DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

GRANGEVILLE MULTI-USE PROJECT

Prepared for:

City of Hanford - Community Development Department
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May 2024

Project #230244

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

DECLARATION

This is to advise that the City of Hanford has prepared a Mitigated Negative Declaration for the Project identified below, which is scheduled to be held at the City of Hanford meeting on July 9, 2024.

PLEASE BE ADVISED that the Planning Commission will consider recommending adopting the Mitigated Negative Declaration to the City Council at the Commission's meeting to be held on August 6, 2024. Presentations will be made at approximately 7:00 p.m. Action on items on the agenda will occur after the presentations. The meeting will be held in the Civic Auditorium, 400 N. Douty Street, Hanford, CA 93230.

Project Name

Grangeville Multi-Use Project

Project Location

The Project site is located northwest of the intersection of Grangeville Boulevard and Centennial Drive in the City of Hanford, Kings County, California. The Project site is identified by Assessor Parcel Number (APN) 090-030-142, within Section 22, Township 18S, Range 21E, Mount Diablo Base and Meridian (MDB&M).

Project Description

The proposed Project consists of a new multi-use development that includes a multi-family housing development on approximately 3.75 acres and a commercial component on approximately 1.25 acres (Project).

The residential component will consist of a 64-unit multi-family housing complex, a commercial component, internal roads, three open space areas, carports, surface parking lots, a pool and recreation area, and other associated amenities. Access to the proposed Project will be provided from two new driveways along Centennial Drive. The commercial portion of the Project would be developed in a separate, future phase and is anticipated to include a gas station and fast-food restaurant.

The Project site is currently undeveloped and has been previously disturbed and graded.

The proposed Project would require approval of a General Plan Amendment and Zone Change from the Neighborhood Commercial zone to the Neighborhood Mixed-Use zone to allow for multi-family housing and commercial development. The Project also requires the following entitlements.

- General Plan Amendment No. 0001-23

- Rezone No. 0001-23
- Planned Unit Development/Conditional Use Permit No. 0031-24
- Site Plan Review No. 0040-23
- Variance No 0009-23

Construction will occur over a maximum of 24 months starting in Q3 2024. It is anticipated that the following pieces of equipment would be used during construction activities:

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

The document and documents referenced in the Initial Study/Mitigated Negative Declaration are available for review at the City of Hanford and at the Hanford Branch Library located at 401 Douty Street, Hanford, CA 93230.

As mandated by the California Environmental Quality Act (CEQA), the public review period for this document was 30 days (CEQA Section 15073[b]). The public review period began on June 5 and ended on July 8, 2024. For further information, please contact Gabrielle de Silva Myers, 317 N. Douty Street, Hanford, CA 93230, (559) 585-2500.

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LIST OF ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
APN	Assessor Parcel Number
ATP	Active Transportation Plan
BAU	Business as Usual
BMPs	best management practices
BPS	Best Performance Standards
BSA	Biological Survey Area
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CalGEM	California Department of Conservation, Geological Energy Management Division
CARB	California Air Resources Board
CBC	California Building Code
CEQA	California Environmental Quality Act
CERS	California Environmental Reporting System
C-N	Neighborhood Commercial
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DOC	Department of Conservation
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EMP	Emergency Management Plan
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GPA	General Plan Amendment
GSA	Groundwater Sustainability Agencies
GSP	Groundwater Sustainability Plan
H_2S	hydrogen sulfide
HAPs	hazardous air pollutants
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons

HMBP	Hazardous Materials Business Plan
HPD	Hanford Police Department
IS	Initial Study
ITE	Institute of Transportation Engineers
KART	Kings Area Rural Transit
KCALUCP	Kings County Airport Land Use Compatibility Plan
KWRA	Kings Waste and Recycling Authority
LHMP	Local Hazard Mitigation Plan
LOS	level of service
LRA	Local Responsibility Area
mcy	million cubic yards
MDB&M	Mount Diablo Base and Meridian
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MRF	Material Recovery Facility
MRZs	Mineral Resource Zones
MX-N	Neighborhood Mixed-Use
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NO_2	nitrogen dioxide
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O_3	ozone
Pb	lead
PFCs	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter with a diameter of 10 micrometers or less
$PM_{2.5}$	particulate matter with a diameter of 2.5 micrometers or less
PPV	peak particle velocity
PRC	Public Resources Code
PUD	Planned Unit Development
RHNA	Regional Housing Needs Allocation
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SR	State Route

SRA	State Responsibility Area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TS	Transfer Station
USACE	United States Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tanks
VdB	vibration decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
WSA	Water Supply Assessment

MITIGATED NEGATIVE DECLARATION

As Lead Agency under the California Environmental Quality Act (CEQA), the City of Hanford 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

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The Project site is currently undeveloped and has been previously disturbed and graded.

The proposed Project would require approval of a General Plan Amendment and Zone Change from the Neighborhood Commercial zone to the Neighborhood Mixed-Use zone to allow for multi-family housing and commercial development.

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

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Mailing Address and Phone Number of Contact Person

Gabrielle de Silva Myers – (559) 585-2500
City of Hanford
317 N. Douty Street
Hanford, CA 93230

Findings

As Lead Agency, the City of Hanford finds that the Project will not have a significant effect on the environment. The Environmental Checklist (CEQA Guidelines Appendix G) or 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 less-than-significant levels. The Lead Agency 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

MM AQ-1: The project shall continuously comply with the following: Construction and operation of the project shall be conducted in compliance with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District. Dust control measures outlines below shall be implemented where they are applicable and feasible. The list shall not be considered all inclusive, and any other measures to reduce fugitive dust emissions not listed shall be encouraged.

a. **Land Preparation Excavation and/or Demolition.** The following dust control measures shall be implemented.

    a. All soil excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations.

    b. All fine material transported off site shall be either sufficiently watered or securely covered to prevent excessive dust.

    c. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times.

    d. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.

b. **Site Construction:** After clearing, grading, earth moving and/or excavation is completed within any portion of the project sites, the following dust control practices shall be implemented.

    1. All active disturbed soil areas shall be sufficiently watered at least twice daily or have dust palliatives applied to prevent excessive dust.

c. **Vehicular Activities:** During all phases of construction, the following vehicular control measures shall be implemented.

    1. Onsite vehicle speeds shall be limited to 15 miles per hour.

    2. All areas with vehicle traffic shall be paved, treated with dust palliatives or watered a minimum of twice daily.

    3. Streets adjacent to the project sites shall be kept clean, and project-related accumulated silt shall be removed.

    4. Access to the project sites shall be by means of an apron into the project sites from adjoining surfaced roadways. The aprons shall be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of vehicles, a grizzly, wheel washer, or other such device shall be used on the road exiting the project sites, immediately prior to the pavement, in order to remove most of the soil material from vehicle tires.

MM AQ-2: The project shall continuously comply with the following: The project proponent and/or its contractors shall implement the following measures during construction of the project.

1. All equipment shall be maintained in accordance with the manufacturer's specifications.
2. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment shall be turned off when not in use for extended periods of time.
3. Construction equipment shall operate no longer than eight cumulative hours per day.
4. Electric equipment shall be used whenever possible in lieu of diesel- or gasoline powered equipment.
5. All construction vehicles shall be equipped with proper emission control equipment and kept in good and proper running order to substantially reduce NOx emissions.
6. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.
7. Tier 3 engines shall be used on all equipment when available.

MM AQ-3: The project proponent shall continuously comply with the following measures during operation of the project to control emissions from the on-site dedicated equipment (equipment that would remain on-site each day):

a. All onsite off-road equipment and on-road vehicles for operation/maintenance shall be new equipment that meets the recent California Air Resources Board engine emission standards or alternatively fueled construction equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate.

b. All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized.

c. All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification.

MM BIO-1: A pre-construction clearance survey of the Project footprint shall be conducted for special-status wildlife species and nesting migratory birds and raptors. The survey shall occur no less than 14-30 days prior to the start of construction activities. If construction is delayed beyond 30 days from the time of the survey, then another survey must be conducted. The survey shall be conducted by a biologist with adequate training and prior experience conducting surveys for special-status wildlife species. If no special-status species are observed, no further action is warranted. If dens or burrows that could support special-status species and/or nesting birds are discovered during the pre-construction survey, appropriate avoidance buffers should be established. A report outlining the results of the clearance survey shall be provided to the Lead Agency as evidence of compliance.

MM BIO-2: If construction is planned during the nesting season for migratory birds (February 15 to August 31) and nesting birds are identified during the survey, active Swainson's hawk nest shall be avoided by 0.5 miles, other 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 biological 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.

MM BIO-3: If an active Swainson's hawk nest is discovered at any time within 0.5 miles of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment would 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 the construction activities of this Project. Based on this assessment, the biologist will 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 on 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 nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

MM BIO-4: Prior to the initiation of construction activities, all personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. The program shall include information on the life histories of special-status species with the potential to occur on the Project, their legal status, the course of action shall these species be encountered onsite, and avoidance and minimization measures to protect these species.

MM BIO-5: Project-related vehicles should observe a 20-mph speed limit in all Project areas, except on county roads and state and federal highways. Off-road traffic outside of designated Project areas should be prohibited.

MM BIO-6: All trash and food items should be discarded into closed containers and properly disposed of at the end of each workday.

MM BIO-7: To prevent harassment or mortality of listed species, no pets should be permitted on the Project site during Project construction.

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. 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. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, fire-affected rock, and historic resources such as glass, metal, wood, brick, or structural remnants. 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 any ground disturbance, if the City of Hanford receives a request from a Native American tribal group, a surface inspection of the site shall be conducted by a tribal monitor. The tribal staff shall provide pre-Project-related activities briefings to supervisory personnel and any excavation contractor, including information on potential cultural material, finds, and any excavation contractor, which will include information on potential cultural material finds, and the procedures be enacted if resources are found. The tribal cultural staff shall monitor the site during grading activities.

Prior to any ground disturbance, the applicant shall offer the tribe the opportunity to provide a Native American Monitor during ground-disturbing activities. Tribal participation would be dependent upon the availability and interest of the tribe.

MM CUL-3: That a Burial Treatment Plan be entered into by the applicant/developer prior to any earth-disturbing activities.

MM CUL-4: 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 the discovery of human remains, at the direction of the county coroner.

MM ENG-1: The Project proponent and its contractors shall comply with applicable California Title 24 CalGreen Code which can include but not be limited to inclusion of solar ready rooftops, double pane windows, electric vehicle charging, use of LED lights, the use of low flow appliances, drip irrigation, and drought tolerant landscaping.

MM GEO-1: The Project proponent and its contractors shall construct the Project in compliance with applicable development standards under the California Building Code.

MM GEO-2: Prior to issuing of grading or building permits, if required, (a) the Project applicant shall submit to the Lead Agency (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.
- Managing waste, aggressively controlling litter, and implementing sediment controls.
- Evidence of the approved SWPPP shall be submitted to the Lead Agency.

MM GEO-3: If any paleontological resources are encountered during ground-disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or another appropriate facility regarding any discoveries of paleontological resources.

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

MM HAZ-1: The Project proponent/operators and its contractors shall utilize the U.S. Department of Transportation and Caltrans designated hazardous materials routes for the transportation of hazardous and potentially hazardous materials during Project construction and operation.

MM HAZ-2: The Project proponent/operator shall receive approval from the State Water Resources Control Board and Kings County Department of Public Health (Certified Unified Program Agency) for the installation and operation of all proposed underground storage tanks.

MM HAZ-3: Prior to operation of the Project, the Project proponent/operator shall identify potential hazardous materials for Project operations. If the operation exceeds the established HMBP reporting thresholds, the Project proponent/operator must prepare and maintain a Hazardous Materials Business Plan pursuant to California Environmental

Protection Agency and California Environmental Reporting System requirements, and submit the plan to the Kings County Public Health Department for review and approval.

MM HAZ-4: The Project shall comply with applicable procedures and policies for emergency response as set forth in the Kings County Multi-Jurisdictional Local Hazard Mitigation Plan.

SECTION 1 - INTRODUCTION

1.1 - Overview

The applicant proposes to develop a multi-use development with a 64-unit multi-family housing complex and a 1.25-acre commercial component on a five-acre site within the City of Hanford, Kings County, California. The Project would require approval of a General Plan Amendment, a Zone Change, a Planned Unit Development/Conditional Use Permit, a Variance, and Site Plan Review.

1.2 - California Environmental Quality Act

The City of Hanford 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 *Appendix A – 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 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 applicant.
- 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 – List of Preparers:* This section identifies the individuals who prepared the IS/MND.

- *Section 5 – Bibliography:* This section contains a full list of references that were used in the preparation of this IS/MND.

1.5 - Incorporated by Reference

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

- City of Hanford 2035 General Plan (2017)
- City of Hanford 2016-2024 Adopted Housing Element
- City of Hanford Urban Water Management Plan (2020)
- Cal Recycle (2022)
- Kings County Multi-Jurisdictional Local Hazard Mitigation Plan
- Kings County Airport Land Use Compatibility Plan
- Hanford Municipal Code
- California Building Code Title 24
- Kings County Safety Element

SECTION 2 - PROJECT DESCRIPTION

2.1 - Introduction

The applicant proposes to develop a multi-use development with a 64-unit multi-family housing complex and a 1.25-acre commercial component on a five-acre site within the City of Hanford, CA. The Project would require approval of a General Plan Amendment, Zone Change, Planned Unit Development, and Site Plan Review.

2.2 - Project Location

The Project site is located northwest of the intersection of Grangeville Boulevard and Centennial Drive in the City of Hanford, Kings County, CA. The Project site is identified by Assessor Parcel Number (APN) 090-030-142, within Section 22, Township 18S, Range 21E, Mount Diablo Base and Meridian (MDB&M).

2.3 - Surrounding Land Uses

Surrounding land uses consist of multi-family housing to the north, single-family residential developments to the east and south, and a water storage facility and a retention basin to the west.

2.4 - Proposed Project

2.4.1 - PROJECT DESCRIPTION

The proposed Project consists of a new multi-use development that includes a multi-family housing development on approximately 3.75 acres and a commercial component on approximately 1.25 acres (Project).

The residential component will consist of a 64-unit multi-family housing complex, a commercial component, internal roads, three open space areas, carports, surface parking lots, a pool and recreation area, and other associated amenities. Access to the proposed Project will be provided from two new driveways along Centennial Drive. The commercial portion of the Project would be developed in a separate, future phase and is anticipated to include a gas station and fast-food restaurant.

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SECTION 3 - INITIAL STUDY

3.1 - Environmental Checklist

1. **Project Title:**

   Grangeville Multi-Use Project

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

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

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

   Gabrielle de Silva Myers – (559) 585-2500

4. **Project Location:**

   The Project site is located northwest of the intersection of Grangeville Boulevard and Centennial Drive in the City of Hanford, Kings County, California. The Project site is identified by APN 090-030-142, within Township 18S, Section 22, Range 21E, MDB&M.

5. **Project Sponsor's Name and Address:**

   Rupinder (Shah) Nahal
   2497 North 10th Avenue
   Hanford, CA 93230

6. **General Plan Designation:**

   Existing: City of Hanford – Neighborhood Commercial
   Proposed: City of Hanford – Neighborhood Mixed-Use

7. **Zoning:**

   Existing: City of Hanford – C-N (Neighborhood Commercial)
   Proposed: City of Hanford – MX-N (Neighborhood Mixed-Use)

8. **Description of Project:**

   The proposed Project consists of a new multi-use development that includes a multi-family housing development on approximately 3.75 acres and a commercial component on approximately 1.25 acres (Project).

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9. Surrounding Land Uses and Setting:

Surrounding land uses consist of multi-family housing to the north, single-family residential developments to the east and south, and a water storage facility and drainage basins to the west.

10. Other Public Agencies Whose Approval is Required:

- San Joaquin Valley Air Pollution Control District
- Central Valley Regional Water Quality Control Board

11. 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, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

A Sacred Land Files search was requested from the Native American Heritage Commission (NAHC), and a response was received on December 5, 2023. The NAHC responded with its findings that indicated negative results. 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 previously disturbed parcel. The potential to uncover subsurface historical or archaeological deposits would be considered unlikely.

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.

Figure 3-1
Regional Map

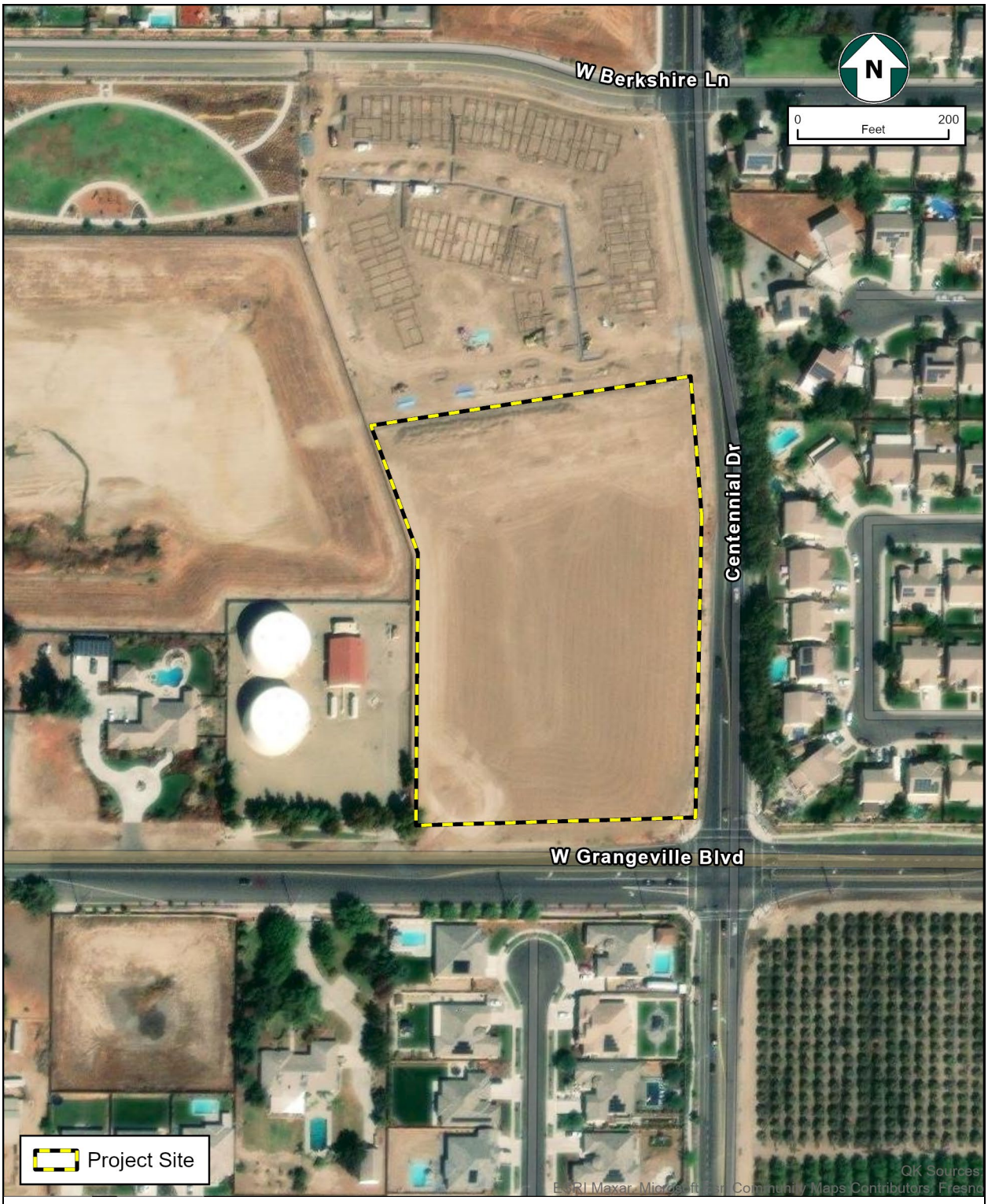

Figure 3-2
Project Site Area

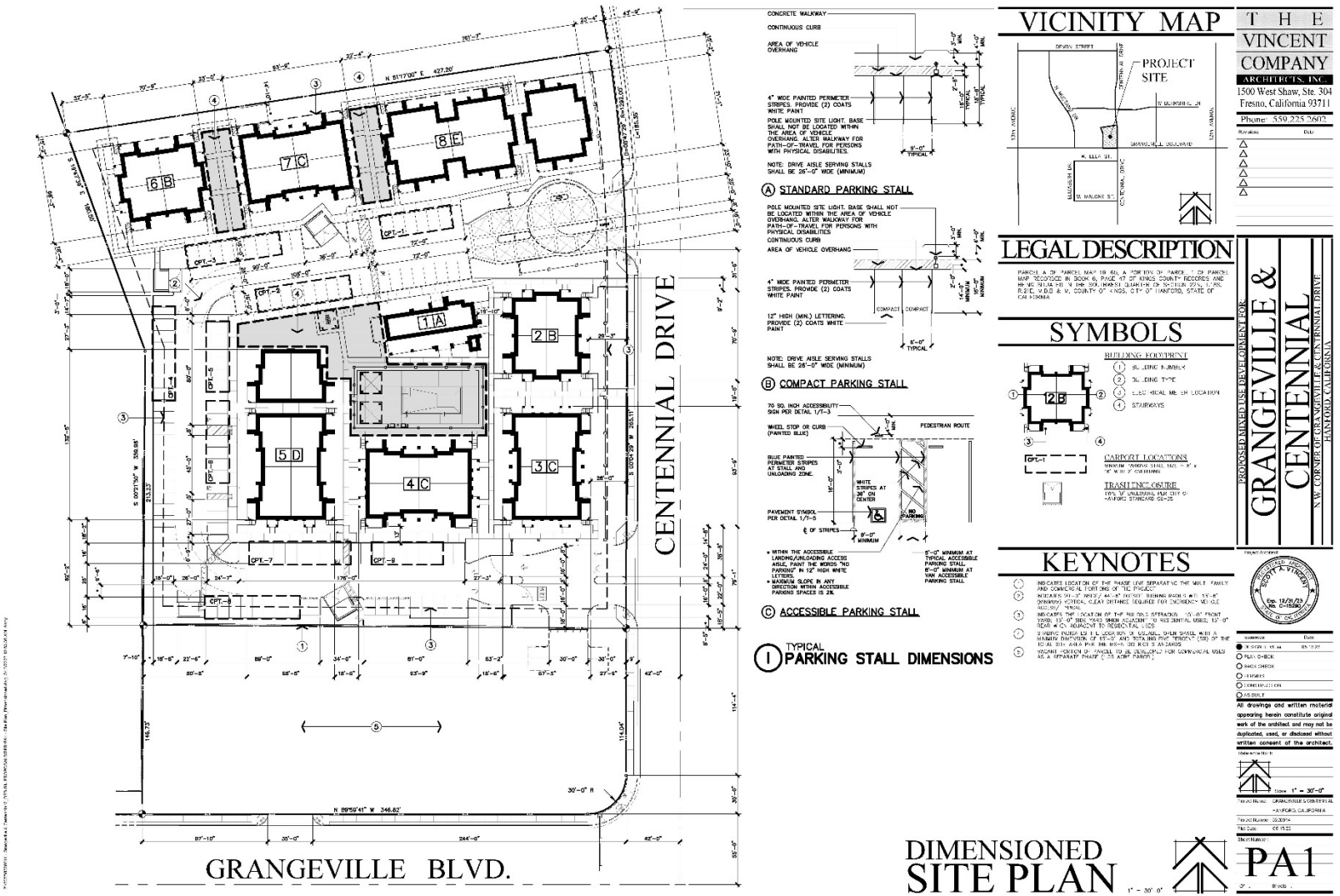

Figure 3-3
Site Plan

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

Signature	Date
Printed Name	For

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.

    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.

    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
3.4.1 - AESTHETICS					
Except as provided in Public Resources Code Section 21099, 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 areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
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 City of Hanford General Plan (General Plan) does not designate any scenic vistas within its jurisdiction (City of Hanford, 2017a). There are very few scenic vistas within the Central Valley. The Coastal Range Mountains and the Sierra Nevada mountain range can be considered scenic vistas. The proposed Project is located approximately 40 miles from the Coastal Range and approximately 45 miles from the Sierra Nevada. Since there are no scenic vistas in the immediate proximity of the proposed Project site, there would be no impacts related to a scenic vista.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

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

Impact #3.4.1b - Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The proposed Project is not in the vicinity of a scenic highway as identified by the City of Hanford or Caltrans. The closest designated scenic highway is a portion of State Route (SR) 198 that runs from SR 99 east through Visalia (California Department of Transportation, 2023). This portion of SR 198 is more than 15 miles east of the Project site and would not be impacted by the Project. The site is flat, with little topography and no trees or rock outcroppings. There would be no impacts related to these types of scenic resources.

Downtown Hanford is identified as the historic center of the City (City of Hanford, 2017a). Three buildings are listed on the National Registry of Historic Places and the State Register of Historic Places. The closest historic buildings are the Kings County Courthouse, which is approximately 2.2 miles to the southeast, the Carnegie Museum and the Taoist Temple, both approximately 2.5 miles to the southeast. The Project will not be visible at these distances and, therefore, would not have an impact on any of these historic buildings.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

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

Impact #3.4.1c - Would the Project in non-urbanized areas substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

The area surrounding the Project site consists of urban development.

The proposed Project land uses are not consistent with the site's current land use designation and zone district and require approval of a GPA and Zone Change to Neighborhood Mixed-Use. With the approval of the GPA and Zone Change, the Project will conform to all Neighborhood Mixed-Use zone standards except when modified through the variance request. The Hanford Municipal Code regulates the appearance and the placement of new development related to the surrounding uses. The Project development will comply with the General Plan, zoning requirements, and the pertinent development standards established in the Hanford Municipal Code for the MX-N zone However, Variance No 0009-23requests removal of the masonry/block wall requirement between the proposed MX-N zone and the adjacent R-H zoned land to the north, providing a fence between the basin (zoned PF) located west, and allowing parking within the 25-foot rear yard setback. The proposed modifications to the development standards under the variance request would not

create a substantial degradation of the visual character of the site or surrounding properties, and would not degrade scenic quality.

The Project will be visibly similar to development in the surrounding area and consistent with the existing urban areas near the site; therefore, the proposed Project will not substantially degrade the existing characteristics of the area, and there would be no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

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

Impact #3.4.1d - Except as provided in Public Resources Code Section 21099, would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Pursuant to City of Hanford Ordinance Code Section 9.10.060, construction activities can occur between the hours of 7:00 a.m. and 8:00 p.m. Construction of the proposed Project would generally occur during daytime hours, typically from 7:00 a.m. to 6:00 p.m. All outdoor lighting would be directed downward and shielded to focus illumination on the desired work areas 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. Proposed construction activities would be conducted within the Noise Ordinance adopted construction periods and are not anticipated to result in significant impact. 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 activity would focus on specific areas on the sites, and any sources of glare would not be stationary for a prolonged period. Therefore, the construction of the proposed Project would not create a new source of substantial glare that would affect daytime views in the area.

Operational impacts of the residential component would be limited to typical exterior residential lighting, light emanating from vehicular headlights, and streetlights. The Project's exterior streetlights and residential lighting will be designed to minimize reflective glare and light scatter. The commercial component of the Project would introduce new lighting sources to the Project vicinity, including lighting from signs, parking lot lighting, and headlights from vehicles.

The Project will comply with the applicable provisions of the Hanford Municipal Code Development Standards, such as Section 17.50.140 – Outdoor Lighting Standards (City of Hanford, 2023a). Additionally, the California Building Code Title 24 contains standards for outdoor lighting that are intended to reduce light pollution and glare by regulating light

power and brightness, shielding, and sensor controls. These requirements would substantially reduce potential nuisances from light or glare.

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:

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

CEQA uses the California Department of Conservation (DOC) Division of Land Resource Protection's Farmland Mapping and Monitoring Program (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 DOC Important Farmland Finder, the Project site is designated as Grazing Land (California Department of Conservation, 2023). The proposed Project is located on land currently zoned and designated for commercial uses.

The Project site is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and, therefore, would not convert agricultural land as designated under the FMMP. Therefore, the Project would not result in a conversion of Farmland pursuant to the FMMP and would result in no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

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

Impact #3.4.2b – Conflict with existing zoning for agricultural use or a Williamson Act contract?

As noted above, the Project is zoned and designated for Neighborhood Commercial by the Zoning Ordinance and is anticipated to have a non-agricultural land use. Additionally, the Project site is not under cultivation and not subject to a Williamson Act Land Use contract. Therefore, there is no impact.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

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

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))?

PRC Section 12220(g) 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 the management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. PRC Section 4526 defines timberland as land other than land owned by the federal government and land designated by the board as experimental forest land, which is available for and capable of growing a crop of trees of a commercial species used to produce lumber and other forest products.

Government Code Section 51104 defines timberland zoned Timberland Production as an area that has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber or for growing and harvesting timber and compatible uses.

The Project site is currently undeveloped and does not contain any trees, so it is not considered forest land or timberland. The proposed Project will not conflict with any forest land or timberland production or result in any loss of forest land. Therefore, the 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 Impacts #3.4.2a-c, above. There will be no impact on forest land.

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 non-agricultural use or conversion of forest land to non-forest use?

See Impacts #3.4.2a-c. The Project site is zoned C-N and thus has been anticipated for urban development by the City. Furthermore, the area surrounding the Project site is developed with existing urban uses and is designated as Public Facilities, High-Density Residential, and Low-Density Residential. The Project site is not designated as Farmland and is not under agricultural cultivation. There would be no impacts related to the conversion of land from agricultural or forest land use.

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

3.4.3 - AIR QUALITY

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

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

Discussion

The impact analyses in this section are based on an *Air Quality Impact Analysis* (Trinity Consultants, 2024) prepared for the Project, which is included in Appendix B.

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

The proposed Project lies within the San Joaquin Valley Air Basin (SJVAB) and is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Kings County is located in a nonattainment area for the 8-hour ozone standard, $PM_{2.5}$, and PM_{10}.

The U.S. Environmental Protection Agency (EPA) established the National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone(O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with a diameter of 10 micrometers or less (PM_{10}), particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead (Pb). California has also adopted the California Ambient Air Quality Standards (CAAQS) for the above criteria air pollutants with more stringent standards and the addition of hydrogen sulfide (H_2S). Table 3.4.3-1 provides the NAAQS and CAAQS criteria pollutant thresholds. If the air basin exceeds the threshold, then a designation of nonattainment is given. Table 3.4.3-2 provides the designation/classification for Kings County.

Table 3.4.3-1
NAAQS and CAAQS Standards

Pollutant	Averaging Time	NAAQS Concentration	CAAQS
O_3	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)
	1-hour	-	0.09 ppm (180 µg/m^3)
CO	8-hour	9 ppm (10 µg/m3)	9 ppm (10 µg/m3)
	1-hour	35 ppm (40 µg/m3)	20 ppm (23 µg/m3)
NO_2	Annual Average	53 ppb (100 µg/m3)	0.030 ppm (57 µg/m3)
	1-hour	100 ppb (188.68 µg/m3)	0.18 ppm (339 µg/m3)
SO_2	3-hour	0.5 ppm (1,300 µg/m3)	-
	24-hour	0.14 ppm (365 µg/m3)	0.04 ppm (105 µg/m3)
	1-hour	75 ppb (196 µg/m3)	0.25 ppm (655 µg/m3)
PM_{10}	Annual Arithmetic Mean	-	20 µg/m3
	24-hour	150 µg/m3	50 µg/m3
$PM_{2.5}$	Annual Arithmetic Mean	12 µg/m3	12 µg/m3
	24-hour	35 µg/m3	-
Sulfates	24-hour	-	25 µg/m3
Pb	Rolling Three-Month Average	0.15 µg/m3	-
	30 Day Average	-	1.5 µg/m3
H_2S	1-hour		0.03 ppm (42 µg/m3)
Vinyl Chloride	24-hour		0.010 ppm (26 µg/m3)
Visibility Reducing particles	8-hour (1000 to 1800 PST)		In 1989, CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents

Source: Appendix B
Notes: ppm = parts per million ppb = parts per billion mg/m3 = milligrams per cubic meter µg/m3 = micrograms per cubic meter

Table 3.4.3-2
SJVAB Attainment Status

Pollutant	NAAQS	CAAQS
O_3 1-hour	No Federal Standard	Nonattainment/Severe
O_3 8-hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment/Unclassified	Attainment/Unclassified
NO_2	Attainment/Unclassified	Attainment
SO_2	Attainment/Unclassified	Attainment
Pb	No Designation/Classification	Attainment
H_2S	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: Appendix B

In order to maintain consistency with CEQA, the SJVAPCD adopted guidelines to assist applicants in complying with the various requirements. The SJVAPCD, as part of their guidelines, established specific CEQA air quality thresholds, as presented in Table 3.4.3-3.

Table 3.4.3-3
SJVAPCD CEQA Thresholds of Significance

Criteria Pollutant	Significance Threshold	
	Construction	Operational
CO	100 tons/yr	100 tons/yr
NOx	10 tons/yr	10 tons/yr
ROG	10 tons/yr	10 tons/yr
SOx	27 tons/yr	27 tons/yr
PM_{10}	15 tons/yr	15 tons/yr
$PM_{2.5}$	15 tons/yr	15 tons/yr

Source: Appendix B

Therefore, if a project were to generate criteria pollutants below significance thresholds adopted by the SJVAPCD, the project would be considered to result in a less-than-significant impact and in compliance with adopted SJVAPCD rules and regulations.

The SJVAPCD has prepared the *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI). The GAMAQI is an advisory document that provides lead agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality impacts in environmental documents. Local jurisdictions are not required to utilize the methodology outlined therein. This document describes the criteria that SJVAPCD uses

when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for determining whether or not projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

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

The proposed Project land uses are not consistent with the site's current land use designation and zone district and require approval of a GPA and Zone Change to Neighborhood Mixed-Use. With the approval of the GPA and Zone Change, the Project will conform to all Neighborhood Mixed-Use zone standards. In addition, as described in Impact #3.4.11, the proposed uses are generally consistent with General Plan goals and policies.

Further SJVAPCD rules and regulations would be applicable to the Project and would include:

- Regulation VIII – PM_{10} reduction measures.
- GAMAQI measures to reduce equipment exhaust.
- Rule 4601 – Architectural Coatings.
- Rule 4641 – Construction and Pavement of Roads and Parking Areas within the Project area.

Furthermore, as noted below, the Project's short-term (construction) and long-term (operational) emissions are below SJVAPCD thresholds. As a result, the Project will not conflict with or obstruct implementation of any air quality plans, and no mitigation is needed. The impact of the Project would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.3b – 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?

The SJVAPCD has established thresholds of significance for determining environmental significance, which are provided in Table 3.4.3-3. Project-specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in nonattainment under applicable federal or State ambient air quality standards. It should be

noted that a project is not characterized as cumulatively insignificant when project emissions fall below thresholds of significance.

Short-Term (Construction) Impacts

As shown in Table 3.4.3-4, the estimated short-term construction-related emissions for criteria pollutants are anticipated to be minimal and would not exceed adopted SJVAPCD significance threshold levels during any given construction year. Short-term construction activities related to the Project were estimated in CalEEMod utilizing default CalEEMod construction equipment lists for the proposed Project's land use type.. These measures, along with other applicable rules and regulations set forth by the SJVAPCD are recommended to be included as mitigation measure MM AQ-1 and MM AQ-2 to reduce construction related emissions for the Project. These MM AQ-1 measures include the application of water on disturbed ground and stockpiled soils, minimizing grading, reducing on site vehicles to 15mph to reduce fugitive dust emissions. MM AQ-2 measures include minimizing equipment and vehicular idling times, the use of electric equipment to the extent possible, and using vehicles that meet Tier 3 engine requirements to minimize criteria pollutant emissions.

Table 3.4.3-4
Project Construction Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Unmitigated						
2024 Construction Emissions	0.06	0.50	0.57	0.00	0.11	0.06
2025 Construction Emissions	0.77	1.45	1.91	0.00	0.12	0.08
2026 Construction Emissions	0.15	0.88	1.07	0.00	0.04	0.03
Mitigated						
2024 Construction Emissions	0.06	0.50	0.57	0.00	0.06	0.04
2025 Construction Emissions	0.77	1.45	1.91	0.00	0.11	0.07
2026 Construction Emissions	0.15	0.88	1.07	0.00	0.04	0.03
Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Is Threshold Exceeded After Mitigation	No	No	No	No	No	No

Source: Appendix B

Long-Term (Operational) Impacts

Emissions from long-term operations generally represent a project's most substantial air quality impact. Long-term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as landscaping maintenance equipment. Table 3.4.3-5 below summarizes the Project's operational impacts by criteria pollutants.

Table 3.4.3-5 below depicts the calculated post-Project operational emissions as calculated in CalEEMod. Measures implemented with CalEEMod include the use of clean and well maintained landscape equipment and are recommended to be included as mitigation

measure MM AQ-3.. Therefore, operational emissions associated with the Project are considered less than significant. Results of the analysis show that emissions generated from the construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, the Project will have a less-than-significant impact.

Table 3.4.3-5
Project Operational Emissions (tons/year)

Emissions Sources	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Unmitigated Operational Emissions						
Area Emissions	0.35	0.03	0.49	0.00	0.00	0.00
Energy Emissions	0.01	0.08	0.05	0.00	0.01	0.01
Mobile Emissions	1.08	1.10	7.62	0.02	1.67	0.45
Total	**1.44**	**1.20**	**8.15**	**0.02**	**1.68**	**0.46**
Mitigated Operational Emissions						
Area Emissions	0.35	0.03	0.49	0.00	0.00	0.00
Energy Emissions	0.01	0.08	0.05	0.00	0.01	0.01
Mobile Emissions	1.00	0.64	4.99	0.01	0.39	0.11
Total	**1.36**	**0.75**	**5.52**	**0.01**	**0.40**	**0.12**
SJVAPCD Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Is Threshold Exceeded after Mitigation?	No	No	No	No	No	No

Source: Appendix B

MITIGATION MEASURE(S)

MM AQ-1: The project shall continuously comply with the following: Construction and operation of the project shall be conducted in compliance with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District. Dust control measures outlines below shall be implemented where they are applicable and feasible. The list shall not be considered all inclusive, and any other measures to reduce fugitive dust emissions not listed shall be encouraged.

a. **Land Preparation Excavation and/or Demolition.** The following dust control measures shall be implemented.

    1. All soil excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations.

    2. All fine material transported off site shall be either sufficiently watered or securely covered to prevent excessive dust.

3. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times.

4. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.

b. **Site Construction:** After clearing, grading, earth moving and/or excavation is completed within any portion of the project sites, the following dust control practices shall be implemented.

1. All active disturbed soil areas shall be sufficiently watered at least twice daily or have dust palliatives applied to prevent excessive dust.

c. **Vehicular Activities:** During all phases of construction, the following vehicular control measures shall be implemented.

1. Onsite vehicle speeds shall be limited to 15 miles per hour.

2. All areas with vehicle traffic shall be paved, treated with dust palliatives or watered a minimum of twice daily.

3. Streets adjacent to the project sites shall be kept clean, and project-related accumulated silt shall be removed.

4. Access to the project sites shall be by means of an apron into the project sites from adjoining surfaced roadways. The aprons shall be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of vehicles, a grizzly, wheel washer, or other such device shall be used on the road exiting the project sites, immediately prior to the pavement, in order to remove most of the soil material from vehicle tires.

MM AQ-2: The project shall continuously comply with the following: The project proponent and/or its contractors shall implement the following measures during construction of the project.

a. All equipment shall be maintained in accordance with the manufacturer's specifications.

b. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment shall be turned off when not in use for extended periods of time.

c. Construction equipment shall operate no longer than eight cumulative hours per day.

d. Electric equipment shall be used whenever possible in lieu of diesel- or gasoline powered equipment.

e. All construction vehicles shall be equipped with proper emission control equipment and kept in good and proper running order to substantially reduce NOx emissions.

f. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.

g. Tier 3 engines shall be used on all equipment when available.

MM AQ-3: The project proponent shall continuously comply with the following measures during operation of the project to control emissions from the on-site dedicated equipment (equipment that would remain on-site each day):

a. All onsite off-road equipment and on-road vehicles for operation/maintenance shall be new equipment that meets the recent California Air Resources Board engine emission standards or alternatively fueled construction equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate.

b. All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized.

c. All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification.

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 refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. Non-residential sensitive receptors are listed in Table 3.4.3-6 below.

Residential sensitive receptors are also located north of the property, east of the Project site, across Centennial Drive, and to the south, across Grangeville Boulevard.

Table 3.4.3-6
Sensitive Receptors Located Within Two Miles of the Project Site

Receptor	Type of facility	Distance from Project (miles)
Frontier Elementary	School	0.34
Pioneer Union Elementary	School	0.36
Sierra Pacific High School	School	0.67
College of the Sequoias	School	0.77
Simas Elementary	School	0.81
New Testament Baptist School	School	1.20
Community Day School	School	1.66
Jefferson Academy	School	1.66
Hanford Adult School	School	1.25
Pioneer Union Elementary	School	1.55
Adventist Health Hanford	Hospital	1.58
Women's Health Adventist	Hospital	1.25
United Health Centers	Hospital	1.56
Hanford Post Acute	Nursing Home	1.65
Advancement Care	Nursing Home	2.0
Vail Family Daycare	Daycare	0.58
Maria's Daycare	Daycare	1.05
Our Little Blessings	Daycare	1.19

Source: Trinity Consultants, 2024.

GAMAQI recommends that lead agencies consider situations wherein a new or modified source of hazardous air pollutants (HAPs) is proposed for a location near an existing residential area or other sensitive receptors when evaluating potential impacts related to HAPs. Typical sources of HAPs include diesel trucks or permitted sources such as engines, boilers, or storage tanks. To predict potential health risks to the population attributable to emissions of HAPs from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at an estimate of individual carcinogenic risk that might occur as a result of continuous exposure over a 70-year lifetime. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices, which are the ratios of expected exposure to acceptable exposures. SJVAPCD has set the level of significance for carcinogenic risk at 20 in one million, which is understood as the possibility of causing 20 additional cancer cases in a population of one million people. The level of significance for chronic and acute non-cancer risk is a hazard index of one. Table 3.4.3-7 depicts the potential maximum impacts predicted to result from the Project.

As shown in Table 3.4.3-7 below, the maximum predicted cancer risk for the proposed Project is 1.79E-05, the maximum chronic non-cancer hazard index is 2.43E-02, and the maximum acute hazard index is 5.04E-02. The potential risk attributable to the proposed Project is below the significance threshold established by SJVAPCD and, therefore, is determined to result in a less-than-significant impact.

Table 3.4.3-7
Potential Maximum Impacts Predicted by HARP2

	Value
Excess Cancer Risk – Total	**1.79E-05**
Construction	1.35E-05
Operations	4.42E-06
Chronic Hazard Index – Max	**2.43E-02**
Construction	1.52E-02
Operations	9.05E-03
Acute Hazard Index – Max	**5.04E-02**
Operations	5.04E-02

Source: Appendix B

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

See discussion in Impact #3.4.3c above.

SJVAPCD's GAMAQI identifies common types of facilities that have been known to produce odors in the San Joaquin Valley Air Basin (San Joaquin Valley Air Pollution Control District, 2015). The types of facilities that are known to produce odors are shown in Table 3.4.3-8, along with a reasonable distance from the source within which the degree of odors could possibly be significant. These can be used as a screening tool to qualitatively assess a project's potential to adversely affect area receptors. None of the facilities shown in Table 3.4.3-8 are located within the vicinity of the Project. Convenience stores, gas stations, fast-food restaurants, and residential uses are not identified in the GAMAQI as facilities that typically produce objectionable odors. As such, the Project is not expected to be a source of objectional odors, nor will future residents and employees of the Project be subject to objectionable odors, and no mitigation is needed.

The SJVAPCD GAMAQI states that analysis for generators and receivers should be conducted to assess odor impacts.

- Generators – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.

- Receivers – residential or other sensitive receptor projects or other projects built to attract people locating near existing odor sources.

Table 3.4.3-8
Screening Levels for Potential Odor Sources

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

The Project is not a source that would create objectionable odors and is not anticipated to be a source of objectionable odors. Therefore, the Project is determined to result in 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

3.4.4 - BIOLOGICAL RESOURCES

Would the Project:

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

The impact analysis in this section is based on a Biological Resource Evaluation that was prepared for the Project (QK, 2023a) and is included in Appendix C.

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 U.S. Fish and Wildlife Service?

Project activities have the potential to affect biological resources. A reconnaissance survey of the Project and a 250-foot buffer (Biological Survey Area, or BSA), where feasible, was conducted on October 30, 2023. The purpose of the survey was to determine the locations and extent of sensitive plant communities and habitats, determine the potential for the occurrence of special-status plant and wildlife species, and identify other sensitive biological resources within the BSA. Meandering pedestrian transects were walked through the BSA to achieve 100 percent visual coverage with the aid of binoculars in areas that were inaccessible. Protocol surveys for specific special-status plant or wildlife species were not conducted because it was determined by the biologists that no such surveys were warranted due to the lack of suitable habitat and the disturbed condition of the Project site. Locations of any observed 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.

QK conducted a review of the literature and agency databases to obtain information on the occurrences of natural communities and special-status species known from the vicinity of the Project site. The California Natural Diversity Database, the California Native Plant Society (CNPS) Database, and the U.S. Fish and Wildlife Service (USFWS) Threatened and Endangered Species List were reviewed. To satisfy other standard search criteria, CNDDB records within a 10-mile radius of the Project site were queried separately from the broader database search (QK, 2023a).

Site Conditions

It is situated on a five-acre vacant lot that has been recently disked and is primarily devoid of vegetation. No natural plant communities occur within the BSA. The Project site consists of a maintained vacant lot that has minimal growth of ruderal species, mainly Russian thistle (*Salsola tragus*) and prostrate pigweed (*Amaranthus blitoides)*, along field margins. The urban development surrounding the Project site contains various ornamental shrubs and trees, including pines (*Pinus* sp.), sycamore (*Platanus* sp.), and olive (*Olea* sp.) located outside of the Project site but within the BSA.

There are several large trees that could support nesting birds and/or raptors, but there were no nests present within the BSA. Smaller ornamental trees associated with the private residences surrounding the Project site could support nesting passerine bird species. Common migratory bird species observed during the survey included mourning dove (*Zenaida macroura*) and common raven (*Corvus corax*). A red-tailed hawk (*Buteo jamaicensis*) was observed soaring over Grangeville Boulevard briefly before flying out of sight.

No small mammal burrows or dens suitable for special-status species were present within the BSA. There was sign (weathered soil mounding) created by pocket gopher (*Thomomys bottae*) present within the margins of the Project site. Sign (scat, tracks, etc.) of domestic dog (*Canis familiaris*) was observed along portions of the Project site.

Special-Status Plant Species

There were 11 special-status plant species identified in the literature and database review that are known or have the potential to occur within the surrounding nine quadrangles centered on the Project site (Table 3.4.4-1). None of the special-status plant species have historical records occurring on or overlapping the BSA (QK, 2023a).

Table 3.4.4-9
Special-Status Plant Species Occurring in the Region of the BSA

Scientific Name	Common Name	Status
Atriplex cordulata var. *cordulata*	heartscale	1B.2
Atriplex cordulata var. *erecticaulis*	Earlimart orache	1B.2
Atriplex depressa	brittlescale	1B.2
Atriplex minuscula	lesser saltscale	1B.1
Atriplex subtilis	subtle orache	1B.2
Delphinium recurvatum	recurved larkspur	1B.2
Lasthenia chrysantha	alkali-sink goldfields	1B.1
Lepidium jaredii ssp. *album*	Panoche pepper grass	1B.2
Nama stenocarpa	mud nama	2B.2
Puccinellia simplex	California alkali grass	1B.2
Sagittaria sanfordii	Sanford's arrowhead	1B.2

CRPR (California Rare Plant Rank):
1B Rare, Threatened, or Endangered in California and elsewhere.
2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
CRPR Threat Code Extension:
.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Fairly endangered in California (20-80% occurrences threatened)

No special-status plant species were present within the BSA. The survey coincided with some, but not all, of the plant species' optimal blooming periods, but none of the species identified in the CNDDB or Ipac database queries are expected to occur onsite due to the lack of suitable habitat conditions and/or because the BSA is located outside of the species' known range. The Project site is degraded from historical land use, mainly from historical agricultural purposes, and the adjacent lands have been equally disturbed for residential and transportation corridors.

Special-Status Wildlife Species

There were 22 special-status wildlife species identified in the literature and database review that are known or have the potential to occur within the surrounding nine-quad search area

centered on the Project (Table 3.4.4-2). There are no historical records from the CNDDB or Ipac of any special-status wildlife species within the BSA.

