	6	25	0
Queue Length 95th (ft)	41	100	0	107	104	0	38	101	21	33	83	0
Internal Link Dist (ft)		1414			1240			1537			2758	
Turn Bay Length (ft)	100		100	1		100	1		100	140		140
Base Capacity (vph)	273	878	793	463	1070	895	273	893	803	273	893	803
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.18	0.03	0.33	0.17	0.06	0.14	0.18	0.20	0.11	0.15	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	524	45	25	377	95	17	63	23	58	56	91
Future Volume (veh/h)	108	524	45	25	377	95	17	63	23	58	56	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
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	120	582	50	28	419	106	19	70	26	64	62	101
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	707	61	58	677	570	41	162	60	106	102	166
Arrive On Green	0.09	0.42	0.42	0.03	0.36	0.36	0.02	0.12	0.12	0.06	0.16	0.16
Sat Flow, veh/h	1781	1697	146	1781	1870	1574	1781	1296	481	1781	633	1032
Grp Volume(v), veh/h	120	0	632	28	419	106	19	0	96	64	0	163
Grp Sat Flow(s),veh/h/ln	1781	0	1843	1781	1870	1574	1781	0	1777	1781	0	1665
Q Serve(g_s), s	3.2	0.0	14.8	0.8	8.9	2.2	0.5	0.0	2.4	1.7	0.0	4.4
Cycle Q Clear(g_c), s	3.2	0.0	14.8	0.8	8.9	2.2	0.5	0.0	2.4	1.7	0.0	4.4
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.27	1.00		0.62
Lane Grp Cap(c), veh/h	155	0	768	58	677	570	41	0	222	106	0	269
V/C Ratio(X)	0.77	0.00	0.82	0.49	0.62	0.19	0.46	0.00	0.43	0.60	0.00	0.61
Avail Cap(c_a), veh/h	315	0	1180	216	1093	920	216	0	702	220	0	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	12.6	23.1	12.7	10.6	23.4	0.0	19.7	22.3	0.0	18.9
Incr Delay (d2), s/veh	7.9	0.0	2.9	6.2	0.9	0.2	7.7	0.0	1.3	5.4	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	5.0	0.4	3.0	0.6	0.3	0.0	1.0	0.8	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	0.0	15.4	29.3	13.7	10.8	31.1	0.0	21.0	27.7	0.0	21.2
LnGrp LOS	C	A	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		752			553			115			227	
Approach Delay, s/veh		17.7			13.9			22.7			23.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	11.0	5.6	25.1	5.1	12.7	8.2	22.5
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	19.2	5.9	31.1	5.9	19.3	8.6	28.4
Max Q Clear Time (g_c+I1), s	3.7	4.4	2.8	16.8	2.5	6.4	5.2	10.9
Green Ext Time (p_c), s	0.0	0.3	0.0	3.5	0.0	0.7	0.1	2.5

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	632	28	419	106	19	96	64	163
v/c Ratio	0.43	0.69	0.13	0.59	0.16	0.09	0.32	0.30	0.37
Control Delay	33.0	19.0	31.4	20.0	2.6	31.2	23.7	33.4	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	19.0	31.4	20.0	2.6	31.2	23.7	33.4	13.3
Queue Length 50th (ft)	39	144	9	129	0	6	24	21	16
Queue Length 95th (ft)	#116	#430	36	238	19	28	69	66	78
Internal Link Dist (ft)		1220		2576			1559		599
Turn Bay Length (ft)	1		200		200	1		60	
Base Capacity (vph)	313	1143	214	1089	953	214	715	218	718
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.55	0.13	0.38	0.11	0.09	0.13	0.29	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.