Table 3.4.4-2
Special-Status Wildlife Species Occurring in the Region of the BSA

Scientific Name	Common Name	Status
Invertebrates		
Branchinecta lynchi	vernal pool fairy shrimp	FT, -
Cicindela tranquebarica joaquinensis	San Joaquin tiger beetle	-, -
Danaus plexippus	monarch butterfly	FC, -
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT, -
Gonidea angulate	western ridged mussel	-, -
Lepidurus packardi	vernal pool tadpole shrimp	FE, -
Linderiella occidentalis	California linderiella	-, -
Amphibians		
Ambystoma californiense pop 1	California tiger salamander	FT, ST
Spea hammondii	western spadefoot	-, SSC
Reptiles		
Arizona elegans occidentalis	California glossy snake	-, SSC
Emys marmorata	western pond turtle	-, SSC
Gambelia sila	blunt-nosed leopard lizard	FE, -
Birds		
Agelaius tricolor	tricolored blackbird	-, ST/SSC
Athene cunicularia	western burrowing owl	-, SSC
Buteo swainsoni	Swainson's hawk	-, ST
Charadrius nivosus nivosus	western snowy plover	FT, SSC
Xanthocephalus xanthocephalus	yellow-headed blackbird	-, SSC
Mammals		
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE, SE
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE, SE
Lasiurus cinereus	hoary bat	-, -
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE, SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST

Abbreviations:
FC Federal Candidate
FE Federal Endangered Species
FT Federal Threatened Species
SFP Fully Protected Animal, CDFW
SE California Endangered Species
ST California Threatened Species
SSC California Department of Fish and Game Species of Special Concern

One special-status wildlife species, Swainson's hawk, was determined to have limited potential to occur within the BSA as a transient (QK, 2023a).

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) has the potential to occur within the BSA. The nearest Swainson's hawk CNDDB occurrence is approximately 4.7 miles southeast of the BSA, where an active nest was observed in one of the eucalyptus trees along Lacey Boulevard in 2012, and an adult was observed sitting on the same nest in 2016. There is suitable nesting habitat within the BSA in the nearby large trees that could be used by a Swainson's hawk. The Project site provides a limited prey base due to the periodic disking of the Project site and the absence of active small mammal burrows, but a few inactive gopher burrows were present, indicating the potential for prey in the area.

Available habitat within the BSA, fulfilling the foraging and nesting requirements of this species, is limited. Therefore, the presence of the species within the BSA is unlikely. There are a few large trees located within the southern boundary of the BSA that could potentially support nesting raptors, including Swainson's hawk; however, the shortage of prey and lack of local foraging habitat makes the presence of the Swainson's hawk very unlikely.

Impacts to nesting Swainson's hawks could occur during construction due to noise, vibration, and the presence of construction workers, which may alter normal behaviors and possibly lead to nest failure. Implementation of Mitigation Measures (MM) BIO-1 through MM BIO-7 would reduce any impacts to the species to below significant levels.

Nesting Birds

There were no nests (active or inactive) present within the BSA during the survey. Habitat within the Project site with the potential to support nesting birds is limited to ornamental trees located within the surrounding urban development, which may support passerine nests or larger raptor nests. Due to the periodic disking, it is unlikely that ground-nesting species would nest within the Project site. Additionally, there are a variety of man-made structures (utility poles, transmission towers, agricultural residences, etc.) and trees within the BSA and in the vicinity of the Project, which could support a variety of nesting bird species. If there are active nests present during Project activities, nests could be destroyed, and Project activities could interfere with normal breeding behaviors, which could discourage breeding or lead to nest abandonment or failure. Implementation of MM BIO-1, MM BIO-2, and MM BIO-4 through MM BIO-7 would reduce impacts to these species to below significant levels.

MITIGATION MEASURE(S)

MM BIO-1: A pre-construction clearance survey of the Project footprint shall be conducted for special-status wildlife species and nesting migratory birds and raptors. The survey shall occur no less than 14-30 days prior to the start of construction activities. If construction is delayed beyond 30 days from the time of the survey, then another survey must be conducted.

The survey shall be conducted by a biologist with adequate training and prior experience conducting surveys for special-status wildlife species. If no special-status species are observed, no further action is warranted. If dens or burrows that could support special-status species and/or nesting birds are discovered during the pre-construction survey, appropriate avoidance buffers should be established. A report outlining the results of the clearance survey shall be provided to the Lead Agency as evidence of compliance.

MM BIO-2: If construction is planned during the nesting season for migratory birds (February 15 to August 31) and nesting birds are identified during the survey, active Swainson's hawk nest shall be avoided by 0.5 miles, other 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 biological 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.

MM BIO-3: If an active Swainson's hawk nest is discovered at any time within 0.5 miles of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment would 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 the construction activities of this Project. Based on this assessment, the biologist will 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 on 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 nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

MM BIO-4: Prior to the initiation of construction activities, all personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. The program shall include information on the life histories of special-status species with the potential to occur on the Project, their legal status, the course of action shall these species be encountered onsite, and avoidance and minimization measures to protect these species.

MM BIO-5: Project-related vehicles should observe a 20-mph speed limit in all Project areas, except on county roads and state and federal highways. Off-road traffic outside of designated Project areas should be prohibited.

MM BIO-6: All trash and food items should be discarded into closed containers and properly disposed of at the end of each workday.

MM BIO-7: To prevent harassment or mortality of listed species, no pets should be permitted on the Project site during Project construction.

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?

Sensitive natural communities are designated by various resource agencies, including the CDFW, USFWS, Bureau of Land Management, U.S. Forest Service, or are designated by local agencies through policies, ordinances, and regulations.

There is no riparian habitat or sensitive natural communities within the Project boundaries, and no protected species were observed during the survey. Therefore, there would be no impacts.

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 on 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 identified water features, federal waters, or wetlands located on or near the Project, and there would be no impacts (QK, 2023a).

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 movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges (e.g., coyotes, mule deer). They can also be small-scale movement corridors, such as riparian zones, that provide connectivity and cover to support the movement at a local scale.

The BSA is not within any designated wildlife linkage or movement corridors. The nearest wildlife movement corridor is located approximately 7.5 miles east of the BSA, and the nearest wildlife linkage area is approximately 22.3 miles to the southeast. The Project is situated within an area developed for urban and agricultural use and does not provide a linkage between suitable natural habitats for most wildlife species. Due to the disturbed condition of the Project and surrounding area, there is no substantial movement of wildlife onto or off the BSA, and there would be no impacts (QK, 2023a).

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

There would be *no impact*.

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 General Plan contains policies aimed at the preservation of biological resources and promotes coordination with federal and State resource agencies. The General Plan outlines a work plan with implementation measures to uphold these policies, including biological resource review for proposed projects and development of mitigation measures for these projects.

As noted previously, there are no trees on the Project site. The Project is consistent with the General Plan and Title 12.12 of the Hanford Municipal Code regarding biological resources. Therefore, there are no impacts with respect to local policies and ordinances, and no measures are warranted.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

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

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 located within an area covered by the PG&E San Joaquin Valley Operation and Maintenance Habitat Conservation Plan (HCP). That HCP only applies to the maintenance and operations of PG&E facilities and does not apply to this Project. There are no other pertinent HCP or NCCP within the Project area. The Project would have 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

3.4.5 - CULTURAL RESOURCES

Would the Project:

a.	Cause a substantial adverse change in the significance of a historical resource pursuant to 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 discussion below is based on the Cultural Resources Technical Memo completed for the Project, attached as Appendix D (QK, 2023b).

Discussion

Impact #3.4.5a – Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?

As noted in Impact #3.4.1b, Hanford has three buildings listed on the National Registry of Historic Places and the California Register of Historic Resources. They are the Hanford Carnegie Library, the Kings County Courthouse, and the Taoist Temple. None of these are located in close proximity to the Project, and therefore, there would be no impact.

A cultural resources records search (RS #23-475) was conducted at the Southern San Joaquin Valley Information Center, CSU Bakersfield, to determine whether the proposed Project would impact cultural resources. 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 an approximately 200-foot wide strip along the southern boundary of the subject property adjacent to Grangeville Boulevard had been previously surveyed for cultural resources as part of a larger project with negative results. The remainder of the property has never been surveyed for cultural resources, and it is not known if any exists on it. Four additional cultural resource studies have been conducted within a half mile of the Project.

Seven cultural resources, six historical and one prehistoric, have been recorded within a half mile of the Project. The historic resources include a segment of the Last Chance Ditch (primary no. P-16-000128) and five residential buildings dating between the 1940s and 1960 (P-16-000234, -000235, -000236, -000237, -000238). The prehistoric site (P-16-000004) is a habitation mound with burials that has been extensively damaged by past agricultural and construction activities over the past century. The Project would not impact any of these cultural resources. No further resources, either historical or prehistoric, have been identified or recorded within one-half mile of the proposed Project.

A Sacred Lands File request was also submitted to the Native American Heritage Commission. A response dated December 5, 2023, indicates negative results.

Although there is no obvious evidence of historical or archaeological resources on the Project site, there is potential for the discovery of cultural resources during construction. Grading, trenching, and other ground-disturbing actions can damage or destroy these previously unidentified and potentially significant cultural resources within the Project area, including historical resources.

The General Plan EIR determined that new development as a result of the General Plan Update could affect known and previously unknown archaeological resources as well as paleontological resources. The General Plan Update also included policies that specifically address sensitive archaeological resources and their protection, which include:

- Policy O45—Consult with appropriate Native American associations about potential archaeological sites in the beginning stages of the development review process.
- Policy O46—Require archaeological studies by a certified archeologist in areas of archeological potential significance prior to approval of development projects.
- Policy O47—Consult with the California Archaeological Inventory Southern San Joaquin Valley at California State University, Bakersfield, about potential cultural sites on projects that could have an impact on cultural resources.
- Policy O48—Halt construction at a development site if cultural resources are encountered.

An inventory was conducted for the General Plan Update, and this site was not listed as having a potential cultural resource.

On January 10, 2017, the City of Hanford met with the Tachi Yokut Tribe on a different project in order to establish conditions that would apply to all projects in the City of Hanford, which required an Initial Study. In order to address the concerns of the Tachi Yokut Tribe, the City is requiring the following as mitigation measures:

- That a Burial Treatment Plan be entered into by the applicant/property owner prior to any earth-disturbing activities. (This condition applies as a mitigation measure to all projects that require an Initial Study.)

In the unlikely event construction of the Project inadvertently uncovers previously unknown cultural resources, avoidance and minimization measures will be added to all engineered plans and specs that would outline necessary steps to be taken prior to the start of construction. These measures require all work in the immediate vicinity of the discovery of cultural resources find to halt until a qualified archaeologist can evaluate the find and make recommendations. In addition, prior to any ground disturbance, if the City receives a request from a Native American tribal group, a surface inspection of the site will be conducted by a tribal monitor, and the tribe will have the opportunity to provide a Native American Monitor during ground-disturbing activities, dependent upon the availability and interest of the tribe.

In addition, the following measures have been required by the City to ensure impacts to cultural resources are 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. 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. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, fire-affected rock, and historic resources such as glass, metal, wood, brick, or structural remnants. 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 any ground disturbance, if the City of Hanford receives a request from a Native American tribal group, a surface inspection of the site shall be conducted by a tribal monitor. The tribal staff shall provide pre-Project-related activities briefings to supervisory personnel and any excavation contractor, including information on potential cultural material, finds, and any excavation contractor, which will include information on potential cultural material finds, and the procedures be enacted if resources are found. The tribal cultural staff shall monitor the site during grading activities.

Prior to any ground disturbance, the applicant shall offer the tribe the opportunity to provide a Native American Monitor during ground-disturbing activities. Tribal participation would be dependent upon the availability and interest of the tribe.

MM CUL-3: That a Burial Treatment Plan be entered into by the applicant/developer prior to any earth-disturbing activities.

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 Impact #3.4.5a above. Based on the results of cultural records search findings and the historical or archaeological resources previously identified within a half-mile radius of the proposed Project, there is a possibility that historical or archaeological materials may be exposed during construction. Grading, trenching, and 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. To reduce the Project's potential impacts on cultural resources, implementation of MM CUL-1 through MM CUL-3 would reduce impacts to less-than-significant levels.

MITIGATION MEASURE(S)

Implementation of MM CUL-1 through MM CUL-3.

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?

There are no known cemeteries or burials on or near the Project. Although unlikely, subsurface construction activities, such as trenching and grading, associated with the proposed Project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. The cultural resources and Sacred Lands File records searches did not indicate the presence of human remains, burials, or cemeteries within or in the vicinity of the Project site. No human remains have been discovered at the Project site, and no burials or cemeteries are known to occur within the area of the site. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. Implementation of the mitigation measure below would ensure that the proposed Project would not directly or indirectly destroy previously unknown human remains. It is unlikely that the proposed Project would disturb any known human remains, including those interred outside of formal cemeteries. However, with the implementation of MM CUL-4, the Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

MM CUL-4: 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 the 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 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 AQIA (Trinity Consultants, 2024), and available energy resource consumption data.

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

CEQA Guidelines require consideration of the potentially significant energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient, and unnecessary" energy usage (Public Resources Code Section 21100, subdivision [b][3]). The means to conserve energy include decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources.

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. The long-term operation of the proposed includes electricity and natural gas service to power internal and exterior building lighting, as well as 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 Southern California Edison (SCE). The SCE and State of California 2022 power mix is detailed in Table 3.4.6-1. Energy usage by sector is outlined in Table 3.4.6-2.

Table 3.4.6-3 below presents natural gas consumption by sector for SCE in 2022.

Table 3.4.6-1
SCE and the State of California 2022 Power Mix

Energy Resource	SCE Power Mix	California-Wide Power Mix
Eligible Renewable	33.2%	35.8%
Biomass & Biowaste	*0.1%*	*2.1%*
Geothermal	*5.7%*	*4.7%*
Small Hydroelectric	*0.5%*	*1.1%*
Solar	*17%*	*17%*
Wind	*9.8%*	*10.8%*
Coal	0%	2.1%
Large Hydroelectric	3.4%	9.2%
Natural Gas	24.7%	36.4%
Nuclear	8.3%	9.2%
Other	0.1%	0.1%
Unspecified [1]	30.3%	7.1%
Total	**100%**	**100%**

Source: (SCE, 2022)
[1] Electricity from transactions that are not traceable to the specific generation source

Table 3.4.6-2
Electricity Consumption in SCE Service Area (2022)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Streetlight	Usage
3,149.6	30,496.1	5,321.2	12,876.6	1,776.1	31,603.7	646.6	95,870

Source: (California Energy Commission, 2022)
Note: All usage is expressed in millions of kWh (GWh).

Table 3.4.6-3
Natural Gas Consumption in PG&E Service Territory (2022)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
76.8	867.5	98.8	1,605.8	147.4	2,230.2	5,026.5

Source: (California Energy Commission, 2022)
Note: All usage expressed in Millions of Therms

The proposed Project's estimated energy usage was calculated using CalEEMod and shown in the CalEEMod output files in Appendix B. It is summarized and compared to statewide usage in Table 3.4.6-4. As shown in 3.4.6-4, the proposed Project would make a minimal contribution to statewide energy consumption in these categories.

Table 3.4.6-4
Estimated Project-Related Energy Usage

Land Use	Energy Type	Energy Usage	Annual Statewide Energy Use	Project % of Statewide Energy
Convenience Market with Gas Pumps	Natural Gas (kBTU/yr)	17,974.4	-	-
	Electricity (kWh/yr)	13,417.3	-	-
Fast-Food Restaurant with Drive Thru	Natural Gas (kBTU/yr)	735,210	-	-
	Electricity (kWh/yr)	98,945	-	-
Apartments Low Rise	Natural Gas (kBTU/yr)	873,409	-	-
	Electricity (kWh/yr)	264,386	-	-
Total Energy Usage	Natural Gas (kBTU/yr)	**1,626,593.4**	**189,082,861,453** (California Energy Commission, 2022)	**0.00086%**
	Electricity (kWh/yr)	**376,748.3**	**280,738,000,000** (California Energy Commission, 2022)	**0.00013%**

Source: Appendix B

Construction

On-Road Vehicles (Construction)

Energy demand during the construction phase would be the result of transportation of materials, construction equipment, and construction worker vehicle trips. Compliance with local and regional regulations during construction would minimize fuel consumption. Furthermore, construction is temporary in nature and is anticipated to occur over a 24-month period.

Off-Road Vehicles (Construction)

Off-road construction vehicles would use diesel fuel during the proposed Project's construction phase. Based on the total amount of CO_2 emissions expected to be generated by the proposed Project (as provided by the CalEEMod output) and a CO_2 to diesel fuel conversion factor (provided by the U.S. Environmental Protection Agency), the proposed

Project would use a total of approximately 54,229 gallons of diesel fuel for off-road construction vehicles for the entirety of the Project's construction (United States Environmental Protection Agency, 2023). A non-exhaustive list of constructive off-road vehicles expected to be used during the proposed Project's construction phase includes cranes, forklifts, generator sets, tractors, excavators, and dozers.

Short-term 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. Compliance with local and regional regulations during construction would minimize fuel consumption. 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 CARB that may reduce the Project's energy consumption, including diesel anti-idling measures, light-duty vehicle technology, alternative fuels such as biodiesel blends and ethanol, and heavy-duty vehicle design measures to reduce energy consumption. Measures to reduce idling and use of efficient and up-to-date technology are recommended for inclusion as mitigation measures AQ-1 and 2 under Section 3.4.3b would reduce inefficient use of energy resources. As such, impacts would be less than significant with incorporation of recommended mitigation measures.

Operations

ELECTRICITY AND NATURAL GAS

Electricity and natural gas used by the proposed Project would be used to power residential units, a convenience store, a gas station, and a fast-food restaurant. The Project would be required to comply with California's Title 24 CalGreen Code requirements for new 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. Compliance with CalGreen Code will be included as mitigation measure MM ENG-1 and would reduce operational impacts on energy resources. As such, impacts would be less than significant with implementation of the recommended mitigation measures.

MITIGATION MEASURE(S)

Implementation of MM AQ 1 and AQ 2

MM ENG-1: The Project proponent and its contractors shall comply with applicable California Title 24 CalGreen Code which can include but not be limited to inclusion of solar ready rooftops, double pane windows, electric vehicle charging, use of LED lights, the use of low flow appliances, drip irrigation, and drought tolerant landscaping. .

LEVEL OF SIGNIFICANCE

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

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

See Impact #3.4.6a above. The construction and operation of the Project would comply with State and local plans and regulations. 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 solar-ready roofs, electric vehicle charging, and water conservation as recommended in MM ENG-1. Energy would also be indirectly conserved through water-efficient landscaping requirements consistent with the City Landscaping Ordinance.

Stringent solid waste recycling requirements applicable to Project construction and operation would reduce energy consumed in solid waste disposal. In summary, the Project will implement all mandatory federal, State, and local conservation measures, Project design features, and voluntary energy conservation measures to reduce energy demands further. 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)

Implementation of MM ENG-1.

LEVEL OF SIGNIFICANCE

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

	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 direct or indirect 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?	☐	☒	☐	☐

Discussion

Impact #3.4.7a(i) – Would the Project directly or indirectly cause 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?

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) requires the delineation of zones along active faults in California. Within these zones, cities and counties must regulate certain development, including withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture; however, surface fault rupture is not necessarily restricted to the area within the Alquist-Priolo Zone. The Alquist-Priolo Act prohibits the location of most structures for human occupancy across active fault traces.

There are no designated Alquist-Priolo zones in the City of Hanford, according to the General Plan (City of Hanford, 2017a).

All new structures are required to conform to current seismic protection standards in the California Building Code and are incorporated as Mitigation Measure MM GEO-1. By adhering to the 2022 California Building Code and City development standards, the Project will have a less-than-significant impact of endangering people and structures associated with earthquakes.

MITIGATION MEASURE(S)

GEO-1: The project proponent and its contractors shall construct the project in compliance with applicable development standards under the California Building Code..

LEVEL OF SIGNIFICANCE

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

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 groundshaking?

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

The greatest potential for seismic activity in the City is posed by the San Andreas Fault, which is located approximately 55 miles southwest of the proposed Project. The White Wolf Fault, located near Arvin and Bakersfield to the southwest of Kern County, has the potential to cause seismic hazards for the County to a much lesser degree than the San Andreas Fault. Kings County does not have any major fault system within its boundaries.

The Uniform Building Code has four seismic zones in the US, ranging from I to IV; the higher the number, the higher the earthquake danger. All of California lies within Zone III or IV, and Kings County is within Zone III, which equates to the potential to experience 0.3 meters/second squared ground acceleration, which would result in very strong to severe perceived shaking and a moderate to heavy potential.

Secondary hazards from earthquakes include ground shaking/ruptures. Since there are no known faults within the immediate area, ground shaking/ruptures from surface faulting, seiches, and landslides would not be hazards in the area. While such seismic shaking would be less severe than 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 laws 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, 2022). The Project will be required to adhere to all applicable local and State regulations as noted in MM GEO-1 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)

Implementation of GEO-1.

LEVEL OF SIGNIFICANCE

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

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?

Liquefaction occurs when saturated, loose materials are weakened and transformed from a solid to a near-liquid state as a result of increased pore water pressure. For liquefaction to occur, surface and near-surface soil must be saturated and relatively loose.

According to the Kings County Safety Element, the risk of liquefaction within the County is considered minimal. Because the Project site is within an area of low seismic activity, and the soils associated with the Project are not suitable for liquefaction, impacts will be less than significant. The area's low potential for seismic activity would further reduce the likelihood of liquefaction occurrence. 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(iv) – Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Landslides include rockfalls, deep slope failure, and shallow slope failure. Factors such as geological conditions, drainage, slope, vegetation, and others directly affect the potential for landslides.

Kings County is listed to have "Low" to "Moderate" risk landslide areas located in the remote uninhabited sections of southwest Kings County. The Project site is within the Landslide Incidence Low (less than 1.5 percent of the area involved), so the development will have a less-than-significant impact (Kings County, 2009).

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

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

The Project site is underlain by a single soil type, Nord complex (QK, 2023a). Construction activities associated with the proposed Project will disturb soils during construction and expose these disturbed areas to erosion by wind and water. To reduce the potential for soil erosion and loss of topsoil during construction, the Project would comply with the NPDES General Construction Permit from the State of California Central Valley Regional Water Quality Control Board (RWQCB) 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. An SWPPP must identify potential sources of erosion or sedimentation and identify and implement best management practices (BMPs) that ensure reduced erosion. If an SWPPP was not required, the Project would implement the standard BMPs. Typical BMPs intended to control erosion include sandbags, silt fencing, street sweeping, etc. Mitigation Measure MM GEO-2 requires the approval of an SWPPP to comply with the NPDES General Construction Permit, if appropriate. Compliance with local grading and erosion control ordinances would also help minimize adverse effects associated with erosion and sedimentation. Any stockpiled soils would be watered and/or covered to prevent loss due to wind erosion as part of the SWPPP during construction.

The Project will comply with all the City's grading requirements outlined in Title 24 and Appendix J of the California Building Code. The Project is not expected to result in substantial soil erosion or the loss of topsoil with the incorporation of MM GEO-1.

Once constructed, the Project will have both impermeable and permeable surfaces. Impermeable surfaces would include existing roadways, driveways, and structures. Permeable surfaces would include open areas of the site and landscaped areas. Overall, the development of the Project would not result in conditions where substantial surface soils would be exposed to wind and water erosion.

Mitigation Measure(s)

MM GEO-2: Prior to issuing of grading or building permits, if required, (a) the Project applicant shall submit to the Lead Agency (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.
- 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.

There are no slopes on or near the property, and the Project would not expose the people or structures to significant risks from landslides. The site is not located near any areas with a sufficient slope that could result in offsite landslides. Moreover, the Project will be designed by an engineer to resist potential side effects of spreading, subsidence, liquefaction, or collapse.

The proposed Project will comply with all City and State regulations pertaining to construction, including the Hanford Municipal Code. In addition, the California Geologic Society, in implementing the CA Seismic Hazards Mapping Program, has not identified any seismically induced landslide hazard zones in Hanford (City of Hanford, 2017a). Therefore, complying with the existing regulatory framework including compliance with the California Building Code as required under MM GEO-1. would be adequate to reduce any potential impacts to less-than-significant levels.

MITIGATION MEASURE(S)

Implementation of MM GEO-1.

LEVEL OF SIGNIFICANCE

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

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 direct or indirect risks to life or property?

See Impact #3.4.7a(iii), 3.4.7a(iv) and Impact #3.4.7c above.

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?

The proposed Project would not include septic tanks or alternative wastewater disposal systems. The development will be required to connect to the existing City sewer system. Therefore, there would be no impact related to the use of septic systems.

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 site does not have any known paleontological resources or unique geologic features. The General Plan Goal 06 requires the protection of paleontological resources. Implementation of MM GEO-3 would reduce potential impacts to a less-than-significant level related to paleontological resources.

MITIGATION MEASURE(S)

MM GEO-3: If any paleontological resources are encountered during ground-disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or another appropriate facility regarding any discoveries of paleontological resources.

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

The impact analyses in this section are based on an Air Quality Impact Analysis (Trinity Consultants, 2024), which is attached as Appendix B.

Discussion

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

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

a. If a project complies with an approved GHG emission reduction plan or GHG mitigation program that avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.

ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, it would be required to implement Best Performance Standards (BPS).

iii. If a project is not implementing BPS, it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

The Project would generate GHGs from electricity use and the combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply chain. As such, each citizen of California (including the operator of the Project) will have no choice but to purchase electricity and fuel produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change because SHP is purchasing energy from the California market. Thus, the Project would have a less-than-significant impact on applicable GHG reduction plans.

Several new laws and executive orders were adopted that require additional reductions in years after 2020. For instance, Senate Bill 32 requires that GHG emissions be 40 percent less than 1990 levels by 2030. More drastic still, Senate Bill 100, which was signed by the Governor recently, requires 100 percent zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18, which commits California to total, economy-wide carbon neutrality by 2045 (Trinity Consultants, 2024).

The SJVAPCD does not have thresholds or guidance regarding the significance of GHG emissions. However, the South Coast Air Quality Management District (SCAQMD) adopted an Interim GHG Significance Threshold. For these reasons, Project GHG emissions levels presented in Table 3.4.8-1 are primarily for disclosure purposes because impact analysis for the Project follows the approach certified by SCAQMD. The SCAQMD guidance identifies a threshold of 10,000 $MTCO_2eq.$/year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions.

Although the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 3.4.8-1 shows the yearly GHG emissions generated by the Project as determined by the CalEEMod model within the Air Quality Impact Analysis, which is less than the threshold identified by the SCAQMD.

Table 3.4.8-1
Estimated Annual Greenhouse Gas Emissions (MT/Year)

	CO_2 Emissions	CH_4 Emissions	N_2O Emissions	CO_2e Emissions
Construction Emissions				
Total	550.22	0.11	0.00	553.95
Operational Emissions				
Area Emissions	0.77	0.00	0.00	0.79
Energy Emissions	121.66	0.01	0.00	122.52
Mobile Emissions	421.43	0.09	0.05	439.82
Water Emissions	14.16	0.84	0.00	35.08
Waste Emissions	5.28	0.18	0.00	10.91
Total Project Operational Emissions	563.30	1.11	0.06	609.12
Annualized Construction Emissions	18.34	0.00	0.00	18.46
Project Emissions	**563.30**	**1.11**	**0.06**	**609.12**

Source: Appendix B

Because climate change is a global issue, a development project like the proposed Project, on an individual basis, does not have a reasonable potential to result in a measurable, significant impact on global warming or climate change. However, the Project would contribute to cumulative GHG emissions that cumulatively result in environmental and health effects associated with climate change across California, the country, and the world. The Project's emissions would only be a very small fraction of the statewide GHG emissions. Regardless,

given the position of the legislature in AB 32 that states that global warming poses serious detrimental effects and the requirements of CEQA for the Lead Agency to determine if a project would have a cumulatively considerable contribution, the effect of the Project's CO_2 contribution may be considered cumulatively considerable. The strategies currently being implemented by CARB can help in reducing the project's GHG emissions and are summarized below:

- Vehicle Climate Change Standards – AB 1493 (Pavley required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light-duty trucks. Regulations were adopted by CARB in September 2004.
- Diesel Anti-Idling – In July 2004, CARB adopted a measure to limit diesel-fueled retail motor vehicle idling to five minutes or less.
- Other Light-Duty Vehicle Technology – New standards would be adopted to phase in beginning in the 2017 model year.
- Alternative Fuels: Biodiesel Blends – CARB would develop regulations to require the use of one percent to four percent biodiesel displacement of California diesel fuel.
- Alternative Fuels: Ethanol – Increased use of ethanol fuel.
- Heavy-Duty Vehicle Emission Reduction Measures – Increased efficiency in the design of heavy-duty vehicles and an educational program for the heavy-duty vehicle sector.

Any further feasible emissions reductions would be accomplished through CARB regulations adopted pursuant to AB 32. Overall, the impacts to occur during the construction 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, the construction and operation of the proposed Project would still have to comply with the SJVAPCD's regulations and requirements, as discussed in the air quality section.

The Project will not result in the emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF_6), the other gases identified as GHG in AB 32. The proposed Project will be subject to any regulations developed under AB 32 as determined by CARB. Therefore, it is anticipated that the Project will not generate significant long-term GHG emissions over its lifetime, and impacts would be less than significant for GHG emission impacts.

MITIGATION MEASURE(S)

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 Impact #3.4.8a.

On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

Senate Bill (SB) 375 aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. CARB has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks by 2020 and 2035.

The proposed Project requires approval of a GPA and Zone Change to Neighborhood Mixed-Use. The Project would be consistent with the General Plan and will conform to all Neighborhood Mixed-Use zone standards. In addition, as described in Impact #3.4.11, the proposed use is generally consistent with General Plan goals and policies. Furthermore, the Project's emissions are below SJVAPCD thresholds.

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

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

- The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or Lead Agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the residential and commercial development. The Project would not conflict with or obstruct this reduction measure.

The analysis above takes into account the cumulative nature of the energy industry and recognizes that consumers of electricity and diesel fuel are, in effect, regulated by higher-level emissions restrictions on the producers of these energy sources. Therefore, the Project's contribution to cumulative global climate change impacts would not be cumulatively considerable. The proposed Project is not expected to result in significant GHG emissions and would not conflict with State GHG emission reduction goals.

Based on the assessment above, the Project will not conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases. Therefore, any 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

3.4.9 - 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 or excessive noise 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 impact analyses in this section are based on a Phase 1 Environmental Site Assessment (SEI, 2023), which is attached as Appendix E.

Discussion

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

Project 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. 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. Residential construction generally uses fewer hazardous chemicals or chemicals in relatively small quantities and concentrations compared to commercial or industrial uses.

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. These efforts can include regulatory compliance with State Water Resources Control Board (SWRCB) NPDES and SWPPP requirements for pollution prevention during construction activities and the use of designated hazardous material transportation routes regulated by the U.S. 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 the construction of the proposed Project would be collected and transported away from the site and disposed of at an approved offsite landfill or other such facilities. In addition, sanitary waste generated during construction would be managed through portable toilets located at reasonably accessible onsite locations. Compliance with the NPDES and SWPPP requirements will be necessary under MM GEO-2. Regulatory compliance regarding the use of designated hazardous material transportation routes will be required under mitigation measure MM HAZ-1.

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 the environment would occur through the routine transport, use, or disposal of hazardous waste during the construction or operation of the new residential development.

The commercial component of the Project is anticipated to include the development of a gas station and fast-food restaurants. Development of the gas station would include the installation of underground storage tanks (UST), which would be regulated by the State Water Resources Control Board (SWRCB) and Kings County Department of Public Health, which is the Certified Unified Program Agency (CUPA). The installation and operation of UST will be in compliance with local and State regulations related to UST installation and hazardous materials use and handling. This requirement will be included as mitigation measure MM HAZ-2. Therefore, the construction of the gas station would not create a hazard to the public or the environment through the routine transport, use, or disposal of hazardous

materials. The development of uses associated with the fast-food restaurant portion of the Project site would be subject to the same regulations and permitting standards as noted above.

Project Operation

Once constructed, the use of such materials as paint, bleach, etc., is considered common for residential developments. It would be unlikely for such materials to be stored or used in such quantities that would be considered a significant hazard. No significant hazard to the public or the environment would occur through the routine transport, use, or disposal of hazardous waste during the construction or operation of the new residential development.

The General Plan includes objectives and policies relevant to hazards and hazardous materials in its Health, Safety, and Noise Element. Policies H29 through H35 relate to educating the public on the use of hazardous materials, requires coordination with the appropriate agencies if a proposed use relies extensively on the use of hazardous materials, and encourages siting new residential development in close proximity to existing industrial uses. The Project will not generate or use hazardous materials outside health department requirements. Such uses would not result in operations that routinely transport, use, or dispose of hazardous materials. Operation activities will comply with the California Building Code, local building codes, and applicable safety measures.

The California Environmental Protection Agency (CalEPA) oversees the statewide implementation of the Hazardous Materials Business Plan (HMBP), which aims to prevent or minimize harm to public health and safety and the environment from the release or threatened release of hazardous material. As applicable to the commercial component of the Project, the minimum reporting quantities for hazardous materials are 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gas. If a business handles hazardous materials at or in excess of the minimum thresholds, an HMBP is required to be prepared and approved by the State and local jurisdictions. The Project developer/operator will be required to submit information regarding the use and storage of hazardous materials to the California Environmental Reporting System (CERS), Kings County Department of Public Health, and the City of Hanford. The potential gas station would be subject to HMBP requirements if hazardous materials in excess of minimum reporting quantities are included in the operations. The preparation of an HMBP should any aspect of the Project exceed the established reporting thresholds, will be required as mitigation under MM HAZ-3.

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

MITIGATION MEASURE(S)

Implementation of MM GEO-2

MM HAZ-1: The Project proponent/operators and its contractors shall utilize the U.S. Department of Transportation and Caltrans designated hazardous materials routes for the transportation of hazardous and potentially hazardous materials during Project construction and operation.

MM HAZ-2: The project proponent/operator shall receive approval from the State Water Resources Control Board and Kings County Department of Public Health (Certified Unified Program Agency) for the installation and operation of all proposed underground storage tanks.

MM HAZ-3: Prior to operation of the Project, the Project proponent/operator shall identify potential hazardous materials for Project operations. If the operation exceeds the established HMBP reporting thresholds, the Project proponent/operator must prepare and maintain a Hazardous Materials Business Plan pursuant to California Environmental Protection Agency and California Environmental Reporting System requirements and submit the plan to the Kings County Public Health Department for review and approval.

LEVEL OF SIGNIFICANCE

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

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?

A Phase 1 Environmental Site Assessment was conducted on the Project site to determine if any known environmental concerns were observed or were known (SEI, 2023). The main environmental concerns observed at this site include:

- The review of Kings County Environmental Health Services and the State GeoTracker records indicate that no off-site properties within a one-mile radius of the site boundaries are of environmental concern and are not currently a threat to the subject property.
- Agricultural activities occurred at this site from at least 1934 to at least 1994. No indications of mixing areas, or storage areas were observed in the historical aerial photos available for review. Based on this information the former agricultural use on this site is considered a *de-minimis* condition and not a REC.
- No Recognized Environmental Conditions (RECs), Historical RECs, nor Controlled RECs were identified at this site.

Hazardous materials handling on the Project site over the long-term construction of the Project may result in soil and groundwater contamination from accidental spills. Construction of the Project would require preparing and implementing an SWPPP, as noted in Impact #3.4.7b and required under MM GEO-2. An SWPPP is a State requirement under the National Pollution Discharge Elimination System (NPDES) general permit for construction sites over one acre. The SWPPP identifies potential sources of pollution from the Project that may affect the stormwater discharge quality and requires that best

management practices (BMPs) be implemented to prevent contamination at the source. Implementing BMPs during construction would contain accidental spills of hazardous materials, and soil and groundwater contamination would be minimized or prevented. Due to the size of the Project, each construction phase would be required to prepare and implement an SWPPP as required per MM GEO-2.

Valley fever or coccidioidomycosis is prevalent in the central San Joaquin Valley of California. This disease, which affects both humans and animals, is caused by the inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil, and the fungus's existence in most soil areas is temporary. The proposed Project can generate fugitive dust and suspend valley fever spores with the dust that could then reach nearby sensitive receptors. It is possible that onsite workers could be exposed to valley fever as fugitive dust is generated during construction. Implementation of dust control measures throughout the construction period would reduce fugitive dust emissions. Therefore, the exposure to valley fever would be minimized by implementing these dust control measures as required by the Air District (Trinity Consultants, 2024). Dust from the construction of the proposed Project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

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

As noted above, a 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 (Department of Toxic Substances Control, 2023). Additionally, no Federal Superfund – National Priorities List (NPL) sites were determined to be located within a one-mile radius of the subject site

A review of the State of California Department of Conservation, Geological Energy Management Division (CalGEM) database indicated that no plugged and abandoned or producing oil wells are located on or adjacent to the subject site (CalGEM, 2023).

As noted in Impact #3.4.9a above, if hazardous materials are used during the construction phase of the Project, the safe handling and storage of hazardous materials consistent with applicable local and State regulations will be required. Additionally, the development of a gas station would require the approval of an HMBP for the handling of large quantities of hazardous materials.

The proposed Project is not anticipated to create a significant hazard to the public or the environment; as mentioned previously in subsection a) above, the residential Project would not routinely transport, use, dispose of, or discharge hazardous materials into the environment. The commercial development will be subject to all applicable local, State, and

federal regulations, including the preparation of an HMBP. Through compliance with the aforementioned regulations, Project impacts would be less than significant.

MITIGATION MEASURE(S)

Implementation of MM GEO-2.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with implementation of mitigation measures*.

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?

The nearest schools to the Project site are the Frontier Elementary School and the Pioneer Union Elementary School. Construction activities for the development could result in the temporary use of hazardous materials and/or substances, such as lubricants and diesel fuel, during construction. Exhaust from construction and related activities are expected to be minimal and not significant. All future construction-related activities resulting from the proposed Project would be subject to local, State, and federal laws related to hazardous materials and substances emissions. Furthermore, the SWPPP requires substantiation to be provided to demonstrate that construction impacts would not affect nearby schools. Nonetheless, construction of the Project would require the use of minimal hazardous materials and the 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, residential development is not expected to result in hazardous emissions.

Because the commercial component of the Project may include a gas station, the development of the Project may involve the handling of hazardous materials, such as gasoline and diesel fuels. However, as discussed under Impacts #3.4.9a-b, the Project would be subject to all California Health and Safety Codes, as well as local regulations regarding the handling of hazardous materials including the implementation of mitigation measures MM HAZ-1, HAZ-2, and HAZ-3. Through compliance with the applicable regulations, the Project would not result in the release or mishandling of hazardous materials that may result in impacts to the nearby school. Therefore, the Project would have a less-than-significant impact.

MITIGATION MEASURE(S)

Implementation of HAZ-1, HAZ-2, and HAZ-3..

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with implementation of mitigation measures*.

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. 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 (DTSC). The Project will not generate or use hazardous materials outside the health department requirements.

Therefore, because 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, it can be seen there is a less-than-significant impact of hazards to the public or environment.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.9e – Would the Project 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?

The Project site is located approximately 3.5 miles northwest of the Hanford Municipal Airport, which is included in the adopted Kings County Airport Land Use Compatibility Plan (KCALUCP). The Project site is not located within the Airport Overlay District (City of Hanford, 2017b). According to the KCALUCP, residential developments are not permitted within the Aviation Land Use Compatibility Overlay Zone if the noise contour is 70 Community Noise Equivalent Level (CNEL) or higher. The Project is not within the Airport's Noise Contour zones and the highest noise level from the airport is 65 CNEL (City of Hanford, 2010). Therefore, there would not be excessive noise or create a safety hazard for the people residing or working in the Project area.

Construction activities are temporary in nature and will comply with Chapter 9.10 of the Hanford Municipal Code and will occur only between the hours of 7:00 a.m. and 8:00 p.m. Operation of the Project would not result in the generation of noise levels beyond those that exist in the surrounding area. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

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

The Kings County Multi-Jurisdictional Local Hazard Mitigation Plan establishes emergency procedures and policies and identifies parties responsible for emergency response in the City (Kings County, 2012). The local hazard mitigation plan includes policies that would prevent new developments from interfering with the emergency response of evacuation plans. The Project will comply with all local regulations related to new development construction that are consistent with the EMP. Project compliance with applicable provisions of the EMP will be incorporated as MM HAZ-4. In addition, the Project would also comply with the appropriate local and State requirements regarding emergency response plans and access.

The Traffic Study prepared for the proposed Project did not identify any traffic hazards that impede emergency response or evacuation plans (Ruettgers & Schuler, 2023). The Project site and surrounding area are relatively flat, with little to no topography that might obscure visibility to motorists. Therefore, impacts would be less than significant.

MITIGATION MEASURE(S)

MM HAZ-4: The Project shall comply with applicable procedures and policies for emergency response as set forth in the Kings County Multi-Jurisdictional Local Hazard Mitigation Plan.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant with implementation of mitigation measures.*

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 proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or residences are intermixed with wildlands. The General Plan states the probability of wildfires is unlikely and lists wildfires to be of low significance (City of Hanford, 2017a).

Kings County Fire Department Headquarters is the closest to the Project site, approximately 1.5 miles southeast. Given that the Project is not surrounded by wildland areas and is in proximity to existing fire services, the Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. There would be no impact related to wildfires.

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
3.4.10 - HYDROLOGY AND WATER QUALITY				
Would the Project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground 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 or amount of surface runoff in a manner that would result in flooding on or offsite;	☐	☒	☐	☐
iii. 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; or	☐	☐	☒	☐
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?	☐	☐	☐	☐

The impact analyses in this section are based on a Water Supply Assessment (QK, 2023c), which is attached as Appendix F.

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?

During construction, potential impacts on water quality arising from erosion and sedimentation are expected to be temporary conditions during the construction of the new development. The new development must develop and comply with an SWPPP that specifies BMPs to prevent construction pollutants from contacting stormwater to keep all erosion products from moving offsite and into receiving waters. The intention is to eliminate or reduce non-stormwater discharge to storm sewer systems and other waters of the United States.

To reduce potential impacts to water quality during construction activities, MM GEO-1 requires the Project proponent to prepare an SWPPP. The Project SWPPP would include BMPs to minimize and control the construction and post-construction runoff and erosion to the maximum extent practicable.

The SWPPP is required to be approved by the RWQCB prior to construction. Furthermore, the proposed Project has been designed to control stormwater runoff and erosion, both during and after construction. Project-specific drainage improvements would reduce the potential of the Project to violate water quality standards during construction to a less-than-significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation of MM GEO-1.

LEVEL OF SIGNIFICANCE

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

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

The Project site is located within the San Joaquin Valley – Tulare Lake Subbasin, which is identified as being critically over-drafted and subject to Sustainable Groundwater Management Act (SGMA) requirements. SGMA consists of three legislative bills, and the legislation provides a framework for long-term sustainable groundwater management across California. The current efforts of the City and Kings County Water District, coupled with the requirements of the Sustainable Groundwater Management Act through the Groundwater Sustainability Plan process, ensure that future development would not substantially deplete groundwater supplies or interfere substantially with groundwater

recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Groundwater Sustainability Agencies (GSAs) will then be responsible for achieving groundwater sustainability. The City of Hanford participates with the Mid-Kings River GSA.

Construction

Water needed for construction and potable use by the construction crews will be obtained from the City of Hanford. The City obtains groundwater from the Tulare Lake Basin. The current water distribution system is adjacent to the Project site. The construction process is estimated to take approximately 24 months. According to the Water Supply Assessment (WSA) prepared for the Project, construction water demands are estimated to be approximately 11.2 acre-feet, which is equivalent to approximately 3,650,000 gallons (~5,000 gpd). Construction is temporary in nature and, as such, represents a one-time use of water. The estimated 3,650,000 gallons would be used over the course of the construction period (QK, 2023c).

Initial construction water usage will be in support of site preparation and grading activities. During earthwork for grading of internal road foundations, building foundations, and Project components, the principal use of water would be for compaction and dust control. Smaller quantities would be required for the preparation of the concrete required for foundations and other minor uses. After the earthwork activities, water usage will be used for dust suppression and normal construction water requirements that are associated with the construction of the buildings, internal access roads, and revegetation.

Project construction would not substantially prevent or inhibit incidental groundwater recharge onsite during precipitation events. As the Project is constructed, portions of the site would remain pervious and would allow infiltration that presently occurs during precipitation events to continue to occur. Therefore, Project construction would not substantially deplete area groundwater supplies or interfere substantially with groundwater recharge, and impacts would be less than significant.

Operation

The WSA estimated the long-term average day operational water demand for the Project to be 6.94 million gallons per year or 24.77 acre-feet per year for the total build-out of the Project. This is based on using an average day water demand of 19,000 gallons per day. The average day demand was calculated based on 16 one-bedroom units, 36 two-bedroom units, and 12 three-bedroom units (64 total units) for a total of 124 bedrooms. Using the Department of Water Resources (DWR) indoor water use efficiency standard of 55 gallons per capita per day, the residential units would average 6,820 gallons per day. For the 1.25 acres of commercial development, an average water demand of 220 gallons per day/1,000 square feet were used for a total of 12,000 gallons per day. The total between the residential and commercial development is rounded to 19,000 gallons per day (QK, 2023c).

Under normal year conditions, the City has 2,160 acre-feet of excess water supply, and under five consecutive dry years, the City has 538 acre-feet of excess water supply. Therefore, the City would be able to serve the Project's water demand of 24.77 acre-feet per year under normal and drought conditions (City of Hanford, 2020a).

The Project will follow requirements as applicable in the Tulare Lake Subbasin Groundwater Sustainability Plan (GSP) (Mid-Kings River Groundwater Sustainability Agency, 2020). The GSP outlines criteria to evaluate groundwater conditions and projects to reach sustainability within the Basin by 2040. As demonstrated above, the Project's construction and operations would not substantially deplete groundwater supplies or conflict with any future adopted groundwater management plan.

As discussed above, the Project would not result in a substantial increase in water usage, and the City currently has enough water supply to support the development. The Project's groundwater usage would not substantially change the baseline condition of groundwater water supplies in the Basin so as to cause a significant impact. Therefore, the Project's construction and operations would not substantially deplete groundwater supplies or interfere significantly with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. 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 or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on or offsite?

As discussed previously, the site has been previously graded. The site does not contain any blue-line water features, including streams or rivers. The Project has a proposed stormwater system that will collect stormwater runoff on the site. The Project would develop areas of impervious surfaces that would reduce the rate of percolation at the site, but areas of open space would 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.

As discussed in Impact #3.4.10a above, potential impacts on water quality from erosion and sedimentation are expected to be localized and temporary during construction.

Construction-related erosion and sedimentation impacts due to soil disturbance would be less than significant after implementing an SWPPP (see 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.

The existing drainage pattern of the site and area would be affected by Project development because of the increase in impervious surfaces at the site. The Project design includes natural features such as landscaping and vegetation that would allow for the percolation of stormwater. However, there will be an addition in impervious surfaces that could increase the potential for stormwater runoff and soil erosion. The Project would connect to existing City stormwater sewer infrastructure. The Project will comply with all applicable local building codes and regulations to minimize impacts during construction and post-construction. With the implementation of MM GEO-1, impacts that would result in substantial erosion or siltation on or offsite are less than significant.

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 through the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite?

No drainages or other water bodies are present on the Project site. Therefore, the 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 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 the proposed grading would not substantially alter the overall topography of the Project site. Although the amount of surface runoff on the Project site would not substantially increase with the construction of the Project, runoff patterns and concentrations could be altered by grading activities associated with the Project. Improper design of the internal roadways or building pads could alter drainage patterns that would cause flooding on or offsite. The potential for the construction of the proposed Project to alter existing drainage patterns would be minimized through compliance with the preparation of an SWPPP (MM GEO-1). With the implementation of such measures, the Project would not substantially increase the amount of runoff to result in flooding on or offsite. Impacts would be reduced to less-than-significant levels.

Additionally, with the approval of grading plans and site development requirements by the City Building Division that incorporates BMPs and design standards, the new development operations would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite. Impacts would be less than significant with the implementation of MM GEO-1.

MITIGATION MEASURE(S)

Implementation of 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 that 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?

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 would comply with all applicable State and City codes and regulations. The Project will connect to existing City stormwater infrastructure, and engineering calculations will support the storm drainage plan 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?

Please see response #3.4.10(a through c(iii)) above. The Project would comply with all applicable State and City development codes and regulations for site drainage. The Project will construct stormwater drains onsite to capture stormwater and connect to the existing City stormwater infrastructure. Engineering calculations will support the storm drainage plan 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.

The Project site is within an area of minimal flood hazard. There are no development restrictions associated since these are areas determined to be outside the 0.2 percent annual chance floodplain. Impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

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

The Project site is not located by the ocean or lake large enough to produce tsunamis or seiches. Therefore, there is no risk that the new development would be inundated by tsunamis or seiches. The Project area is flat and does not contain slopes steep enough to cause a mudflow, avalanche, or significant ground-related risks. The Project site is not located within the 100-year floodplain, and there do not appear to be any significant levees that could potentially affect people or structures if they were to fail. There is no potential for the inundation of the Project site by seiche.

Dam failure may also result in flooding, often creating a flash flood. The nearest dams to the site are the Terminus Dam, located 38 miles east of the site, and the Pine Flat Dam, located 39 miles northeast. The Kings County Local Hazard Mitigation Plan (LHMP) determined that the City of Hanford is located within the inundation zone for the Pine Flat Dam, should dam failure occur (Kings County, 2012). However, the LHMP determined that dam failure is unlikely to occur. Furthermore, the risk assessment of the Pine Flat Dam is classified as low (US Army Corps of Engineers, 2023).

Therefore, the Project would not contribute to inundation by seiche, tsunami, mudflow, or dam failure. There would be no impact from the Project.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

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

Impact #3.4.10e – Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

See response #3.4.10b above. Future development projects are required to comply with the adopted plan (Mid-Kings Groundwater) to meet the 2040 sustainability deadline for the Basin. The water demand from this Project would not result in a significant impact due to depleted groundwater resources or interference with groundwater recharge. Per the City's 2020 UWMP, the City's existing system has a total supply capacity of 34.5 million gallons per day (mgd), and the supply and demand comparisons for normal, dry, and consecutive dry years would not result in a deficit (City of Hanford, 2020a). 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

3.4.11 - 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?

The Project is surrounded by multi-family housing to the north, single-family residential to the east and south, and undeveloped land and a water storage facility to the west.

The Project would promote orderly development by developing the residential component adjacent to the existing multi-family housing complex north of the Project site. Future development would not be built in a pre-existing community area and would not create any physical barrier between an established community.

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 site is currently designated as Neighborhood Commercial by the Hanford General Plan and is zoned as C-N. The proposed Project consists of a mixed-use development including a multi-family housing complex and a commercial component including a gas station and fast-food restaurants. Multi-family residential uses are not permitted within the Neighborhood Commercial designation or the C-N zone. As such, a General Plan Amendment and Zone Change are required for the development of the proposed Project.

If approved, the proposed General Plan Amendment would designate the site as Neighborhood Mixed-Use, and the Zone Change would classify the site as MX-N. Following approval of the proposed entitlements, the proposed uses would be consistent with the site's designation and zoning.

The purpose of the Neighborhood Mixed-Use designation is to promote mixed-use commercial and multi-family residential areas that allow walking to and between the mix of uses. The Neighborhood Mixed-Use General Plan policies and a discussion of the proposed Project's compliance with the policies is provided below.

- **Policy L61 -** The uses allowed in the N-MX land use designation include multi-family dwellings along with businesses providing day-to-day goods and services for the surrounding residential neighborhoods.

    - The proposed uses include apartments, a gas station, and a fast-food restaurant. Therefore, the proposed uses are consistent with the intent of the N-MX designation and General Plan Policy L61.

- **Policy L62 –** Project design should be oriented primarily to the pedestrian, and pedestrian access between residential and commercial uses should be provided. The maximum residential density permitted in a horizontal mixed-use development is 15 dwelling units per acre.

    - The Project includes multiple walkways and crosswalks to promote connectivity throughout the housing complex and will also include a driveway and sidewalk connecting to the commercial component. Development of the Project would result in a density of 12.8 units per acre (64 units / 5 acres = 12.8 units per acre). Therefore, the Project meets the intent of General Plan Policy L62.

    - **Policy L63 –** N-MX land should be located on eight to 25 acres on one corner of an intersection of an arterial street and an arterial or collector street. This land designation takes the place of the Neighborhood Commercial land use designation on some corners.

    - The Project site is five acres and thus does not meet the intended parcel size. However, the Project site is located on the corner of an intersection of an arterial street (Grangeville Boulevard) and a collector street (Centennial Drive). Additionally, the Project site is currently designated Neighborhood Commercial, and the proposed Project would take the place of the existing designation. Furthermore, the Project meets General Plan policies for the N-MX designation and MX-N zoning standards. Therefore, the Project generally meets the intent of Policy L63.

The Project site is currently zoned as C-N and would require a Zone Change to MX-N. The MX-N zone allows for commercial uses that engage in food service, convenience stores, fueling stations, and offices, and for residential uses such as single-family residential and

multi-family residential. The minimum site area must be 5,000 square feet unless a smaller site is approved with a conditional use permit in accordance with Chapter 17.24. No structure shall be placed within a building setback area, as identified in Section 17.24.060 of the Municipal Code. The minimum distance between any residential structures shall be 10 feet, except as provided by the building code.

The MX-N zone requires lots with five or more dwelling units to provide a usable open space area equal to five percent of the lot area. Landscaping also must be provided in accordance with Section 17.52 of the Municipal Code. In addition, driveways, parking, signage, mechanical equipment, lighting, and coverings must be designed to be consistent with City standards. The Project also proposes a variance to the development standards of the MX-N including removing the masonry/block wall requirement between the future MX-N zone and R-H zone to the north, providing only a fence between the PF zoned basin to the west, and the development of parking spaces within the setback area. The City of Hanford Municipal Code allows a deviation from the development standards subject to approval of a Variance. The approval of the Variance is subject to a discretionary action with a decision being made by the City of Hanford Planning Commission. Should the Variance be approved, the proposed Project as shown on the site plan (see Figure 3-3), complies with the MX-N zoning and development standards.

Based on the above, the proposed Project would be consistent with the proposed General Plan designation and MX-N zoning standards and the applicable General Plan objectives and policies. The Project site is suitable for the proposed use, and 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
3.4.12 - 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. Neither the Project site nor the surrounding area is designated as a Mineral Resources Zone in the City of Hanford General Plan or Zoning Ordinance, nor is it currently being utilized for mineral extraction. The Project site is also not within a California Geologic Energy Management (CalGEM) identified oilfield or gas field.

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. No portion of the City or nearby vicinity is designated or zoned for mineral resources (City of Hanford, 2017a). Therefore, the Project would not result in the loss of availability of a locally important mineral resources recovery site delineated on a local general plan, specific plan, or any other land use, and 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
3.4.13 - NOISE				
Would the Project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☒	☐

Discussion

Impact #3.4.13a – Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

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 the multi-family residential complex to the north and the single-family residences to the east and south.

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.

The General Plan Noise Element and the Municipal Code outline policies and regulations to mitigate the health effects of noise in the community and prevent exposure to excessive noise levels. In particular, policies in the General Plan regarding new development include Policies

H41 through H43, which identify the adopted interior noise thresholds for residential development and require mitigation to reduce noise that exceeds internal and external noise thresholds as outlined in Title 24 code. Policies H48 and H50 relate to mitigating construction noise that exceeds thresholds and requires the use of sound walls where development is in proximity to transportation corridors.

The Project site is within an area of the City that is predominately characterized by commercial and residential development. Because the surrounding area is largely developed, there are existing ambient noise sources typical of commercial and residential uses. During the Project's construction phase, noise-generating activities will be present; however, it will be temporary, 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. Construction is anticipated to take up to 24 months to complete.

Operation of the housing complex would not generate noise levels significantly higher than the existing levels in the Project area. This generated noise is not anticipated to exceed thresholds consistent with the City's General Plan Noise Element or Municipal Code. Short-term noise-related impacts would be temporary and require compliance with applicable regulations and policies of the General Plan to ensure further that construction-related impacts would be handled to the greatest extent feasible.

There are no specific construction noise thresholds established by the City other than the noise-generating construction activities that are only allowed to occur between the hours of 7:00 a.m. and 8:00 p.m. However, the proposed Project's construction would be temporary and would occur between 7:00 a.m. and 8:00 p.m., five days a week for up to 24 months.

Once constructed, the Project would not significantly increase traffic on local roadways (Ruettgers & Schuler, 2023). However, new residential activities could increase ambient noise levels in the immediate Project vicinity. Activities that could be expected to generate noise include cars entering and exiting the development and mechanical systems related to heating, ventilation, and air conditioning systems located in residential buildings. However, this noise would be similar to that generated by the nearby existing residential development and would not be of a level that exceeds any established thresholds. Development of the commercial component would introduce noise sources such as cars, mechanical systems, delivery trucks, and intercom systems. However, the commercial uses allowed under the MX-N zone are generally consistent with allowed uses under the site's existing zoning designation of C-N. Thus, noise impacts associated with commercial development on the Project site have been previously analyzed and anticipated by the City. Thus, the Project would not introduce a new significant source of noise that is not already occurring in the Project area. Further, future projects would be subject to compliance with the General Plan policies and Chapter 9.10 Loud or Annoying Noises of the Municipal Code requirements.

The proposed variance would remove the requirement for a masonry/block wall to separate the MX-N zone district and the R-H zoned land to the north. Standard building construction required by the California Building Code (stucco siding, STC-27 windows, door weather

stripping, exterior wall insulation, composition plywood roof), typically results in an exterior to interior noise reduction of approximately25 dB with windows closed and approximately 15 dB with windows opens. This level of noise reduction would be adequate to reduce future noise generated from the mixed-use development on residential uses to the north.

Compliance with applicable policies and regulations would ensure that the Project would have a less-than-significant impact regarding noise.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.13b – Would the Project result in generation of 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. 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 groundborne 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 vibration levels 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
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 approximate 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 the 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.

With regard to the proposed Project, groundborne vibration would be generated during construction activities. As indicated in Table 3.4.13-2, based on the FTA data, vibration velocities from typical heavy construction equipment that could be used during construction range from 0.076 to 0.210 inch-per-second peak particle velocity (PPV) at 25 feet from the source of activity. As demonstrated in Table 3.4.13-2, vibration levels at 100 feet would range from 0.004 to 0.02 PPV. Therefore, the anticipated vibration levels would not exceed the 0.2 inch-per-second PPV significance threshold during construction operations at the nearest receptors, approximately 100 feet to the north, east, and south.

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
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/sec of the equipment adjusted for the distance PPV (ref) = the reference vibration level 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

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 the construction of the proposed Project would be minimal and would include the transportation of equipment to the site.

Construction activities would include various site preparation, 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, the 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 – Would the Project result in 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?

The Project site is approximately 3.5 miles northwest of the Hanford Municipal Airport. The site is not located within any Compatibility Zone boundary identified for the Airport in the Kings County *Airport Land Use Compatibility Plan* (Kings County, 1994). The noise levels associated with the airport operations do not contribute significantly to the overall noise environment at the Project site as the Project is not within the noise contour impact map (City of Hanford, 2010). 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***.

	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 unplanned 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 people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

Impact #3.4.14a – Would the Project induce substantial population unplanned 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 to the U.S. Census Bureau, the population in Hanford is 57,990 people (United States Census Bureau, 2020). The City is expected to increase its population by 32,010 residents by 2035 (City of Hanford, 2016a). The General Plan goals include encouraging residential developments to meet the future population growth needs. The Project proposed 64 new housing units, and the average number of persons per household is 3.09. Therefore, the Project will house approximately 198 people and would be within the range of projected growth within the City. Regional Housing Needs Allocation (RHNA) from the California Department of Housing and Community Development specifies the number of units, by affordability level, that need to be accommodated.

Table 3.4.14-1
Regional Housing Needs 2016-2024 (Hanford)

Housing Type	Federal Standards
Extremely Low	549
Very Low	548
Low	821
Low Moderate	865
Above Moderate	2,049
Total	**4,832**

Source: (City of Hanford, 2016a)

The Project site is an infill site within an area of the City that is predominately characterized by commercial and residential development. Surrounding land uses consist of multi-family housing to the north, single-family residential developments to the east and south, and a water storage facility and a retention basin to the west. Implementation of the Project would thereby introduce uses that would be generally consistent with the existing and planned land uses within the Project area. In addition, future development that results from Project implementation would not represent a significant change in the surrounding area as the site would be developed with compatible uses and connected to existing roadways such as Grangeville Boulevard, Centennial Drive, 13th Avenue, and 12th Avenue, and existing utility infrastructure.

Although the Project changes a portion of the site from a non-residential to residential land use, the population of the City is expected to grow by more than 50 percent over the next 20 years, furthering the need for additional dwelling units. The RHNA states that the City will need to provide an additional 15,695 dwelling units by 2035. The proposed Project will provide an additional 64 multi-family units and, therefore, will help the City attain sufficient housing supply for its residents and meet State housing mandates. Impacts will be less than significant.

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 people or housing, necessitating the construction of replacement housing elsewhere?

See Impact#3.4.14a above.

The Project site is undeveloped and will not displace existing people or housing, necessitating the replacement of housing elsewhere. Construction of the Project is anticipated to last up to 24 months, would likely be completed by construction workers residing in the City or the surrounding area, and would not require new housing. Therefore, the Project would have 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 nearest City Fire Department facility is located approximately 1.7 miles east of the Project site.

To address impacts to fire protection services, the City has implemented the Fire Protection Development Impact Fee pursuant to Chapter 15.45 of the Municipal Code, which requires developers to pay the "fair share" of capital improvements related to fire protection services and facilities. A portion of those funds will be specifically earmarked for the use of the Fire Department to maintain an adequate level of service within its service boundary. The entire Project, whether submitted in phases or not, will be subject to review by the City Engineering, Public Works, and Fire Department in order to determine whether the Project's

infrastructure design is in compliance with City policies for development. The Project's water system will be reviewed to verify that the system can supply the required fire flow for fire protection purposes. The establishment of gallons-per-minute requirements for fire flow shall be based on the review of the City of Hanford Fire Department.

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. As previously mentioned, the Project will be required to adhere to any conditions/policies pertaining to the construction of infrastructure needed for the Hanford Fire Department to provide an adequate level of fire protection service.

According to the General Plan and the standard review procedures for development projects within the City, the Project's plans and permits will be reviewed for input from the Fire Department. The Project's proposed construction would be located adjacent to existing residential areas, which the City Fire Department already serves. As noted, the developer will be required to pay development impact fees to offset growth in population in the area that would impact fire protection. 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(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 Hanford Police Department (HPD) provides police protection in the City of Hanford and collaborates with other law enforcement agencies and the District Attorney's office on crime prevention. The Project site is located approximately two miles northwest of the nearest City of HPD Station.

To address impacts to police protection services, the City has implemented the Police Protection Development Impact Fee pursuant to Chapter 15.46 of the Municipal Code, which requires developers to pay the "fair share" of capital improvements related to police protection services and facilities. A Police Protection Development Impact Fee is assessed for projects based on size. The Project proposes additional residential and commercial development in a previously undeveloped location, which will increase the need for police services. As such, the developer 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 times, or to other performance objectives for any of the public services – Schools?

The Project site is in the jurisdiction of the Hanford Elementary School District, Hanford Joint Union High School District, and the Pioneer Union Elementary School District. The school nearest to the site is Frontier Elementary School, approximately 0.35 miles west of the Project site. The increased population generated by the proposed Project would increase the number of students attending local schools and could significantly impact these facilities by requiring new facilities. The proposed Project would require the payment of developer fees for each new residential construction to offset the District's student classroom capacity. The developer will pay appropriate impact fees at the time of building permits. Funding for schools and school facilities' impacts are outlined in Education Code Section 17620, and Government Code Section 65996, and development fees authorized by SB 50 are deemed "full and complete school facilities mitigation." School districts would utilize the General Plan and codes to establish new school sites and make decisions on school amenities and facility size. A School Impact Fee is assessed for projects based on the developer fee rates in place at the time payment is due to mitigate any increased impacts on school facilities, and impacts would be less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

Impact #3.4.15a(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 Hanford Parks and Recreation District, and the City presently owns and maintains 24 parks. The closest public park is Silver Oaks Park, approximately 0.10 miles and within walking distance of the Project. Rotary Park is

approximately one mile to the southeast. The proposed Project includes uses that would increase the use of park and recreation facilities in the area. It should be noted that the Project includes the construction of a pool and recreation area for the residents to use.

A parks facilities development impact fee is established on the issuance of all residential building permits for development in the Hanford area to pay for parks and recreational facilities improvements. Each developer will pay this development fee prior to the issuance of a building permit or dedicated parkland as a part of their proposed Project. The Project will include a pool and open space recreational areas with amenities; however, these areas do not count towards dedicated parkland.

Similar to other public services, the City had established the Park Facilities Impact Fee pursuant to Chapter 15.44 of the Municipal Code, which requires developers to pay for parks and recreational facilities improvements. As such, the developer will be required to pay the appropriate development fee to mitigate the increased demand for City park facilities. The development fees collected by the City fund new or upgraded park facilities throughout the City. Through the payment of the development fee, the Project would result in a less-than-significant impact.

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?

The City provides a wide range of public services besides those previously mentioned above. The City also provides animal control services, refuse pick-up, library facilities, and drainage management. These services are generally funded through the general fund, usage fees, fines, penalties, or impact fee collection.

In the City, all jurisdictions collect planning and building fees and impact fees for new development, as necessary. Since the demand for other public facilities is driven by population, the proposed Project would be required to pay fees to offset the demand for that service.

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.

The City's inventory of parks and recreation facilities ranges from a rose garden to softball and baseball fields to community centers. Park facilities are classified into nine categories: private recreational space, mini-park or pocket park, neighborhood parks, community parks, special use parks, dual-purpose stormwater basin park, indoor recreational facilities, school parks, and regional parks. Recreational facilities span from picnic shelters to sports fields.

Hanford offers 299.70 acres of parkland to its residents, which equates to a total level of service (LOS) of 5.06 acres of parkland per 1,000 residents based on the City's 2018 population (City of Hanford, 2020b). Given the close proximity to Silver Oaks Park and the Hanford Sports Complex, the Project is not expected to require the construction or expansion of additional recreational facilities. However, the City of Hanford requires that the Project developer pay Park Impact Fees pursuant to Chapter 15.44 of the Municipal Code for parkland, community centers, recreational facilities, park amenities, vehicle equipment, and impact fee studies to offset any potential impacts from new development.

Although the proposed Project includes uses that would increase the use of park and recreation facilities in the area, through the payment of Park Impact Fees, the Project will not result in the physical deterioration of existing parks or recreational facilities. There would be a less-than-significant impact with the payment of the impact fees.

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 the discussion in Impact #3.4.16a.

The Project does not propose the construction or expansion of any recreational facilities. The Project would be required to pay Park Impact Fees to account for the increased demand on the City's recreational facilities. Therefore, development of the proposed Project would result in 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
3.4.17 - 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

This discussion is based on the Traffic Study prepared for the Project (Ruettgers & Schuler, 2023), which is attached as Appendix G.

The Project is located within the northwestern portion of the City, generally located on the north side of Grangeville Boulevard and east of Centennial Drive, between North 13th Avenue and North 12th Avenue. North 12th Avenue and Grangeville Boulevard are the nearest arterials identified by the General Plan Circulation Element.

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 Services

Kings Area Rural Transit (KART) is the transit operator in the City of Hanford. The closest KART bus stop is located along Grangeville Boulevard, approximately 1,000 feet east of the Project site. The bus stop is a part of the Red Line Route, which runs along Grangeville Boulevard, Centennial Drive, West Lacey Boulevard, and 11th Avenue. KART operates several fixed routes that serve City residents, with some routes serving the outlying cities and communities. KART operates fixed route service six days a week with operational hours

Monday through Friday between 6:00 a.m. and 7:30 p.m. and between 9:30 a.m. and 4:30 p.m. on Saturdays (Kings Area Regional Transit, 2023).

The Project is not expected to disrupt or impede existing transit facilities and, therefore, has a less-than-significant impact.

Bicycle and Pedestrian Facilities

Hanford's flat topography and dry, moderate climate make choosing to walk or bicycle an attractive transportation option during much of the year. The City of Hanford is in the process of developing an Active Transportation Plan (ATP) (City of Hanford, 2023b). The ATP will include citywide network recommendations for infrastructure while also highlighting policies and programs that can support active and sustainable mobility.

Within the Project vicinity, there is an existing Class III bike lane to the east, along Grangeville Boulevard, and an existing regional bikeway to the west, along Grangeville Boulevard (City of Hanford, 2016b). According to the Hanford Pedestrian and Bicycle Mast Plan, Class II bike lanes are planned along the segments of Centennial Drive and Grangeville Boulevard adjacent to the Project site. The Project is not expected to disrupt or impede existing or planned bicycle facilities. Therefore, the Project will have a less-than-significant impact.

Pedestrian

Currently, walkways do not exist on the segments of Centennial Drive and Grangeville Boulevard along the Project's eastern and southern boundaries. As a part of the Project, Centennial Drive and Grangeville Boulevard will be developed in order to provide pedestrian connectivity. Landscape easements and sidewalks will border the Project and feed into the interior of the Project site. The Project proponent will be responsible for implementing all applicable requirements for updating sidewalks and other related infrastructure as directed by the City. The Project will not generate any impacts.

Roadways

Vehicular access to the commercial component would be provided by a new driveway along Grangeville Boulevard, and access to the multi-family residential component would be provided from two new driveways from Centennial Drive. The private gated driveways for the residential component will require access from Centennial Drive and need to have sufficient storage space to minimize the queuing of vehicles that would extend into the roadway system.

The list below is a collection of intersections and segments that may be impacted by the Project and were analyzed.

- Centennial Drive/Grangeville Boulevard
- Centennial Drive/Fargo Avenue
- Centennial Drive/Lacey Boulevard
- Grangeville Boulevard/13th Avenue

- Grangeville Boulevard/12th Avenue
- Grangeville Boulevard/11th Avenue
- 12th Avenue/Fargo Avenue
- 12th Avenue/Lacey Boulevard
- 11th Avenue/Lacey Boulevard

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, 11th Edition (Ruettgers & Schuler, 2023).

Table 3.4.17-1
Project Estimated Trips

Land Use	Quantity	Daily Trip Ends (ADT)		Weekday AM Peak Hour				Weekday PM Peak Hour			
		Rate	Volume	Rate	Volume In	Volume Out	Total	Rate	Volume In	Volume Out	Total
Multi-Family Residential (220)	64 Dwelling Units	eq	486	eq	10	33	43	Eq	30	18	48
Fast-Food Restaurant with Drive-Through (934)	3.5 1,000 sq. ft. GFA	467.48	1,636	44.61	80	76	156	33.03	60	56	116
Gasoline/Service Station with Convenience Market (945)	12 Vehicle Fueling Positions	eq	2,750	16.06	96	97	193	18.42	111	110	221
Total Trip Generation			**4,872**		**186**	**206**	**392**		**201**	**184**	**385**

Source: Ruettgers & Schuler, 2023. Trip ends are one-way traffic movements, entering or leaving. The numbers in parenthesis are ITE land use codes.

The City adopted a threshold of level of service (LOS) C or better for street segments and intersections in the Project vicinity (City of Hanford, 2017a).

Table 3.4.17-2 illustrates the intersections within the scope of the study and indicates the anticipated LOS prior to and with the addition of Project traffic, and Table 3.4.17-3 illustrates the roadway segments within the Project vicinity and LOS prior to and with the addition of Project traffic.

Table 3.4.17-2
Intersection Operations

Intersection	Target LOS	Peak Hour	Opening Year Without Project	Opening Year Plus Project	10-Year Horizon Without Project	10-Year Horizon Plus Project
			LOS	LOS	LOS	LOS
1. Centennial Drive/ Fargo Avenue	C	AM	B	B	C	C
		PM	B	B	C	C
2. 12th Avenue/ Fargo Avenue	C	AM	B	B	C	C
		PM	C	B	C	C

Intersection	Target LOS	Peak Hour	Opening Year Without Project	Opening Year Plus Project	10-Year Horizon Without Project	10-Year Horizon Plus Project
			LOS	LOS	LOS	LOS
3. 13th Avenue/ Grangeville Boulevard	C	AM	B	B	C	C
		PM	C	C	C	C
4. Centennial Drive/ Grangeville Boulevard	C	AM	C	C	C	C
		PM	C	C	C	C
5. 12th Avenue/ Grangeville Boulevard	C	AM	B	B	B	B
		PM	C	C	C	C
6. 10th Avenue/ Grangeville Boulevard	C	AM	C	C	C	C
		PM	C	C	C	C
7. Centennial Drive/ Lacey Boulevard	C	AM	B	C	B	C
		PM	B	B	C	C
8. 12th Avenue/ Lacey Boulevard	C	AM	B	B	B	B
		PM	C	C	C	C
9. 10th Avenue/ Lacey Boulevard	C	AM	C	C	C	C
		PM	C	C	C	C

Source: Ruettgers & Schuler, 2023

Table 3.4.17-3
Roadway Operations

Roadway Segment	Target LOS	Peak Hour	Opening Year Without Project		Opening Year Plus Project		10-Year Horizon Without Project		10-Year Horizon Plus Project	
			Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
1. Fargo Ave: Centennial Dr - 12th Ave	C	AM	638	C	638	C	1,122	C	1,122	C
		PM	490	C	490	C	717	C	717	C
2. Grangeville Blvd: 13th Ave - Centennial Dr	C	AM	735	C	792	C	972	C	1,108	C
		PM	812	C	946	C	1,070	C	1,204	C
3. Grangeville Blvd: Centennial Dr - 12th Ave	C	AM	792	C	991	C	939	C	1,138	C
		PM	966	C	1,160	C	1,139	C	1,333	C
4. Grangeville Blvd: 12th Ave - 11th Ave	C	AM	991	C	1,073	C	1,205	C	1,287	C
		PM	1,247	C	1,327	C	1,519	C	1,599	C
5. Lacey Blvd: Centennial Dr - 12th Ave	C	AM	587	C	623	C	814	C	850	C
		PM	1,409	C	1,444	C	1,828	C	1,863	C
6. Lacey Blvd: 12th Ave - 11th Ave	C	AM	929	C	968	C	1,125	C	1,164	C
		PM	1,428	C	1,466	C	1,666	C	1,704	C

Roadway Segment	Target LOS	Peak Hour	Opening Year Without Project		Opening Year Plus Project		10-Year Horizon Without Project		10-Year Horizon Plus Project	
			Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
7. 12th Ave: Fargo Ave - Grangeville Blvd	C	AM	993	C	1,044	C	1,016	C	1,067	C
		PM	1,188	C	1,238	C	1,497	C	1,547	C
8. 12th Ave: Grangeville Blvd - Lacey Blvd	C	AM	1,188	C	1,244	C	1,244	C	1,300	C
		PM	1,573	C	1,628	C	1,995	C	2,050	C
9. 11th Ave: Grangeville Blvd - Lacey Blvd	C	AM	1,195	C	1,224	C	1,496	C	1,525	C
		PM	1,733	C	1,762	C	2,180	C	2,209	C

Source: Ruettgers & Schuler, 2023.

As shown above, none of the study intersections or roadway segments were found to exceed the City LOS threshold at the opening year or the 10-year horizon. As such, the traffic associated with the Project would not conflict with a program plan, ordinance, or policy addressing the circulation system, and the impacts would be less than significant.

Peak hour signal warrants were evaluated for the unsignalized intersection within the study based on the 2014 California Manual on Uniform Traffic Control Devices (Ruettgers & Schuler, 2023). Peak hour signal warrants assess delay to traffic on minor street approaches when entering or crossing a major street. Signal warrant analysis results are shown in Table 3.4.17-4 and Table 3.4.17-5.

Table 3.4.17-4
Traffic Signal Warrants Weekday PM Peak Hour

	2023			2023+Project			2043			2043+Project		
# Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1 Centennial Dr at Fargo Ave	316	197	NO	316	210	NO	577	292	YES	577	305	YES

Table 3.4.17-5
Traffic Signal Warrants Weekday AM Peak Hour

	2023			2023+Project			2043			2043+Project		
# Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1 Centennial Dr at Fargo Ave	459	227	NO	459	242	NO	756	431	YES	756	446	YES

It is important to note that a signal warrant defines the minimum condition under which signalization of an intersection might be warranted. Meeting this threshold does not suggest traffic signals are required, but rather that other traffic factors and conditions be considered to determine whether signals are truly justified. It is also noted that signal warrants do not necessarily correlate with the level of service. An intersection may satisfy a signal warrant condition and operate at or above an acceptable level of service or operate below an acceptable level of service and not meet signal warrant criteria (Ruettgers & Schuler, 2023). All intersections and roadway segments operate at an acceptable level of service and are anticipated to do so with the addition of Project traffic through the year 2043. Based on the results of the Traffic Study for the Project, signalization or other roadway improvements are not recommended. Impacts of the Project related to traffic flow and circulation are considered less than significant.

MITIGATION MEASURE(S)

No mitigation is required.

LEVEL OF SIGNIFICANCE

Impacts would be *less than significant*.

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

Under SB 743, vehicle miles traveled (VMT) is a key measure used for gauging the environmental impacts of projects under CEQA.

The VMT analysis compared the Project's expected VMT/capita to regional averages. The City of Hanford has adopted the *VMT Thresholds and Implementation Guidelines*, dated November 2022, which contain recommendations regarding VMT assessment, significance thresholds, and mitigation measures. Due to being a multi-use project, the two uses were analyzed individually.

The guidelines provide "screening thresholds" for identifying whether a land use project should be expected to result in a less than significant transportation impact under CEQA. Projects meeting one or more of these criteria are not required to undergo a detailed VMT analysis. One of the screening thresholds included in the guidelines pertains to average daily traffic. Projects consistent with the City's General Plan can be successfully screened out if they generate fewer than 1,000 average daily trips. Projects not consistent with the City's General Plan can be screened out if they generate fewer than 500 average daily trips. The Project will require a General Plan Amendment; therefore, the screening threshold is 500 daily trips. As shown in Table 3.4.17-1, the proposed residential (multi-family) portion of the Project is expected to generate 486 average daily trips. With the anticipated daily traffic being less than 500, the multi-family portion of the Project will screen out of further VMT analysis and is presumed to have a less-than-significant traffic impact.

The guidelines contain a screening threshold, which pertains to locally-serving retail. Retail is considered "locally-serving" if it totals a combined square footage of less than 55,000 square feet. The total square footage of the Project will be less than 55,000 square feet; therefore, the retail portion of the Project will screen out of further VMT analysis and is presumed to have a less-than-significant traffic impact.

Therefore, the Project's VMT impacts are less than significant.

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 meet current standards and safety regulations. Vehicles exiting the Project site 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, the Project will have a less-than-significant impact with the incorporated design features and all applicable rules and regulations.

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 establish 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 turn around. The proposed Project would

not inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities. Therefore, the Project would result in a less-than-significant impact associated with emergency access.

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:

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 LeadAagency, 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)?

See also Section 3.4.5, *Cultural Resources*.

Native American Tribal Consultation was completed for the Project in compliance with AB 52 and SB 18, CEQA, and the Public Resources Code.

A Sacred Land Files search was requested from the Native American Heritage Commission (NAHC) 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 response was received on December 5, 2023, indicating negative results that did not indicate the presence of any cultural places within the Project site and within a half-mile buffer around the Project site. The City, as Lead Agency, sent consultation request letters pursuant to SB 18 and AB 52 to the tribal groups on the NAHC list.

The Lead Agency has not received information from a local tribal group indicating that the Project would impact tribal cultural resources. However, based on previous consultation with the Santa Rosa Tachi Yokut Tribe, MM CUL-1 through MM CUL-4 will be imposed on the proposed Project. With the implementation of Mitigation Measures MM CUL-1 through MM CUL-4, ground disturbance generated during the construction of 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 historic resources.

MITIGATION MEASURE(S)

Implementation of MM CUL-1 through MM CUL-4.

LEVEL OF SIGNIFICANCE

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

Impact #3.4.18a(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?

See discussion in Section 3.4.5, *Cultural Resources* and Impact #3.14.18(i) above.

With the implementation of Mitigation Measures MM CUL-1 through MM CUL-4, 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)

Implementation of MM CUL-1 through MM CUL-4.

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

3.4.19 - UTILITIES AND SERVICE SYSTEMS

Would the Project:

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

The Project proposes to construct new wet and dry utility infrastructure to connect to the existing City and private service provider infrastructure. Services that will be installed during the construction of the Project include water, wastewater, storm drain drainage connections, natural gas, electric power, and telecommunications facilities. The proper

sizing and placement of the utilities will be designed per the City and other utility development design standards.

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. In compliance with Chapters 15.47, 15.49, and 15.50, the developer would be required to pay development fees for the wastewater system, water system, and stormwater system. The fees collected under the development fees system fund any capital improvements needed in order to serve new and existing development in Hanford.

The proposed Project would be subject to the payment of any applicable connection charges and/or fees and extension of services in a manner that is compliant with the City's development standards, specifications, and policies. All applicable local, State, and federal requirements and best management practices will be incorporated into the construction and operation of the Project. Therefore, 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.

Water usage for construction and development is minimal compared to that required for occupancy of constructed land uses. Even on a short-term basis, such usage does not require the water volumes required for human occupancy of residences and other structures, waste disposal, and year-round landscaping. Water usage for construction dust control, trench and roadway soils compaction, landscaping, and related activities and usage is sporadic rather than long-term. Its quantification for analysis is difficult, but it clearly does not approximate or approach long-term water demand. The construction process is estimated to take approximately 24 months. Construction water demands are estimated to be approximately 11.2 acre-feet, which is equivalent to approximately 3,650,000 gallons (~5,000 gpd).

The operation of the proposed Project would result in an estimated water demand of approximately 6.94 million gallons per year or 24.77 acre-feet per year.

As noted previously, the City would have sufficient water supplies to serve the Project under normal, single dry-year, and multiple dry-year conditions, and a less-than-significant impact would occur.

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?

Under the General Plan Update, it was determined that planned improvements and expansion development through various goals and policies would assist in providing wastewater services to the study area as development continues (City of Hanford, 2017a). The current capacity of the WWTF is designed to accommodate 8.0 mgd, and current flows average 4.5 mgd (City of Hanford, 2023c).

Hanford's existing wastewater system includes a treatment facility south of Houston Avenue and east of 11th Avenue and 22 sanitary sewer lift stations at various locations throughout the City (City of Hanford, 2023d). The City has plans for pump replacements or upgrades at each of its locations within the next several years. The City's wastewater treatment facility provides for treatment, disposal, and reuse of effluent, which meets all of the State's discharge requirements for Hanford. The City's plant treats nearly 1.75 billion gallons of sewage each year. The facility is a major part of the City's effort to keep the environment clean and to provide a water resource for agricultural irrigation and reuse.

The latest treatment plant expansion was completed in 2004, increasing the City's treatment capacity from 5.5 to 8.0 mgd, equivalent to an additional service for 8,000 new single-family dwellings. The expansion included a new influent pump station, head works, grit removal, oxidation ditch, irrigation pump station, and several modifications to existing buildings and structures. As discussed above, current flows average 4.5 mgd. An increase of 64 residential units and 1.25 acres of commercial development would not cause a significant impact to the existing wastewater treatment plant.

MITIGATION MEASURE(S)

No mitigation is required.

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?

Kings Waste and Recycling Authority (KWRA) will remove solid waste produced from construction and operation. The KWRA is a key element that helps the City of Hanford meet the State's recycling goals. Refuse from both municipal and commercial haulers is sorted at the KWRA facility to recover recyclable materials, including wood/green waste processed for compost, ferrous/metallic items, plastic and glass, newspaper, scrap paper, junk mail, magazines, paperboard, and cardboard. The KWRA does not operate an active landfill. Waste is hauled by transfer trucks from the Material Recovery Facility (MRF) to the State permitted 320-acre Chemical Waste Management Landfill site in Kettleman Hills, approximately 45 miles west of the MRF. A combined MRF and Transfer Station (TS) was constructed near the old landfill southeast of Hanford. The MRF and TS facility includes a small but complete Household Hazardous Waste collection station. Waste Management Kettleman Hills Landfill is permitted to receive a maximum of 2,000 tons of municipal solid waste per day but typically receives an average of only about 1,350 tons per day (Waste Management, 2024).

Construction

Non-hazardous construction refuse and solid waste would be collected and recycled or disposed of at a KWRA facility (City of Hanford, 2017a). Any hazardous waste generated during construction would be disposed of at an approved location.

Non-hazardous waste produced at the Project site would be transferred to the Unit B-17/Unit B-19 landfills operated by Waste Management. The landfill takes in non-hazardous waste from Kings, Tulare, and Fresno Counties. The facility is permitted to receive a maximum of 2,000 tons of municipal solid waste per day (TPD) but typically receives an average of about 1,350 TPD (Kettleman Hills Landfill, 2023). The Kettleman Hills B-17 Landfill has a maximum permit capacity of 18.4 million cubic yards (mcy) and a remaining capacity of 17.5 mcy and is expected to remain operational until 2030 (Cal Recycle, 2023).

The solid waste generated by construction activities is not expected to exceed the capacity of the landfill. Additionally, the construction period for the Project is expected to be up to 24 months, and the landfill that would serve the Project would be in operation during the construction period.

Operation

The Project would produce waste that would be collected and disposed of at the local landfill by a licensed waste hauler. Workers would generate small amounts of typical household refuse during maintenance visits. Some refuse will be sent for recycling as a part of the City's recycling efforts.

In compliance with federal, State, and local statutes and regulations related to solid waste, the Project would dispose of all waste generated onsite at an approved solid waste facility.

The Project does 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 statutes and regulations related to solid waste?

See 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

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 other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
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 #3.4.9f regarding emergency response.

Access to the site for emergency vehicles to the site would be maintained throughout the construction period. Once operational, the development would provide sufficient access and egress for first responders and for residents to evacuate if required. The proposed Project consists of a residential and mixed-use development on an infill site within the City. In addition, the proposed Project's site plan would be subject to review and approval by the City Fire Department to ensure it includes adequate emergency access. As a result, Project implementation would not physically interfere with evacuation plans or the City Fire Department access to and from the Project site. The Project would not result in a substantial alteration to the adjacent and area circulation system. 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 or the uncontrolled spread of a wildfire?

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). 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. Steep slopes contribute to fire hazards by intensifying the effects of wind and making fire suppression difficult.

Wildland fires occur in geographic areas that contain the types and conditions of vegetation, topography, weather, and structure density susceptible to risks associated with uncontrolled fires that can be started by lightning, improperly managed campfires, cigarettes, sparks from automobiles, and other ignition sources. According to the California Department of Forestry and Fire Protection (CAL FIRE) Very High Fire Hazard Severity Zone (VHFHSZ) Map for Kings County, the Project site is not located within a High or Very High Fire Hazard Severity Zone (CalFire, 2022). Moreover, since the Project site is not located in or near a VHFHSZ, nor is it located in or near a State Responsibility Area (SRA), potential impacts associated with emergency access described above would not pertain to wildfire and would more likely be associated with an urban fire or other emergency situations.

The Project site and surrounding area are relatively flat and without steep slopes. The site is located in a predominately urban area with some ongoing agricultural activities, which is not considered at significant risk of wildlife. 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 or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

See discussion in Impact #3.4.20a-b.

The Project would include the development of infrastructure (water, sewer, electrical power lines, and storm drainage) required to support the proposed uses. The Project would require installing or maintaining additional electrical distribution lines and natural gas lines to connect the residential development 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. The design of all proposed utilities will be subject to the review and approval of the City. This will ensure the viability of the utility infrastructure's ability for fire protection and suppression activities. Therefore, impacts for the Project would be considered as 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 in or near a State Responsibility Area (SRA) or a Local Responsibility Area (LRA) Fire Hazard Severity Zone. Thus, the proposed Project would not 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 within the X Flood Hazard Zone (500-year flood zone) as determined by the Federal Emergency Management Agency (FEMA) and is further surrounded by properties that are identified as an Area of Minimal Flood Hazard. As previously discussed in Impact #3.4.7a, Hanford is located in a stable geologic formation, so the effects of ground shaking on soil stability should be minimal. In addition, the Project site is generally level and would not expose people or structures to potential substantial adverse effects associated with landslides. Therefore, impacts of the proposed Project related to flooding, landslides, water runoff, and post-fire slope instability 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
3.4.21 - MANDATORY FINDINGS OF SIGNIFICANCE					
a.	Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
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 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 including paleontological resources. Mitigation measures have been

included to reduce the significance of potential impacts. Similar mitigation measures would be expected of other projects in the surrounding area, most of which share similar cultural, paleontological, and biological resources. Consequently, after mitigation, the incremental effects of the proposed Project would not contribute to a cumulative adverse impact on these resources. Therefore, the Project would have a less-than-significant impact with mitigation incorporated.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures BIO-1 through BIO-7, CUL-1 through CUL-4.

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 of this IS/MND, any potentially significant impacts of the Project would be reduced to a less-than-significant level following incorporation of the mitigation measures listed in Appendix A – Mitigation Monitoring and Reporting Program. All planned projects in the vicinity of the Project would be subject to review in separate environmental documents and required to conform to the General Plan and the Hanford Municipal Code. The Project would also be required to mitigate Project-specific impacts and provide appropriate engineering to ensure the Project meets all applicable federal, State, and local regulations and codes. As currently designed and with compliance with the recommended mitigation measures, the proposed Project would not be cumulative. Thus, the cumulative impacts of past, present, and reasonably foreseeable future projects would be less than cumulatively considerable.

MITIGATION MEASURE(S)

Implementation of Mitigation Measures AQ-1 through AQ-3, BIO-1 through BIO-7, ENG-1, CUL-1 through CUL-4, GEO-1 through GEO-3, and HAZ-1 through HAZ-4.

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?

The ways in which people can be subject to substantial adverse effects from projects include potential exposure to significant levels of local air pollutants, potential exposure to seismic and flooding hazards, potential exposure to hazardous materials, potential exposure to

contamination from hazardous materials, potential exposure to traffic hazards, and potential exposure to excessive noise levels. The risks from these potential hazards would be avoided or reduced to less-than-significant levels through compliance with existing laws, regulations, or requirements. 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. As shown in Appendix A – Mitigation Monitoring and Reporting Program, the Project proponent has agreed to implement mitigation substantially reducing or eliminating impacts of the Project.

Therefore, the 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)

Implementation of Mitigation Measures AQ-1 through AQ-3, BIO-1 through BIO-7, ENG-1, CUL-1 through CUL-4, GEO-1 through GEO-3, and HAZ-1 through HAZ-4.

LEVEL OF SIGNIFICANCE

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

SECTION 4 - LIST OF PREPARERS

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APPENDIX A

MITIGATION MONITORING AND REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Timeframe	Responsible Monitoring Agency	Date	Initial

MM AQ-1: The project shall continuously comply with the following: Construction and operation of the project shall be conducted in compliance with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District. Dust control measures outlines below shall be implemented where they are applicable and feasible. The list shall not be considered all inclusive, and any other measures to reduce fugitive dust emissions not listed shall be encouraged. a. **Land Preparation Excavation and/or Demolition.** The following dust control measures shall be implemented. 1. All soil excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations. 2. All fine material transported off site shall be either sufficiently watered or securely covered to prevent excessive dust. 3. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times. 4. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust. b. **Site Construction:** After clearing, grading, earth moving and/or excavation is completed within any portion of the	During Construction	Lead Agency

project sites, the following dust control practices shall be implemented.

1. All active disturbed soil areas shall be sufficiently watered at least twice daily or have dust palliatives applied to prevent excessive dust.

c. **Vehicular Activities:** During all phases of construction, the following vehicular control measures shall be implemented.

1. Onsite vehicle speeds shall be limited to 15 miles per hour.

2. All areas with vehicle traffic shall be paved, treated with dust palliatives or watered a minimum of twice daily.

3. Streets adjacent to the project sites shall be kept clean, and project-related accumulated silt shall be removed.

4. Access to the project sites shall be by means of an apron into the project sites from adjoining surfaced roadways. The aprons shall be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of vehicles, a grizzly, wheel washer, or other such device shall be used on the road exiting the project sites, immediately prior to the pavement, in order to remove most of the soil material from vehicle tires.

MM AQ-2: The project shall continuously comply with the following: The project proponent and/or its contractors shall implement the following measures during construction of the project. a. All equipment shall be maintained in accordance with the manufacturer's specifications. b. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment shall be turned off when not in use for extended periods of time. c. Construction equipment shall operate no longer than eight cumulative hours per day. d. Electric equipment shall be used whenever possible in lieu of diesel- or gasoline powered equipment. e. All construction vehicles shall be equipped with proper emission control equipment and kept in good and proper running order to substantially reduce NOx emissions. f. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines. g. Tier 3 engines shall be used on all equipment when available.	Ongoing	Lead Agency

MM AQ-3: The project proponent shall continuously comply with the following measures during operation of the project to control emissions from the on-site dedicated equipment (equipment that would remain on-site each day): a. a. All onsite off-road equipment and on-road vehicles for operation/maintenance shall be new equipment that meets the recent California Air Resources Board engine emission standards or alternatively fueled construction equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate. b. All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized. c. All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification.	During Operation	Lead Agency
MM BIO-1: A pre-construction clearance survey of the Project footprint shall be conducted for special-status wildlife species and nesting migratory birds and raptors. The survey shall occur no less than 14-30 days prior to the start of construction activities. If construction is delayed beyond 30 days from the time of the survey, then another survey must be conducted. The survey shall be conducted by a biologist with adequate training and prior experience conducting surveys for special-status wildlife species. If no special-status species are observed, no further action is warranted. If dens or burrows that could support special-status species and/or nesting birds are discovered during the pre-construction survey, appropriate avoidance buffers should be established. A report outlining the results of the clearance survey shall be provided to the Lead Agency as evidence of compliance.	Prior to construction	Lead Agency
MM BIO-2: If construction is planned during the nesting season for migratory birds (February 15 to August 31) and nesting birds are identified during the survey, active Swainson's hawk nest	During construction	Lead Agency

shall be avoided by 0.5 miles, other 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 biological 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.		
MM BIO-3: If an active Swainson's hawk nest is discovered at any time within 0.5 miles of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities to impact the nest. The assessment would 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 the construction activities of this Project. Based on this assessment, the biologist will 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 on 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 nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.	During construction	Lead Agency

MM BIO-4: Prior to the initiation of construction activities, all personnel shall attend a Worker Environmental Awareness Training program developed by a qualified biologist. The program shall include information on the life histories of special-status species with the potential to occur on the Project, their legal status, the course of action shall these species be encountered onsite, and avoidance and minimization measures to protect these species.	Prior to construction	Lead Agency
MM BIO-5: Project-related vehicles should observe a 20-mph speed limit in all Project areas, except on county roads and state and federal highways. Off-road traffic outside of designated Project areas should be prohibited.	During construction	Lead Agency
MM BIO-6: All trash and food items should be discarded into closed containers and properly disposed of at the end of each workday.	During construction	Lead Agency
MM BIO-7: To prevent harassment or mortality of listed species, no pets should be permitted on the Project site during Project construction.	During construction	Lead Agency
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. 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. Cultural resource materials may include prehistoric resources	During construction	Lead Agency

such as flaked and ground stone tools and debris, shell, bone, ceramics, fire-affected rock, and historic resources such as glass, metal, wood, brick, or structural remnants. 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 any ground disturbance, if the City of Hanford receives a request from a Native American tribal group, a surface inspection of the site shall be conducted by a tribal monitor. The tribal staff shall provide pre-Project-related activities briefings to supervisory personnel and any excavation contractor, including information on potential cultural material, finds, and any excavation contractor, which will include information on potential cultural material finds, and the procedures be enacted if resources are found. The tribal cultural staff shall monitor the site during grading activities. Prior to any ground disturbance, the applicant shall offer the tribe the opportunity to provide a Native American Monitor during ground-disturbing activities. Tribal participation would be dependent upon the availability and interest of the tribe.	Prior to construction	Lead Agency
MM CUL-3: That a Burial Treatment Plan be entered into by the applicant/developer prior to any earth-disturbing activities.	Prior to construction	Lead Agency
MM CUL-4: 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	During construction	Lead Agency

(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 the discovery of human remains, at the direction of the county coroner.		
MM ENG-1: The Project proponent and its contractors shall comply with applicable California Title 24 CalGreen Code which can include but not be limited to inclusion of solar ready rooftops, double pane windows, electric vehicle charging, use of LED lights, the use of low flow appliances, drip irrigation, and drought tolerant landscaping.	Prior to and during construction	Lead Agency
MM GEO-1: The Project proponent and its contractors shall construct the project in compliance with applicable development standards under the California Building Code.	Prior to construction	Lead Agency
MM GEO-2: Prior to issuing of grading or building permits, if required, (a) the Project applicant shall submit to the Lead Agency (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.	Prior to construction	Lead Agency

• Properly managing construction materials. • Managing waste, aggressively controlling litter, and implementing sediment controls. • Evidence of the approved SWPPP shall be submitted to the Lead Agency.		
MM GEO-3: If any paleontological resources are encountered during ground-disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or another appropriate facility regarding any discoveries of paleontological resources. If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource-appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in	Prior to construction	Lead Agency

an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.		
MM HAZ-1: The Project proponent/operators and its contractors shall utilize the U.S. Department of Transportation and Caltrans designated hazardous materials routes for the transportation of hazardous and potentially hazardous materials during Project construction and operation.	During construction and operation	Lead Agency
MM HAZ-2: The project proponent/operator shall receive approval from the State Water Resources Control Board and Kings County Department of Public Health (Certified Unified Program Agency) for the installation and operation of all proposed underground storage tanks.	Prior to construction	Lead Agency, State Water Resources Control Board, Kings County Department of Public Health
MM HAZ-3: Prior to operation of the Project, the Project proponent/operator shall identify potential hazardous materials for Project operations. If the operation exceeds the established HMBP reporting thresholds, the Project proponent/operator must prepare and maintain a Hazardous Materials Business Plan pursuant to California Environmental Protection Agency and California Environmental Reporting System requirements, and submit the plan to the Kings County Public Health Department for review and approval.	Prior to operation	Lead Agency, Kings County Department of Public Health
MM HAZ-4: The Project shall comply with applicable procedures and policies for emergency response as set forth in the Kings County Multi-Jurisdictional Local Hazard Mitigation Plan.	Ongoing	Lead Agency

APPENDIX B

AIR QUALITY IMPACT ANALYSIS

AIR QUALITY IMPACT ANALYSIS

Grangeville Multi-Use Development Project
Hanford, CA

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January 2024

Project 230505.0240

Trinity Consultants

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1. EXECUTIVE SUMMARY

Trinity Consultants has completed an Air Quality Impact Analysis (AQIA) for a mixed-use development consisting of resident apartments and general retail. The Project site is located at the northwest corner of Grangeville Boulevard and Centennial Drive of Grangeville, California along Highway 99.

The proposed Project's construction would include the following criteria pollutant emissions: reactive organic gases (ROG), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Project operations would generate air pollutant emissions from mobile sources (vehicle activity from delivery trucks, consumers, and employees), energy sources (natural gas and electricity usage), and area sources (incidental activities related to architectural coating, consumer products, and landscape maintenance). Project construction and operational activities would also generate greenhouse gas (GHG) emissions. Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0 (California Air Pollution Control Officers Association (CAPCOA) 2021), which is the most current version of the model approved for use by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

Table 4-3 presents the Project's construction emissions and provides substantial evidence to support a *less than significant* air quality impact on the San Joaquin Valley Air Basin. **Table 4-4** presents the Project's operations emissions and provides substantial evidence to support a *less than significant* air quality impact on the San Joaquin Valley Air Basin. Based on the foregoing conclusions, the Project is considered to have *less than significant* air quality impacts on the San Joaquin Valley Air Basin.

SJVAPCD uses a single threshold for determination of significance for both project specific and cumulative impacts. 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 would be *less than significant*.

2. INTRODUCTION

2.1 Purpose

This AQIA was prepared pursuant to the SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2015) and the California Environmental Quality Act (CEQA) Statute and Guidelines (CEQA 2023).

2.2 General Project Description

The Project is the construction of a multi-use development project consisting of a residential complex, gas station, and fast-food restaurant. The Project would be located in Hanford, California and consists of 8 residential buildings consisting of 64 dwellings units, a gas station with 12 pumps, and a fast-food restaurant with a drive-thru.

Figure 2-1 depicts the regional location and **Figure 2-2** depicts an aerial view of the Project location. Construction is estimated to begin in the fourth quarter of 2024 and is expected to take less than 24 months to complete.

Figure 2-1. Regional Location

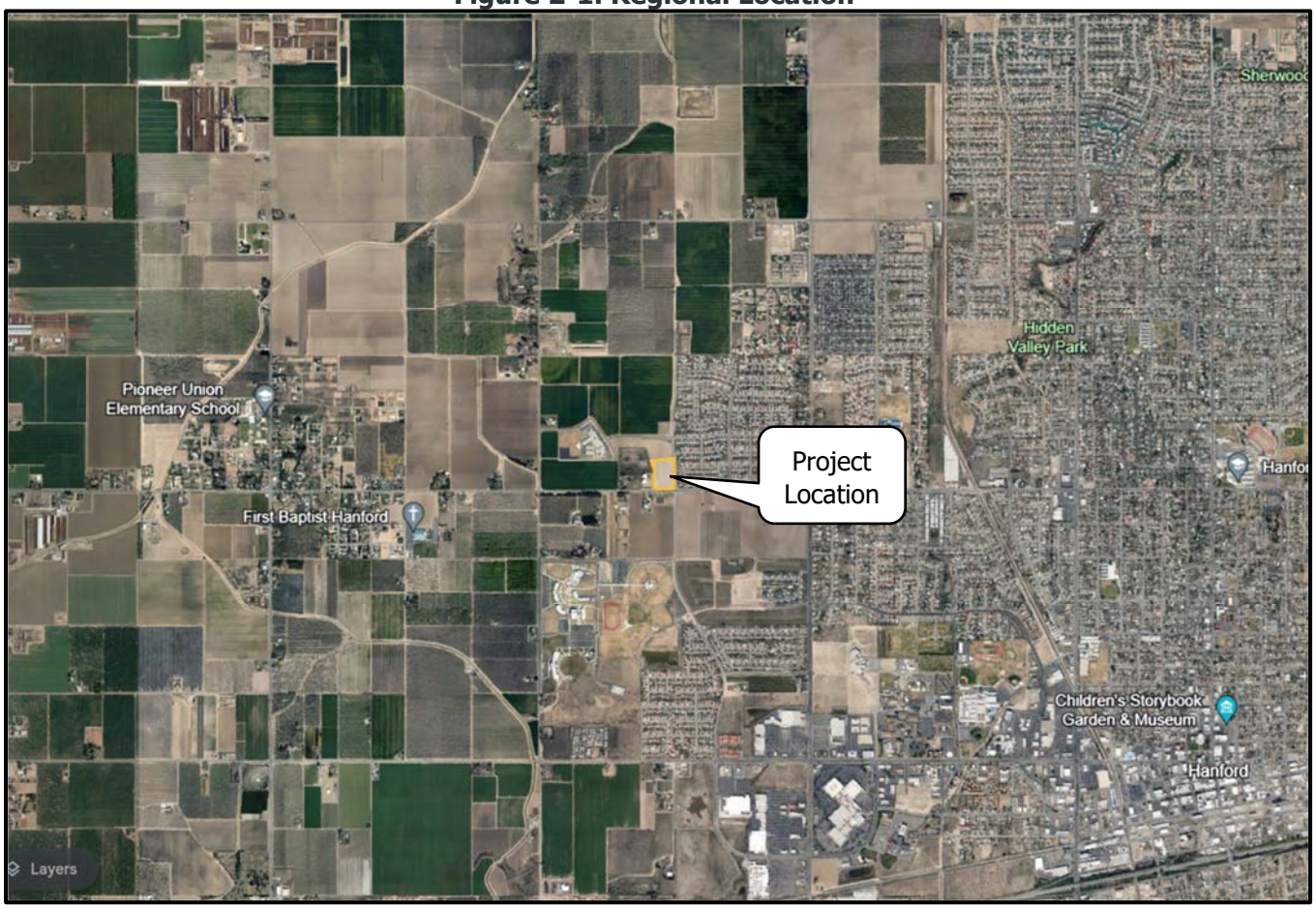


Figure 2-2. Project Location

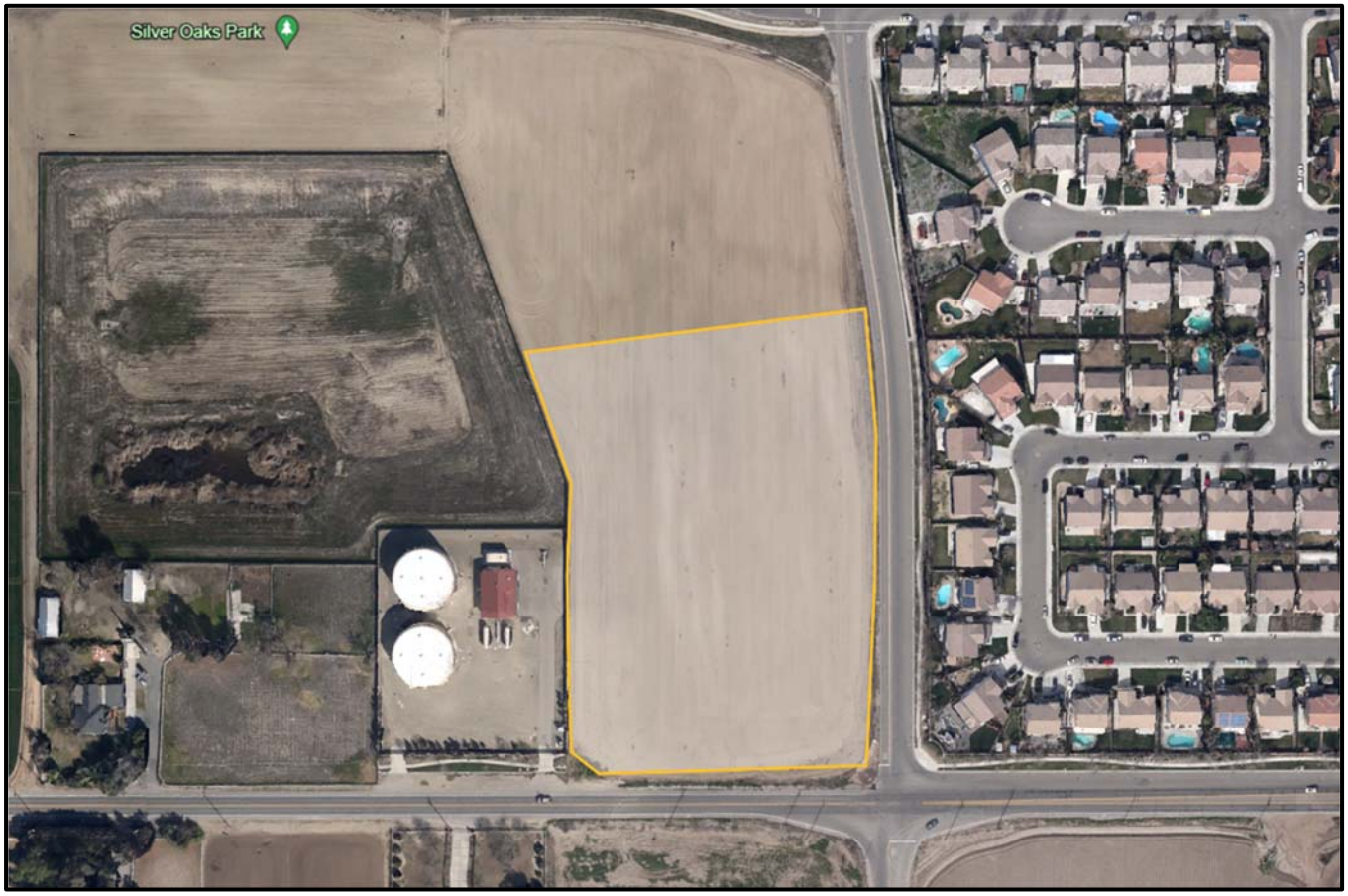
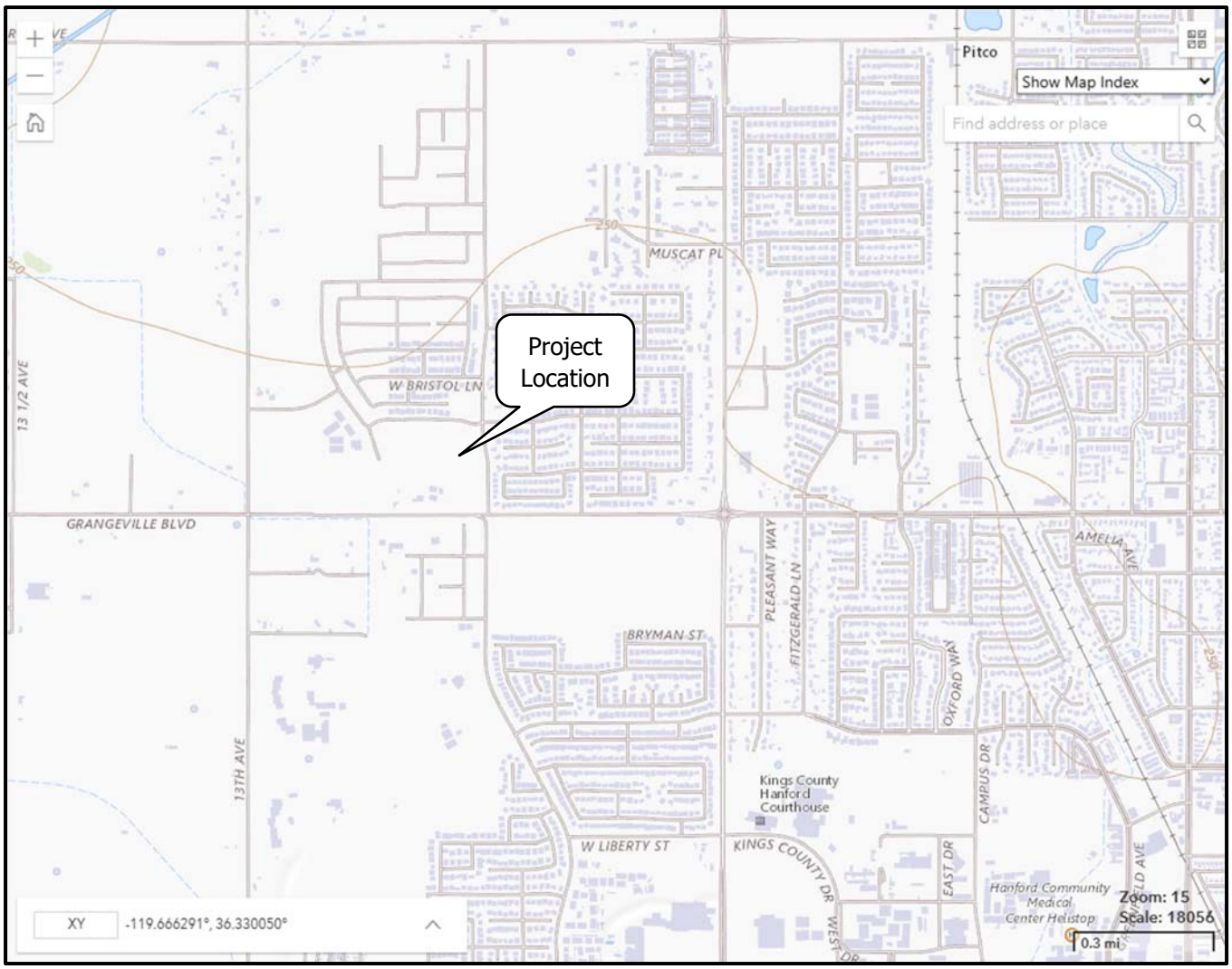


Figure 2-3 depicts the Project site's topography based on Kings County GIS (2023). The Project site is located at an elevation of approximately 222 feet above mean sea level.

Figure 2-3. Project Site Topography



3. SETTING

Protection of the public health is maintained through the attainment and maintenance of ambient air quality standards for various atmospheric compounds and the enforcement of emissions limits for individual stationary sources. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone (O_3), CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$, and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants. CAAQS are more stringent than the corresponding NAAQS and include standards for hydrogen sulfide (H_2S), vinyl chloride (chloroethene), and visibility reducing particles. The U.S. Clean Air Act Amendments of 1977 required each state to identify areas that were in non-attainment of the NAAQS and to develop State Implementation Plans (SIP's) containing strategies to bring these non-attainment areas into compliance. NAAQS and CAAQS designation/classification for Kings County are presented in **Section 3.1** below.

Responsibility for regulation of air quality in California lies with the California Air Resources Board (CARB) and the 35 local air districts with oversight responsibility held by the EPA. CARB is responsible for regulating mobile source emissions, establishing CAAQS, conducting research, managing regulation development, and providing oversight and coordination of the activities of the 35 air districts. The air districts are primarily responsible for regulating stationary source emissions and monitoring ambient pollutant concentrations. CARB also determines whether air basins, or portions thereof, are "unclassified," in "attainment" or in "non-attainment" for the NAAQS and CAAQS relying on statewide air quality monitoring data.

3.1 Air Quality Standards

The Project area is located within Kings County's portion of the San Joaquin Valley Air Basin (SJVAB or Basin). Kings County is included among the eight counties that comprise the SJVAPCD. The SJVAPCD acts as the regulatory agency for air pollution control in the Basin and is the local agency empowered to regulate air pollutant emissions for the Project area. **Table 3-1** provides the NAAQS and CAAQS.

Table 3-1. Federal & California Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
		Concentration	
O_3	8-hour	0.070 ppm (137 µg/m^3)[a]	0.070 ppm (137 µg/m^3)
	1-hour		0.09 ppm (180 µg/m^3)
CO	8-hour	9 ppm (10 µg/m^3)	9 ppm (10 µg/m^3)
	1-hour	35 ppm (40 µg/m^3)	20 ppm (23 µg/m^3)
NO_2	Annual Average	53 ppb (100 µg/m^3)	0.030 ppm (57 µg/m^3)
	1-Hour	100 ppb (188.68 µg/m^3)	0.18 ppm (339 µg/m^3)
SO_2	3-Hour	0.5 ppm (1,300 µg/m^3)	
	24 Hour	0.14 ppm (365 µg/m^3)	0.04 ppm (105 µg/m^3)
	1-Hour	75 ppb (196 µg/m^3)	0.25 ppm (655 µg/m^3)
Particulate Matter (PM_{10})	Annual Arithmetic Mean		20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	
Sulfates	24-Hour		25 µg/m^3
Pb[d]	Rolling Three-Month Average	0.15 µg/m^3	
	30 Day Average		1.5 µg/m^3
H_2S	1-Hour		0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 µg/m^3)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		[b]

ppm = parts per million
ppb = parts per billion
mg/m^3 = milligrams per cubic meter
µg/m^3 = micrograms per cubic meter

Source: CARB 2016

a. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm

b. In 1989, CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Under the provisions of the U.S. Clean Air Act, the Kings County portion of the SJVAB has been classified as nonattainment/extreme, nonattainment/severe, nonattainment, attainment/unclassified, attainment, or unclassified under the established NAAQS and CAAQS for various criteria pollutants. **Table 3-2** provides the SJVAB's designation and classification based on the various criteria pollutants under both NAAQS and CAAQS.

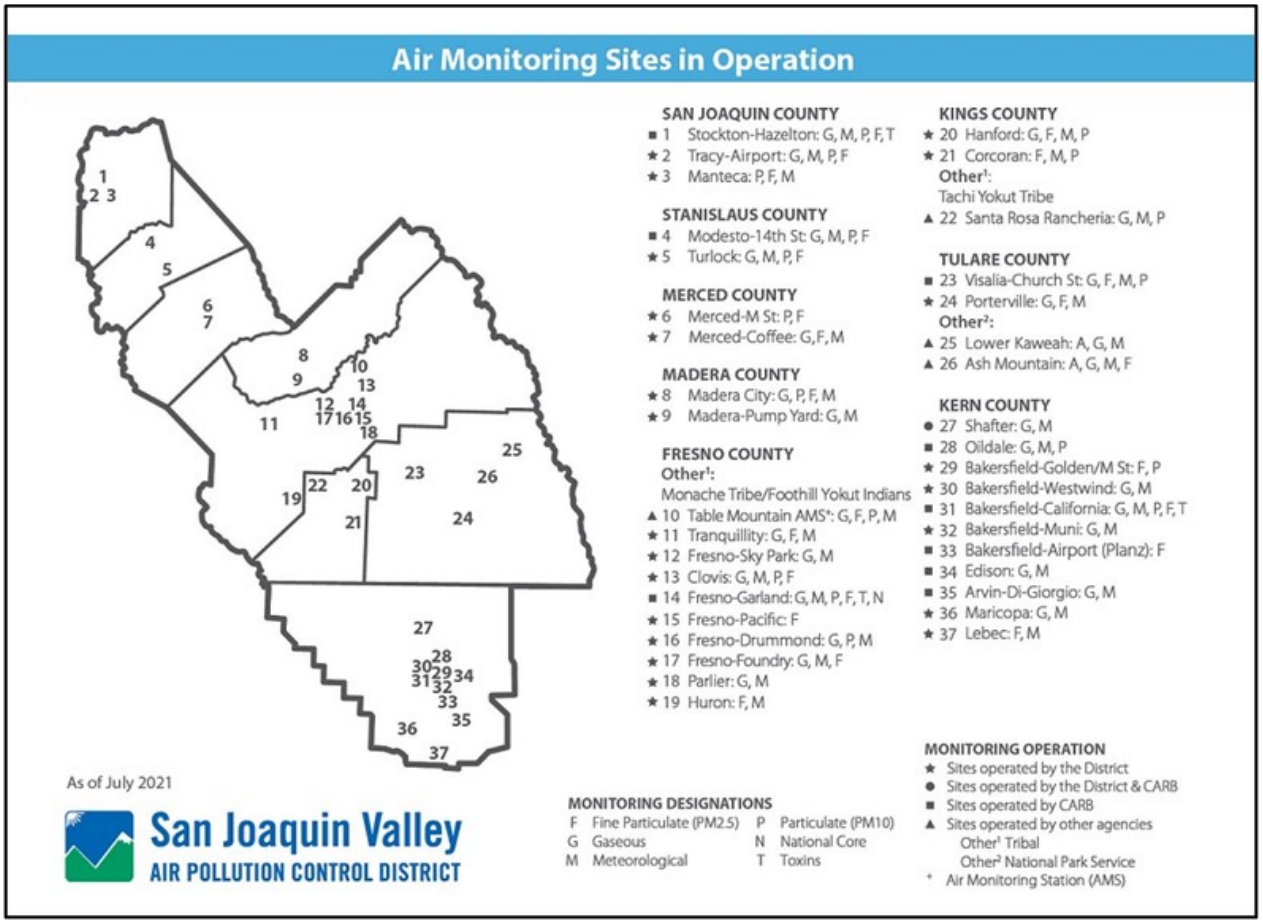
Table 3-2. SJVAB Attainment Status

Pollutant	NAAQS[a]	CAAQS[b]
O_3, 1-hour	No Federal Standard[f]	Nonattainment/Severe
O_3, 8-hour	Nonattainment/Extreme[e]	Nonattainment
PM_{10}	Attainment[c]	Nonattainment
$PM_{2.5}$	Nonattainment[d]	Nonattainment
CO	Attainment/Unclassified	Attainment/Unclassified
NO_2	Attainment/Unclassified	Attainment
SO_2	Attainment/Unclassified	Attainment
Pb (Particulate)	No Designation/Classification	Attainment
H_2S	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2021a
Note:
a. See 40 CFR Part 81
b. See CCR Title 17 Sections 60200-60210
c. On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM_{10} National Ambient Air Quality Standard (NAAQS) and approved the PM_{10} Maintenance Plan.
d. The Valley is designated nonattainment for the 1997 $PM_{2.5}$ NAAQS. EPA designated the Valley as nonattainment for the 2006 $PM_{2.5}$ NAAQS on November 13, 2009 (effective December 14, 2009).
e. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour O_3 standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).
f. Effective June 15, 2005, the EPA revoked the federal 1-hour O_3 standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour O3 nonattainment areas continue to apply to the SJVAB.

The SJVAPCD, along with CARB, operates an air quality monitoring network that provides information on average concentrations of those pollutants for which Federal or State agencies have established NAAQS and CAAQS, respectively. The monitoring stations in the San Joaquin Valley are depicted in **Figure 3-1**.

Figure 3-1. SJVAPCD Monitoring Network



Source: SJVAPCD 2021b

3.2 Existing Air Quality

For the purposes of background data and this air quality analysis, this analysis relied on data collected in the last three years for the CARB monitoring stations that are located in the closest proximity to the project site. **Table 3-3** provides the background concentrations for O_3, particulate matter of 10 microns (PM_{10}), particulate matter of less than 2.5 microns ($PM_{2.5}$), CO, NO_2, SO_2, and Pb. Information is provided for the Hanford – S Irwin Street, Santa Rosa Rancheria – 17225 Jersey, Corcoran – Patterson Avenue, and Fresno – Garland monitoring stations for 2020 through 2022. No data is available for H_2S, Vinyl Chloride or other toxic air contaminants in Kings County.

Table 3-3. Existing Air Quality Monitoring Data in Project Area

Pollutant and Monitoring Station Location	Maximum Concentration			Days Exceeding Standard		
	2020	2021	2022	2020	2021	2022
O_3 – 1-hour CAAQS (0.09 ppm)						
Hanford – S Irwin Street	0.103	0.102	0.091	6	2	0
Santa Rosa Rancheria – 17225 Jersey	0.074	0.095	0.091	0	1	0
O_3 – 8-hour CAAQS (0.07 ppm)						
Hanford – S Irwin Street	0.088	0.096	0.081	27	18	12
Santa Rosa Rancheria – 17225 Jersey	0.065	0.085	0.081	0	4	14
O_3 – 8-hour NAAQS (0.070 ppm)						
Hanford – S Irwin Street	0.088	0.095	0.082	26	16	13
Santa Rosa Rancheria – 17225 Jersey	0.066	0.086	0.081	0	4	17
PM_{10} – 24-hour CAAQS (50 µg/m^3)						
Hanford – S Irwin Street	180.9	192.7	251.6	22	146	141
Corcoran – Patterson Avenue	*	227.2	*	*	160	
PM_{10} – 24-hour NAAQS (150 µg/m^3)						
Hanford – S Irwin Street	180.4	175.0	250.8	3	2	1
Corcoran – Patterson Avenue	*	254.9	*	*	10	*
$PM_{2.5}$ - 24-hour NAAQS (35 µg/m^3)						
Hanford – S Irwin Street	147.0	81.0	62.9	52	31	27
Corcoran – Patterson Avenue	144.3	70.3	*	43	30	*
CO - 8-Hour CAAQS & NAAQS (9.0 ppm)						
No data collected	*	*	*	*	*	*
NO_2 - 1-Hour CAAQS (0.18 ppm)						
Hanford – S Irwin Street	0.051	0.051	45.8	0	0	0
NO_2 - 1-Hour NAAQS (0.10 ppm)						
Hanford – S Irwin Street	0.052	0.052	45	0	0	0
SO_2 – 24-hour Concentration - CAAQS (0.04 ppm) & NAAQS (0.14 ppm)						
No data collected	*	*	*	*	*	*
Pb - Maximum 30-Day Concentration CAAQS (1500 ng/m^3)						
Fresno – Garland	6.1	6.8		*	*	*

Source: CARB 2023a
Notes: ppm= parts per million
* There was insufficient (or no) data available to determine the value.

The following is a description of criteria air pollutants, typical sources and health effects and the recently documented pollutant levels in the project vicinity.

3.2.1 Ozone (O_3)

The most severe air quality problem in the San Joaquin Valley is high concentrations of O_3. O_3 is not emitted directly into the atmosphere but is a secondary pollutant produced through photochemical reactions involving hydrocarbons and nitrogen oxides (NOx). Significant O_3 generation requires about one to three hours in a stable atmosphere with strong sunlight. For this reason, the months of April through October comprise the "ozone season." O_3 is a regional pollutant because O_3 precursors are transported and diffused by wind concurrently with the reaction process. The data contained in **Table 3-3** shows that the Hanford and Santa Rosa Rancheria area exceeded the 1-hour average ambient O_3 CAAQS and the 8-hour average ambient O_3 NAAQS and CAAQS during the 2020 through 2022 period.

3.2.1.1 Ozone Health Impacts

High levels of O_3 cause eye irritation and can impair respiratory functions. O_3 can cause chest pain, coughing, shortness of breath, and throat irritation; it can also worse chronic respiratory diseases such as asthma and compromise the ability of the body to fight respiratory infections. High levels of O_3 can also affect plants and materials. Grapes, lettuce, spinach and many types of garden flowers and shrubs are particularly vulnerable to O_3 damage.

3.2.2 Suspended Particulate Matter (PM_{10} and $PM_{2.5}$)

Both State and Federal particulate standards now apply to particulates under 10 microns (PM_{10}) rather than to total suspended particulate (TSP), which includes particulates up to 30 microns in diameter. Continuing studies have shown that the smaller-diameter fraction of TSP represents the greatest health hazard posed by the pollutant; therefore, EPA has recently established NAAQS for $PM_{2.5}$. The project area is classified as attainment for PM_{10} and non-attainment for particulates under 2.5 microns ($PM_{2.5}$) for NAAQS.

Particulate matter consists of particles in the atmosphere resulting from many kinds of dust and fume-producing industrial and agricultural operations, from combustion, and from atmospheric photochemical reactions. Natural activities also increase the level of particulates in the atmosphere; wind-raised dust and ocean spray are two sources of naturally occurring particulates. The largest sources of PM_{10} and $PM_{2.5}$ in Kings County are vehicle movement over paved and unpaved roads, demolition and construction activities, farming operations, and unplanned fires. PM_{10} and $PM_{2.5}$ are considered regional pollutants with elevated levels typically occurring over a wide geographic area. Concentrations tend to be highest in the winter, during periods of high atmospheric stability and low wind speed.

Table 3-3 shows that PM_{10} levels regularly exceeded the CAAQS but not the NAAQS at two monitoring stations over the three-year period of 2020 through 2022. **Table 3-3** shows that $PM_{2.5}$ NAAQS were exceeded from 2019 through 2021. Similar levels can be expected to occur in the vicinity of the Project site.

3.2.2.1 Suspended Particulate Matter Health Impacts

In the respiratory tract, very small particles of certain substances may produce injury by themselves or may contain absorbed gases that are injurious. Particulates of aerosol size suspended in the air can both scatter and absorb sunlight, producing haze and reducing visibility. They can also cause a wide range of damage to materials.

3.2.3 Carbon Monoxide (CO)

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. Wind speed and atmospheric mixing also influence CO concentrations; however, under inversion

conditions prevalent in the San Joaquin Valley, CO concentrations may be more uniformly distributed over a broad area.

Internal combustion engines, principally in vehicles, produce CO due to incomplete fuel combustion. Various industrial processes also produce CO emissions through incomplete combustion. Gasoline-powered motor vehicles are typically the major source of this contaminant. **Table 3-3** reports no CO data is available for the three-year period from 2020 through 2022.

3.2.3.1 Carbon Monoxide Health Impacts

CO does not irritate the respiratory tract but passes through the lungs directly into the blood stream, and by interfering with the transfer of fresh oxygen to the blood, deprives sensitive tissues of oxygen, thereby aggravate cardiovascular disease, causing fatigue, headaches, and dizziness. CO is not known to have adverse effects on vegetation, visibility, or materials.

3.2.4 Nitrogen Dioxide (NO_2) and Hydrocarbons

Kings County has been designated as an attainment area for the NAAQS for NO_2. NO_2 is the "whiskey brown" colored gas readily visible during periods of heavy air pollution. Mobile sources and oil and gas production account for nearly all of the County's NOx emissions, most of which is emitted as NO_2. Combustion in motor vehicle engines, power plants, refineries and other industrial operations are the primary sources in the region. Railroads and aircraft are other potentially significant sources of combustion air contaminants. Oxides of nitrogen are direct participants in photochemical smog reactions. The emitted compound, nitric oxide, combines with oxygen in the atmosphere in the presence of hydrocarbons and sunlight to form NO_2 and O_3. NO_2, the most significant of these pollutants, can color the atmosphere at concentrations as low as 0.5 ppm on days of 10-mile visibility. NOx is an important air pollutant in the region because it is a primary receptor of ultraviolet light, which initiates the reactions producing photochemical smog. It also reacts in the air to form nitrate particulates.

Motor vehicles are the major source of reactive hydrocarbons in the basin. Other sources include evaporation of organic solvents and petroleum production and refining operations. **Table 3-3** shows that the Federal and State NO_2 standards have not been exceeded at the monitoring station over the three-year period of 2020 through 2022. Hydrocarbons are not currently monitored.

3.2.4.1 Nitrogen Dioxide and Hydrocarbons Health Impacts

Certain hydrocarbons can damage plants by inhibiting growth and by causing flowers and leaves to fall. Levels of hydrocarbons currently measured in urban areas are not known to cause adverse effects in humans. However, certain members of this contaminant group are important components in the reactions, which produce photochemical oxidants.

3.2.5 Sulfur Dioxide (SO_2)

Kings County has been designated as an attainment area for the NAAQS for SO_2. SO_2 is the primary combustion product of sulfur, or sulfur containing fuels. Fuel combustion is the major source of this pollutant, while chemical plants, sulfur recovery plants, and metal processing facilities are minor contributors. Gaseous fuels (natural gas, propane, etc.) typically have lower percentages of sulfur containing compounds than liquid fuels such as diesel or crude oil. SO_2 levels are generally higher in the winter months. Decreasing levels of SO_2 in the atmosphere reflect the use of natural gas in power plants and boilers.

Table 3-3 shows no data has been reported over the three-year period in Kings County.

3.2.5.1 Sulfur Dioxide Health Impacts

At high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when respirated in combination with particulates, SO_2 can result in greater harm by injuring lung tissues. Sulfur oxides (SOx), in combination with moisture and oxygen, results in the formation of sulfuric acid, which can yellow the leaves of plants, dissolve marble, and oxidize iron and steel. SOx can also react to produce sulfates that reduce visibility and sunlight.

3.2.6 Lead (Pb) and Suspended Sulfate

Ambient Pb levels have dropped dramatically due to the increase in the percentage of motor vehicles that run exclusively on unleaded fuel. Ambient Pb levels in Fresno are well below the ambient standard and are expected to continue to decline; the data reported in **Table 3-3** only shows the highest concentration as the number of days exceeding standards are not reported. Suspended sulfate levels have stabilized to the point where no excesses of the State standard are expected in any given year.

3.2.6.1 Lead and Suspended Sulfate Health Impacts

Pb affects most organs in the body, and children are most susceptible to the effects of Pb. In children, Pb can cause behavior and learning problems, slowed growth, anemia, and hearing problems. In adults, Pb can lead to decreased kidney function, reproductive problems, and cardiovascular effects, such as increased blood pressure and incidence of hypertension. Suspended sulfates are part of $PM_{2.5}$ and therefore have similar health effects. These health effects include reduced lung function, aggravated asthmatic symptoms, and increased risk of emergency department visits, hospitalizations, and death in people who have chronic heart or lung disease.

3.3 Climate

The most significant single control on the weather pattern of the San Joaquin Valley is the semi-permanent subtropical high-pressure cell, referred to as the "Pacific High." During the summer, the Pacific High is positioned off the coast of northern California, diverting ocean-derived storms to the north. Hence, the summer months are virtually rainless. During the winter, the Pacific High moves southward allowing storms to pass through the San Joaquin Valley. Almost all of the precipitation expected during a given year occurs from December through April. During the summer, the predominant surface winds are out of the northwest. Air enters the Valley through the Carquinez strait and flows toward the Tehachapi Mountains. This up-valley (northwesterly) wind flow is interrupted in early fall by the emergence of nocturnal, down-valley (southeasterly) winds which become progressively more predominant as winter approaches. Wind speeds are generally highest during the spring and lightest in fall and winter. The relatively cool air flowing through the Carquinez strait is warmed on its journey south through the Valley. On reaching the southern end of the Valley, the average high temperature during the summer is nearly 100 degrees Fahrenheit (°F). Relative humidity during the summer is quite low, causing large diurnal temperature variations. Temperatures during the summer often drop into the upper 60s. In winter, the average high temperatures reach into the mid-50s and the average low drops to the mid-30s. In addition, another high-pressure cell, known as the "Great Basin High," develops east of the Sierra Nevada Mountain Range during winter. When this cell is weak, a layer of cool, damp air becomes trapped in the basin and extensive fog results. During inversions, vertical dispersion is restricted, and pollutant emissions are trapped beneath the inversion and pushed against the mountains, adversely affecting regional air quality. Surface-based inversions, while shallow and typically short-lived, are present most mornings. Elevated inversions, while less frequent than ground-based inversions, are typically longer lasting and create the more severe air stagnation problems. The winter season characteristically has the poorest conditions for vertical mixing of the entire year.

Meteorological data for various monitoring stations is maintained by the Western Regional Climate Center. Meteorological data for the Project site is expected to be similar to the data recorded at the Hanford 1 S monitoring station. This data is provided in **Table 3-4**, which contains average precipitation data recorded at the Hanford monitoring station. Over the 117-year period from July of 1899 through June of 2016 (the most recent data available), the average annual precipitation was 8.38 inches.

Table 3-4. Hanford 1 S Weather Data

Period of Record Monthly Climate Summary for the Period 07/01/1899 to 6/09/2016													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Maximum Temp (F)	54.7	61.9	67.5	74.9	83.6	91.4	97.8	96.1	90.5	80.0	66.2	55.4	76.7
Avg. Minimum Temp (F)	35.2	38.6	42.1	46.4	52.5	58.3	62.5	60.4	55.5	47.4	38.8	34.6	47.7
Average Total Precipitation (in.)	1.60	1.53	1.48	0.77	0.26	0.09	0.01	0.01	0.16	0.39	0.84	1.24	8.38
Average Snowfall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent of possible observations for period of record: Max. Temp.: 98.4% Min. Temp.: 98.1% Precipitation: 98.8% Snowfall: 98.2% Snow Depth: 98.2%													

Source: Western Regional Climate Center, 2023.

3.4 Climate Change and Greenhouse Gases

3.4.1 Global Climate Change

"Global climate change" refers to change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms, lasting for decades or longer. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred by some scientists and policy makers to "global warming" because it helps convey the notion that in addition to rising temperatures, other changes in global climate may occur. Climate change may result from the following influences:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

As determined from worldwide meteorological measurements between 1990 and 2005, the primary observed effect of global climate change has been a rise in the average global tropospheric temperature of 0.36 degree Fahrenheit (°F) per decade. Climate change modeling shows that further warming could occur, which could induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns or more energetic aspects of extreme weather (e.g., droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones). Specific effects from climate change in California may include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Sacramento-San Joaquin River Delta.

Natural earth systems and human activities, including fossil fuel combustion and land use changes, both release carbon dioxide (CO_2) and other compounds cumulatively termed greenhouse gases (GHGs). GHGs are effective at trapping radiation that would otherwise escape the atmosphere. This trapped radiation warms the atmosphere, the oceans, and the earth's surface (USGCRP, 2014). Many scientists believe "most of the warming observed over the last 50 years is attributable to human activities" (IPCC, 2017). The increased amount of CO_2 and other GHGs in the atmosphere is the alleged primary result of human-induced warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO_2, methane (CH_4), nitrous oxide (N_2O), and O_3. In the last 200 years, substantial quantities of GHGs have been released into the atmosphere, primarily from fossil fuel combustion. These human-induced emissions are increasing GHG concentrations in the atmosphere, therefore enhancing the natural greenhouse effect. The GHGs resulting from human activity are believed to be causing global climate change. While human-made GHGs include CO_2, CH_4, and N_2O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere. GHGs vary considerably in terms of Global Warming Potential (GWP), the comparative ability of each GHG to trap heat in the atmosphere. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH_4 production include wetlands, termites, and oceans. Human activity accounts for an estimated 50-65% of combined methane emissions of the approximately 500 million metric tons of CH_4 emitted annually (U.S. EPA, n.d.). These anthropogenic sources include the mining and burning of fossil fuels; digestive processes in ruminant livestock such as cattle; rice cultivation; and the decomposition of waste in landfills. The major removal process for atmospheric CH_4, the chemical breakdown in the atmosphere, cannot keep pace with source emissions; therefore, CH_4 concentrations in the atmosphere are rising.

Worldwide emissions of GHGs in 2008 were 30.1 billion metric tons of CO_2e and have increased considerably since that time (United Nations, 2011). It is important to note that the global emissions inventory data are not all from the same year and may vary depending on the source of the data (U.S. EPA, 2019). Emissions from the top five emitting countries and the European Union accounted for approximately 70% of total global anthropogenic GHG emissions in 2014. Of these anthropogenic emissions, the United States was the number two producer of GHG emissions behind China. The primary GHG emitted by human activities was CO_2, representing approximately 78.8% of total global anthropogenic GHG emissions (U.S. EPA, 2022).

In 2020, the United States emitted approximately 5,981.4 million metric tons of CO_2e. Of the six major sectors nationwide (transportation, electric power industry, industry, agriculture, commercial, and residential), the transportation and electric power industry sectors combined account for approximately 52% of the US anthropogenic GHG emissions; the majority of the electrical power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Between 1990 and 2020, total United States GHG emissions have decreased by approximately 7.3% (U.S. EPA, 2022).

Worldwide, energy-related CO_2 emissions are expected to increase at an average rate of 0.6% annually between 2018 and 2050, compared with the average growth rate of 1.8% per year from 1990 to 2018. Much of the increase in these emissions is expected to occur in the developing world where emerging economies, such as China and India, fuel economic development and advance overall standard of living with fossil fuel energy. Developing countries' emissions are expected to grow above the world average at a rate of

approximately 1% annually between 2018 and 2050 and surpass emissions of industrialized countries by 2025 (U.S. EIA, 2019).

CARB is responsible for developing and maintaining the California GHG emissions inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within the state of California and supports the Assembly Bill (AB) 32 Climate Change Program. CARB's current GHG emission inventory covers the years 2000 through 2017 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, and agricultural lands).

In 2019, emissions from statewide emitting activities were 418.2 million metric tons of CO_2 equivalent (MMT CO_2e), which is 7 MMT CO_2e lower than 2018 levels. 2019 emissions have decreased since peak levels in 2004 and are 13 MMT CO_2e below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 tonnes per person to 10.5 tonnes per person in 2019, a 25% decrease (CARB 2021).

CARB estimates that transportation was the source of approximately 40% of California's GHG emissions in 2017, followed by electricity generation at 15%. Other sources of GHG emissions were industrial sources at 21%, residential plus commercial activities at 11%, and agriculture at 8% (CARB 2021).

CARB has projected the estimated statewide GHG emissions for the year 2020, which represent the emissions that would be expected to occur with reductions anticipated from Pavley I and the Renewables Electricity Standard (30 MMT CO_2e total), will be 509 MMT of CO_2e (CARB, 2014). GHG emissions from the transportation and electricity sectors as a whole are expected to increase at approximately 36% and 20% of total CO_2e emissions, respectively, as compared to 2009. The industrial sector consists of large stationary sources of GHG emissions and the percentage of the total 2020 emissions is projected to be 18% of total CO_2e emissions. The remaining sources of GHG emissions in 2020 are high global warming potential gases at 6%, residential and commercial activities at 10%, agriculture at 7%, and recycling and waste at 2%.

3.4.2 Effects of Global Climate Change

Changes in the global climate are assessed using historical records of temperature changes that have occurred in the past. Climate change scientists use this temperature data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from past climate changes in rate and magnitude.

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fifth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100 could range from 1.1 degree Celsius (°C) to 6.4 °C (8 to 10.4 °Fahrenheit) (IPCC, 2013). Global average temperatures and sea levels are expected to rise under all scenarios (IPCC, 2014). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning of fossil fuels. However, the scientific literature is not consistent regarding many of the aspects of climate change, the actual temperature changes during the 20th century, and contributions from human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke, drought, etc. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever,

and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

According to the 2006 California Climate Action Team (CAT) Report, several climate change effects can be expected in California over the course of the next century (CalEPA, 2006). These are based on trends established by the IPCC and are summarized below.

- A diminishing Sierra snowpack declining by 70% to 90%, threatening the state's water supply.
- A rise in sea levels, resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Sea level rises of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the Proposed Project area, as it is a significant distance away from coastal areas.)
- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30% toward the end of the 21st century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90% more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4 °F under the higher emission scenarios, leading to a 25% to 35% increase in the number of days that ozone pollution levels are exceeded in most urban areas (see below).
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85% more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

3.4.3 Global Climate Change Regulatory Issues

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including methane. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs. Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of

compounds that deplete O_3 in the stratosphere (chlorofluorocarbons [CFCs], halons, carbon tetrachloride, and methyl chloroform) were phased out by 2000 (methyl chloroform was phased out by 2005).

On September 27, 2006, Assembly Bill 32 (AB32), the California Global Warming Solutions Act of 2006 (the Act) was enacted by the State of California. The legislature stated, "Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." The Act caps California's GHG emissions at 1990 levels by 2020. The Act defines GHG emissions as all of the following gases: carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This agreement represents the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

AB32 charges CARB with responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. CARB has adopted a list of discrete early action measures that can be implemented to reduce GHG emissions. CARB has defined the 1990 baseline emissions for California and has adopted that baseline as the 2020 statewide emissions cap. CARB is conducting rulemaking for reducing GHG emissions to achieve the emissions cap by 2020. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the state's efforts to improve air quality.

Subsequent legislation by the California legislature has included Senate Bill (SB) 32, which expanded upon AB32 to reduce GHG emissions to 40% below the 1990 levels by 2030; AB197 which increased the legislative oversight of the CARB by adding two legislatively appointed non-voting members to the CARB Board and provided additional protection to disadvantaged communities; SB350, which increased California's renewable energy electricity procurement goal and SB100, which established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electrical retail sales to end use customers and 100 percent of electricity procured to serve state agencies by 2045.

Global warming and climate change have received substantial public attention for more than 20 years. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand, and predict global change, and to provide a sound scientific basis for national and international decision-making. Even so, the analytical tools have not been developed to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are even farther in the future.

The California Supreme Court's CEQA decision on the Newhall Ranch development case, Center for Biological v. California Department of Fish and Wildlife (November 30, 2015, Case No. 217763), determined that the project's Environmental Impact Report (EIR) did not substantiate the conclusion that the GHG cumulative impacts would be less than significant. The EIR determined that the Newhall Ranch development project would reduce GHG emissions by 31 percent from business as usual (BAU). This reduction was compared to the California's target of reducing GHG emissions statewide by 29 percent from business as usual. The Court determined that "the EIR's deficiency stems from taking a quantitative comparison method developed by the Scoping Plan as a measure of the greenhouse gas reduction effort required by the state as a whole, and attempting to use that method, without adjustments, for a purpose very different from its original design." In the Court's final ruling it offered suggestions that were deemed appropriate use of the BAU methodology:

1. Lead agencies can use the comparison to BAU methodology if they determine what reduction a particular project must achieve in order to comply with statewide goals,
2. Project design features that comply with regulations to reduce emissions may demonstrate that those components of emissions are less that significant, and
3. Lead agencies could also demonstrate compliance with locally adopted climate plans or could apply specific numerical thresholds developed by some local agencies.

Neither the City of Hanford or Kings County have developed specific thresholds for GHGs. As discussed in Section 4.1, the SJVAPCD, a CEQA Trustee Agency for this Project, has developed thresholds to determine significance of a proposed project – either implement Best Performance Standards or achieve a 29% reduction from BAU (a specific numerical threshold). However, the SJVAPCD has established their BAU and baseline emissions based on the years 2002-2004 and 2020, respectively. The 2020 projected baseline has passed, and at this time, no new guidance has been approved for determining BAU and projected baseline for the next target year. Therefore, the 29% reduction from BAU cannot be applied to the subject Project in order to determine significance. Additionally, a Best Performance Standards threshold has not been established. For this Project, compliance with locally adopted climate plans will be used to determine level of significance for GHG. Therefore, the GHG analysis for this Project follows the suggestions from the Court's ruling on the Newhall Ranch development project in order to determine significance using the project design features.

4. IMPACT ASSESSMENT

4.1 Significance Criteria

To determine whether a proposed Project could create a potential CEQA impact, local, State, and Federal agencies have developed various means by which a project's impacts may be measured and evaluated. Such means can generally be categorized as follows:

- Thresholds of significance adopted by air quality agencies to guide lead agencies in their evaluation of air quality impacts under the CEQA.
- Regulations established by air districts, CARB and EPA for the evaluation of stationary sources when applying for Authorities to Construct, Permits to Operate and other permit program requirements (e.g., New Source Review).
- Thresholds utilized to determine if a project would cause or contribute significantly to violations of the ambient air quality standards or other concentration-based limits.
- Regulations applied in areas where severe air quality problems exist.

Summary tables of these emission-based and concentration-based thresholds of significance for each pollutant are provided below along with a discussion of their applicability.

4.1.1 Thresholds Adopted for the Evaluation of Air Quality Impacts under CEQA

In order to maintain consistency with CEQA, the SJVAPCD (2015) adopted guidelines to assist applicants in complying with the various requirements. According to the SJVAPCD's GAMAQI, a project would have potentially significant air quality impacts when the project:

- Creates a conflict with or obstructs implementation of the applicable air quality plan;
- Causes a violation of any air quality standard or generates substantial contribution towards exceeding an existing or projected air quality standard;
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is designated non-attainment under a NAAQS and CAAQS (including emissions which exceed quantitative thresholds for O_3 precursors);
- Exposes sensitive receptors to substantial pollutant concentrations; or
- Creates objectionable odors that affect a substantial number of people.

The SJVAPCD GAMAQI thresholds are designed to implement the general criteria for air quality emissions as required in the CEQA Guidelines, Appendix G, Paragraph III (Title 14 of the California Code of Regulations §15064.7) and CEQA (California Public Resources Code Sections 21000 et. al). SJVAPCD's specific CEQA air quality thresholds are presented in **Table 4-1**.

Table 4-1. SJVAPCD CEQA Thresholds of Significance

Criteria Pollutant	Significance Level	
	Construction	Operational
CO	100 tons/yr	100 tons/yr
NOx	10 tons/yr	10 tons/yr
ROG	10 tons/yr	10 tons/yr
SOx	27 tons/yr	27 tons/yr
PM_{10}	15 tons/yr	15 tons/yr
$PM_{2.5}$	15 tons/yr	15 tons/yr
Source: SJVAPCD 2015		

4.1.2 Thresholds for Ambient Air Quality Impacts

CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would "violate any air quality standard or contribute substantially to an existing or projected air quality violation" would be considered to create significant impacts on air quality. Therefore, an AQIA should determine whether the emissions from a project would cause or contribute significantly to violations of the NAAQS or CAAQS (presented above in **Table 3-1**) when added to existing ambient concentrations.

The EPA has established the Federal Prevention of Significant Deterioration (PSD) program to determine what comprises "significant impact levels" (SIL) to NAAQS attainment areas. A project's impacts are considered less than significant if emissions are below PSD SIL for a particular pollutant. When a SIL is exceeded, an additional "increment analysis" is required. As the Project would not include modification to the stationary source under NSR, it would not be subject to either PSD or NSR review. The PSD SIL thresholds are used with ambient air quality modeling for a CEQA project to address whether the Project would "violate any air quality standard or contribute substantially to an existing or projected air quality violation." Ambient air quality emissions estimates below the PSD SIL thresholds would result in less than significant ambient air quality impacts for both a project and cumulative CEQA impact analysis. The SJVAB is classified as non-attainment for the O_3 NAAQS and, as such, is subject to "non-attainment new source review" (NSR). PSD SILs and increments are more stringent than the CAAQS or NAAQS and represent the most stringent thresholds of significance.

4.1.3 Thresholds for Hazardous Air Pollutants

The SJVAPCD's GAMAQI states, "From a health risk perspective there are basically two types of land use projects that have the potential to cause long-term public health risk impacts:

- Type A Projects: Land use projects that will place new toxic sources in the vicinity of existing receptors.
- Type B Projects: Land use projects that will place new receptors in the vicinity of existing toxics sources" (SJVAPCD 2015).

Table 4-2 Table 4-2 presents the thresholds of significance used with toxic air contaminants when evaluating hazardous air pollutants (HAPs).

Table 4-2. Measures of Significance - Toxic Air Contaminants

Agency	Level	Description
Significance Thresholds Adopted for the Evaluation of Impacts Under CEQA		
SJVAPCD	Carcinogens	Maximally Exposed Individual risk **equals or exceeds** 20 in one million.
	Non-Carcinogens	**Acute**: Hazard Index **equals or exceeds** 1 for the Maximally Exposed Individual.
		Chronic: Hazard Index **equals or exceeds** 1 for the Maximally Exposed Individual.
Source: SJVAPCD 2015		

4.1.4 Global Climate Change Thresholds of Significance

On December 17, 2009, SJVAPCD adopted Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009); which outlined the SJVAPCD's methodology for assessing a project's significance for GHGs under CEQA. The following criteria was outlined in the document to determine whether a project could have a significant impact:

- Projects determined to be exempt from the requirements of CEQA would be determined to have a less than significant individual and cumulative impact for GHG emissions and would not require further environmental review, including analysis of project specific GHG emissions. Projects exempt under CEQA would be evaluated consistent with established rules and regulations governing project approval and would not be required to implement BPS.
- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.
- Projects implementing Best Performance Standards would not require quantification of project specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.
- Projects not implementing Best Performance Standards would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated by at least 29%, compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period. Projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.
- Notwithstanding any of the above provisions, projects requiring preparation of an Environmental Impact Report for any other reason would require quantification of project specific GHG emissions. Projects implementing BPS or achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.

Neither the City of Hanford or Kings County have developed specific thresholds for GHGs. The SJVAPCD, a CEQA Trustee Agency for this Project, has developed thresholds to determine significance of a proposed project – either implement Best Performance Standards or achieve a 29% reduction from BAU (a specific numerical threshold). However, the SJVAPCD has established their BAU and baseline emissions based on the years 2002-2004 and 2020, respectively. The 2020 projected baseline has passed, and at this time, no new guidance has been approved for determining BAU and projected baseline for the next target year. Therefore, the 29% reduction from BAU cannot be applied to the subject Project in order to determine significance. Additionally, a Best Performance Standards threshold has not been established. For this Project, compliance with locally adopted climate plans will be used to determine level of significance for GHG. Therefore, the GHG analysis for this Project follows the suggestions from the Court's ruling on the Newhall Ranch development project in order to determine significance using the project design features.

4.2 Project Related Emissions

This document was prepared pursuant to the SJVAPCD's GAMAQI. The GAMAQI identifies separate thresholds for a project's short-term (construction) and long-term (operational) emissions.

Project emissions were estimated for the following project development stages:

- Short-term (Construction and Demolition) – Construction emissions of the proposed Project were estimated in CalEEMod using the default construction schedule and defaults for construction equipment for the development of 64 multi-family dwelling units, a 3,500 square foot Fast-Food Restaurant with Drive Thru, and a convenience store with 12 fueling pumps.

- Long-term (Operations) – Long term emissions were also estimated in CalEEMod using model defaults for operations of the aforementioned land use types. Vehicle trip rates were revised per the Project Trip Generation data provided (Ruettgers and Schuler 2023).

4.2.1 Short-Term Emissions

The construction emissions were based on the default CalEEMod equipment list for the proposed Project's land use type and development intensity and applying model defaults as well as a conservative analysis approach. Construction emissions were estimated under the assumption that the residential phase would begin construction in October 2024 followed by the commercial phase beginning in November 2025. The dates entered into the CalEEMod program represent the earliest construction timeline, which would estimate the worst-case emissions as construction equipment technology and emissions improve over time; therefore, all estimated emission totals are conservative and reflect a reasonable and legally sufficient estimate of potential impacts. All construction equipment activity levels assumed were based on the applicant-specified values for type and number of equipment and CalEEMod adjusted hours per day and horsepower.

SJVAPCD's required measures for all projects were also applied:
- Water exposed areas 3 times per day; and
- Reduce vehicle speed to less than 15 miles per hour.

Table 4-3 presents the Project's short-term emissions based on the anticipated construction period.

Table 4-3. Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Unmitigated						
2024 Construction Emissions	0.06	0.50	0.57	0.00	0.11	0.06
2025 Construction Emissions	0.77	1.45	1.91	0.00	0.12	0.08
2026 Construction Emissions	0.15	0.88	1.07	0.00	0.04	0.03
Mitigated						
2024 Construction Emissions	0.06	0.50	0.57	0.00	0.06	0.04
2025 Construction Emissions	0.77	1.45	1.91	0.00	0.11	0.07
2026 Construction Emissions	0.15	0.88	1.07	0.00	0.04	0.03
Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

Source: Trinity Consultants 2023

As calculated with CalEEMod, the estimated short-term construction-related emissions for criteria pollutants would not exceed SJVAPCD significance threshold levels during any given year and would therefore be *less than significant*.

4.2.2 Long-Term Operations Emissions

Long-term emissions are caused by operational mobile, area, and energy sources. Long-term emissions would consist of the following components:

4.2.2.1 Fugitive Dust Emissions

Operation of the Project site at full build-out is not expected to present a substantial source of fugitive dust (PM_{10}) emissions. The main source of PM_{10} emissions would be from vehicular traffic associated with the Project site.

PM_{10}, on its own as well as in combination with other pollutants, creates a health hazard. The SJVAPCD's Regulation VIII establishes required controls to reduce and minimizing fugitive dust emissions. The following SJVAPCD Rules and Regulations apply to the proposed Project (and all projects):

- Rule 4102 – Nuisance – prohibits a facility from posing as a nuisance to surrounding receptors and can impose penalties for nuisance issues such as dust, smoke, excess emissions, etc. Compliance with this rule ensures that the area around the Project site will not be adversely impacted by such issues.
- Regulation VIII – Fugitive PM_{10} Prohibitions – a series of regulations to reduce and/or eliminate generation of particulate matter (PM) that can adversely impact visibility as well as the health and safety of people on-site or in the vicinity of the Project.
  - Rule 8011 - General Requirements – this rule is to reduce ambient concentrations of fine particulate matter (PM10) by requiring actions to prevent, reduce or mitigate anthropogenic (human-caused) fugitive dust emissions.
  - Rule 8021 - Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities – restricts generation of airborne dust and visibility impacts from these activities. Places limits on opacity and equipment operation under certain adverse weather conditions.
  - Rule 8041 - Carryout and Trackout – requires that equipment and vehicles leaving the construction site control the amount of dirt, soil or mud that is tracked offsite and onto public roadways. This helps eliminate or minimize dust generation and opacity degradation.
  - Rule 8051 - Open Areas – limits fugitive dust from open areas, i.e., areas on a construction site that are not actively being constructed upon but may generate wind-blown dust.

The Project would comply with applicable SJVAPCD Rules and Regulations, the local zoning codes, and additional emissions reduction measures recommended later in this analysis, in Section 7, Mitigation and Other Recommended Measures.

4.2.2.2 Exhaust Emissions

Project-related transportation activities from employees and consumers would generate mobile source ROG, NOx, SOx, CO, PM_{10}, and $PM_{2.5}$ exhaust emissions. Exhaust emissions would vary substantially from day to day but would average out over the course of an operational year. The variables factored into estimating total Project emissions include: level of activity, site characteristics, weather conditions, and number of visitors. As the Project is not expected to generate an adverse change in current activity levels, substantial emissions are not anticipated. The trip rates used in CalEEMod were adjusted to reflect Project-specific estimates (Ruettgers and Schuler, 2023).

4.2.2.3 Projected Emissions

The proposed Project is expected to have long-term air quality impacts as shown in **Table 4-4**. The output from the CalEEMod runs are available in Appendix B. Mitigation measures implemented within CalEEMod include:

- Increase Diversity
- Improve Walkability Design
- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network
- Clean Landscape Equipment (3%)
- No Hearths Installed

Table 4-4. Post-Project (Operational) Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NOX	CO	SOx	PM_{10}	$PM_{2.5}$
Unmitigated Operational Emissions						
Area Emissions	0.35	0.03	0.49	0.00	0.00	0.00
Energy	0.01	0.08	0.05	0.00	0.01	0.01
Mobile	1.08	1.10	7.62	0.02	1.67	0.45
Total	**1.44**	**1.20**	**8.15**	**0.02**	**1.68**	**0.46**
Mitigated Operational Emissions						
Area Emissions	0.35	0.03	0.49	0.00	0.00	0.00
Energy	0.01	0.08	0.05	0.00	0.01	0.01
Mobile	1.00	0.64	4.99	0.00	0.39	0.11
Total	**1.36**	**0.75**	**5.52**	**0.01**	**0.40**	**0.12**
SJVAPCD Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

Source: Trinity Consultants 2023

As shown in **Table 4-4**, operation-related emissions, as calculated by CalEEMod (see Appendix B), would be less than the SJVAPCD significant threshold levels; therefore, the proposed Project would have a *less than significant impact* during Project operations.

4.3 Potential Impact on Sensitive Receptors

Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes, and daycare centers.

Table 4-5. Sensitive Receptors Located < 2 miles from Project

Receptor	Type of facility	Distance from Project in Miles	Direction from Project
Frontier Elementary	School	0.34	NW
Pioneer Union Elementary	School	0.36	NW
Sierra Pacific High School	School	0.67	SW
College of the Sequoias	School	0.77	SW
Simas Elementary	School	0.81	NE
New Testament Baptist School	School	1.20	E
Community Day School	School	1.66	E
Jefferson Academy	School	1.66	E
Hanford Adult School	School	1.25	E
Pioneer Union Elementary	School	1.55	NW
Adventist Health Hanford	Hospital	1.58	SE
Womens' Health Adventist	Hospital	1.25	SE
United Health Centers	Hospital	1.56	SE
Hanford Post Acute	Nursing Home	1.65	SE
Advancement Care	Nursing Home	2.0	SE
Vail Family Daycare	Daycare	0.58	SE
Maria's Daycare	Daycare	1.05	E
Our Little Blessings	Daycare	1.19	SE

4.4 Potential Impacts to Visibility to Nearby Areas

Visibility impact analyses are intended for stationary sources of emissions which are subject to the Prevention of Significant Deterioration (PSD) requirements in 40 CFR Part 60; they are not usually conducted for area sources. Because the Project's PM_{10} emissions increase is predicted to be less than the PSD threshold levels, an impact at any Class 1 area or military/airspace operation within 100 kilometers of the Project (including San Rafael Wilderness, Domeland Wilderness, Edwards Air Force Base, China Lake Naval Weapons Station, and the entire R-2508 Airspace Complex) is extremely unlikely. Therefore, based on the Project's predicted less-than significant PM_{10} emissions, the Project would be expected to have a less than significant impact to visibility at any Class 1 area or military/airspace operation.

4.5 Potential Impacts from Carbon Monoxide

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. CO concentrations are also influenced by wind speed and atmospheric mixing. CO concentrations may be more uniformly distributed when inversion conditions are prevalent in the valley. Under certain meteorological conditions, CO concentrations along a congested roadway or intersection may reach unhealthful levels for sensitive receptors, e.g. children, the elderly, hospital patients, etc. This localized impact can result in elevated levels of CO, or "hotspots" even though concentrations at the closest air quality monitoring station may be below NAAQS and CAAQS.

The localized Project impacts depend on whether ambient CO levels in the Project vicinity would be above or below NAAQS. If ambient levels are below the standards, a project is considered to have significant impacts if a project's emissions would exceed of one or more of these standards. If ambient levels already exceed a state standard, a project's emissions are considered significant if they would increase one-hour CO concentrations by 10 ppm or more or eight-hour CO concentrations by 0.45 ppm or more. There are two criteria established by the SJVAPCD's GAMAQI by which CO "Hot Spot" modeling is required:

1. A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity would be reduced to LOS E or F; or
2. A traffic study indicates that the project would substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

A traffic study was completed for this Project (Ruettgers & Schuler, 2023). According to the traffic study, impacted intersections and roadway segments are anticipated to operate at a LOS of C or better. Therefore, CO "Hotspot" Modeling was not conducted for this Project and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

4.6 Predicted Health Risk Impacts

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.

The proposed Project would result in emissions of Hazardous Air Pollutants (HAPs) 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 a 70-year lifetime. 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 heavy heavy duty (HHD) trucks, commercial cooking, and a gasoline dispensing facility 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 (CARB 2015). 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.

For construction health impacts, diesel combustion emissions from diesel on-site construction equipment and HHD trucks from hauling and vendor trips were modeled as an area source for on-site construction activity on the property. Diesel particulate matter was calculated using CalEEMod for on-site construction equipment. A unit emission rate of 1 grams/second (g/sec) was input to AERMOD for the area source.

For operational health impacts, diesel combustion emissions from diesel HHD trucks making 10 trips per week were modeled as volume line sources for on-site travel following the most impactful route of travel. HHD truck idling emissions were modeled as a point source with fifteen minutes of idling per trip. Diesel particulate matter was calculated using EMFAC approved emission factors for HHD trucks traveling at 15 miles per hour (representative of on-site speed). EMFAC idling emissions were used for Kings County, year 2024, annual. EMFAC emission factors are provided by the California Air Resources Board (CARB 2023). Additionally, toxics were modeled for the proposed drive thru and the gasoline dispensing facility (GDF) based on SJVAPCD emission factors for commercial cooking and GDF modeling guidance. A unit emission rate of 1 grams/second (g/sec) was input to AERMOD for each source.

Discrete receptors were placed on residences and businesses within close proximity of the Project site. A total of 1,668 discrete off-site receptors analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area.

SJVAPCD-provided, AERMET UStar processed meteorological datasets for the Hanford monitoring station, calendar years 2013 through 2017 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) program in the Hotspots Analysis and Reporting Program Version 2 (HARP 2) (CARB 2015). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA). 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 the inhalation pathway at each receptor. A hazard index was computed for chronic non-cancer health effects for each applicable endpoint and each receptor.

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 and acute non-cancer risk is a hazard index of 1.0. All receptors were modeled as residential receptors with a 1-year exposure for each construction phase and 68-year exposure for operation.

The carcinogenic risk and the health hazard index (HI) for chronic and acute non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of twenty in one million (20×10^{-6}) and 1.0, respectively for the proposed Project. The PMIs are identified by receptor location and risk and are provided in **Table 4-6**. The electronic AERMOD and HARP2 output files are provided in **Attachment E**.

Table 4-6. Potential Maximum Impacts Predicted by HARP2

	Value	UTM East	UTM North
Excess Cancer Risk - Total	**1.79E-05**	259259.01	4025252.23
Construction	1.35E-05		
Operations	4.42E-06		
Chronic Hazard Index - Max	**2.43E-02**		
Construction	1.52E-02		
Operations	9.05E-03		
Acute Hazard Index - Max	**5.04E-02**		
Operations	5.04E-02		

As shown above in **Table 4-6**, the maximum predicted cancer risk for the proposed Project is 1.79E-05. The maximum chronic non-cancer hazard index for the proposed Project is 2.43E-02. The maximum acute non-cancer hazard index for the proposed Project is 5.04E-02. Since the PMI remained below the significance threshold for cancer, chronic and acute 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; and
3. The hazard index for the potential acute non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.

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

4.7 Potential Impacts from Valley Fever

The proposed project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that onsite workers could be exposed to Valley Fever spores as fugitive dust is generated during construction. In order to mitigate potential risk, the proposed Project would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. Therefore, the exposure to Valley Fever would be minimized. With the implementation of the mitigation measures, dust from

the construction of the proposed project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

4.8 Potential Impacts from Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading of development projects, and at mining operations.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. However, according to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDCDMG, 2000). Therefore, impacts associated with exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

4.9 Odor Impacts and Mitigation

The SJVAPCD's GAMAQI states "An analysis of potential odor impacts should be conducted for both of the following two situations:

1. Generators – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, and
2. Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources." (SJVAPCD 2015).

The GAMAQI also states, "The District has identified some common types of facilities that have been known to produce odors in the San Joaquin Valley Air Basin. These are presented in Table 6 (Screening Levels for Potential Odor Sources), along with a reasonable distance from the source within which, the degree of odors could possibly be significant. [Table 6] can be used as a screening tool to qualitatively assess a project's potential to adversely affect area receptors." (SJVAPCD, 2015). Because the Project is a convenience store, gasoline dispensing facility, fast-food restaurant and residential units and the anticipated activities for the Project site are not listed in Table 6 of the GAMAQI as a source that would create objectionable odors, the Project is not expected to be a source of objectionable odors.

Based on the provisions of the SJVAPCD's GAMAQI, the proposed Project would not exceed any screening trigger levels to be considered a source of objectionable odors or odorous compounds (SJVAPCD, 2015). Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the Project site when it is in operation. Additionally, the Project emissions estimates indicate that it would not be expected to adversely impact surrounding receptors. As such, the proposed Project would not be a source of any odorous compounds nor would it likely be impacted by any odorous source.

4.10 Impacts to Ambient Air Quality

As stated in the 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.

Based on the emissions shown in **Table 4-3** and **Table 4-4**, 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.

4.11 Impacts to Greenhouse Gases and Climate Change

In the decade after South Coast AQMD adopted the Interim GHG Significance Threshold, several new laws and executive orders were adopted that require additional reductions in years after 2020. For instance, Senate Bill 32 (Lara, 2016) requires that GHG emissions be 40% less than 1990 levels by 2030. More drastic still, Senate Bill 100 (de Leon, 2018) which was signed by the Governor recently requires 100% zero-carbon electricity by 2045. On the day SB 100 was signed into law, the Governor also signed Executive Order B-55-18 which commits California to total, economy-wide carbon neutrality by 2045. Clearly, the 2008 Guidance may be somewhat inadequate in producing a meaningful comparison by today's standards which propose a grand vision that, if achieved, would fundamentally change how business is conducted and citizens live in the State. Thus, as discussed in the most recent updates to the Scoping Plan, objectives of the Scoping Plan affect entire sectors of the economy and it no longer makes sense to evaluate GHG emissions on a project-level.

For these reasons, Project GHG emissions levels presented in **Table 4-7** are primarily for disclosure purposes because impact analysis for the Project follows the approach certified by South Coast AQMD in the Final Negative Declaration for the Phillips 66 Los Angeles Refinery Carson Plant – Crude Oil Storage Capacity Project on December 12, 2014 (South Coast AQMD, 2014). The approach used by South Coast AQMD to assess GHG impacts from that project recognizes that consumers of electricity and transportation fuels are, in effect, regulated by requiring providers and importers of electricity and fuel to participate in the GHG Cap-and-Trade Program and other Programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each such sector-wide program exists within the framework of AB 32 and its descendant laws the purpose of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan.

In summary, the Project would generate GHGs from electricity use and combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply-chain. As such, each citizen of California (including the operator of the Project) will have no choice but to purchase electricity and fuels produced in a way that is acceptable to the California market. Thus, Project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan). The Project would meet its fair share of the cost to mitigate the cumulative impact of global climate change because SHP is purchasing energy from the California market. Thus, the Project would have a less than significant impact on applicable GHG reduction plans.

Nonetheless, GHG emissions impacts from implementing the Project were calculated at the Project-specific level for construction and operations as explained in the previous paragraphs. Impact analysis for the Project follows the approach certified by South Coast AQMD in the Final Negative Declaration for the Phillips 66 Los Angeles Refinery Carson Plant – Crude Oil Storage Capacity Project on December 12, 2014 (South Coast AQMD, 2014). In summary, this approach takes into account the cumulative nature of the energy industry and recognizes that consumers of electricity and diesel fuel are in effect regulated by higher level emissions restrictions on the producers of these energy sources. Therefore, the Project's contribution to cumulative global climate change impacts would *not be cumulatively considerable*.

Table 4-7. Estimated Annual GHG Emissions (MT/Year)

Source	CO_2	CH_4	N_2O	CO_2e
Mitigated Construction Emissions				
Total	550.22	0.11	0.00	553.95
Mitigated Operational Emissions				
Area Emissions	0.77	0.00	0.00	0.79
Energy Emissions	121.66	0.01	0.00	122.52
Mobile Emissions	421.43	0.09	0.05	439.82
Water Emissions	14.16	0.84	0.00	35.08
Waste Emissions	5.28	0.18	0.00	10.91
Total Project Operational Emissions	563.30	1.11	0.06	609.12
Annualized Construction Emissions[1]	18.34	0.00	0.00	18.46
Project Emissions	**563.30**	**1.11**	**0.06**	**609.12**
*Note: 0.000 could represent <0.000 Per South Coast AQMD's Methodology				

The Project will not result in the emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF_6), the other gases identified as GHG in AB32. The proposed Project will be subject to any regulations developed under AB32 as determined by CARB.

5. CUMULATIVE IMPACTS

By its very nature, air pollution has a cumulative impact. The District's nonattainment status is a result of past and present development within the SJVAB. Furthermore, attainment of ambient air quality standards can be jeopardized by increasing emissions-generating activities in the region. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the San Joaquin Valley Air Basin. When assessing whether there is a new significant cumulative effect, the Lead Agency shall consider whether the incremental effects of the project are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual 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 [CCR §15064(h)(1)]. Per CEQA Guidelines §15064(h)(3) a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. (SJVAPCD 2015)

GAMAQI also states "If a project is significant based on the thresholds of significance for criteria pollutants, then it is also cumulatively significant. This does not imply that if the project is below all such significance thresholds, it cannot be cumulatively significant." (SJVAPCD 2015). Based on the analysis conducted for this Project, it is individually less than significant. This AQIA, however, also considered impacts of the proposed Project in conjunction with the impacts of other projects previously proposed in the area. The following cumulative impacts were considered:

- Cumulative O_3 Impacts (ROG and NOx) from numerous sources within the region including transport from outside the region. O_3 is formed through chemical reactions of ROG and NOx in the presence of sunlight.
- Cumulative CO Impacts produced primarily by vehicular emissions.
- Cumulative PM_{10} Impacts from within the region and locally from the various projects. Such projects may cumulatively produce a significant amount of PM10 if several projects conduct grading or earthmoving activities at the same time.
- Hazardous Air Pollutant (HAP) Impacts on sensitive receptors.

5.1 Cumulative Regional Air Quality Impacts

The most recent, certified SJVAB Emission Inventory data available from the SJVAPCD is based on data gathered for the 2020 annual inventory[1]. This data will be used to assist the SJVAPCD in demonstrating attainment of Federal 1-hour O_3 Standards (SJVAPCD 2007a). **Table 5-1** provides a comparative look at the impacts proposed by the proposed Project to the SJVAB Emissions Inventory.

[1] SJVAPCD Emissions for Aggregated Stationary, Area-Wide, Mobile, and Natural Sources

Table 5-1. Comparative Analysis Based on SJV Air Basin 2020 Inventory - Tons per Year

	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Kings County - 2020	7,884.0	4,745.0	11,935.5	73.0	730.0	657.0
SJVAB - 2020	108,113.0	74,204.5	162,425.0	2,847.0	96,652.0	21,535.0
Proposed Project	1.36	0.75	5.52	0.01	0.40	0.12
Proposed Project's % of Kings	0.017%	0.016%	0.046%	0.007%	0.055%	0.018%
Proposed Project's % of SJVAB	0.001%	0.001%	0.003%	0.000%	0.000%	0.001%
Note: This is the latest inventory available as of March 2023 Source: CARB 2023b						

As shown in **Table 5-1** the proposed Project does not pose a substantial increase to basin emissions, as such basin emissions would be essentially the same if the Project is approved.

Table 5-1, **5-2**, and **5-3** provide CARB Emissions Inventory projections for the year 2025 for both the SJVAB and the Kings County portion of the air basin. Looking at the SJVAB Emissions predicted by the CARB year 2025 emissions inventory, the Kings County portion of the air basin is a moderate source of the emissions. The proposed Project produces a small portion of the total emissions in both Kings County and the entire SJVAB.

Table 5-2. Emission Inventory SJVAB 2025 Projection - Tons per Year

	ROG	NOx	CO	SOx	PM10	PM2.5
Total Emissions	107,346.5	52,450.5	145,963.5	2,920.0	95,922.0	21,279.5
Percent Stationary Sources	32.78%	19.28%	6.93%	85.00%	5.97%	15.44%
Percent Area-Wide Sources	52.70%	5.15%	13.30%	3.75%	89.38%	71.87%
Percent Mobile Sources	14.52%	75.57%	79.77%	11.25%	4.68%	12.86%
Total Stationary Source Emissions	35,186.0	10,110.5	10,110.5	2,482.0	5,730.5	3,285.0
Total Area-Wide Source Emissions	56,575.0	2,701.0	19,418.0	109.5	85,738.5	15,293.5
Total Mobile Source Emissions	15,585.5	39,639.0	116,435.0	328.5	4,489.5	2,737.5
Source: CARB 2023b Note: Total may not add due to rounding						

Table 5-3. Emission Inventory SJVAB - Kings County Portion 2025 Projection - Tons per Year

	ROG	NOx	CO	SOx	PM10	PM2.5
Total Emissions	7,811.0	3,577.0	11,315.0	73.0	7,044.5	1,679.0
Percent Stationary Sources	17.29%	8.16%	3.23%	50.00%	4.15%	6.52%
Percent Area-Wide Sources	58.88%	2.04%	3.23%	0.00%	85.49%	56.52%
Percent Mobile Sources	23.83%	89.80%	93.55%	50.00%	9.84%	36.96%
Total Stationary Source Emissions	1,350.5	292.0	365.0	36.5	292.0	109.5
Total Area-Wide Source Emissions	4,599.0	73.0	365.0	0.0	6,022.5	949.0
Total Mobile Source Emissions	1,861.5	3,212.0	10,585.0	36.5	693.5	620.5
Source: CARB 2023b Note: Total may not add due to rounding						

Table 5-4. 2025 Emissions Projections - Proposed Project, Kings County, and SJVAB

	ROG	NOx	PM_{10}
Proposed Project	1.36	0.75	0.40
Kings County	7,811	3,577	7,045
SJVAB	107,347	52,451	95,922
Proposed Project Percent of Kings County	0.017%	0.021%	0.006%
Proposed Project Percent of SJVAB	0.001%	0.001%	0.000%
Kings County Percent of SJVAB	7.28%	6.82%	7.34%
Source: CARB 2023b			

As shown above, the proposed Project would pose an inconsequential impact on regional O_3 and PM_{10} formation. Therefore, this Project would not be considered cumulatively considerable in its contribution to regional O_3 and PM_{10} impacts.

5.2 Cumulative Local Air Quality Impacts

SJVAPCD uses a single threshold for determination of significance for both project specific and cumulative impacts. Air quality in SJVAB has improved over the past decades as shown in Section 3.3, which indicates that the single threshold is sufficient for assessing cumulative impacts. The proposed Project would generate less than significant impacts to criteria air pollutants; therefore, the Project's incremental contribution to cumulative air quality impacts would not be cumulatively considerable. (CEQA Guidelines Section 15064(h)(3); (SJVAPCD 2015).

5.3 Cumulative Hazardous Air Pollutants

The GAMAQI also states that when evaluating potential impacts related to HAPs, "*impacts of local pollutants (CO, HAPs) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects will exceed air quality standards*." Because the Project would not be a significant source of HAPs, the proposed Project would also *not be expected to pose a significant cumulative CO or HAPs impact*.

5.4 Cumulative Carbon Monoxide (CO) – Mobile Sources

The SJVAPCD's GAMAQI has identified CO impacts from impacted traffic intersections and roadway segments as being potentially cumulatively considerable. Traffic increases and added congestion caused by a project can combine to cause a violation of the SJVAPCD's CO standard also known as a "Hotspot". There are two criteria established by the GAMAQI by which CO "Hot Spot" modeling is required:

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

A traffic study was completed for this Project (Ruettgers & Schuler, 2023). According to the traffic study, impacted intersections and roadway segments are anticipated to operate at a LOS of C or better. Therefore, CO "Hotspot" Modeling was not conducted for this Project and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

6. CONSISTENCY WITH THE AIR QUALITY ATTAINMENT PLAN

Air quality impacts from proposed projects within the Kings County are controlled through policies and provisions of the SJVAPCD and the Kings County General Plan (KCCDA, 2008). In order to demonstrate that a proposed project would not cause further air quality degradation in either the SJVAPCD's plan to improve air quality within the air basin or the federal requirements to meet certain air quality compliance goals, each project should also demonstrate consistency with the SJVAPCD's adopted Air Quality Attainment Plans (AQAP) for O_3 and PM_{10}. The SJVAPCD is required to submit a "Rate of Progress" document to CARB that demonstrates past and planned progress toward reaching attainment for all criteria pollutants. The California Clean Air Act (CCAA) requires air pollution control districts with severe or extreme air quality problems to provide for a 5% reduction in non-attainment emissions per year. The AQAP prepared for the San Joaquin Valley by the SJVAPCD complies with this requirement. CARB reviews, approves or amends the document and forwards the plan to the EPA for final review and approval within the SIP.

Air pollution sources associated with stationary sources are regulated through the permitting authority of the SJVAPCD under the New and Modified Stationary Source Review Rule (SJVAPCD Rule 2201). Owners of any new or modified equipment that emits, reduces, or controls air contaminants, except those specifically exempted by the SJVAPCD, are required to apply for an Authority to Construct and Permit to Operate (SJVAPCD Rule 2010). Additionally, best available control technology (BACT) is required on specific types of stationary equipment and are required to offset both stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (SJVAPCD Rule 2201, 4.7.1). Through this mechanism, the SJVAPCD would ensure that all stationary sources within the project area would be subject to the standards of the SJVAPCD to ensure that new developments do not result in net increases in stationary sources of criteria air pollutants.

6.1 Required Evaluation Guidelines

State CEQA Guidelines and the Federal Clean Air Act (Sections 176 and 316) contain specific references on the need to evaluate consistencies between the proposed project and the applicable AQAP for the project site. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQAP:

1. *Determination that an AQAP is being implemented in the area where the project is being proposed*. The SJVAPCD has implemented the current, modified AQAP as approved by CARB.
2. *The proposed project must be consistent with the growth assumptions of the applicable AQAP*. The proposed Project is included in within the growth projected in the Kings County General Plan.
3. *The project must contain in its design all reasonably available and feasible air quality control measures*. The proposed project incorporates various policy and rule-required implementation measures that will reduce related emissions.

The CCAA and AQAP identify transportation control measures as methods to further reduce emissions from mobile sources. Strategies identified to reduce vehicular emissions such as reductions in vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion, in order to reduce vehicular emissions, can be implemented as control measures under the CCAA as well. Additional measures may also be implemented through the building process such as providing electrical outlets on exterior walls of structures to encourage use of electrical landscape maintenance equipment or measures such as electrical outlets for electrical systems on diesel trucks to reduce or eliminate idling time.

As the growth represented by the proposed Project was anticipated by the Kings County General Plan and incorporated into the AQAP, conclusions may be drawn from the following criteria:

1. That, by definition, the proposed emissions from the Project are below the SJVAPCD's established emissions impact thresholds;
2. That the primary source of emissions from the Project will be motor vehicles that are licensed through the State of California and whose emissions are already incorporated into CARB's San Joaquin Valley Emissions Inventory.

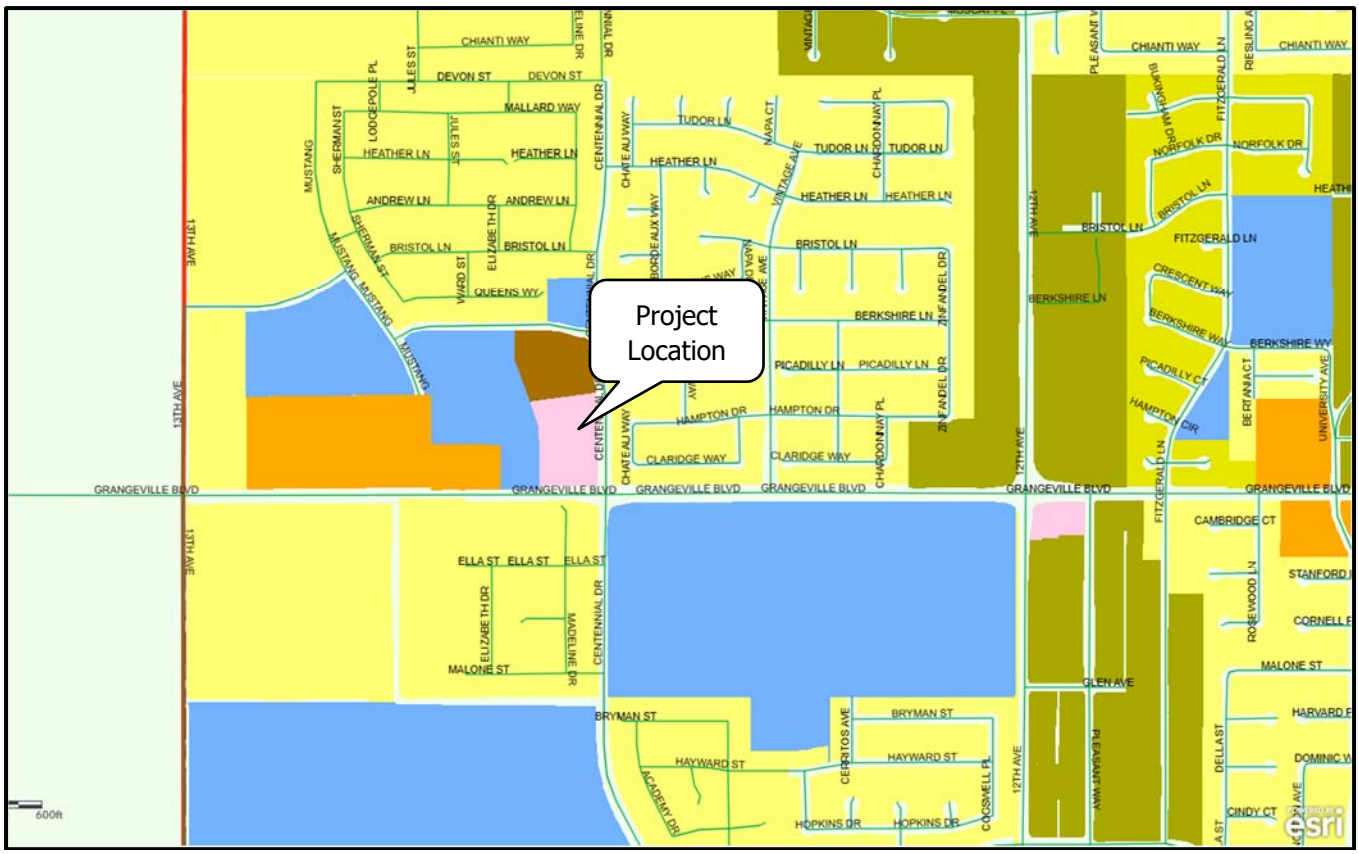
Based on these factors, the Project appears to be *consistent with the AQAP*.

6.2 Consistency with the Kings County Council of Government's Regional Conformity Analysis

The Kings County Association of Governments (KCAG) Air Quality Conformity Analysis (KCAG 2022) demonstrates that the 2023 Federal Transportation Improvement Program (2023 FTIP) and 2022 Regional Transportation Plan (2022 RTP) in the Kings County would not hinder the efforts set out in the CARB's SIP for each area's non-attainment pollutants (CO, O_3, PM_{10} and $PM_{2.5}$). The analysis uses the California Department of Finance (DOF) Demographic Forecasts 2010 to 2060 (KCAG 2022).

The KCAG Air Quality Conformity Analysis considers General Plan Amendments (GPA) and zone changes that were enacted at the time of the analysis as projected growth within the area based on land use designations incorporated within the Kings County General Plan. Land use designations that are altered based on subsequent GPAs that were not included in the Air Quality Conformity Analysis were not incorporated into the KCAG analysis. Consequently, if a proposed project is not included in the regional growth forecast using the latest planning assumptions, it may not be said to conform to the regional growth forecast. Under the current City of Hanford Zoning, the Project site is designated as "Mixed Use" (see **Figure 6-1**).

Figure 6-1. City of Hanford Zoning



Under current policies, only after a General Plan Amendment (GPA) is approved, can housing and employment assumptions be updated to reflect the capacity changes. Since the proposed development does require a GPA and zone change, the existing growth forecast will be modified to reflect these changes. However, estisting employment and population growth forecast for the analysis area appear to be sufficient to account for 100% of the planned employment and population growth attributed to the proposed Project. In order to be considered "consistent" and, therefore, in conformance with the AQAP, these increases would need to occur over the same time as the adopted growth forecast. According to Table 2-2 of KCAG's Air Quality Conformity Analysis there is a projected population increase of 2,467 and an employee increase of 800 in Kings County between 2024 and 2026.

7. MITIGATION AND OTHER RECOMMENDED MEASURES

The estimated construction and operational emissions from the proposed Project would be less than significant, after specific mitigation measures listed below. However, to ensure that Project is in compliance with all applicable SJVAPCD rules and regulations and emissions are further reduced, the applicant should implement and comply with a number of measures that are either recommended as a "good operating practice" for environmental stewardship or they are required by regulation. Some of the listed measures are regulatory requirements or construction requirements that would result in further emission reductions through their inclusion in Project construction and long-term design. The following measures either have been applied to the Project through the CalEEMod model and would be incorporated into the Project by design or would be implemented in conjunction with SJVAPCD rules as conditions of approval.

7.1 SJVAPCD Required PM_{10} Reduction Measures

As the Project would be completed in compliance with SJVAPCD Regulation VIII, dust control measures would be taken to ensure compliance specifically during grading and construction phases. The required Regulation VIII measures are as follows:

- Water previously exposed surfaces (soil) whenever visible dust is capable of drifting from the site or approaches 20% opacity.
- Water all unpaved haul roads a minimum of three-times/day or whenever visible dust from such roads is capable of drifting from the site or approaches 20% opacity.
- Reduce speed on unpaved roads to less than 15 miles per hour.
- Install and maintain a track out control device that meets the specifications of SJVAPCD Rule 8041 if the site exceeds 150 vehicle trips per day or more than 20 vehicle trips per day by vehicles with three or more axles.
- Stabilize all disturbed areas, including storage piles, which are not being actively utilized for production purposes using water, chemical stabilizers or by covering with a tarp or other suitable cover.
- Control fugitive dust emissions during land clearing, grubbing, scraping, excavation, leveling, grading, or cut and fill operations with application of water or by presoaking.
- When transporting materials offsite, maintain a freeboard limit of at least 6 inches and cover or effectively wet to limit visible dust emissions.
- Limit and remove the accumulation of mud and/or dirt from adjacent public roadways at the end of each workday. (Use of dry rotary brushes is prohibited except when preceded or accompanied by sufficient wetting to limit visible dust emissions and use of blowers is expressly forbidden).
- Stabilize the surface of storage piles following the addition or removal of materials using water or chemical stabilizer/suppressants.
- Remove visible track-out from the site at the end of each workday.
- Cease grading or other activities that cause excessive (greater than 20% opacity) dust formation during periods of high winds (greater than 20 mph over a one-hour period).

7.2 Recommended Measures to Reduce Equipment Exhaust

In addition, the GAMAQI guidance document lists the following measures as approved and recommended for construction activities. These measures are recommended:

- Maintain all construction equipment as recommended by manufacturer manuals.
- Shut down heavy duty equipment when not in use for extended periods.
- Heavy duty construction equipment shall operate no longer than eight (8) cumulative hours per day.

- Use electric equipment for construction whenever possible in lieu of diesel or gasoline powered equipment.
- Curtail use of high-emitting construction equipment during periods of high or excessive ambient pollutant concentrations, which may include ceasing construction activity during the peak-hour of vehicle activity on adjacent roadways.
- All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOx emissions.
- On-Road and Off-Road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines.
- On-Road and Off-Road diesel equipment shall use cooled exhaust gas recirculation (EGR) if permitted under manufacturer's guidelines.
- All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain on-site during lunch breaks.

7.3 Other Measures to Reduce Project Impacts

The following measures are recommended to further reduce the potential for long-term emissions from the Project. These measures are required as a matter of regulatory compliance:

- The Project design shall comply with applicable standards set forth in Title 24 of the Uniform Building Code to minimize total consumption of energy.
- The developer shall comply with the provisions of SJVAPCD Rule 4601 - Architectural Coatings, during the construction of all buildings and facilities. Application of architectural coatings shall be completed in a manner that poses the least emissions impacts whenever such application is deemed proficient.
- The applicant shall comply with the provisions of SJVAPCD Rule 4641 during the construction and pavement of all roads and parking areas within the project area. Specifically, the applicant shall not allow the use of:
  - Rapid cure cutback asphalt;
  - Medium cure cutback asphalt;
  - Slow cure cutback asphalt (as specified in SJVAPCD Rule 4641, Section 5.1.3); or Emulsified asphalt (as specified in SJVAPCD Rule 4641, Section 5.1.4).
  - The developer shall comply with applicable provisions of SJVAPCD Rule 9510 (Indirect Source Review).

8. LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed Project would have short-term air quality impacts due to facility construction activities as well as vehicular emissions. Both of these impacts would be mitigated and *were found to be less than significant before and after mitigation*.

The proposed Project would result in long-term air quality impacts due to operational and related mobile source emissions. These impacts would be mitigated and *were found to be less than significant before and after mitigation*.

The proposed Project would result in impacts to greenhouse gases and climate change due to construction and operational emissions. These impacts *were found to be less than significant*.

The proposed Project, in conjunction with other past, present, and foreseeable future projects, would result in cumulative short-term and long-term impacts to air quality. The proposed Project's incremental contribution to these impacts would be mitigated, are below thresholds of significance, and would not be considered cumulatively considerable. Therefore, the Project's contribution to cumulative impacts *were found to be less than significant*.

The proposed Project, in conjunction with other past, present, and foreseeable future projects, would result in cumulative long-term impacts to global climate change. Given the cumulative nature of the energy industry and given consumers of electricity and diesel fuel are in effect regulated by higher level emissions restrictions on the producers of these energy sources, the proposed Project's incremental contribution to these impacts will be mitigated to the extent feasible and are considered *less than significant*.

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APPENDIX A. EXISTING AIR QUALITY MONITORING DATA

CALIFORNIA AIR RESOURCES BOARD

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Hanford-S Irwin Street

	2020		2021		2022	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Aug 22	147.0	Oct 4	81.0	Nov 24	62.9
Second High:	Aug 21	135.1	Oct 3	70.6	Jan 13	51.2
Third High:	Sep 14	117.9	Aug 19	63.1	Nov 25	49.4
Fourth High:	Aug 23	116.7	Oct 5	60.1	Nov 27	49.0
California:						
First High:	Aug 22	147.0	Oct 4	81.0	Nov 24	62.9
Second High:	Aug 21	135.1	Oct 3	70.6	Jan 13	51.2
Third High:	Sep 14	117.9	Aug 19	63.1	Nov 25	49.4
Fourth High:	Aug 23	116.7	Oct 5	60.1	Nov 27	49.0
National:						
'06 Estimated # Days > 24-Hr Std:		52.0		31.6		27.0
'06 Measured # Days > 24-Hr Std:		52		31		27
2006 24-Hr Std Design Value:		69		61		62
2006 24-Hr Std 98th Percentile:		86.9		56.4		42.7
2006 Annual Std Design Value:		16.6		15.9		16.6
2012 Annual Std Design Value:		16.6		15.9		16.6
'06 Annual Average:		19.8		15.6		14.1
California:						
Annual Std Designation Value:		20		20		20
Annual Average:		19.8		15.6		14.2
Year Coverage:		100		100		100

Notes:

Daily PM2.5 averages and related statistics are available at Hanford-S Irwin Street between 2010 and 2022. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

An exceedance of a standard is not necessarily related to a violation of the standard.

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

CALIFORNIA AIR RESOURCES BOARD

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Hanford-S Irwin Street

	2020		2021		2022	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Sep 12	180.4	Sep 25	175.0	May 20	250.8
Second High:	Oct 6	168.6	Aug 20	160.7	Sep 9	147.1
Third High:	Sep 30	159.9	Sep 7	129.6	Sep 6	139.1
Fourth High:	Nov 5	144.2	Oct 1	128.6	Oct 23	136.4
California:						
First High:	Sep 12	180.9	Sep 28	192.7	May 20	251.6
Second High:	Oct 6	168.4	Oct 4	181.6	Sep 9	140.9
Third High:	Sep 30	158.4	Sep 25	176.6	Oct 23	138.7
Fourth High:	Nov 5	147.7	Jun 18	172.2	Oct 20	136.1
National:						
Estimated # Days > 24-Hr Std:		*		*		1.0
Measured # Days > 24-Hr Std:		3		2		1
3-Yr Avg Est # Days > 24-Hr Std:		*		*		14.0
Annual Average:		*51.5*		*48.1*		*48.4*
3-Year Average:		*48*		*48*		*55*
California:						
Estimated # Days > 24-Hr Std:		*		151.7		143.0
Measured # Days > 24-Hr Std:		22		146		141
Annual Average:		*		52.8		49.9
3-Year Maximum Annual Average:		48		53		53
Year Coverage:		93		97		0

Notes:

Daily PM10 averages and related statistics are available at Hanford-S Irwin Street between 1993 and 2022. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics* .

An exceedance of a standard is not necessarily related to a violation of the standard.

All values listed above represent midnight-to-midnight 24-hour averages and may be related to an exceptional event.

State and national statistics may differ for the following reasons:

- State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.
- State statistics for 1998 and later are based on local conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on local conditions). National statistics are based on standard conditions.
- State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.
Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.
* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Santa Rosa Rancheria-17225 Jersey

iADAM

	2020		2021		2022	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Nov 1	0.065	Aug 28	0.085	Sep 6	0.081
Second High:	Nov 3	0.055	Jun 18	0.078	May 25	0.080
Third High:	Nov 2	0.054	Aug 29	0.074	Aug 17	0.077
Fourth High:	Nov 4	0.050	Aug 30	0.072	Aug 16	0.075
California Std (0.070 ppm):						
First High:	Nov 1	0.066	Aug 28	0.086	Sep 6	0.081
Second High:	Nov 3	0.055	Jun 18	0.078	May 25	0.080
Third High:	Nov 2	0.054	Aug 29	0.074	Aug 17	0.078
Fourth High:	Nov 4	0.051	Aug 30	0.073	Aug 16	0.076
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		0		4		14
Nat'l Standard Design Value:		*		*		*
National Year Coverage:		0		88		99
California Std (0.070 ppm):						
# Days Above the Standard:		0		4		17
California Designation Value:		0.066		0.086		0.086
Expected Peak Day Concentration:		*		*		*
California Year Coverage:		0		88		99

Notes:

- Eight-hour ozone averages and related statistics are available at Santa Rosa Rancheria-17225 Jersey between 2020 and 2022. Some years in this range may not be represented.
- All averages expressed in parts per million.
- An exceedance of a standard is not necessarily related to a violation of the standard.
- State and national statistics may differ for the following reasons:
  - National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.
  - State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.
- Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

CALIFORNIA AIR RESOURCES BOARD

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Hanford-S Irwin Street

	2020		2021		2022	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Oct 2	0.088	Jun 18	0.095	Sep 6	0.081
Second High:	Aug 21	0.085	Aug 28	0.093	Aug 16	0.079
Third High:	Oct 4	0.085	Jun 19	0.082	May 25	0.077
Fourth High:	Aug 24	0.084	Aug 29	0.076	Sep 3	0.075
California Std (0.070 ppm):						
First High:	Oct 2	0.088	Jun 18	0.096	Sep 6	0.082
Second High:	Aug 21	0.085	Aug 28	0.093	Aug 16	0.080
Third High:	Sep 14	0.085	Jun 19	0.083	May 25	0.077
Fourth High:	Oct 4	0.085	Aug 29	0.076	Aug 17	0.075
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		26		16		12
Nat'l Standard Design Value:		0.080		0.078		0.078
National Year Coverage:		98		89		97
California Std (0.070 ppm):						
# Days Above the Standard:		27		18		13
California Designation Value:		0.088		0.088		0.088
Expected Peak Day Concentration:		0.089		0.088		0.089
California Year Coverage:		97		88		96

Notes:

Eight-hour ozone averages and related statistics are available at Hanford-S Irwin Street between 1994 and 2022. Some years in this range may not be represented.

All averages expressed in parts per million.

An exceedance of a standard is not necessarily related to a violation of the standard.

State and national statistics may differ for the following reasons:

National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.

State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.

Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Hanford-S Irwin Street

	2020		2021		2022	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Nov 3	51.9	Dec 1	51.5	Nov 25	45.8
Second High:	Nov 4	51.5	Apr 10	47.5	Nov 24	44.4
Third High:	Nov 5	50.2	Nov 29	42.9	Feb 11	43.7
Fourth High:	Dec 2	47.4	Feb 8	41.0	Oct 21	43.1
California:						
First High:	Nov 3	51	Dec 1	51	Nov 25	45
Second High:	Nov 4	51	Apr 10	47	Nov 24	44
Third High:	Nov 5	50	Nov 29	42	Feb 11	43
Fourth High:	Dec 2	47	Feb 8	41	Oct 21	43
National:						
1-Hour Standard Design Value:		48		44		42
1-Hour Standard 98th Percentile:		43.7		40.8		40.9
# Days Above the Standard:		0		0		0
Annual Standard Design Value:		9		8		8
California:						
1-Hour Std Designation Value:		60		60		50
Expected Peak Day Concentration:		62		57		51
# Days Above the Standard:		0		0		0
Annual Std Designation Value:		8		8		8
Annual Average:		8		8		8
Year Coverage:		99		97		95

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Hanford-S Irwin Street between 1994 and 2022. Some years in this range may not be represented.

All concentrations expressed in parts per billion.

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Santa Rosa Rancheria-17225 Jersey

iADAM

	2020		2021		2022	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Nov 1	0.074	Aug 28	0.095	Sep 8	0.091
Second High:	Nov 3	0.069	Jun 18	0.081	Sep 6	0.088
Third High:	Nov 2	0.068	Aug 29	0.081	Aug 17	0.086
Fourth High:	Nov 4	0.063	Aug 30	0.080	May 25	0.085
California:						
# Days Above the Standard:		0		1		0
California Designation Value:		0.07		0.10		0.10
Expected Peak Day Concentration:		*		*		*
National:						
# Days Above the Standard:		*0*		*0*		*0*
3-Year Estimated Expected Number of Exceedance Days:		*		*		*0.0*
1-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
Nat'l Standard Design Value:		*		*0.081*		*0.088*
Year Coverage:		0		89		99

Notes:

Hourly ozone measurements and related statistics are available at Santa Rosa Rancheria-17225 Jersey between 2020 and 2022. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Hanford-S Irwin Street

	2020		2021		2022	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Aug 21	0.103	Jun 18	0.102	Sep 3	0.091
Second High:	Oct 4	0.101	Aug 28	0.102	Sep 6	0.088
Third High:	Sep 14	0.100	Jun 19	0.088	Sep 8	0.086
Fourth High:	Oct 2	0.098	Sep 23	0.086	Aug 16	0.085
California:						
# Days Above the Standard:		6		2		0
California Designation Value:		0.10		0.10		0.10
Expected Peak Day Concentration:		0.101		0.098		0.097
National:						
# Days Above the Standard:		*0*		*0*		*0*
3-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
1-Year Estimated Expected Number of Exceedance Days:		*0.0*		*0.0*		*0.0*
Nat'l Standard Design Value:		*0.100*		*0.101*		*0.101*
Year Coverage:		98		90		95

Notes:

Hourly ozone measurements and related statistics are available at Hanford-S Irwin Street between 1994 and 2022. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

APPENDIX B. PROJECT EMISSION CALCULATIONS

Grangeville - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grangeville

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	64.00	Dwelling Unit	3.75	64,000.00	183

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	37
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage adds up to total agreage of the site

Construction Phase -

Vehicle Trips - Trip rate adjusted to match the traffic study

Fleet Mix - SJVAPCD approved residential fleet mix for 2025

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.04	0.02

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	6.5080e-003	9.0000e-004
tblFleetMix	MCY	0.02	2.5000e-003
tblFleetMix	MDV	0.15	0.06
tblFleetMix	MH	3.2530e-003	2.2000e-003
tblFleetMix	MHD	8.2580e-003	7.6000e-003
tblFleetMix	OBUS	5.9100e-004	0.00
tblFleetMix	SBUS	1.0940e-003	1.0000e-004
tblFleetMix	UBUS	1.8700e-004	4.3000e-003
tblLandUse	LotAcreage	4.00	3.75
tblVehicleTrips	ST_TR	8.14	7.59
tblVehicleTrips	SU_TR	6.28	7.59
tblVehicleTrips	WD_TR	7.32	7.59
tblWoodstoves	NumberCatalytic	3.75	0.00
tblWoodstoves	NumberNoncatalytic	3.75	0.00

2.0 Emissions Summary

Grangeville - Kings County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0562	0.5031	0.5663	1.0500e-003	0.0894	0.0223	0.1117	0.0421	0.0209	0.0630	0.0000	92.1200	92.1200	0.0209	7.5000e-004	92.8646
2025	0.7426	1.2164	1.6505	2.9900e-003	0.0389	0.0507	0.0896	0.0104	0.0476	0.0581	0.0000	260.5835	260.5835	0.0537	2.4000e-003	262.6422
Maximum	**0.7426**	**1.2164**	**1.6505**	**2.9900e-003**	**0.0894**	**0.0507**	**0.1117**	**0.0421**	**0.0476**	**0.0630**	**0.0000**	**260.5835**	**260.5835**	**0.0537**	**2.4000e-003**	**262.6422**

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	0.0562	0.5031	0.5663	1.0500e-003	0.0421	0.0223	0.0644	0.0184	0.0209	0.0393	0.0000	92.1199	92.1199	0.0209	7.5000e-004	92.8645
2025	0.7426	1.2164	1.6505	2.9900e-003	0.0389	0.0507	0.0896	0.0104	0.0476	0.0581	0.0000	260.5833	260.5833	0.0537	2.4000e-003	262.6420
Maximum	**0.7426**	**1.2164**	**1.6505**	**2.9900e-003**	**0.0421**	**0.0507**	**0.0896**	**0.0184**	**0.0476**	**0.0581**	**0.0000**	**260.5833**	**260.5833**	**0.0537**	**2.4000e-003**	**262.6420**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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**	**36.84**	**0.00**	**23.48**	**45.19**	**0.00**	**19.62**	**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	**10-1-2024**	**12-31-2024**	0.5562	0.5562
2	**1-1-2025**	**3-31-2025**	0.4619	0.4619
3	**4-1-2025**	**6-30-2025**	0.4664	0.4664
4	**7-1-2025**	**9-30-2025**	0.4167	0.4167
		Highest	0.5562	0.5562

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	0.3271	0.0294	0.4849	1.8000e-004		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003	0.0000	28.5015	28.5015	1.2700e-003	5.1000e-004	28.6849
Energy	4.7100e-003	0.0403	0.0171	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	71.0704	71.0704	4.8500e-003	1.3300e-003	71.5893
Mobile	0.1245	0.2453	1.5626	4.5500e-003	0.5204	3.4600e-003	0.5238	0.1386	3.2200e-003	0.1419	0.0000	439.5997	439.5997	0.0268	0.0202	446.2933
Waste						0.0000	0.0000		0.0000	0.0000	5.9761	0.0000	5.9761	0.3532	0.0000	14.8054
Water						0.0000	0.0000		0.0000	0.0000	1.3229	2.9389	4.2618	0.1364	3.2700e-003	8.6438
Total	**0.4563**	**0.3150**	**2.0647**	**4.9900e-003**	**0.5204**	**0.0113**	**0.5317**	**0.1386**	**0.0110**	**0.1497**	**7.2990**	**542.1106**	**549.4096**	**0.5225**	**0.0253**	**570.0167**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3241	5.4300e-003	0.4713	2.0000e-005		2.6100e-003	2.6100e-003		2.6100e-003	2.6100e-003	0.0000	0.7693	0.7693	7.3000e-004	0.0000	0.7876
Energy	4.7100e-003	0.0403	0.0171	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	71.0704	71.0704	4.8500e-003	1.3300e-003	71.5893
Mobile	0.1074	0.1193	0.7399	1.3500e-003	0.1424	1.1900e-003	0.1436	0.0379	1.1100e-003	0.0390	0.0000	130.5008	130.5008	0.0132	9.0100e-003	133.5146
Waste						0.0000	0.0000		0.0000	0.0000	5.9761	0.0000	5.9761	0.3532	0.0000	14.8054
Water						0.0000	0.0000		0.0000	0.0000	1.3229	2.9389	4.2618	0.1364	3.2700e-003	8.6438
Total	**0.4362**	**0.1649**	**1.2284**	**1.6300e-003**	**0.1424**	**7.0500e-003**	**0.1495**	**0.0379**	**6.9700e-003**	**0.0449**	**7.2990**	**205.2794**	**212.5783**	**0.5083**	**0.0136**	**229.3407**

	ROG	NOx	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	**4.41**	**47.64**	**40.51**	**67.33**	**72.64**	**37.50**	**71.89**	**72.63**	**36.87**	**70.00**	**0.00**	**62.13**	**61.31**	**2.71**	**46.25**	**59.77**

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	10/1/2024	10/7/2024	5	5	
2	Grading	Grading	10/8/2024	10/17/2024	5	8	
3	Building Construction	Building Construction	10/18/2024	9/4/2025	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	9/5/2025	9/30/2025	5	18	
5	Architectural Coating	Architectural Coating	10/1/2025	10/24/2025	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 129,600; Residential Outdoor: 43,200; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	46.00	7.00	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	9.00	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					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0679	0.0458	1.0000e-004		3.0700e-003	3.0700e-003		2.8300e-003	2.8300e-003	0.0000	8.3643	8.3643	2.7100e-003	0.0000	8.4319
Total	**6.6500e-003**	**0.0679**	**0.0458**	**1.0000e-004**	**0.0491**	**3.0700e-003**	**0.0522**	**0.0253**	**2.8300e-003**	**0.0281**	**0.0000**	**8.3643**	**8.3643**	**2.7100e-003**	**0.0000**	**8.4319**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.3000e-004	8.0000e-005	1.0300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2810	0.2810	1.0000e-005	1.0000e-005	0.2835
Total	**1.3000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2810**	**0.2810**	**1.0000e-005**	**1.0000e-005**	**0.2835**

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	6.6500e-003	0.0679	0.0458	1.0000e-004		3.0700e-003	3.0700e-003		2.8300e-003	2.8300e-003	0.0000	8.3643	8.3643	2.7100e-003	0.0000	8.4319
Total	**6.6500e-003**	**0.0679**	**0.0458**	**1.0000e-004**	**0.0192**	**3.0700e-003**	**0.0222**	**9.8500e-003**	**2.8300e-003**	**0.0127**	**0.0000**	**8.3643**	**8.3643**	**2.7100e-003**	**0.0000**	**8.4319**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.3000e-004	8.0000e-005	1.0300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2810	0.2810	1.0000e-005	1.0000e-005	0.2835
Total	**1.3000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2810**	**0.2810**	**1.0000e-005**	**1.0000e-005**	**0.2835**

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					0.0283	0.0000	0.0283	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0681	0.0590	1.2000e-004		2.9000e-003	2.9000e-003		2.6700e-003	2.6700e-003	0.0000	10.4256	10.4256	3.3700e-003	0.0000	10.5099
Total	**6.6500e-003**	**0.0681**	**0.0590**	**1.2000e-004**	**0.0283**	**2.9000e-003**	**0.0312**	**0.0137**	**2.6700e-003**	**0.0164**	**0.0000**	**10.4256**	**10.4256**	**3.3700e-003**	**0.0000**	**10.5099**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.7000e-004	1.1000e-004	1.3800e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3747	0.3747	1.0000e-005	1.0000e-005	0.3780
Total	**1.7000e-004**	**1.1000e-004**	**1.3800e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3747**	**0.3747**	**1.0000e-005**	**1.0000e-005**	**0.3780**

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	6.6500e-003	0.0681	0.0590	1.2000e-004		2.9000e-003	2.9000e-003		2.6700e-003	2.6700e-003	0.0000	10.4256	10.4256	3.3700e-003	0.0000	10.5099
Total	**6.6500e-003**	**0.0681**	**0.0590**	**1.2000e-004**	**0.0111**	**2.9000e-003**	**0.0140**	**5.3400e-003**	**2.6700e-003**	**8.0100e-003**	**0.0000**	**10.4256**	**10.4256**	**3.3700e-003**	**0.0000**	**10.5099**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.7000e-004	1.1000e-004	1.3800e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3747	0.3747	1.0000e-005	1.0000e-005	0.3780
Total	**1.7000e-004**	**1.1000e-004**	**1.3800e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3747**	**0.3747**	**1.0000e-005**	**1.0000e-005**	**0.3780**

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	0.0390	0.3563	0.4284	7.1000e-004		0.0163	0.0163		0.0153	0.0153	0.0000	61.4400	61.4400	0.0145	0.0000	61.8032
Total	**0.0390**	**0.3563**	**0.4284**	**7.1000e-004**		**0.0163**	**0.0163**		**0.0153**	**0.0153**	**0.0000**	**61.4400**	**61.4400**	**0.0145**	**0.0000**	**61.8032**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	2.2000e-004	8.3100e-003	2.6700e-003	4.0000e-005	1.2400e-003	6.0000e-005	1.2900e-003	3.6000e-004	5.0000e-005	4.1000e-004	0.0000	3.6222	3.6222	1.0000e-005	5.2000e-004	3.7783
Worker	3.4000e-003	2.2300e-003	0.0280	8.0000e-005	9.7900e-003	5.0000e-005	9.8400e-003	2.6000e-003	4.0000e-005	2.6500e-003	0.0000	7.6123	7.6123	2.1000e-004	2.1000e-004	7.6798
Total	**3.6200e-003**	**0.0105**	**0.0306**	**1.2000e-004**	**0.0110**	**1.1000e-004**	**0.0111**	**2.9600e-003**	**9.0000e-005**	**3.0600e-003**	**0.0000**	**11.2345**	**11.2345**	**2.2000e-004**	**7.3000e-004**	**11.4581**

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	0.0390	0.3563	0.4284	7.1000e-004		0.0163	0.0163		0.0153	0.0153	0.0000	61.4399	61.4399	0.0145	0.0000	61.8032
Total	**0.0390**	**0.3563**	**0.4284**	**7.1000e-004**		**0.0163**	**0.0163**		**0.0153**	**0.0153**	**0.0000**	**61.4399**	**61.4399**	**0.0145**	**0.0000**	**61.8032**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	2.2000e-004	8.3100e-003	2.6700e-003	4.0000e-005	1.2400e-003	6.0000e-005	1.2900e-003	3.6000e-004	5.0000e-005	4.1000e-004	0.0000	3.6222	3.6222	1.0000e-005	5.2000e-004	3.7783
Worker	3.4000e-003	2.2300e-003	0.0280	8.0000e-005	9.7900e-003	5.0000e-005	9.8400e-003	2.6000e-003	4.0000e-005	2.6500e-003	0.0000	7.6123	7.6123	2.1000e-004	2.1000e-004	7.6798
Total	**3.6200e-003**	**0.0105**	**0.0306**	**1.2000e-004**	**0.0110**	**1.1000e-004**	**0.0111**	**2.9600e-003**	**9.0000e-005**	**3.0600e-003**	**0.0000**	**11.2345**	**11.2345**	**2.2000e-004**	**7.3000e-004**	**11.4581**

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	0.1210	1.1036	1.4235	2.3900e-003		0.0467	0.0467		0.0439	0.0439	0.0000	205.2487	205.2487	0.0483	0.0000	206.4549
Total	**0.1210**	**1.1036**	**1.4235**	**2.3900e-003**		**0.0467**	**0.0467**		**0.0439**	**0.0439**	**0.0000**	**205.2487**	**205.2487**	**0.0483**	**0.0000**	**206.4549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	7.2000e-004	0.0276	8.7000e-003	1.2000e-004	4.1300e-003	1.8000e-004	4.3100e-003	1.1900e-003	1.8000e-004	1.3700e-003	0.0000	11.8955	11.8955	4.0000e-005	1.7100e-003	12.4065
Worker	0.0106	6.6500e-003	0.0869	2.6000e-004	0.0327	1.5000e-004	0.0329	8.6900e-003	1.4000e-004	8.8300e-003	0.0000	24.8103	24.8103	6.4000e-004	6.5000e-004	25.0195
Total	**0.0113**	**0.0343**	**0.0956**	**3.8000e-004**	**0.0368**	**3.3000e-004**	**0.0372**	**9.8800e-003**	**3.2000e-004**	**0.0102**	**0.0000**	**36.7058**	**36.7058**	**6.8000e-004**	**2.3600e-003**	**37.4260**

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	0.1210	1.1036	1.4235	2.3900e-003		0.0467	0.0467		0.0439	0.0439	0.0000	205.2485	205.2485	0.0483	0.0000	206.4547
Total	**0.1210**	**1.1036**	**1.4235**	**2.3900e-003**		**0.0467**	**0.0467**		**0.0439**	**0.0439**	**0.0000**	**205.2485**	**205.2485**	**0.0483**	**0.0000**	**206.4547**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	7.2000e-004	0.0276	8.7000e-003	1.2000e-004	4.1300e-003	1.8000e-004	4.3100e-003	1.1900e-003	1.8000e-004	1.3700e-003	0.0000	11.8955	11.8955	4.0000e-005	1.7100e-003	12.4065
Worker	0.0106	6.6500e-003	0.0869	2.6000e-004	0.0327	1.5000e-004	0.0329	8.6900e-003	1.4000e-004	8.8300e-003	0.0000	24.8103	24.8103	6.4000e-004	6.5000e-004	25.0195
Total	**0.0113**	**0.0343**	**0.0956**	**3.8000e-004**	**0.0368**	**3.3000e-004**	**0.0372**	**9.8800e-003**	**3.2000e-004**	**0.0102**	**0.0000**	**36.7058**	**36.7058**	**6.8000e-004**	**2.3600e-003**	**37.4260**

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	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**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	4.7000e-004	2.9000e-004	3.8400e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0970	1.0970	3.0000e-005	3.0000e-005	1.1062
Total	**4.7000e-004**	**2.9000e-004**	**3.8400e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0970**	**1.0970**	**3.0000e-005**	**3.0000e-005**	**1.1062**

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**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	4.7000e-004	2.9000e-004	3.8400e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0970	1.0970	3.0000e-005	3.0000e-005	1.1062
Total	**4.7000e-004**	**2.9000e-004**	**3.8400e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0970**	**1.0970**	**3.0000e-005**	**3.0000e-005**	**1.1062**

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	0.6007					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	**0.6022**	**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**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	2.1000e-004	1.3000e-004	1.7300e-003	1.0000e-005	6.5000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.4937	0.4937	1.0000e-005	1.0000e-005	0.4978
Total	**2.1000e-004**	**1.3000e-004**	**1.7300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.5000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.4937**	**0.4937**	**1.0000e-005**	**1.0000e-005**	**0.4978**

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	0.6007					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	**0.6022**	**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**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	2.1000e-004	1.3000e-004	1.7300e-003	1.0000e-005	6.5000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.4937	0.4937	1.0000e-005	1.0000e-005	0.4978
Total	**2.1000e-004**	**1.3000e-004**	**1.7300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.5000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.4937**	**0.4937**	**1.0000e-005**	**1.0000e-005**	**0.4978**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Improve Walkability Design

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 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	0.1074	0.1193	0.7399	1.3500e-003	0.1424	1.1900e-003	0.1436	0.0379	1.1100e-003	0.0390	0.0000	130.5008	130.5008	0.0132	9.0100e-003	133.5146
Unmitigated	0.1245	0.2453	1.5626	4.5500e-003	0.5204	3.4600e-003	0.5238	0.1386	3.2200e-003	0.1419	0.0000	439.5997	439.5997	0.0268	0.0202	446.2933

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	485.76	485.76	485.76	1,390,366	380,455
Total	485.76	485.76	485.76	1,390,366	380,455

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	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
Apartments Low Rise	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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	24.4620	24.4620	3.9600e-003	4.8000e-004	24.7039
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	24.4620	24.4620	3.9600e-003	4.8000e-004	24.7039
NaturalGas Mitigated	4.7100e-003	0.0403	0.0171	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	46.6085	46.6085	8.9000e-004	8.5000e-004	46.8854
NaturalGas Unmitigated	4.7100e-003	0.0403	0.0171	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	46.6085	46.6085	8.9000e-004	8.5000e-004	46.8854

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	873409	4.7100e-003	0.0403	0.0171	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	46.6085	46.6085	8.9000e-004	8.5000e-004	46.8854
Total		**4.7100e-003**	**0.0403**	**0.0171**	**2.6000e-004**		**3.2500e-003**	**3.2500e-003**		**3.2500e-003**	**3.2500e-003**	**0.0000**	**46.6085**	**46.6085**	**8.9000e-004**	**8.5000e-004**	**46.8854**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Apartments Low Rise	873409	4.7100e-003	0.0403	0.0171	2.6000e-004		3.2500e-003	3.2500e-003		3.2500e-003	3.2500e-003	0.0000	46.6085	46.6085	8.9000e-004	8.5000e-004	46.8854
Total		**4.7100e-003**	**0.0403**	**0.0171**	**2.6000e-004**		**3.2500e-003**	**3.2500e-003**		**3.2500e-003**	**3.2500e-003**	**0.0000**	**46.6085**	**46.6085**	**8.9000e-004**	**8.5000e-004**	**46.8854**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	264386	24.4620	3.9600e-003	4.8000e-004	24.7039
Total		**24.4620**	**3.9600e-003**	**4.8000e-004**	**24.7039**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	264386	24.4620	3.9600e-003	4.8000e-004	24.7039
Total		**24.4620**	**3.9600e-003**	**4.8000e-004**	**24.7039**

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 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	0.3241	5.4300e-003	0.4713	2.0000e-005		2.6100e-003	2.6100e-003		2.6100e-003	2.6100e-003	0.0000	0.7693	0.7693	7.3000e-004	0.0000	0.7876
Unmitigated	0.3271	0.0294	0.4849	1.8000e-004		4.5700e-003	4.5700e-003		4.5700e-003	4.5700e-003	0.0000	28.5015	28.5015	1.2700e-003	5.1000e-004	28.6849

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	0.0601					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2500					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.8000e-003	0.0239	0.0102	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.7253	27.7253	5.3000e-004	5.1000e-004	27.8900
Landscaping	0.0143	5.4700e-003	0.4748	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	0.7762	0.7762	7.4000e-004	0.0000	0.7948
Total	**0.3271**	**0.0294**	**0.4850**	**1.8000e-004**		**4.5700e-003**	**4.5700e-003**		**4.5700e-003**	**4.5700e-003**	**0.0000**	**28.5015**	**28.5015**	**1.2700e-003**	**5.1000e-004**	**28.6849**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0601					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2500					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	0.0141	5.4300e-003	0.4713	2.0000e-005		2.6100e-003	2.6100e-003		2.6100e-003	2.6100e-003	0.0000	0.7693	0.7693	7.3000e-004	0.0000	0.7876
Total	**0.3241**	**5.4300e-003**	**0.4713**	**2.0000e-005**		**2.6100e-003**	**2.6100e-003**		**2.6100e-003**	**2.6100e-003**	**0.0000**	**0.7693**	**0.7693**	**7.3000e-004**	**0.0000**	**0.7876**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.2618	0.1364	3.2700e-003	8.6438
Unmitigated	4.2618	0.1364	3.2700e-003	8.6438

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	4.16986 / 2.62882	4.2618	0.1364	3.2700e-003	8.6438
Total		**4.2618**	**0.1364**	**3.2700e-003**	**8.6438**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	4.16986 / 2.62882	4.2618	0.1364	3.2700e-003	8.6438
Total		**4.2618**	**0.1364**	**3.2700e-003**	**8.6438**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.9761	0.3532	0.0000	14.8054
Unmitigated	5.9761	0.3532	0.0000	14.8054

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	29.44	5.9761	0.3532	0.0000	14.8054
Total		**5.9761**	**0.3532**	**0.0000**	**14.8054**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	29.44	5.9761	0.3532	0.0000	14.8054
Total		**5.9761**	**0.3532**	**0.0000**	**14.8054**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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

Grangeville Commercial

Kings County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Fast Food Restaurant with Drive Thru	3.50	1000sqft	0.63	3,500.00	0
Convenience Market with Gas Pumps	12.00	Pump	0.63	1,694.10	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	37
Climate Zone	3			**Operational Year**	2026
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 - Acreage adds to the commercial acreage fo the project

Construction Phase -

Vehicle Trips - ADT adjusted to match traffic study

Fleet Mix - Adjusted fleet mix to account for actual HHDT trips

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

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

tblConstructionPhase	PhaseEndDate	10/12/2026	9/14/2026
tblConstructionPhase	PhaseEndDate	9/14/2026	8/17/2026
tblConstructionPhase	PhaseEndDate	12/8/2025	11/10/2025
tblConstructionPhase	PhaseEndDate	9/28/2026	8/31/2026
tblConstructionPhase	PhaseEndDate	12/2/2025	11/4/2025
tblConstructionPhase	PhaseStartDate	9/29/2026	9/1/2026
tblConstructionPhase	PhaseStartDate	12/9/2025	11/11/2025
tblConstructionPhase	PhaseStartDate	12/3/2025	11/5/2025
tblConstructionPhase	PhaseStartDate	9/15/2026	8/18/2026
tblConstructionPhase	PhaseStartDate	11/29/2025	11/3/2025
tblFleetMix	HHD	0.04	3.2260e-004
tblFleetMix	HHD	0.04	3.2600e-004
tblFleetMix	LDA	0.51	0.55
tblFleetMix	LDA	0.51	0.55
tblFleetMix	LDT1	0.05	0.04
tblFleetMix	LDT1	0.05	0.04
tblFleetMix	LDT2	0.17	0.19
tblFleetMix	LDT2	0.17	0.19
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD1	0.03	0.03
tblFleetMix	LHD2	6.5080e-003	6.2820e-003
tblFleetMix	LHD2	6.5080e-003	6.2820e-003
tblFleetMix	MCY	0.02	4.7700e-003
tblFleetMix	MCY	0.02	4.7700e-003
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MDV	0.15	0.16
tblFleetMix	MH	3.2530e-003	8.8600e-004
tblFleetMix	MH	3.2530e-003	8.8600e-004
tblFleetMix	MHD	8.2580e-003	0.02

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

tblFleetMix	MHD	8.2580e-003	0.02
tblFleetMix	OBUS	5.9100e-004	1.9710e-003
tblFleetMix	OBUS	5.9100e-004	1.9710e-003
tblFleetMix	SBUS	1.0940e-003	1.2510e-003
tblFleetMix	SBUS	1.0940e-003	1.2510e-003
tblFleetMix	UBUS	1.8700e-004	1.4850e-003
tblFleetMix	UBUS	1.8700e-004	1.4850e-003
tblLandUse	LotAcreage	0.08	0.63
tblLandUse	LotAcreage	0.04	0.63
tblVehicleTrips	ST_TR	322.50	229.17
tblVehicleTrips	ST_TR	616.12	467.43
tblVehicleTrips	SU_TR	322.50	229.17
tblVehicleTrips	SU_TR	472.58	467.43
tblVehicleTrips	WD_TR	322.50	229.17
tblVehicleTrips	WD_TR	470.95	467.43

2.0 Emissions Summary

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

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	0.0281	0.2290	0.2552	4.7000e-004	0.0211	8.6800e-003	0.0298	0.0100	8.3100e-003	0.0183	0.0000	39.4739	39.4739	7.1600e-003	6.0000e-005	39.6712
2026	0.1484	0.8849	1.0725	1.9100e-003	2.3700e-003	0.0335	0.0359	6.4000e-004	0.0323	0.0329	0.0000	158.0429	158.0429	0.0261	2.5000e-004	158.7724
Maximum	**0.1484**	**0.8849**	**1.0725**	**1.9100e-003**	**0.0211**	**0.0335**	**0.0359**	**0.0100**	**0.0323**	**0.0329**	**0.0000**	**158.0429**	**158.0429**	**0.0261**	**2.5000e-004**	**158.7724**

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	0.0281	0.2290	0.2552	4.7000e-004	8.6100e-003	8.6800e-003	0.0173	4.0200e-003	8.3100e-003	0.0123	0.0000	39.4739	39.4739	7.1600e-003	6.0000e-005	39.6711
2026	0.1484	0.8849	1.0725	1.9100e-003	2.3700e-003	0.0335	0.0359	6.4000e-004	0.0323	0.0329	0.0000	158.0427	158.0427	0.0261	2.5000e-004	158.7722
Maximum	**0.1484**	**0.8849**	**1.0725**	**1.9100e-003**	**8.6100e-003**	**0.0335**	**0.0359**	**4.0200e-003**	**0.0323**	**0.0329**	**0.0000**	**158.0427**	**158.0427**	**0.0261**	**2.5000e-004**	**158.7722**

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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**	**53.18**	**0.00**	**19.00**	**56.33**	**0.00**	**11.72**	**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	**11-3-2025**	**2-2-2026**	0.3914	0.3914
2	**2-3-2026**	**5-2-2026**	0.3748	0.3748
3	**5-3-2026**	**8-2-2026**	0.3874	0.3874
4	**8-3-2026**	**9-30-2026**	0.1356	0.1356
		Highest	0.3914	0.3914

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	0.0239	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.8000e-004	2.8000e-004	0.0000	0.0000	2.9000e-004
Energy	4.0600e-003	0.0369	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	50.5890	50.5890	2.4500e-003	9.4000e-004	50.9306
Mobile	0.9515	0.8519	6.0541	0.0110	1.1319	9.4800e-003	1.1414	0.3031	8.8200e-003	0.3119	0.0000	1,021.1400	1,021.1400	0.0950	0.0699	1,044.3321
Waste						0.0000	0.0000		0.0000	0.0000	8.1846	0.0000	8.1846	0.4837	0.0000	20.2770
Water						0.0000	0.0000		0.0000	0.0000	0.3769	0.6416	1.0184	0.0388	9.3000e-004	2.2648
Total	**0.9795**	**0.8888**	**6.0853**	**0.0113**	**1.1319**	**0.0123**	**1.1442**	**0.3031**	**0.0116**	**0.3147**	**8.5615**	**1,072.3708**	**1,080.9323**	**0.6199**	**0.0717**	**1,117.8048**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0239	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Energy	4.0600e-003	0.0369	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	50.5890	50.5890	2.4500e-003	9.4000e-004	50.9306
Mobile	0.8935	0.5204	4.2461	3.1500e-003	0.2450	4.2800e-003	0.2493	0.0656	3.9700e-003	0.0696	0.0000	290.9281	290.9281	0.0775	0.0451	306.3068
Waste						0.0000	0.0000		0.0000	0.0000	8.1846	0.0000	8.1846	0.4837	0.0000	20.2770
Water						0.0000	0.0000		0.0000	0.0000	0.3769	0.6416	1.0184	0.0388	9.3000e-004	2.2648
Total	**0.9215**	**0.5573**	**4.2772**	**3.3700e-003**	**0.2450**	**7.0900e-003**	**0.2521**	**0.0656**	**6.7800e-003**	**0.0724**	**8.5615**	**342.1589**	**350.7203**	**0.6025**	**0.0470**	**379.7794**

	ROG	NOx	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	**5.92**	**37.30**	**29.71**	**70.04**	**78.35**	**42.31**	**77.97**	**78.35**	**41.70**	**77.00**	**0.00**	**68.09**	**67.55**	**2.81**	**34.52**	**66.02**

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	11/3/2025	11/4/2025	5	2	
2	Grading	Grading	11/5/2025	11/10/2025	5	4	
3	Building Construction	Building Construction	11/11/2025	8/17/2026	5	200	

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

4	Paving	Paving	8/18/2026	8/31/2026	5	10	
5	Architectural Coating	Architectural Coating	9/1/2026	9/14/2026	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,791; Non-Residential Outdoor: 2,597; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

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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	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	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					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0100e-003	0.0106	6.4500e-003	2.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.5113	1.5113	4.9000e-004	0.0000	1.5235
Total	**1.0100e-003**	**0.0106**	**6.4500e-003**	**2.0000e-005**	**6.2700e-003**	**4.2000e-004**	**6.6900e-003**	**3.0000e-003**	**3.9000e-004**	**3.3900e-003**	**0.0000**	**1.5113**	**1.5113**	**4.9000e-004**	**0.0000**	**1.5235**

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

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	2.0000e-005	1.0000e-005	1.7000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0473	0.0473	0.0000	0.0000	0.0477
Total	**2.0000e-005**	**1.0000e-005**	**1.7000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0473**	**0.0473**	**0.0000**	**0.0000**	**0.0477**

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					2.4400e-003	0.0000	2.4400e-003	1.1700e-003	0.0000	1.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0100e-003	0.0106	6.4500e-003	2.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.5113	1.5113	4.9000e-004	0.0000	1.5235
Total	**1.0100e-003**	**0.0106**	**6.4500e-003**	**2.0000e-005**	**2.4400e-003**	**4.2000e-004**	**2.8600e-003**	**1.1700e-003**	**3.9000e-004**	**1.5600e-003**	**0.0000**	**1.5113**	**1.5113**	**4.9000e-004**	**0.0000**	**1.5235**

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

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	2.0000e-005	1.0000e-005	1.7000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0473	0.0473	0.0000	0.0000	0.0477
Total	**2.0000e-005**	**1.0000e-005**	**1.7000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0473**	**0.0473**	**0.0000**	**0.0000**	**0.0477**

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					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3800e-003	0.0249	0.0170	4.0000e-005		9.9000e-004	9.9000e-004		9.1000e-004	9.1000e-004	0.0000	3.6211	3.6211	1.1700e-003	0.0000	3.6504
Total	**2.3800e-003**	**0.0249**	**0.0170**	**4.0000e-005**	**0.0142**	**9.9000e-004**	**0.0152**	**6.8500e-003**	**9.1000e-004**	**7.7600e-003**	**0.0000**	**3.6211**	**3.6211**	**1.1700e-003**	**0.0000**	**3.6504**

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

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	5.0000e-005	3.0000e-005	4.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1183	0.1183	0.0000	0.0000	0.1193
Total	**5.0000e-005**	**3.0000e-005**	**4.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1183**	**0.1183**	**0.0000**	**0.0000**	**0.1193**

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					5.5200e-003	0.0000	5.5200e-003	2.6700e-003	0.0000	2.6700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3800e-003	0.0249	0.0170	4.0000e-005		9.9000e-004	9.9000e-004		9.1000e-004	9.1000e-004	0.0000	3.6211	3.6211	1.1700e-003	0.0000	3.6504
Total	**2.3800e-003**	**0.0249**	**0.0170**	**4.0000e-005**	**5.5200e-003**	**9.9000e-004**	**6.5100e-003**	**2.6700e-003**	**9.1000e-004**	**3.5800e-003**	**0.0000**	**3.6211**	**3.6211**	**1.1700e-003**	**0.0000**	**3.6504**

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

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	5.0000e-005	3.0000e-005	4.2000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1183	0.1183	0.0000	0.0000	0.1193
Total	**5.0000e-005**	**3.0000e-005**	**4.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1183**	**0.1183**	**0.0000**	**0.0000**	**0.1193**

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	0.0245	0.1926	0.2301	4.1000e-004		7.2600e-003	7.2600e-003		7.0000e-003	7.0000e-003	0.0000	33.6020	33.6020	5.4900e-003	0.0000	33.7391
Total	**0.0245**	**0.1926**	**0.2301**	**4.1000e-004**		**7.2600e-003**	**7.2600e-003**		**7.0000e-003**	**7.0000e-003**	**0.0000**	**33.6020**	**33.6020**	**5.4900e-003**	**0.0000**	**33.7391**

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

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	2.0000e-005	8.2000e-004	2.6000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3552	0.3552	0.0000	5.0000e-005	0.3705
Worker	1.0000e-004	6.0000e-005	7.8000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2188	0.2188	1.0000e-005	1.0000e-005	0.2207
Total	**1.2000e-004**	**8.8000e-004**	**1.0400e-003**	**0.0000**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**0.5740**	**0.5740**	**1.0000e-005**	**6.0000e-005**	**0.5912**

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	0.0245	0.1926	0.2301	4.1000e-004		7.2600e-003	7.2600e-003		7.0000e-003	7.0000e-003	0.0000	33.6019	33.6019	5.4900e-003	0.0000	33.7391
Total	**0.0245**	**0.1926**	**0.2301**	**4.1000e-004**		**7.2600e-003**	**7.2600e-003**		**7.0000e-003**	**7.0000e-003**	**0.0000**	**33.6019**	**33.6019**	**5.4900e-003**	**0.0000**	**33.7391**

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

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	2.0000e-005	8.2000e-004	2.6000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3552	0.3552	0.0000	5.0000e-005	0.3705
Worker	1.0000e-004	6.0000e-005	7.8000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2188	0.2188	1.0000e-005	1.0000e-005	0.2207
Total	**1.2000e-004**	**8.8000e-004**	**1.0400e-003**	**0.0000**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**0.5740**	**0.5740**	**1.0000e-005**	**6.0000e-005**	**0.5912**

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	0.1080	0.8486	1.0138	1.8000e-003		0.0320	0.0320		0.0309	0.0309	0.0000	148.0303	148.0303	0.0242	0.0000	148.6345
Total	**0.1080**	**0.8486**	**1.0138**	**1.8000e-003**		**0.0320**	**0.0320**		**0.0309**	**0.0309**	**0.0000**	**148.0303**	**148.0303**	**0.0242**	**0.0000**	**148.6345**

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

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	9.0000e-005	3.6100e-003	1.1200e-003	2.0000e-005	5.4000e-004	2.0000e-005	5.7000e-004	1.6000e-004	2.0000e-005	1.8000e-004	0.0000	1.5383	1.5383	1.0000e-005	2.2000e-004	1.6041
Worker	4.0000e-004	2.4000e-004	3.2700e-003	1.0000e-005	1.3100e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	0.9373	0.9373	2.0000e-005	2.0000e-005	0.9451
Total	**4.9000e-004**	**3.8500e-003**	**4.3900e-003**	**3.0000e-005**	**1.8500e-003**	**3.0000e-005**	**1.8900e-003**	**5.1000e-004**	**3.0000e-005**	**5.3000e-004**	**0.0000**	**2.4755**	**2.4755**	**3.0000e-005**	**2.4000e-004**	**2.5492**

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	0.1080	0.8486	1.0138	1.8000e-003		0.0320	0.0320		0.0309	0.0309	0.0000	148.0301	148.0301	0.0242	0.0000	148.6343
Total	**0.1080**	**0.8486**	**1.0138**	**1.8000e-003**		**0.0320**	**0.0320**		**0.0309**	**0.0309**	**0.0000**	**148.0301**	**148.0301**	**0.0242**	**0.0000**	**148.6343**

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

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	9.0000e-005	3.6100e-003	1.1200e-003	2.0000e-005	5.4000e-004	2.0000e-005	5.7000e-004	1.6000e-004	2.0000e-005	1.8000e-004	0.0000	1.5383	1.5383	1.0000e-005	2.2000e-004	1.6041
Worker	4.0000e-004	2.4000e-004	3.2700e-003	1.0000e-005	1.3100e-003	1.0000e-005	1.3200e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	0.9373	0.9373	2.0000e-005	2.0000e-005	0.9451
Total	**4.9000e-004**	**3.8500e-003**	**4.3900e-003**	**3.0000e-005**	**1.8500e-003**	**3.0000e-005**	**1.8900e-003**	**5.1000e-004**	**3.0000e-005**	**5.3000e-004**	**0.0000**	**2.4755**	**2.4755**	**3.0000e-005**	**2.4000e-004**	**2.5492**

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	2.8700e-003	0.0266	0.0440	7.0000e-005		1.2300e-003	1.2300e-003		1.1400e-003	1.1400e-003	0.0000	5.8868	5.8868	1.8700e-003	0.0000	5.9334
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8700e-003**	**0.0266**	**0.0440**	**7.0000e-005**		**1.2300e-003**	**1.2300e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**5.8868**	**5.8868**	**1.8700e-003**	**0.0000**	**5.9334**

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

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	1.6000e-004	1.0000e-004	1.3000e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.3738	0.3738	1.0000e-005	1.0000e-005	0.3769
Total	**1.6000e-004**	**1.0000e-004**	**1.3000e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.3738**	**0.3738**	**1.0000e-005**	**1.0000e-005**	**0.3769**

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	2.8700e-003	0.0266	0.0440	7.0000e-005		1.2300e-003	1.2300e-003		1.1400e-003	1.1400e-003	0.0000	5.8868	5.8868	1.8700e-003	0.0000	5.9334
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8700e-003**	**0.0266**	**0.0440**	**7.0000e-005**		**1.2300e-003**	**1.2300e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**5.8868**	**5.8868**	**1.8700e-003**	**0.0000**	**5.9334**

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

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	1.6000e-004	1.0000e-004	1.3000e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.3738	0.3738	1.0000e-005	1.0000e-005	0.3769
Total	**1.6000e-004**	**1.0000e-004**	**1.3000e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.3738**	**0.3738**	**1.0000e-005**	**1.0000e-005**	**0.3769**

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	0.0361					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	5.7300e-003	9.0500e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.0370**	**5.7300e-003**	**9.0500e-003**	**1.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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

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	0.0000	0.0000	0.0000	0.0000	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 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	0.0361					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	5.7300e-003	9.0500e-003	1.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.0370**	**5.7300e-003**	**9.0500e-003**	**1.0000e-005**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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

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	0.0000	0.0000	0.0000	0.0000	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

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

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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	0.8935	0.5204	4.2461	3.1500e-003	0.2450	4.2800e-003	0.2493	0.0656	3.9700e-003	0.0696	0.0000	290.9281	290.9281	0.0775	0.0451	306.3068
Unmitigated	0.9515	0.8519	6.0541	0.0110	1.1319	9.4800e-003	1.1414	0.3031	8.8200e-003	0.3119	0.0000	1,021.1400	1,021.1400	0.0950	0.0699	1,044.3321

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	2,750.04	2,750.04	2750.04	1,475,133	319,321
Fast Food Restaurant with Drive Thru	1,636.01	1,636.01	1636.01	1,528,560	330,887
Total	4,386.05	4,386.05	4,386.05	3,003,694	650,208

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
Convenience Market with Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.549225	0.037453	0.185501	0.161666	0.026396	0.006282	0.022787	0.000323	0.001971	0.001485	0.004770	0.001251	0.000886
Fast Food Restaurant with Drive Thru	0.549225	0.037453	0.185501	0.161666	0.026396	0.006282	0.022787	0.000326	0.001971	0.001485	0.004770	0.001251	0.000886

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	10.3962	10.3962	1.6800e-003	2.0000e-004	10.4990
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	10.3962	10.3962	1.6800e-003	2.0000e-004	10.4990
NaturalGas Mitigated	4.0600e-003	0.0369	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	40.1928	40.1928	7.7000e-004	7.4000e-004	40.4316
NaturalGas Unmitigated	4.0600e-003	0.0369	0.0310	2.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	40.1928	40.1928	7.7000e-004	7.4000e-004	40.4316

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market with Gas Pumps	17974.4	1.0000e-004	8.8000e-004	7.4000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.9592	0.9592	2.0000e-005	2.0000e-005	0.9649
Fast Food Restaurant with Drive Thru	735210	3.9600e-003	0.0360	0.0303	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.2336	39.2336	7.5000e-004	7.2000e-004	39.4668
Total		**4.0600e-003**	**0.0369**	**0.0310**	**2.3000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**	**0.0000**	**40.1928**	**40.1928**	**7.7000e-004**	**7.4000e-004**	**40.4316**

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					
Convenience Market with Gas Pumps	17974.4	1.0000e-004	8.8000e-004	7.4000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.9592	0.9592	2.0000e-005	2.0000e-005	0.9649
Fast Food Restaurant with Drive Thru	735210	3.9600e-003	0.0360	0.0303	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.2336	39.2336	7.5000e-004	7.2000e-004	39.4668
Total		**4.0600e-003**	**0.0369**	**0.0310**	**2.3000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**	**0.0000**	**40.1928**	**40.1928**	**7.7000e-004**	**7.4000e-004**	**40.4316**

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market with Gas Pumps	13417.3	1.2414	2.0000e-004	2.0000e-005	1.2537
Fast Food Restaurant with Drive Thru	98945	9.1548	1.4800e-003	1.8000e-004	9.2453
Total		**10.3962**	**1.6800e-003**	**2.0000e-004**	**10.4990**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market with Gas Pumps	13417.3	1.2414	2.0000e-004	2.0000e-005	1.2537
Fast Food Restaurant with Drive Thru	98945	9.1548	1.4800e-003	1.8000e-004	9.2453
Total		**10.3962**	**1.6800e-003**	**2.0000e-004**	**10.4990**

6.0 Area Detail

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

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	0.0239	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Unmitigated	0.0239	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.8000e-004	2.8000e-004	0.0000	0.0000	2.9000e-004

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

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	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0203					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.8000e-004	2.8000e-004	0.0000	0.0000	2.9000e-004
Total	**0.0239**	**0.0000**	**1.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.8000e-004**	**2.8000e-004**	**0.0000**	**0.0000**	**2.9000e-004**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0203					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.7000e-004	2.7000e-004	0.0000	0.0000	2.9000e-004
Total	**0.0239**	**0.0000**	**1.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.7000e-004**	**2.7000e-004**	**0.0000**	**0.0000**	**2.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.0184	0.0388	9.3000e-004	2.2648
Unmitigated	1.0184	0.0388	9.3000e-004	2.2648

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market with Gas Pumps	0.125486 / 0.0769109	0.1275	4.1000e-003	1.0000e-004	0.2594
Fast Food Restaurant with Drive Thru	1.06237 / 0.0678107	0.8909	0.0347	8.3000e-004	2.0054
Total		**1.0184**	**0.0388**	**9.3000e-004**	**2.2648**

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

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market with Gas Pumps	0.125486 / 0.0769109	0.1275	4.1000e-003	1.0000e-004	0.2594
Fast Food Restaurant with Drive Thru	1.06237 / 0.0678107	0.8909	0.0347	8.3000e-004	2.0054
Total		**1.0184**	**0.0388**	**9.3000e-004**	**2.2648**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	8.1846	0.4837	0.0000	20.2770
Unmitigated	8.1846	0.4837	0.0000	20.2770

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	40.32	8.1846	0.4837	0.0000	20.2770
Total		**8.1846**	**0.4837**	**0.0000**	**20.2770**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	40.32	8.1846	0.4837	0.0000	20.2770
Total		**8.1846**	**0.4837**	**0.0000**	**20.2770**

9.0 Operational Offroad

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

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C. CARB 2020 AND 2025 ESTIMATED EMISSION INVENTORIES

CEPAM2019v1.03 Emission Projection Data

2020 Estimated Annual Average Emissions

KINGS COUNTY

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	0.9	0.2	1.1	0.9	0.1	0.1	0.1	0.1	0.0
WASTE DISPOSAL	54.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3
CLEANING AND SURFACE COATINGS	0.6	0.5	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	8.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	-
INDUSTRIAL PROCESSES	0.5	0.5	0.0	0.0	0.0	1.2	0.4	0.1	0.0
*** TOTAL STATIONARY SOURCES**	**65.7**	**3.3**	**1.1**	**0.9**	**0.1**	**1.3**	**0.5**	**0.2**	**0.3**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	3.0	2.7	-	-	-	-	-	-	7.6
MISCELLANEOUS PROCESSES	75.2	10.5	4.6	0.5	0.0	37.2	18.1	3.2	19.0
*** TOTAL AREAWIDE SOURCES**	**78.3**	**13.2**	**4.6**	**0.5**	**0.0**	**37.2**	**18.1**	**3.2**	**26.6**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	1.0	0.9	6.5	4.0	0.0	0.3	0.3	0.2	0.3
OTHER MOBILE SOURCES	5.0	4.8	27.9	7.6	0.1	1.7	1.7	1.6	0.0
*** TOTAL MOBILE SOURCES**	**6.0**	**5.8**	**34.4**	**11.6**	**0.1**	**2.0**	**2.0**	**1.8**	**0.3**
GRAND TOTAL FOR KINGS COUNTY	**150.1**	**22.3**	**40.1**	**12.9**	**0.3**	**40.5**	**20.6**	**5.2**	**27.2**

Start a new query.

Yana Garcia
Visit her Website

Chair, California Air Resources Board
Liane M. Randolph
Visit her Website

The California Air Resources Board is one of six boards, departments, and offices under the California Environmental Protection Agency.

CEPAM2019v1.03 Emission Projection Data

2025 Estimated Annual Average Emissions

KINGS COUNTY

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	0.9	0.2	1.0	0.8	0.1	0.1	0.1	0.1	0.0
WASTE DISPOSAL	57.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3
CLEANING AND SURFACE COATINGS	0.6	0.6	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	8.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	-
INDUSTRIAL PROCESSES	0.6	0.6	0.0	0.0	0.0	1.3	0.5	0.1	0.0
*** TOTAL STATIONARY SOURCES**	**68.1**	**3.4**	**1.1**	**0.8**	**0.1**	**1.4**	**0.6**	**0.2**	**0.3**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	3.0	2.7	-	-	-	-	-	-	7.1
MISCELLANEOUS PROCESSES	75.1	10.4	4.4	0.4	0.0	35.4	17.2	3.0	18.9
*** TOTAL AREAWIDE SOURCES**	**78.1**	**13.1**	**4.4**	**0.4**	**0.0**	**35.4**	**17.2**	**3.0**	**26.1**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	0.7	0.7	4.9	2.7	0.0	0.3	0.3	0.1	0.3
OTHER MOBILE SOURCES	4.8	4.7	28.3	6.8	0.1	1.7	1.6	1.6	0.0
*** TOTAL MOBILE SOURCES**	**5.6**	**5.4**	**33.2**	**9.5**	**0.1**	**2.0**	**1.9**	**1.7**	**0.3**
GRAND TOTAL FOR KINGS COUNTY	**151.7**	**21.8**	**38.7**	**10.7**	**0.3**	**38.8**	**19.7**	**5.0**	**26.7**

Start a new query.

Yana Garcia
Visit her Website

Chair, California Air Resources Board
Liane M. Randolph
Visit her Website

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APPENDIX D. HEALTH RISK ASSESSMENT MODELING FILES

(Electric Files)

Construction HHD Emissions

1) With ISR Reduction Included

Residential

Year	Exhaust PM_{10} (tpy)	DPM Emissions[1]	
		Tons/Year	Lbs/Year
2023	0.02	0.04	80.3
2024	0.05		

Commercial

Year	Exhaust PM_{10} (tpy)	DPM Emissions[1]	
		Tons/Year	Lbs/Year
2024	0.01	0.02	46.398
2025	0.03		

Operational HHD Emissions

On-Site Truck Travel - Line Sources
Diesel Particulate Matter Emissions

Description	HHD Trips per Week	On-site Distance (meters)	Miles Traveled per year	Annual Emissions[1] (lb/year)
Gas Station Loop	5	52.90	9	1.29E-04
Fast Food Loop	5	50.50	8	1.23E-04

1. Assume PM_{10} emissions equal DPM emissions.

PM10 RUNEx Emission Factor

Operation Year	Emission Factor[1] (g/mile)	Emission Factor (lb/mile)
2025	6.86E-03	1.51E-05

1. EMFAC2021 PM10 RUNEX EF for Kings County T7 Single Other Class 8 at 10mph.

On-Site Truck Idling - Point Sources
Diesel Particulate Matter Emissions

Description	HHD Trips per Week	Idle minutes/truck	Idle hours/year	Idle days/year	Annual Emissions[1] (lb/year)
Gas Station	5	15	65	3	9.94E-05
Fast Food	5	15	65	3	9.94E-05

1. Assume PM10 emissions equal DPM emissions.

PM_{10} Idling Emission Factor

Operation Year	Emission Factor[1] (g/veh/day)	Emission Factor (lb/veh/day)
2025	1.66E-02	3.67E-05

1. EMFAC2021 PM10 IDLEX EF for T7 Single Other Class 8.

Operational Gasoline Dispensing Emissions

Gasoline Dispensing

Gasoline Throughput[1] 1000-gal/yr	Emission Source	VOC Emissions[1] (lb/1000-gal)	Pollutant Name (LS)	CAS#	Emission Factor[2,3] (lb/lb-VOC)	Annual Emissions (lb-LS/yr)	Hourly Emissions (lb-LS/hr)
2,450	Loading (Tank)	0.084	Benzene	71432	3.00E-03	0.62	7.05E-05
			Ethyl benzene	100414	1.60E-02	3.29	3.76E-04
			Toluene	108883	8.00E-02	16.46	1.88E-03
			Xylenes (mixed)	1330207	2.40E-02	4.94	5.64E-04
	Breathing (Tank)	0.025	Benzene	71432	3.00E-03	0.18	2.10E-05
			Ethyl benzene	100414	1.60E-02	0.98	1.12E-04
			Toluene	108883	8.00E-02	4.90	5.59E-04
			Xylenes (mixed)	1330207	2.40E-02	1.47	1.68E-04
	Refueling 1	0.74	Benzene	71432	3.00E-03	2.72	3.10E-04
			Ethyl benzene	100414	1.60E-02	14.50	1.66E-03
			Toluene	108883	8.00E-02	72.52	8.28E-03
			Xylenes (mixed)	1330207	2.40E-02	21.76	2.48E-03
	Spillage 1	0.42	Benzene	71432	1.00E-02	5.15	5.87E-04
			Ethyl benzene	100414	1.60E-02	8.23	9.40E-04
			Toluene	108883	8.00E-02	41.16	4.70E-03
			Xylenes (mixed)	1330207	2.40E-02	12.35	1.41E-03

1. Average gallons/year throughput per station for gasoline and diesel in Kings County per returned surveys (CA Energy Commission Annual Reporting Results for CA Retail Fuel Outlets 2022)
2. VOC emission rates provided in SJVAPCD's *Guidance for Air Dispersion Modeling (Draft) 08/06 Rev 1.2.*
3. Loading, Breathing, and Refueling emission factors based on SJVAPCD Toxic Profile 128; Z1 SU Gasoline Dispensing Op VOC Vapor Speciation
4. Spillage emission factors based on SJVAPCD Toxic Profile 261; Z1 SU Gasoline Dispensing Op VOC Liquid Speciation

Process Rates	Avg.[1] lb/week	Avg. Ton/hr	AVG. Ton /yr
CC - Hamburger & Steak	800	2.38E-03	20.80
CC - Poultry & Pork	265	7.89E-04	6.89

1. SJVAPCD Modeling Guidance Ref - Pechan (2005). Appendix A - Documentation for the draft 2002 non-point source national emission inventory for criteria and hazardous air pollutants (march 2005 version). Emissions Inventory Group, U.S. EPA. Pages A28 – A34

Conveyorized Charbroiler - Totals

Substances	CAS#	LB/HR	LB/YR
Acenaphthene	83329	1.49E-06	1.30E-02
Acenaphthylene	208968	2.65E-05	2.32E-01
Acetaldehyde	75070	4.45E-04	3.89E+00
Acetophenone	98862	3.83E-06	3.35E-02
Anthracene	120127	5.72E-06	5.00E-02
Benz[a]Anthracene	56553	1.58E-06	1.38E-02
Benzene	71432	7.97E-04	6.96E+00
Benzo[a]Pyrene	50328	9.67E-07	8.45E-03
Benzo[g,h,i,]Perylene	191242	9.04E-07	7.90E-03
Biphenyl	92524	1.30E-05	1.14E-01
Cresol	1319773	5.41E-06	4.73E-02
Dibutyl Phthalate	84742	3.03E-06	2.65E-02
Ethyl Benzene	100414	6.31E-05	5.51E-01
Ethylene Dichloride	107062	2.21E-05	1.93E-01
Fluoranthene	206440	6.21E-06	5.42E-02
Fluorene	86737	6.33E-06	5.53E-02
Formaldehyde	50000	6.20E-04	5.42E+00
Indeno[1,2,3-c,d]Pyrene	193395	5.71E-07	4.99E-03
Naphthalene	91203	1.23E-04	1.08E+00
Phenanthrene	85018	2.87E-05	2.51E-01
Phenol	108952	3.63E-05	3.17E-01
Propionaldehyde	123386	1.20E-04	1.05E+00
Pyrene	129000	8.32E-06	7.26E-02
Styrene	100425	3.00E-04	2.62E+00
Toluene	108883	3.15E-04	2.76E+00
Total PAH	1150	4.90E-05	4.28E-01
Xylene	1330207	4.42E-05	3.86E-01

Conveyorized Charbroiler - Hamburger & Steak

Substances	CAS#	EF Lb/Ton	Uncontrolled	
			LB/HR	LB/YR
Acenaphthene	83329	5.60E-04	1.33E-06	1.16E-02
Acenaphthylene	208968	9.78E-03	2.33E-05	2.03E-01
Anthracene	120127	1.82E-03	4.33E-06	3.79E-02
Benz[a]Anthracene	56553	4.40E-04	1.05E-06	9.15E-03
Benzo[a]Pyrene	50328	3.40E-04	8.10E-07	7.07E-03
Benzo[g,h,i,]Perylene	191242	3.20E-04	7.62E-07	6.66E-03
Biphenyl	92524	4.86E-03	1.16E-05	1.01E-01
Fluoranthene	206440	1.76E-03	4.19E-06	3.66E-02
Fluorene	86737	2.18E-03	5.19E-06	4.53E-02
Indeno[1,2,3-c,d]Pyrene	193395	2.00E-04	4.76E-07	4.16E-03
Naphthalene	91203	4.60E-02	1.10E-04	9.57E-01
Phenanthrene	85018	9.76E-03	2.32E-05	2.03E-01
Pyrene	129000	2.30E-03	5.48E-06	4.78E-02
Total PAH	1150	7.24E-04	1.72E-06	1.51E-02

Conveyorized Charbroiler - Poultry & Pork

Substances	CAS#	EF Lb/Ton	Uncontrolled	
			LB/HR	LB/YR
Acenaphthene	83329	2.00E-04	1.58E-07	1.38E-03
Acenaphthylene	208968	4.12E-03	3.25E-06	2.84E-02
Acetaldehyde	75070	5.64E-01	4.45E-04	3.89E+00
Acetophenone	98862	4.86E-03	3.83E-06	3.35E-02
Anthracene	120127	1.76E-03	1.39E-06	1.21E-02
Benz[a]Anthracene	56553	6.80E-04	5.36E-07	4.69E-03
Benzene	71432	1.01E+00	7.97E-04	6.96E+00
Benzo[a]Pyrene	50328	2.00E-04	1.58E-07	1.38E-03
Benzo[g,h,i,]Perylene	191242	1.80E-04	1.42E-07	1.24E-03
Biphenyl	92524	1.82E-03	1.44E-06	1.25E-02
Cresol	1319773	6.86E-03	5.41E-06	4.73E-02
Dibutyl Phthalate	84742	3.84E-03	3.03E-06	2.65E-02
Ethyl Benzene	100414	8.00E-02	6.31E-05	5.51E-01
Ethylene Dichloride	107062	2.80E-02	2.21E-05	1.93E-01
Fluoranthene	206440	2.56E-03	2.02E-06	1.76E-02
Fluorene	86737	1.44E-03	1.14E-06	9.92E-03
Formaldehyde	50000	7.86E-01	6.20E-04	5.42E+00
Indeno[1,2,3-c,d]Pyrene	193395	1.20E-04	9.46E-08	8.27E-04
Naphthalene	91203	1.75E-02	1.38E-05	1.21E-01
Phenanthrene	85018	6.92E-03	5.46E-06	4.77E-02
Phenol	108952	4.60E-02	3.63E-05	3.17E-01
Propionaldehyde	123386	1.52E-01	1.20E-04	1.05E+00
Pyrene	129000	3.60E-03	2.84E-06	2.48E-02
Styrene	100425	3.80E-01	3.00E-04	2.62E+00
Toluene	108883	4.00E-01	3.15E-04	2.76E+00
Total PAH	1150	6.00E-02	4.73E-05	4.13E-01
Xylene	1330207	5.60E-02	4.42E-05	3.86E-01

References (Beef):
Emission factors are derived from District adjustments of Charbroiler emission factors in EPA's 2002 NEI database (Appendix C1).
Hamburger is used as a surrogate for steak.
Pollutants required for toxic reporting: TACs w/o Risk Factor. Current as of update date.

References (P&P):
Emission factors are derived from District adjustments of Charbroiler emission factors in EPA's 2002 NEI database (Appendix C1).
Poultry (chicken) is used as a surrogate for pork.
Pollutants required for toxic reporting: TACs w/o Risk Factor. Current as of update date.

APPENDIX C

BIOLOGICAL RESOURCES EVALUATION

BIOLOGICAL RESOURCE EVALUATION

CITY OF HANFORD

GRANGEVILLE MIXED-USE PROJECT

NOVEMBER 2023

BIOLOGICAL RESOURCE EVALUATION

GRANGEVILLE MIXED-USE PROJECT

Prepared for:

City of Hanford - Community Development Department
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Bakersfield, CA 93309
Contact: Jaymie Brauer
Phone: (661) 616-2600

November 2023

Project #230244

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EXECUTIVE SUMMARY

This Biological Resource Evaluation (BRE) report provides the results of a biological survey conducted by QK for the Grangeville Mixed-Use Project (Project). In order to comply with the California Environmental Quality Act (CEQA) a biological evaluation was conducted to identify the potential for sensitive biological resources to occur on or near the Project site.

The Project site is located northwest of the intersection of Grangeville Boulevard and Centennial Drive in the City of Hanford, Kings County, CA. The proposed project consists of a new mixed-use development, including multifamily housing development and commercial development.

A review of available literature and agency databases was conducted to obtain information of the occurrences of natural communities, special-status plant and wildlife species known to occur in the vicinity of the Project site. QK conducted a biological reconnaissance survey on October 30, 2023, to determine the locations and extent of land use, natural vegetation communities, determine the potential for occurrences of special-status plant and wildlife species, and verify the presence of wetlands and State and or federal jurisdictional waters. No special-status plant species or special-status wildlife species, or diagnostic sign thereof, were observed, and no wetlands or other sensitive biological resources were observed on or near the Project site.

Based on the literature and database search and the results of the survey, there is a potential for one special-status wildlife species to be impacted by construction site activities. While the Project site lacks suitable nesting or foraging habitat for Swainson's hawk (*Buteo swainsoni*), nesting Swainson's hawk may use potential nesting resources (trees, power poles, etc.) near the Project site (within 0.5 miles). Nesting Swainson's hawk behavior may be impacted during construction activities if nesting occurs near the Project site. Potential foraging habitat is present in the vicinity and there is potential for the species to occur near the Project site as a transient. There is potential for nesting migratory birds and other raptors species, protected by the Migratory Bird Treaty Species Act, to occur on or near the Project site and surrounding areas. With the implementation of Best Management Practices and recommended avoidance measures, the Project will likely have limited impacts to Swainson's hawk and migratory birds and raptors. There is expected to be no impact to special-status plant species, sensitive natural communities, wetlands or water features, or any other sensitive biological resources.

SECTION 1 - INTRODUCTION

Rupinder (Shah) Nahal (the Applicant) proposes to develop a mixed-use development with a 64-unit multifamily housing complex and a 1.25-acre commercial component on a five-acre site within the City of Hanford, CA. To comply with the California Environmental Quality Act (CEQA), a biological evaluation was conducted to identify the potential for sensitive biological resources to occur on or near the Project site. This Biological Resource Evaluation (BRE) provides the basic biological information needed for the permitting process.

1.1 - Project Location

The Project site is located northwest of the intersection of Grangeville Boulevard and Centennial Drive in the City of Hanford, Kings County, CA. The Project site is identified by Assessor Parcel Number (APN) 090-030-142, within Section 18S, Township 22, Range 21E, Mount Diablo Base and Meridian (MDB&M).

1.2 - Project Description

The proposed Project consists of a new mixed-use development, including multifamily housing and commercial development. The residential development will be located on the northern 3.75-acre of the Project site, while the commercial development will be on the southern 1.25-acre portion of the site (Project). The commercial portion of the Project would be developed in a separate phase and is anticipated to include a gas station and a fast-food restaurant.

The Project would require approval of a General Plan Amendment and Zone Change from the Neighborhood Commercial zone to the Neighborhood Mixed Use zone to allow for multifamily housing and commercial development. The project also requires approval of a Planned Unit Development permit and a variance to allow parking within the rear yard setback.

The Project's residential component includes eight buildings, three open space areas, nine carports, four trash enclosures, and other associated amenities throughout the site. The open spaces areas would include landscaping and walkways. The central open space area would feature a community pool, shade structures, picnic tables, and walkways. Sidewalks, crosswalks, and landscaping would be provided throughout the residential t site. The residential development would be gated and would feature masonry fencing along the site boundaries.

Construction equipment will vary over the course of development and would include the following:

- Excavators / earth moving equipment
- All terrain forklifts

- A man/material hoist
- Truck cranes
- Concrete trucks
- Dump trucks
- Street sweepers / water trucks for dust control
- Construction delivery trucks
- Small tools (generators, light plants, compactors, air compressors)

Construction of the Project is anticipated to begin in Q4 2024 and is expected to take a maximum of 24 months.

1.3 - Purpose, Goals, and Objectives for this Report

This BRE report includes the results of a biological survey and available biological and natural resource database search conducted by QK biologists at the Project site. This report is consistent with the requirements for an analysis of impacts to biological resources needed of an Initial Study/ Mitigated Negative Declaration following guidelines established by CEQA.

The primary focus of this report is to provide information about the presence of sensitive biological resources on the Project and develop measures to avoid and minimize impacts of the Project on those resources. To accomplish that goal, this BRE provides information on the condition and sensitivity of the sensitive biological resources present and potentially present on and adjacent to the Project site and evaluates Project impacts to those resources. This BRE focuses on providing information and sensitive natural communities, special-status species, wildlife movement corridors, and wetlands and waters by conducting a desktop analysis of site conditions and verifying those findings with an on-site biological survey.

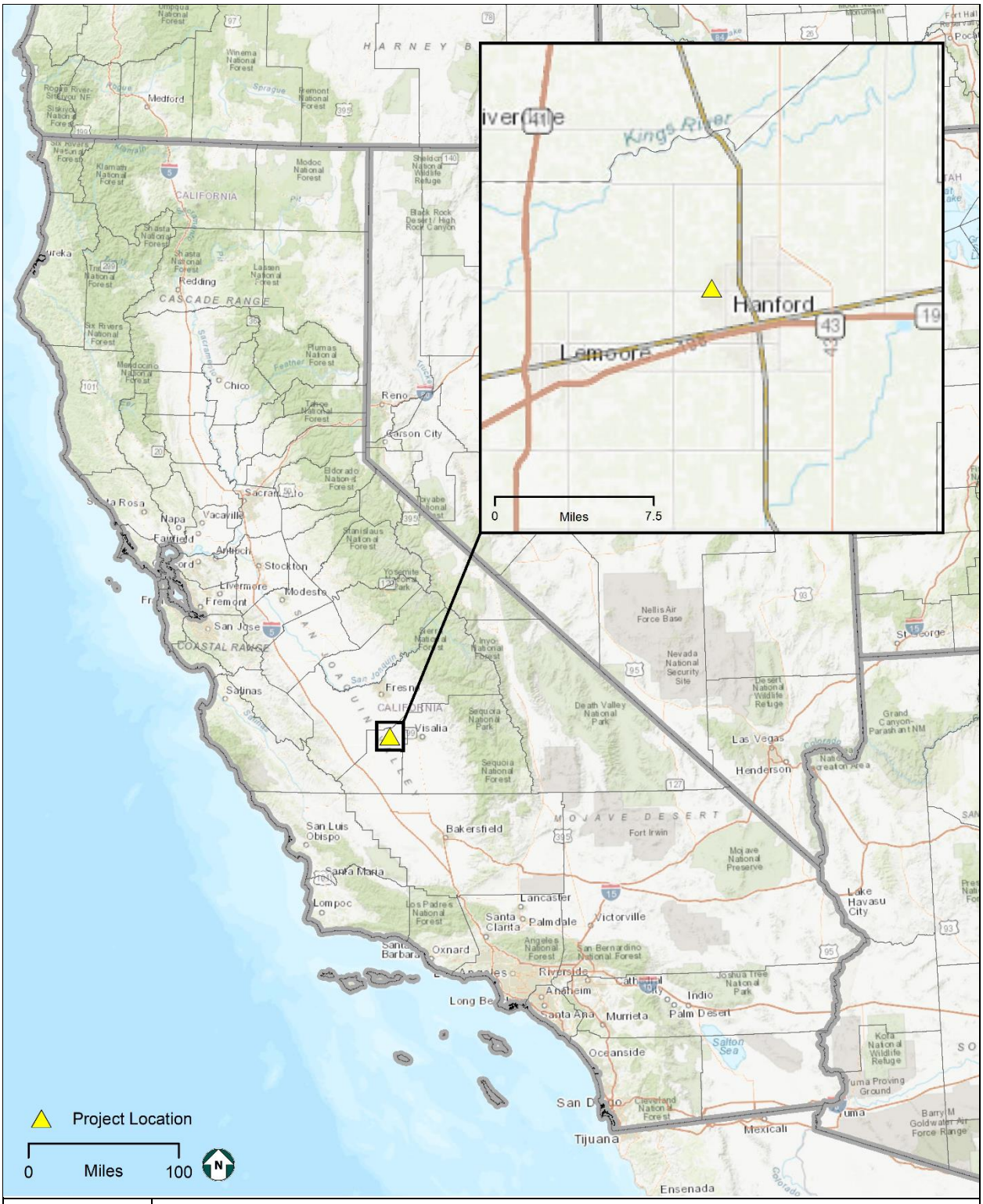

Figure 1-1
Regional Map
Grangeville Mixed-Use Project,
Kings County, California

Figure 1-2
Project Location Map
Grangeville Mixed -Use Project,
Kings County, California

SECTION 2 - METHODS

2.1 - Definition of Biological Study Area

The Biological Study Area (BSA) includes the Project site and a 250-foot survey buffer surrounding the Project disturbance footprint (Figure 2-1).

2.2 - Literature Review and Database Analysis

The following online resources were reviewed for information on special-status biological resources in the Project vicinity:

- California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; CDFW 2023a).
- CDFW's Biogeographic Information and Observation System (BIOS; CDFW 2023b).
- CDFW's Special Animals List (CDFW 2023c).
- CDFW's California Wildlife Habitat Relationships (CWHR) System (Mayer and Laudenslayer 1988).
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2023).
- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation System (IPaC; USFWS 2023a).
- USFWS Critical Habitat Mapper (USFWS 2023b).
- USFWS National Wetlands Inventory (NWI; USFWS 2023c).
- USGS National Hydrography Dataset (NHD; USGS 2023).
- Federal Emergency Management Agency (FEMA) flood zone maps (FEMA 2023).
- United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2023)
- Current and historical aerial imagery (Google LLC 2023; Netronline 2023).

The CNDDB and CNPS queries focused on the *Hanford* USGS 7.5-minute quadrangle in which the Project is located, plus the surrounding eight quadrangles: *Remnoy, Guernsey, Waukena, Burris Park, Lemoore, Riverdale, Laton, Stratford.* To satisfy other standard search criteria, CNDDB records within a 10-mile radius of the Project site were queried separately from the broader database search.

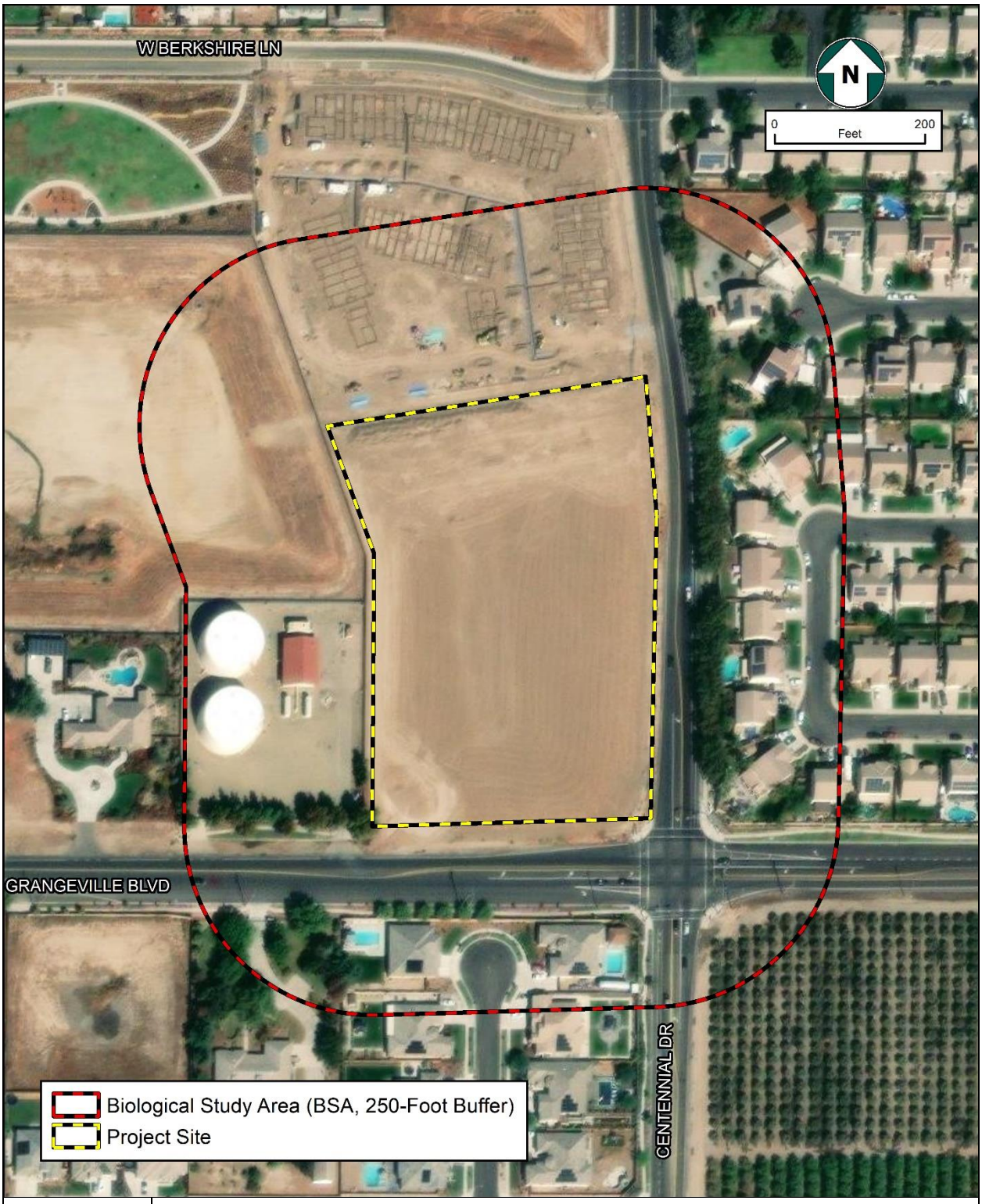

Figure 2-1
Biological Study Area
Grangeville Mixed -Use Project, Kings County, California

The CNDDB provides element-specific spatial information on individual documented occurrences of special-status species and sensitive natural vegetation communities. The CNPS database provides similar information, but at a much lower spatial resolution, for additional sensitive plant species tracked by the CNPS. The CDFW Special Animals List and USFWS IPaC provide no spatial data on wildlife occurrences and provide only lists of species potentially present. Wildlife species designated as "Fully Protected" by California Fish and Game Code Sections 5050 (Fully Protected reptiles and amphibians), 3511 (Fully Protected birds), and 4700 (Fully Protected mammals) are also included on the final list of evaluated species. The database search results can be found in Appendix A.

A review of the NWI was completed to identify whether wetlands have previously been documented on or adjacent to the Project site. The NWI, which is operated by the USFWS, is a collection of wetland and riparian maps that depicts graphic representations of the type, size, and location of wetland, deep water, and riparian habitats in the United States. In addition to the NWI, regional hydrologic information from the NHD was obtained from the USGS to evaluate the potential occurrence of blueline streams within or near the Project site.

Soils data were obtained from the USDA NRCS Web Soil Survey, climate information was obtained from the Western Regional Climate Center, and land use information was obtained from available aerial imagery (NRCS 2023; WRCC 2023; Google LLC 2023). Information about flood zones was obtained from the Federal Emergency Management Agency, Department of Homeland Security (FEMA 2023).

The results of the database inquiries were reviewed to extract pertinent information on site conditions and evaluate the potential for sensitive biological resources to occur within or near the proposed Project site. Only those resources with the potential to be present and affected by the Project were included and considered in this document. The potential presence of natural communities and special-status species was based on distributional ranges overlapping the Project site and the presence of habitat and/or primary constituent habitat elements.

2.3 - Reconnaissance-Level Field Surveys

A biological reconnaissance survey of the BSA was conducted by QK Environmental Scientists Eric Madueno and William Ryan on October 30, 2023. The survey consisted of meandering pedestrian transects spaced 50 to 100 feet apart throughout the BSA, where accessible. Areas with suitable habitat that could not be accessed, such as private residences or currently in active agricultural crops, were surveyed by use of high-power binoculars.

Tasks completed during the survey included determining and documenting current land use, developing an inventory of plant species, wildlife species, and wildlife sign (e.g., scat, burrows, nests, feathers, tracks, etc.), characterizing vegetation associations and habitat conditions within the BSA, assessing the potential for federal, State-listed and other special-status plant and wildlife species that may occur on and near the Project site based on existing conditions, and assessing the potential for migratory birds and raptors to nest on and near the Project site. In addition, all historical wetland and water features documented by NWI

and NHD were field verified. All spatial data were recorded using Environmental Systems Research Institute (ESRI) Field Maps for ArcGIS software installed on an iPad. Site conditions were documented with representative photographs (Appendix B).

SECTION 3 - ENVIRONMENTAL SETTING

This section identifies the regional and local environmental setting of the Project and describes existing baseline conditions. The environmental setting of the BSA was obtained from various sources of literature, databases, and aerial photographs. Site conditions were verified and updated during the site reconnaissance survey conducted by QK Environmental Scientists (Table 3-1).

Table 3-1
Field Survey Personnel and Timing

Date	Personnel	Time	Weather Conditions	Temperature
10/30/2023	Eric Madueno, William Ryan	0930 - 1015	Sunny	53 - 55F

3.1 - Topography

The BSA is on the floor of the Central Valley in the northeastern portion of Kings County. The BSA is relatively flat with little variation in topography and an elevation of about 233 feet above mean sea level.

3.2 - Climate

The BSA is within an area that has a Mediterranean climate of hot summers and mild, wet winters. Average high temperatures range from 54.7°F in January to 97.8°F in July, with daily temperatures often exceeding 100°F several days in the summer (WRCC 2023). Average low temperatures range from 34.6°F in December to 62.5°F in July. Precipitation occurs primarily as rain, most of which falls from November to April, with an average of 8.38 inches of rainfall per year. Precipitation may also occur as a dense fog during the winter known as Tule fog. Rain rarely falls during the summer months.

3.3 - Land Use

Currently, the Project site is an undeveloped vacant lot that has been recently disked. Based on historical imagery, this vacant lot was previously an agriculture field that was cleared sometime after 1984 (Google Earth 2023). The Project site is situated among urban development. It is bounded by Grangeville Boulevard to the south and Centennial Drive to the east. Surrounding land uses consist of multifamily housing to the north, single-family residential developments to the east and south, and a water storage facility and retention basin to the west.

3.4 - Soils

The Project site is underlain by a single soil type, Nord complex (NRCS 2023). This soil series is described by the NRCS and is listed below.

The Nord soil series is characterized by very deep and well drained soils (NRCS 2023). This soil series has a negligible to low rate of runoff and moderate permeability; however, in saline-sodic phases the permeability is moderate. They are formed of mixed alluvium from granitic and sedimentary rock. Nord can be found in alluvial fans and flood plains areas. Slopes range between 0 to 2 percent. This soil series can be used for irrigated crops including wheat (*Triticum* sp.), sugar beets (*Beta vulgaris*), corn (*Zea mays*), cotton (*Gossypium* sp.), alfalfa, walnuts (Juglans sp.), peaches and other fruit or nut trees. Natural vegetation that can grow on this soil type includes annual grasses and forbs and valley oak (Quercus lobata). Nord soil types that are found in Kings County include Nord complex and Nord fine sandy loam. Nord complex is not a hydric soil (NRCS 2023).

3.5 - Hydrology

There are no wetlands or non-wetland waters within the BSA, as defined by the NHD and NWI and none were present during the survey (USGS 2023; USFWS 2023c). According to FEMA, the BSA is within an Area of Minimal Flood Hazard (Figure 3-1).

Figure 3-1
FEMA Flood Zone Map
Grangeville Mixed -Use Project, Kings County, California

3.6 - General Biological Conditions

The Project site is located on the northwest corner of Grangeville Boulevard and Centennial Drive intersection in the City of Hanford. It is situated on a 5-acre vacant lot that has been recently disked and primarily devoid of vegetation.

No natural plant communities occur within the BSA. The Project site consists of a maintained vacant lot that has minimal growth of ruderal species, mainly Russian thistle (*Salsola tragus*) and prostrate pigweed (*Amaranthus blitoides)*, along field margins. The urban development surrounding the Project site contains various ornamental shrubs and trees including pines (*Pinus* sp.), sycamore (*Platanus* sp.) and olive (*Olea* sp.) located outside of the Project site but within the BSA.

There are several large trees that could support nesting birds and/or raptors, but there were no nests present within the BSA. . Smaller ornamental trees associated with the private residences surrounding the Project site could support nesting passerine bird species. Common migratory bird species observed during the survey included mourning dove (*Zenaida macroura*), and common raven (*Corvus corax*). A red-tailed hawk (*Buteo jamaicensis*) was observed soaring over the Grangeville Boulevard briefly before flying out of sight.

No small mammal burrows or dens suitable for special-status species were present within the BSA. There was sign (weathered soil mounding) created by pocket gopher (*Thomomys bottae*) present within the margins of the Project site. Sign (scat, tracks, etc.) of domestic dog (*Canis familiaris*) was observed along portions of the Project site.

A complete list of plant and wildlife species observed within the BSA during the biological reconnaissance survey is included in Appendix C.

SECTION 4 - FINDINGS

4.1 - Sensitive Natural Communities

4.1.1 - RESULTS OF LITERATURE REVIEW AND DATABASE SEARCHES

Literature results from the surrounding nine-quadrangle queries for the Project site revealed two sensitive natural vegetation communities: Valley Sacaton Grassland and Valley Sink Scrub.

4.1.2 - PRESENCE OF SENSITIVE NATURAL COMMUNITIES

Valley Sacaton Grassland and Valley Sink Scrub communities were not present within the BSA during the survey. In addition, the BSA does not provide habitat that would support these communities.

4.2 - Special-Status Plants

4.2.1 - Results of Literature Review and Database Searches

There were eleven special-status plant species identified in the literature and database review that are known or have the potential to occur within the surrounding nine-quadrangles centered on the Project site (Table 4-1). None of the special-status plant species have historical records occurring on or overlapping the BSA.

Table 4-1
Special-Status Plant Species Occurring in the Region of the BSA
(Source: CNDDB 2023, CNPS 2023, and USFWS 2023)

Scientific Name	Common Name	Status
Atriplex cordulata var. *cordulata*	heartscale	1B.2
Atriplex cordulata var. *erecticaulis*	Earlimart orache	1B.2
Atriplex depressa	brittlescale	1B.2
Atriplex minuscula	lesser saltscale	1B.1
Atriplex subtilis	subtle orache	1B.2
Delphinium recurvatum	recurved larkspur	1B.2
Lasthenia chrysantha	alkali-sink goldfields	1B.1
Lepidium jaredii ssp. *album*	Panoche pepper grass	1B.2
Nama stenocarpa	mud nama	2B.2
Puccinellia simplex	California alkali grass	1B.2
Sagittaria sanfordii	Sanford's arrowhead	1B.2

CRPR (California Rare Plant Rank):
1B Rare, Threatened, or Endangered in California and elsewhere.
2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
CRPR Threat Code Extension:
.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Fairly endangered in California (20-80% occurrences threatened)

4.2.2 - Presence of Special-Status Plants

No special-status plant species were present within the BSA. The survey coincided with some, but not all of the plant species' optimal blooming periods; but none of the species identified in the CNDDB or Ipac database queries are expected to occur on-site due to the lack of suitable habitat conditions (disked lot) and/or because the BSA is located outside of the species' known range. The Project site is degraded from historical land use, mainly for agricultural purposes, and the adjacent lands have been equally disturbed for residential and transportation corridors.

A complete list of plant species observed during the biological reconnaissance survey is included in Appendix C.

4.3 - Special-Status Wildlife

4.3.1 - Results of Literature Review and Database Searches

There were 22 special-status wildlife species identified in the literature and database review that are known or have the potential to occur within the surrounding nine-quad search area centered on the Project (Table 4-2). There are no historical records from the CNDDB or Ipac of any special-status wildlife species within the BSA.

Table 4-2
Special-Status Wildlife Species Occurring in the Region of the BSA
(Source: CNDDB 2023, and USFWS 2023)

Scientific Name	Common Name	Status
Invertebrates		
Branchinecta lynchi	vernal pool fairy shrimp	FT, -
Cicindela tranquebarica joaquinensis	San Joaquin tiger beetle	- , -
Danaus plexippus	monarch butterfly	FC, -
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT , -
Gonidea angulate	western ridged mussel	- , -
Lepidurus packardi	vernal pool tadpole shrimp	FE, -
Linderiella occidentalis	California linderiella	- , -
Amphibians		
Ambystoma californiense pop 1	California tiger salamander	FT, ST
Spea hammondii	western spadefoot	- , SSC
Reptiles		
Arizona elegans occidentalis	California glossy snake	- , SSC
Emys marmorata	western pond turtle	- , SSC
Gambelia sila	blunt-nosed leopard lizard	FE, -
Birds		
Agelaius tricolor	tricolored blackbird	- , ST/SSC
Athene cunicularia	western burrowing owl	- , SSC
Buteo swainsoni	Swainson's hawk	- , ST
Charadrius nivosus nivosus	western snowy plover	FT, SSC
Xanthocephalus xanthocephalus	yellow-headed blackbird	- , SSC
Mammals		
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE, SE
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE, SE
Lasiurus cinereus	hoary bat	- , -
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE, SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST

Abbreviations:
FC Federal Candidate

FE Federal Endangered Species
FT Federal Threatened Species
SFP Fully Protected Animal, CDFW
SE California Endangered Species
ST California Threatened Species
SSC California Department of Fish and Game Species of Special Concern

4.3.2 - PRESENCE OF SPECIAL-STATUS WILDLIFE

There is no roosting habitat for monarch butterfly (*Danaus plexippus*) present within the BSA, although it may travel through the BSA as a transient. Additionally, no milkweed (*Asclepias* sp.) was observed within the BSA, which is a required food source for larval monarch butterflies. The BSA lacks suitable sandy open habitat for the San Joaquin tiger beetle (*Cicindela tranquebarica joaquinensis*) and does not contain any elderberry shrubs to support the elderberry longhorn beetle (*Desmocerus californicus dimorphus).*

There are no pooled water features within the BSA capable of supporting crustaceans such as vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), or California linderiella (*Linderiella occidentalis*).

There are no creeks, streams, ponds, or wetland features within the BSA capable of supporting several species including: California tiger salamander (*Ambystoma californiense*), western spadefoot (*Spea hammondii*), western rigid mussel (*Gonidea angulate),* and western pond turtle (*Emys marmorata*). Additionally, no wetland, marsh, or riparian habitat exists within the BSA to support nesting or foraging tricolored blackbird (*Agelaius tricolor*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), western snowy plover (*Charadrius nivosus nivosus*) or the Buena Vista Lake ornate shrew (*Sorex ornatus relictus*).

There are no grasslands or native shrub habitats within the BSA that would support blunt-nosed leopard lizard (*Gambelia sila*), or California glossy snake (*Arizona elegans occidentalis)*. There were no suitable small mammal burrows, which blunt-nosed leopard lizards require for shelter, present within the BSA. There are no rocky outcroppings, mines or caves, cliff faces, tree hollows, high buildings, or bridges within the BSA that would support the hoary bat (*Lasiurus cinereus*).

Due to the historic and ongoing disturbance and absence of suitable small mammal burrows, the BSA does not support the Fresno kangaroo rat (*Dipodomys nitratoides exilis*) or Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*). There is no connectivity between the BSA and habitat that would be considered suitable for kangaroo rat species.

The San Joaquin kit fox (*Vulpes macrotis mutica*) is unlikely to be present within the BSA. The nearest CNDDB record (EONDX 69953) is mapped generally 0.96 miles east of the BSA. This record is from 2006 when a kit fox was observed within an undeveloped 15-acre lot. The Project site lacks suitable habitat for the species due to the past and current level of disturbance and the surrounding BSA has been similarly degraded. The BSA is situated among intensive urban development with no connectivity to natural habitat for the species.

No San Joaquin kit fox or diagnostic sign of the species (e.g., tracks, dens, scat, prey remains) were observed during the field survey, and the lack of small mammal burrows observed indicates the site does not support an adequate prey base. Surrounding land use and habitat conditions make it unlikely that the San Joaquin kit fox would be present.

Burrowing owl (*Athene cunicularia*) inhabit grassland, open bare ground, and utilize existing small mammal burrows, typically created by California ground squirrel, for breeding and shelter. There were no burrows or diagnostic sign (e.g., whitewash, tracks, prey remains) of burrowing owl observed within the BSA. The BSA is continually subjected to disturbance through maintenance activities, and it is unlikely to support nesting burrowing owls as they typically prefer isolation from people and loud noises. Burrowing owl may be present as transient foragers, though this is unlikely given the scarcity of prey items at the site. The nearest CNDDB record (EONDX 44978) of the species is located 9.9 miles northeast of the BSA where one adult burrowing owl was observed in 2016 and four active burrow sites were observed in 2017 in non-native grassland habitat. There is no connectivity between the BSA and the natural habitat of the CNDDB observation.

The BSA provides little suitable nesting and foraging habitat for Swainson's hawk (*Buteo swainsoni*). There are a few large trees located within the southern boundary of the BSA that could potentially support nesting raptors including Swainson's hawk. These trees were examined for nests during the site survey, and none were present. The Project site provides limited prey base due to the periodic disking of the Project site and absence of active small mammal burrows, but a few inactive gopher burrows were present indicating the potential for prey in the area. Agriculture within the BSA consists of a citrus orchard that is not considered foraging habitat for Swainson's hawk. The nearest CNDDB record (EONDX 91345) for Swainson's hawk is located approximately 4.7 miles southeast the BSA where an active nest was observed in one of the eucalyptus trees along Lacey Boulevard in 2012 and an adult was observed sitting on the same nest in 2016. Based on historic aerial imagery the eucalyptus tree where the nesting Swainson's hawk was observed was removed sometime between 2016 and 2017. The Project site lacks suitable nesting and foraging habitat for the species, but they are known to occur in the area and may be present as transients.

4.3.3 - NESTING MIGRATORY BIRDS AND RAPTORS

There were no nests (active or inactive) present within the BSA during the survey. Habitat within the Project site with potential to support nesting birds is limited to ornamental trees located within the surrounding urban development, which may support passerine nests or larger raptor nests. Due to the periodic disking, it is unlikely ground nesting species would nest within the Project site. Additionally, there are a variety of man-made structures (utility poles, transmission towers, agricultural residences, etc.) and trees within the BSA and in the vicinity of the Project which could support a variety of nesting bird species, including larger species such as raptors and common raven.

4.4 - Critical Habitat, Movement Corridors, and Linkages

4.4.1 - Presence of Critical Habitat

The BSA is not within any USFWS designated critical habitat. The closest critical habitat is located approximately 8.5 miles northeast of the BSA and is designated for vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander (Figure 4-1).

4.4.2 - Presence of Movement Corridors and Linkages

The BSA is not within any designated wildlife linkage or movement corridors. The nearest wildlife movement corridor is located approximately 7.5 miles east of the BSA and the nearest wildlife linkage area approximately 22.3 miles to the southeast. The Project is situated within an area developed for urban and agricultural use and does not provide a linkage between suitable natural habitats for most wildlife species. Due to the disturbed condition of the Project and surrounding area, there is no substantial movement of wildlife onto or off the BSA.

4.5 - Wetlands and Other Waters

No wetland or non-wetland water features are known to exist at the Project site. The NHD and NWI did not identify any water features that intersect the BSA, and the site survey confirmed no such features are present within the BSA.

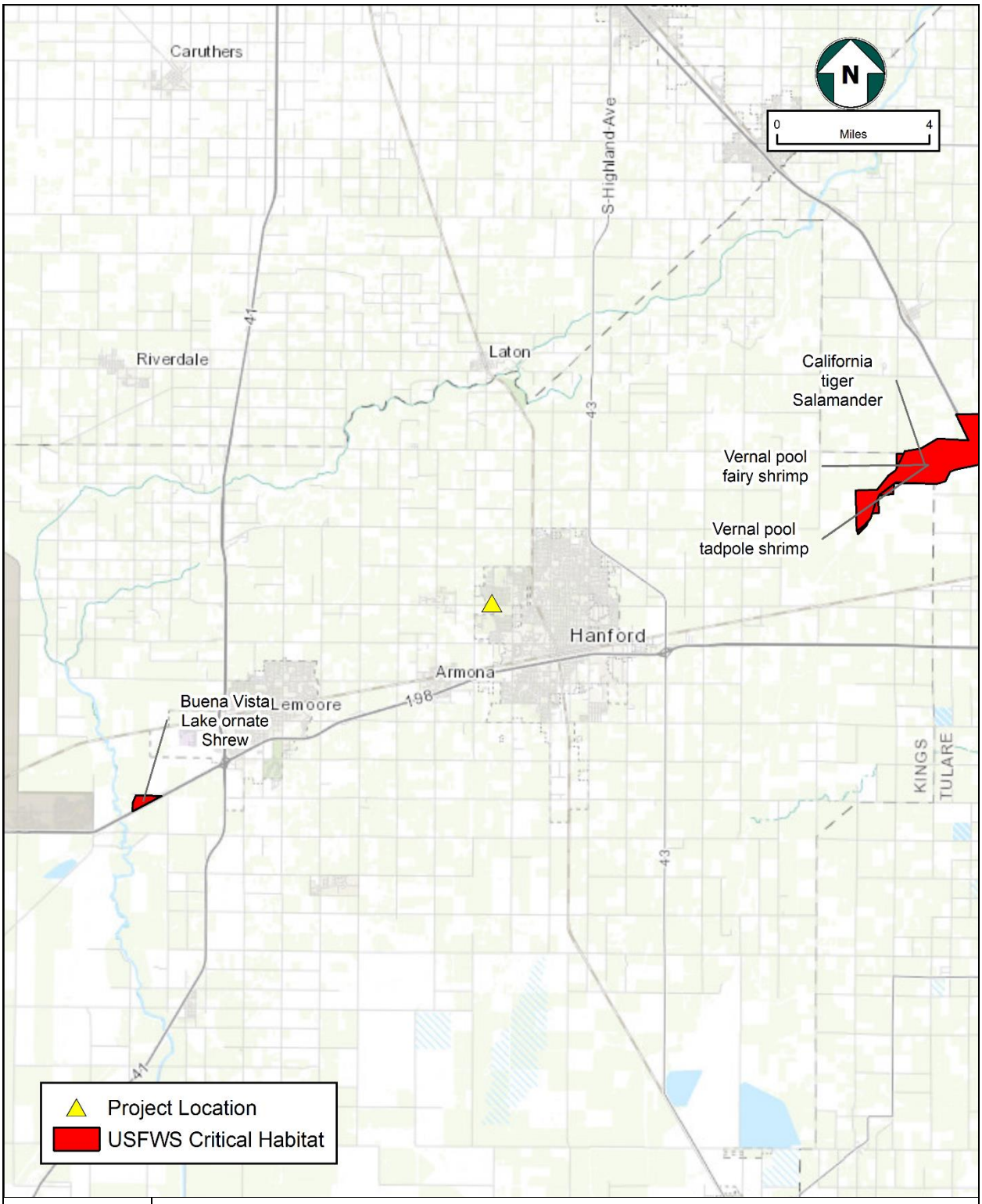

Figure 4-1
Mapped Critical Habitat in the Project Vicinity
Grangeville Mixed -Use Project, Kings County, California

SECTION 5 - POTENTIAL PROJECT IMPACTS

The purpose of this section is to present an evaluation of the potential for Project-related impacts to sensitive biological resources to occur resulting from Project construction activities. Although the potential for impacts of the Project is anticipated to be minor because the Project will be constructed on a disked vacant lot, there are some risks of Project impacts. These are discussed below.

5.1 - Potential Impacts to Sensitive Vegetation Communities

No sensitive vegetation communities occur within the BSA. The Project would not impact sensitive natural communities.

5.2 - Potential Impacts to Special-Status Plant Species

No special-status plant species occur within the BSA and there is no suitable habitat for any special-status plant species on or near the BSA. The Project would not impact any special-status plant species.

5.3 - Potential Impacts to Special-Status Wildlife Species

One special-status wildlife species, Swainson's hawk, was determined to have limited potential to occur within the BSA as a transient. Available habitat within the BSA fulfilling the foraging and nesting requirements of this species is limited, therefore the presence of the species within the BSA is unlikely.

Any special-status species that use the Project as a movement corridor could be indirectly impacted by Project activities, though little wildlife was observed in or near BSA during the reconnaissance survey conducted for the Project.

5.4 - Potential Impacts to Nesting Birds and Raptors

No nests were present within the BSA during the survey. There is potential for passerine bird species to nest near the Project site in the ornamental trees associated with the urban development. There is also potential for birds to nest outside of the Project site but within the BSA in existing structures and trees, and in trees and utility poles in the surrounding urban areas. Few large trees are located within the BSA that may potentially support nesting raptor species. If there are active nests present during Project activities, nests could be impacted by Project activities that interfere with normal breeding behaviors, which could discourage breeding or lead to nest abandonment or failure.

5.5 - Potential Impacts to Critical Habitat, Movement Corridors and Linkages

5.5.1 - POTENTIAL IMPACTS TO CRITICAL HABITAT

The Project would not impact any designated critical habitat.

5.5.2 - Potential Impacts to Movement Corridors and Linkages

Project activities would not impact any movement corridors or habitat linkages.

5.6 - Potential Impacts to Wetlands and Waters

No wetland features exist within the BSA, and there would be no impacts to wetland resources.

SECTION 6 - RECOMMENDATIONS

The Project is anticipated to have no impacts on sensitive natural communities, special-status plants, wetlands and non-wetland water features, Critical Habitat, or migratory corridors. There is potential for Project activities to result in impacts to one of the special-status wildlife species listed in Sections 4 and 5. While the potential for impacts to Swainson's hawk is low, to avoid this species and other wildlife species, we recommend that the following measures be implemented as Best Management Practices (BMPs) during Project activities:

- A pre-construction clearance survey of the Project footprint should be conducted for special-status wildlife species and nesting migratory birds and raptors. The survey should occur no less than 14-30 days prior to the start of construction activities. If construction is delayed beyond 30 days from the time of the survey, then another survey would need to be conducted. The survey should be conducted by a biologist with adequate training and prior experience conducting surveys for special-status wildlife species. If no special-status species are observed, no further action is warranted. If dens or burrows that could support special-status species and/or nesting birds are discovered during the pre-construction survey, appropriate avoidance buffers should be established.
- If construction is planned during the nesting season for migratory birds (February 15 to August 31) and nesting birds are identified during the survey, active Swainson's hawk nest shall be avoided by 0.5 miles, other 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 biological 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.
- A Worker Environmental Awareness Training Program should be prepared and presented to all workers that will be on-site during construction activities.
- Project-related vehicles should observe a 20-mph speed limit in all Project areas, except on county roads and state and federal highways. Off-road traffic outside of designated project areas should be prohibited.
- All trash and food items should be discarded into closed containers and properly disposed of at the end of each workday.
- To prevent harassment or mortality of listed species, no pets should be permitted on the Project site.

SECTION 7 - SUMMARY AND CONCLUSIONS

Land within the Project site is highly disturbed and contains no habitat that would support special-status plant species or sensitive natural communities. There are no designated Critical Habitats, movement corridors, wetlands, or non-wetland water features that would be impacted by the Project.

Based on the literature and database searches and results of the site survey, there is potential for one special-status species to occur on the site, Swainson's hawk. The Project site lacks suitable nesting or foraging habitat for the species, but there is potentially suitable nesting habitat, in the form of a few large trees within private residences, and foraging habitat within the vacant lot and surrounding agriculture. If Swainson's hawk were to nest in the vicinity of the Project, impacts to the species could occur. The Project and surrounding areas provide suitable nesting habitat for other nesting migratory birds as well and impacts to these species may also occur. Implementation of the recommended BMPs and avoidance measures outlined in Section 6 would minimize any Project impacts to these species.

This Biological Resource Evaluation report has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The findings and opinions conveyed in this report are based on findings derived from specified historical and literary sources and a biological survey of the Project site and surrounding area. The biological investigation was limited by the scope of work performed. The biological survey may not have been performed during blooming periods or periods of seasonal or daily wildlife activity that would provide positive identification if resources were present, and therefore the findings of this report might not be definitive. The biological survey was also limited by the environmental conditions present at the time of the survey. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and would not be discovered in the future within the site. Mobile animal species could occupy the site on a transient basis or re-establish populations in the future. No other guarantees or warranties, expressed or implied, are provided.

SECTION 8 - REFERENCES

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APPENDIX A

SPECIAL-STATUS SPECIES DATABASE SEARCH RESULTS

GRANGEVILLE MIXED-USE PROJECT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Project Code: 2023-0102450
Project Name: Heroes Park

July 10, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2023-0102450
Project Name: Heroes Park
Project Type: New Constr - Above Ground
Project Description: Construction of new public park.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.3396298,-119.61728997471698,14z

Counties: Kings County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Buena Vista Lake Ornate Shrew *Sorex ornatus relictus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1610	Endangered
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

REPTILES

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered

AMPHIBIANS

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: QK
Name: Eric Madueno
Address: 5080 California Ave
City: Bakersfield
State: CA
Zip: 93309
Email eric.madueno@qkinc.com
Phone: 6616162600

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Paige (3611924) OR Remnoy (3611935) OR Goshen (3611934) OR Guernsey (3611926) OR Waukena (3611925) OR Burris Park (3611945) OR Traver (3611944) OR Hanford (3611936) OR Laton (3611946))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex cordulata var. erecticaulis Earlimart orache	PDCHE042V0	None	None	G3T1	S1	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Cicindela tranquebarica joaquinensis San Joaquin tiger beetle	IICOL0220E	None	None	G5T1	S1	
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Dipodomys nitratoides nitratoides Tipton kangaroo rat	AMAFD03152	Endangered	Endangered	G3T1T2	S2	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G4G5T4	S3S4	SSC
Gambelia sila blunt-nosed leopard lizard	ARACF07010	Endangered	Endangered	G1	S2	FP
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lasthenia chrysantha alkali-sink goldfields	PDAST5L030	None	None	G2	S2	1B.1

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Nama stenocarpa mud nama	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G2	S2	1B.2
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3S4	SSC
Valley Sacaton Grassland Valley Sacaton Grassland	CTT42120CA	None	None	G1	S1.1	
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S3	

Record Count: 28

CNPS Rare Plant Inventory

CALIFORNIA NATIVE PLANT SOCIETY

Search Results

10 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1A:1B:2A:2B] , 9-Quad include [3611924:3611935:3611934:3611926:3611925:3611945:3611944:3611936:3611946]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex cordulata var. erecticaulis	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	None	None	G3T1	S1	1B.2	Yes	2001-01-01	 © 2009 Robert E. Preston, Ph.D.
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2009 Zoya Akulova
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	(Apr)Jun-Sep(Oct)	None	None	G1	S1	1B.2	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available

Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus
Nama stenocarpa	mud nama	Namaceae	annual/perennial herb	Jan-Jul	None	None	G4G5	S1S2	2B.2		1994-01-01	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook

Showing 1 to 10 of 10 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 10 July 2023].

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS

GRANGEVILLE MIXED-USE PROJECT

Photograph 1: View of BSA from the southeast corner facing northwest.
GPS Coordinates: 36.342861, -119.682244.
Photograph taken by Eric Madueno on October 30, 2023.

Photograph 2: View of BSA from the southwest corner facing northeast.
GPS Coordinates: 36.342253, -119.683274.
Photograph taken by Eric Madueno on October 30, 2023.

Photograph 3: View of BSA from the northeast corner facing southwest.
GPS Coordinates: 36.344334, -119.682121.
Photograph taken by Eric Madueno on October 30, 2023.

Photograph 4. View of BSA from the northwest corner facing south.
GPS Coordinates: 36.344231, -119.683451.
Photograph taken by Eric Madueno on October 30, 2023

Photograph 5. View of BSA from southwestern corner facing south and showing large trees within private residence.
GPS Coordinates: 36.342253, -119.683274.
Photograph taken by Eric Madueno on October 30, 2023

Photograph 6: View of BSA from southwestern corner facing north and showing large pine tree in adjacent water tank facility.
GPS Coordinates: 36.342253, -119.683274.
Photograph taken by Eric Madueno on October 30, 2023

APPENDIX C

PLANT AND WILDLIFE SPECIES OBSERVED

GRANGEVILLE MIXED-USE PROJECT

Table C - 1
Plant and Wildlife Species Observed within the BSA

Scientific Name	Common Name	Status
Plants		
Ambrosia bursage	annual bursage	None
Bromus diandrus	ripgut brome	None
Bromus madritensis ssp. *rubens*	red brome	None
Chenopodium album	lamb's quarters	None
Cynodon dactylon	Bermuda grass	None
Datura wrightii	Jimsonweed	None
Lactuca serriola	prickly lettuce	None
Malva neglecta	common mallow	None
Olea europaea	olive	
Paspalum dilatatum	Dallis grass	None
Pinus sp.	Pine	None
Platanus racemosa	western sycamore	None
Polygonum aviculare	prostrate knotweed	None
Salsola tragus	Russian thistle	None
Tribulus terrestris	puncture vine	None
Ornamental shrubs/trees		
Birds		
Aphelocoma californica	California scrub jay	None
Mimus polyglottos	northern mockingbird	None
Zenaida macroura	mourning dove	None
Mammals		
*Canis familiaris**	domestic dog	None

* Indicates that only sign (e.g., tracks, scat, burrows, dens, vocalizations) of the species was observed.

APPENDIX D

CULTURAL TECHNICAL MEMO

TECHNICAL MEMORANDUM

Date: December 5, 2023

Project: Cultural resources records search- Grangeville Multi-Use Project, Hanford, Kings County, CA

To: Jaymie Brauer, Principal Planner

From: Robert Parr, MS, RPA, Senior Archaeologist

Subject: Cultural Resources Records Search Results (#23-475)

Background

A cultural resources records search (#23-475) was conducted at the Southern San Joaquin Valley Information Center at California State University, Bakersfield for the Grangeville Multi-Use Project (Project).

Location

The Project site is located northwest of the intersection of Grangeville Boulevard and Centennial Drive in the City of Hanford, Kings County, CA. The Project site is bounded by the Berkshire Crossing Apartments to the north, vacant land and a water distribution facility to the west, Grangeville Boulevard to the south, and Centennial Drive to the east. The Project site is identified by Assessor Parcel Number (APN) 090-030-142, within Section 22, Township 18S, Range 21E, Mount Diablo Base and Meridian (MDB&M).

Project Description

The Applicant proposes to develop a new mixed-use development consisting of a 64-unit multi-family housing complex, a commercial component, internal roads, three open space areas, carports, surface parking lots, and other associated amenities on an approximately five-acre site. Access to the Project site will be from two new driveways along Centennial Drive and one driveway along Grangeville Boulevard.

The commercial component of the Project would be developed in a future phase and is anticipated to include a gas station and fast food restaurants. The project site is currently vacant and has been previously disturbed and graded.

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 an approximately 200-foot (60 m.) wide strip along the southern boundary of the subject property adjacent to Grangeville Blvd. had been surveyed for cultural resources as part of a larger project with negative results (Beck 1979). The remainder of the property has never been surveyed for cultural resources and it is not known if any exist on it. Four additional cultural resource studies have been conducted within a half mile of the project (Wren 2001; Allan et al. 2009; Arrigoni et al. 2009; Arrigoni et al. 2009a: DeGeorgey 2013; Peak 2019).

Seven cultural resources, six historical and one prehistoric, have been recorded within a half mile of the project. The historic resources include a segment of the Last Chance Ditch (primary no. P-16-000128) and five residential buildings dating between the 1940s and 1960. (P-16-000234, -000235, -000236, -000237, -000238). The prehistoric site (P-16-000004) is a habitation mound with burials that has been extensively damaged by past agricultural and construction activities over the past century. The Project will not affect the identified resources. No further resources, either historical or prehistoric, have been identified or recorded within one half mile of the proposed project.

A Sacred Lands File request was also submitted to the Native American Heritage Commission. A response dated December 5, 2023, indicates negative results (see Attachment B).

Conclusions

The Project will not impact the identified resources within a half mile radius. Based on the results of cultural records search findings, the potential to encounter subsurface cultural resources is minimal. Additionally, the Project construction would occur on a previously disturbed and graded 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 on the final site plans and all construction plans and specs. With implementation of CUL-1 and CUL-2, the Project would have a less than significant impact.

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: 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)

Allan, James M., Aimee Arrigoni, Angela Cook and Allen Estes
2009 Historic Property Survey Report, 12th Avenue. Widening Project, Hanford, Kings County, California. (KI-00194)

Arrigoni, Aimee, Angela Cook, and Allen Estes
2009 Historical Resources Evaluation Report for the 12th Avenue Widening Project, Hanford, Kings County, California. (KI-00194A)

Arrigoni, Aimee, Angela Cook, Allen Estes, and Jeffrey Schaeffer
2009 Archaeological Survey Report for the 12th Avenue Widening Project, Hanford – Kings County, California. (KI-00194B)

Beck, Allen
1979 Archaeological Reconnaissance for the Grangeville Boulevard Reconstruction Environmental Impact Report. (KI-00004)

DeGeorgey, Alex
2013 Cultural Resources Monitoring Report for CA-KIN-4, City of Hanford, Kings County, California. (KI-00227)

Peak, Melinda A.
2019 Cultural Resource Assessment for the Duyst and McCutcheon Property Project, City of Hanford, Kings County, California. (KI-00331)

Wren, Donald G.
2001 A Cultural Resource Study, New Hanford High School Hanford Learning Center Project, Hanford, California. (KI-00105)

TECHNICAL MEMORANDUM

Attachment A
Figures

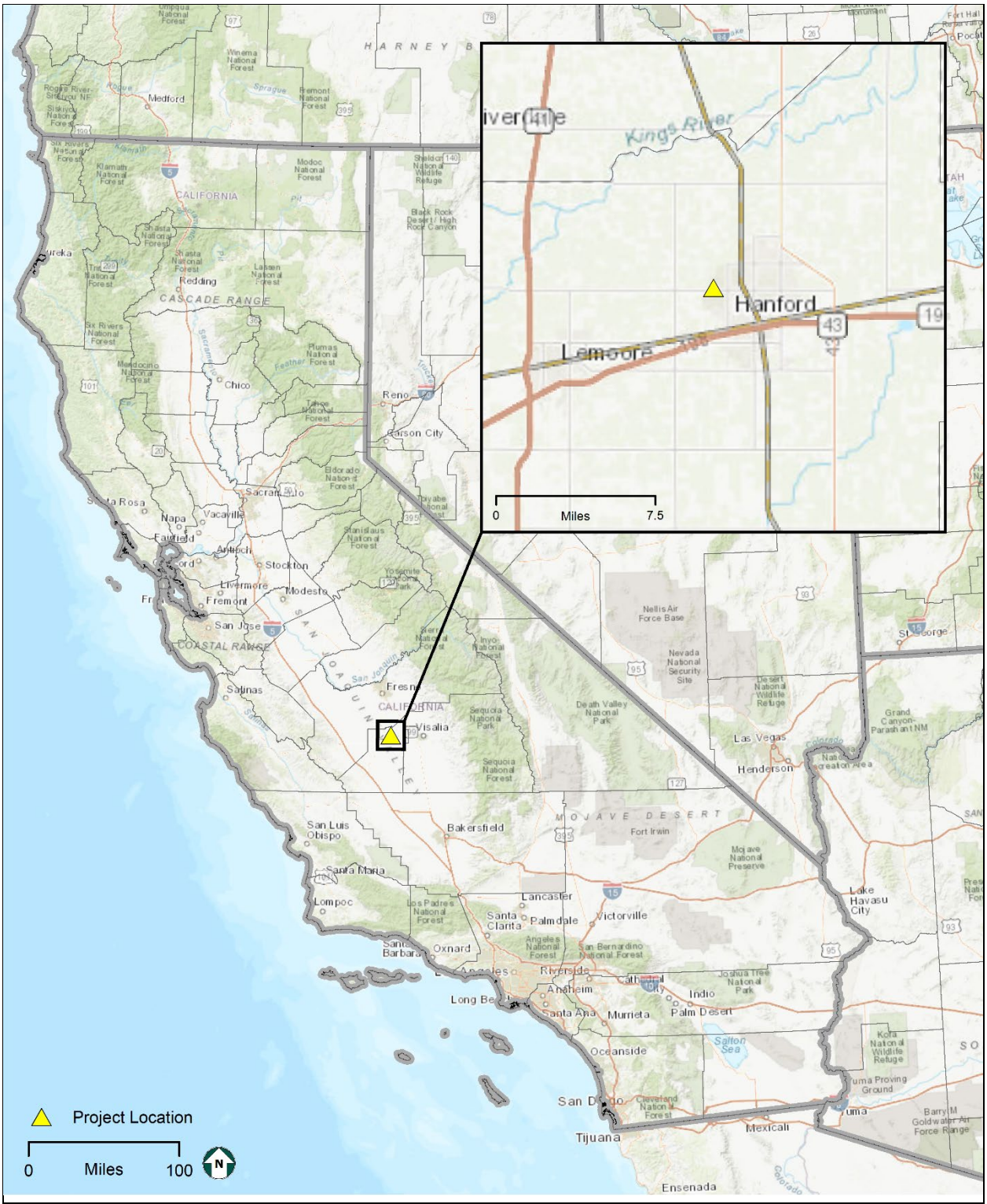


Figure 1
Regional Location

Figure 2
Project Area

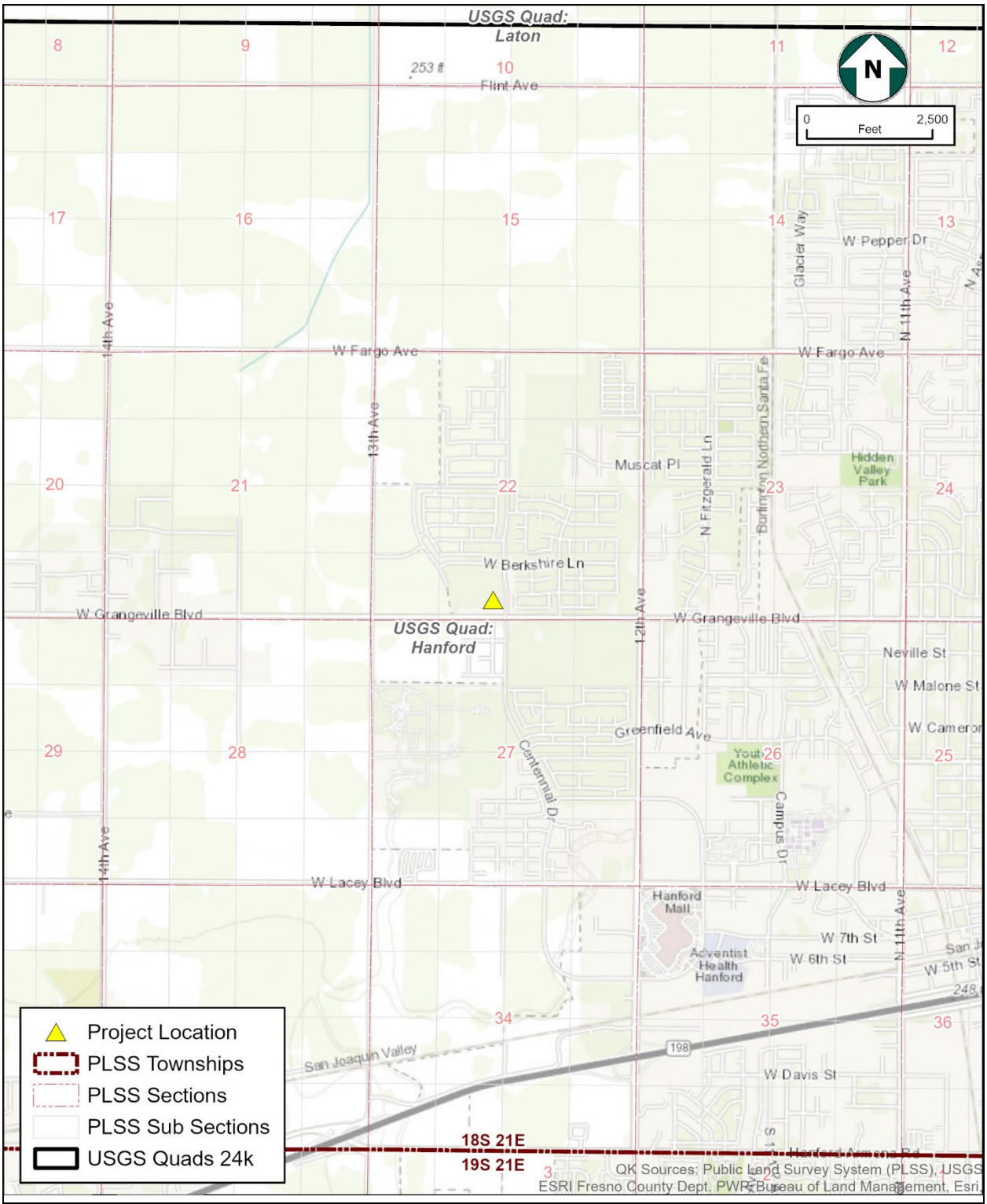


Figure 3
PLSS

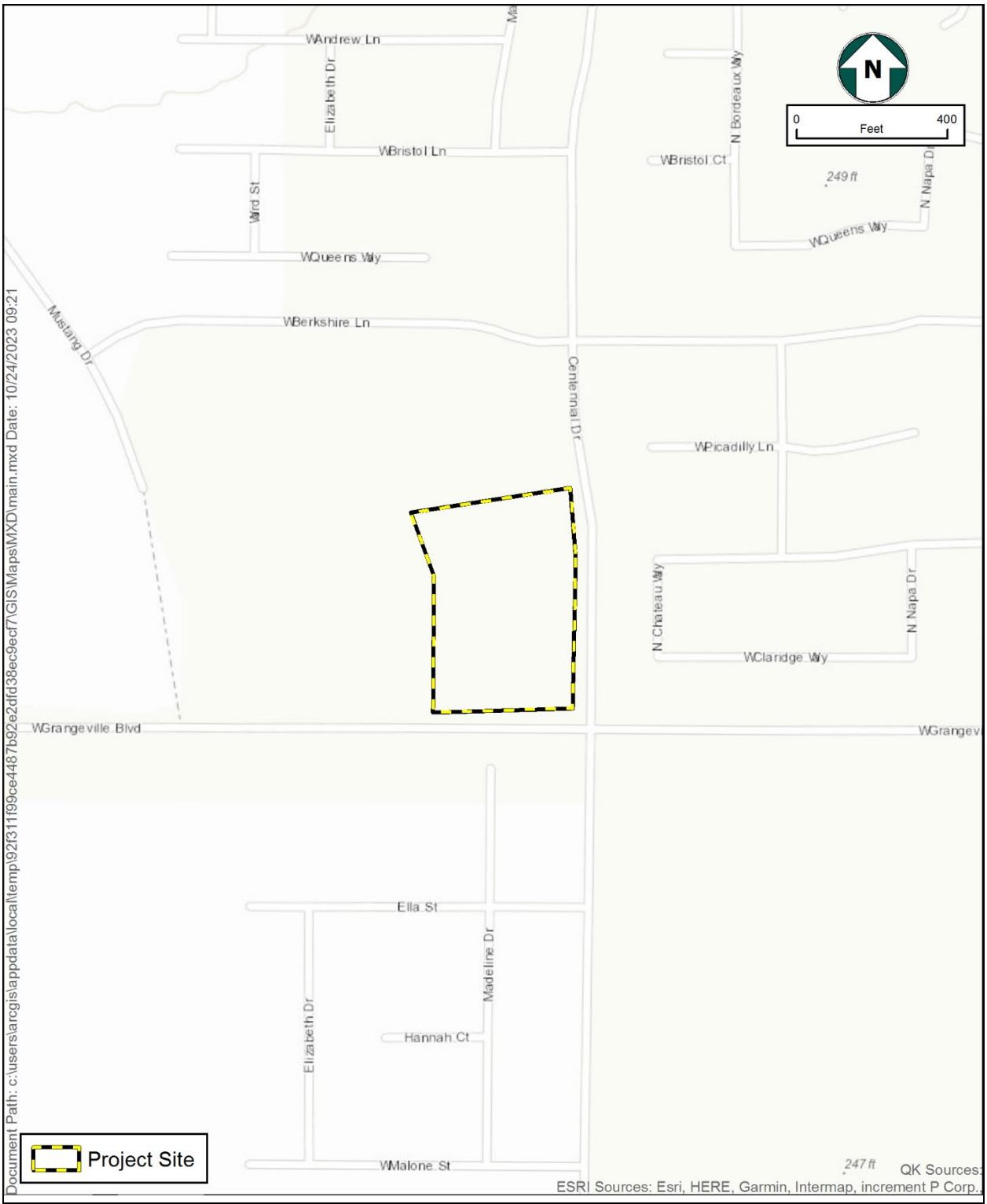
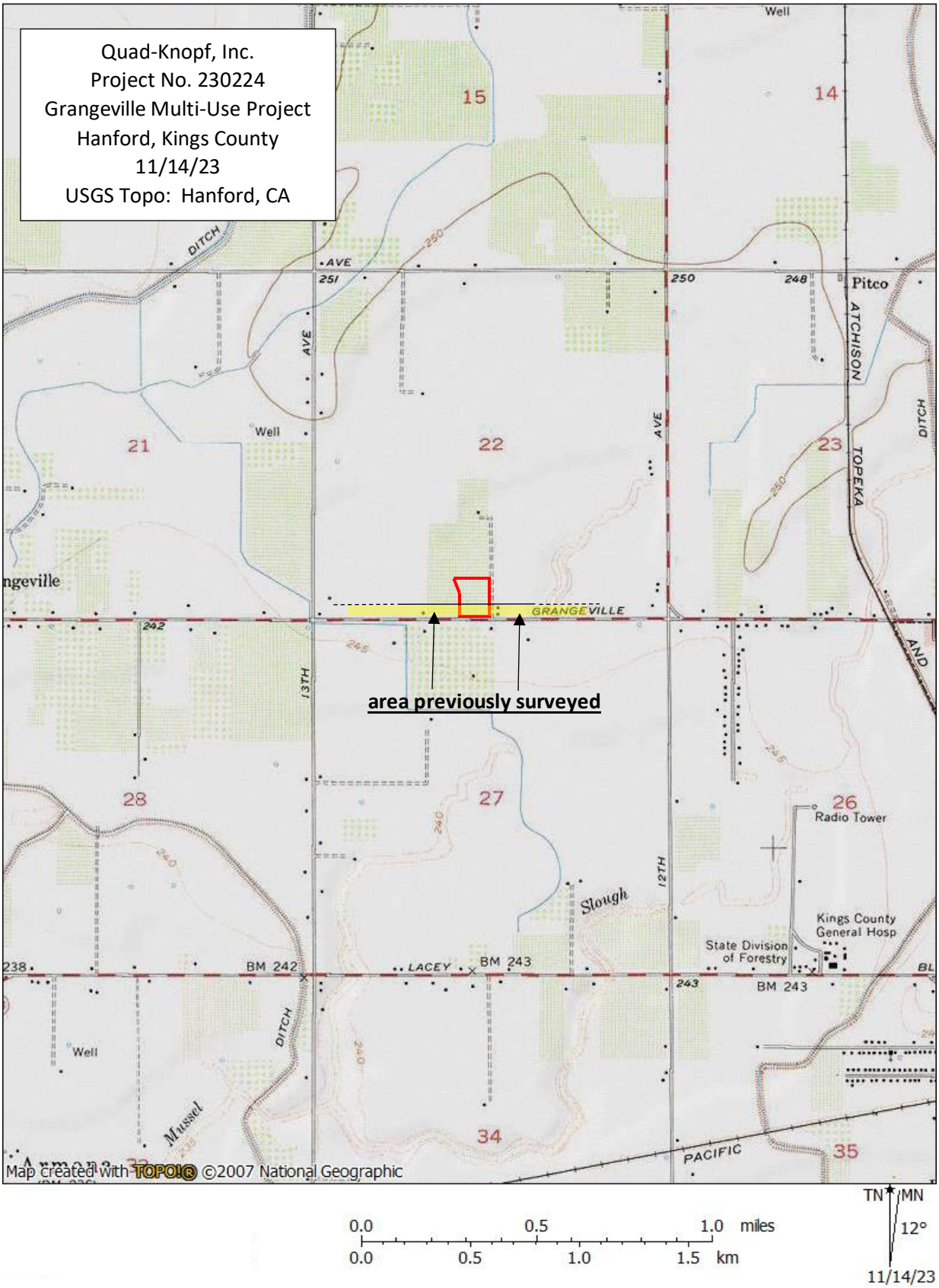


Figure 4
Topo


Quad-Knopf, Inc.
Project No. 230224
Grangeville Multi-Use Project
Hanford, Kings County
11/14/23
USGS Topo: Hanford, CA
area previously surveyed
GRANGEVILLE
LACEY
BM 242
BM 243
BM 243
Pitco
Radio Tower
Kings County General Hosp
State Division of Forestry
Slough
Mussel
PACIFIC
ATCHISON TOPEKA AND
13TH AVE
12TH AVE
DITCH
Well
15
14
21
22
23
28
27
26
34
35
Map created with TOPO! ©2007 National Geographic
0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km
TN MN
12°
11/14/23

TECHNICAL MEMORANDUM

Attachment B
Sacred Lands File Response by the Native American Heritage Commission

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

December 5, 2023

Jaymie Brauer
City of Hanford Planning Division

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, Grangeville Multi-Use Project, Kings County

Dear Mr. 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 negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment

APPENDIX E

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

For

Property

NW of Grangeville Boulevard and Centennial Drive
Hanford, Kings County, California
APNs: 009-030-142

Prepared For:

QK Inc.
5080 California Avenue, Suite 220
Bakersfield, CA 93309

Attn: Ms. Jaymie Brauer

File No. 23-19311

Prepared By:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93313

November 2023

November 16, 2023 File No. 23-19311

QK Inc.
5080 California Avenue, Suite 220
Bakersfield, CA 93309

Attn: Ms. Jaymie Brauer

Subject: Phase 1 Environmental Site Assessment
For: Property
Location: NW of Grangeville Boulevard and Centennial Drive
Bakersfield, CA 93309
APNs: 009-030-142

Dear Ms. Jaymie Brauer:

In accordance with your request and authorization, Soils Engineering, Inc. (SEI) has performed a Phase 1 Environmental Site Assessment in accordance with ASTM standard practice E 1527-21 for the above-described subject property in Bakersfield, California.

The site is currently vacant tilled land with sparse seasonal vegetation. Historically, the site was vacant land prior to 1934, agricultural land from at least 1934 to 1994, and vacant land from 2003 to the present.

The main environmental concerns observed at this site include:

- The review of Kings County Environmental Health Services and the State GeoTracker records indicate that no off-site properties within a one-mile radius of the site boundaries are of environmental concern and are not currently a threat to the subject property.

- Agricultural activities occurred at this site from at least 1934 to at least 1994. No indications of mixing areas, or storage areas were observed in the historical aerial photos available for review. Based on this information the former agricultural use on this site is considered a *de-minimis* condition and not a REC.

- No Recognized Environmental Conditions (RECs), Historical RECs, nor Controlled RECs were identified at this site.

4400 YEAGER WAY
BAKERSFIELD, CA 93313-2019
Phone: 661 831 5100
Fax: 661 831 2111
info@soilsengineering.com
www.soilsengineering.com

Recommendations

- No further environmental assessment is recommended.

No current activities were found within a one-mile radius of the site which process, store or transport hazardous materials in sufficient quantity or in a mode which might have measurable effect on the environmental integrity of the subject site. Multiple sites were found in our search of available or "reasonably ascertainable" State or Federal government records within the ASTM E-1527-21 search radius around the subject property for the databases shown in the Tables on pages ES-1 to ES-4 (Appendix A). No nearby sites appear to have current environmental problems that may affect the site as reported by the Kings County Environmental Health Services and GeoTracker.

A Phase I ESA comprises a number of individual elements whose basic nature and extent are determined in accordance with the standard of care applicable to Phase I ESAs. The standard of care is commonly defined as the care applied by the ordinary practitioner at the time and in the area where the ESA was performed. We believe that we have complied with the applicable standard of care and that we have complied as well with Phase I ESA practices and service scope elements recommended by the American Society for Testing and Materials (ASTM).

I declare that to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in 312.10 of 40 CFR Part 312. I have the specific qualifications based on education, training, and experience to assess property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

The accompanying report is an instrument of service of ***Soils Engineering, Inc.*** The report summarizes our findings and relates our opinions with respect to the potential for hazardous materials to exist at the site at levels likely to warrant mitigation pursuant to current guidelines regulated by the California EPA and California Water Quality Control Board and defined in Titles 22 and 23 of CCR in the state of California. Note that our findings and opinions are based on information that we obtained on given dates, through records review, site review, and related activities. It is possible that other information exists or subsequently has become known, just as it is possible for conditions we observed to have changed after our observation. For these and associated reason, Soils Engineering, Inc. and many of its peers routinely advise clients for ESA services that it would be a mistake to place unmerited faith in findings and opinions conveyed via ESA reports. ***Soils Engineering, Inc.*** cannot under any circumstances warrant or guarantee that not finding indicators of hazardous materials means that hazardous materials do not exist on the site. Additional research, including invasive testing, can reduce the risks to you, but no techniques now commonly employed can eliminate these risks altogether. Soils Engineering, Inc. will be pleased to provide more information in this regard.

Please call (661) 831-5100 for assistance or any questions concerning this report.

Sincerely,

SOILS ENGINEERING, INC.

Robert J. Becker, PG., CEG., QSD/QSP
Expires 2/28/25

Carlos Enriquez-Villegas
Staff Geologist

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Soils Engineering Inc.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

For

Property
Northwest of Grangeville Boulevard and Centennial Drive
in
Hanford, Kings County, California
APN: 009-030-142
November 2023

1.0 Executive Summary

Soils Engineering, Inc. (SEI) has conducted a Phase I Site Assessment (ESA) for the Property located Northwest of Grangeville Boulevard and Centennial Drive in Hanford, Kings County, CA (Site). See Assessor's Map in Appendix B and Location Map, Plate 1 for the site location and dimensions. The following is an Executive Summary of the investigation conducted between October 25, 2023, and November 16, 2023.

1.1 *Property Use* – The site is currently vacant tilled land with sparse seasonal vegetation. Historically, the site was agricultural land from at least 1934 to 1994, and vacant land from 2003 to the present.

1.2 *Building Permits* - were reviewed for the site at the City of Hanford Community Development – Building Division with the following permits of potential environmental concern observed for the APNs listed for this site.

- None

1.3 *Purpose and Scope* - The purpose of the site assessment was to identify potential sources of hazardous substances that are obvious upon visual observations or by all appropriate inquiry using elective research of readily available information. All appropriate inquiry constitutes research into previous ownership and uses of the subject property consistent with good commercial or customary practices as defined by CERCLA, 42 U.S.C. 9601(35)(B). All appropriate inquiry will qualify a party to a commercial real estate transaction for one of the threshold criteria for satisfying the Landowner Liability Protections to CERCLA liability (42 U.S.C 9601(35)(A) & (B), 9607(b)(3), 9607(q) and 9607(r).

Visual inspections and all appropriate inquiry (AAI) were used to identify recognized environmental conditions (REC), historical recognized environmental conditions (HREC) and Controlled recognized environmental conditions (CREC) in connection with the subject property. The AAI included surveys of historical literature, regulatory review of

with persons having knowledge of the site and its use, vapor migration screening and the determination if any obvious hazardous substances exist or may have existed on the subject property. The scope of these services was conducted in compliance with ASTM E 1527-21 guidelines for Phase 1 Environmental Site Assessments.

1.4 Environmental Issues - The most salient environmental issues noted in our investigation are as follows:

- The review of Kings County Environmental Health Services records, the State GeoTracker records and the EDR Database Search indicate that no off-site properties within a one-mile radius of the site boundaries are of environmental concern and are not currently a threat to the subject property.

- Agricultural activities occurred at this site from at least 1934 to at least 1994. No indications of mixing areas, or storage areas were observed in the historical aerial photos available for review. Based on this information the former agricultural use on this site is considered a *de-minimis* condition and not a REC.

- No Recognized Environmental Conditions (RECs), Historical RECs, nor Controlled RECs were identified at this site.

1.5 Recommendations

- No further environmental assessment is recommended.

2.0 Site Reconnaissance

The site location is shown on Plate 1, Site Location Map.

2.1 On-Site Properties - A site reconnaissance was conducted on October 31, 2023, consisting of walking the property and taking multiple photographs (see Plate 3 followed by photos). The following is a summary of the areas explored.

The site is currently vacant tilled land with sparse seasonal vegetation. A block fence and a chain link security fence border the site to the west, a rod iron fence borders the site to the north, Grangeville Blvd is the southern border, and Centennial Drive borders the site to the east.

Overall, the site appears to be in good condition with no other significant environmental concerns visibly evident that have not already been mentioned above.

See Plate 2 for a Site Plan and Appendix B for an Assessors Map showing the areas discussed above. Also see Appendix D for a checklist of environmental conditions reviewed as part of the QA/QC for this report.

2.2 *Oil Wells and Water Wells* – No oil wells are present within the site area according to the California Geologic and Energy Management Division (CalGEM) maps of the area. No oil wells are indicated within 1 mile from the site area.

No water wells were observed on the site. EDR GeoCheck and DWR records shows one public water well within 1/8 of a mile of the site area and there are other water wells <1/4 mile away.

2.3 *Site Area* - The project site consists of one (1) parcel covering an area of approximately 5.00 acres as shown on the Assessors Map in Appendix B.

2.4 *Adjacent Off-site Properties* – Adjacent off-site properties include the Berkshire Crossing Apartments to the north, the Grangeville Tank Site and a drainage sump to the west, Grangeville Blvd/residential/Southern California Gas Pipeline to the south and Centennial Dr/residential to the east.

2.5 *Off-site Properties Within a One Mile Radius* – There are five (5) sites (some listed multiple times) listed in the EDR Summary Radius Map Report (EDR Report) as being within a 1-mile radius of the site. A review of the EDR database search, and files at the Kings County Environmental Health Services and GeoTracker, indicates that no active sites are considered an environmental threat to the subject site.

The listed properties within 1-mile of the site include the following:

- Josh Rogers, 12700 Grangeville Blvd – located <1/8th mile to the WSW. Listed on the RCRA NONGEN/NLR database. This facility is not a generator, verified.

- Frontier Elementary School, NE Corner of Grangeville and 13th – located 1/4 < x <1/2-mile to the NE. Listed on ENVIROSTOR and SCH databases. This facility went through a school investigation and found no chemical of concern within the soil. The DTSC approved the PEA with a No Further Action determination.

- Canady 13th Avenue Site, 9431 13th Avenue – located 1/2 < x <1-mile to the SW. Listed on the ENVIROSTOR and VCP databases. This facility went through a Voluntary Cleanup Agreement completed as of 07/06/1995.

No other properties were listed within 1-mile of the site area. See pages 9 to 10 in Appendix A for more detail.

2.6 *Previous Site Development* - A review of available aerial photographs and city directories of the subject site was vacant land prior to 1934, agricultural land from at least 1950 to

1994, and vacant land from 2003 to the present. (see Appendix C for copies of aerial photographs).

Aerial Photographs

1934 The site is agricultural land. Site borders include agricultural land to the north & west, agricultural land & structures to the east, and Grangeville Blvd. & agricultural land to the south. Agricultural activities are prevalent and there are sparse structures in all major directions. There is a drainage feature to the east.

1950: The site is similar to the 1934 aerial photograph. The drainage feature southern portion is no longer there.

1966: Similar to the 1950 aerial photograph. The drainage feature to the east is no longer there and there are less building bordering the site to the east.

1974: Similar to the 1966 aerial photograph.

1976: Similar to the 1974 aerial photograph. There are less structures to the east.

1984: Similar to the 1976 aerial photograph, but the site now appears to be an orchard. There is a structure to the northeast.

1994: Similar to the 1984 aerial photograph, but row crops are now on-site.

2003: The site is now vacant land with what appears to be a burn area on the northern portion of the site. Grangeville Drive and agricultural land borders the site to the south, a residential property to the southwest, what appears to be a drainage sump/vacant land to the west, vacant land to the north, and residential construction to the east/Centennial Drive.

2006: Similar to the 1994 aerial photograph. The Grangeville Tank Site and a drainage sump borders the site to the west, vacant land to the north, Grangerville Drive/vacant land to the south, and Centennial Street/residential properties to the east. Agricultural activities appear to be diminishing. Residential properties are to the northeast.

2009: Similar to the 1994 aerial photograph. Frontier Elementary School is present to the WNW. There are more structures to the southwest.

2012**:** Similar to the 2009 aerial photograph.

2016: Similar to the 2012 aerial photograph. Residential grading is occurring to the north.

2023: Similar to the 2009 aerial photograph. The Berkshire Crossing Apartments now borders the site to the north. Agricultural activities are still occurring to the southeast. Residential properties are to the south.

Historical Topographic Maps

Topographic maps of the area were reviewed to establish previous development of the site, adjoining properties, and surrounding areas. See Appendix A for copies of these maps. The topographic maps reviewed indicated the following:

1926 – These topographic maps appear to show the site to be vacant land. Vacant land borders the site to the north and west. A dirt road borders the site to the east along with a structure, and Grangeville Blvd/a canal/vacant land borders the site to the south. Multiple drainage features/canals/ditches are present in all major directions.

1954 – The site is depicted as agricultural land. Agricultural land borders the site to the west, north, and south. There are now 2 structures to the east and one to the south. Agricultural activities are occurring in all major directions.

1976 – The subject property is depicted as agricultural land. There are multiple canals/ditches/drainage features and structures in all major directions. City development is occurring to the far east and ESE.

2012, 2015, 2018 – The topographic map shows little detail of the site, only main streets and highways are shown.

Sanborn Map Review

There are no Sanborn Fire Insurance maps available for this portion of Kings County, CA.

City Directory Search

The project address does not appear in the City Directory search conducted by EDR as shown below.

See Appendix A for the results of this search.

2.7 Source of Potable Water - Potable water service will be supplied the City of Hanford.

2.8 Sewage Disposal – Sewage will be treated by the City of Hanford.

2.9 Potential Occupant Hazards

2.9.1 Radon Gas - The average radon level in this region of Kings County is 2.300 pCi/L, a safe concentration. No radon sampling was conducted.

2.9.2 Asbestos Containing Materials (ACM's) – There are no potential sources for ACMs in the site area. No ACMs testing was conducted.

2.9.3 Polychlorinated Biphenyl (PCB's) – No possible sources of PCBs were identified on-site. No PCB testing was conducted.

2.10 Vapor Migration Screening

A Vapor Migration Screening was conducted by SEI on the site and surrounding properties. The off-site listed properties were either down-gradient, cross-gradient or far enough away (>250') from the subject site to be of concern, or the chemicals of concern are not likely to be present at this source. There appears to be a low vapor intrusion potential from historical activities on-site and from off-site activities. See Appendix A for the EDR Vapor Encroachment Screen.

2.11 Emerging Contaminants

PFAS (per- and polyfluoroalkyl substances) is considered as a non-scope emerging contaminant within the E 1527-21 Phase 1 ESA standard. No PFAS are currently identified as hazardous substances under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and as a result would not be considered a Recognized Environmental Condition (REC). No PFAS's are known to be present in the area of the site.

3.0 Property Use

Available records kept by the County of Kings, City of Hanford, aerial photograph reviews, etc., indicate that the site was agricultural land from at least 1934 to 1994, and vacant land from 2003 to the present.

3.1 Chronology of Former Property Use - Site usage, as indicated on aerial photographs, City Directories and Building Permits has included the following:

1934 to 1994 – Agricultural Land

2003 to Present – Vacant Land

A list of aerial photographs is given on QA-QC Form D-3 (Appendix D).

3.2 *Rationale For Research Period* - The research period for records dates from the earliest records retained in the archives of Kings County and the City of Hanford and available databases yielding information from the 1950's to the present.

3.3 *Sources* - A review was made of environmental records maintained by government agencies and private sources. The contents of that review are included in Appendix A. The list of Federal, State, and Local databases searched is summarized on Pages ES1 to ES4 and GR1 to GR6 of the EDR Summary Radius Map Report (Appendix A). In addition, the following total sources were researched:

Building Permits – City of Hanford & County of Kings building permits were reviewed from the mid-1950's to the present. The following permits of potential environmental concern were observed for the APNs listed for this site.

- None

California Geologic and Energy Division Publications - Records were researched for the period circa 1940 to the present. California Geologic and Energy Management Division (CalGEM) online mapping system indicates that no oil wells have been drilled on-site. No Oil/Gas wells are present 1- mile from the site borders. See attached Plate 8 for more detail.

Kings County Environmental Health Services - The following information was found on file for the sites close enough to be considered a possible threat to the subject property:

- None

Kings County Department of Agriculture – The Kings County Department of Agriculture online records were searched. Agricultural activities were present on the subject property from at least 1934 to 1994.

GeoTracker – The State of CA GeoTracker website was reviewed for information on the subject site and surrounding facilities.

- Nothing of concern listed for the surrounding facilities.

4.0 Current Property Uses

The subject property is currently vacant land with sparse vegetation.

5.0 Current and Historical Regulatory Review of Subject Site & Adjoining Listed Properties

5.1 *Site* - The subject site address does appear on the EDR database search records as shown below.

- Faith Farms-Site #2, 12494 Grangeville – TP. Listed on the CUPA LISTINGS database. The facility has historically been used for agricultural purposes. There are no known chemical mixing areas.

5.2 *Adjoining Listed Properties* – The following adjoining properties are listed in the EDR database search of potential environmental concern.

- None

5.3 *Database Search* - A summary of the list of government records searched is contained in Appendix A in the sections titled “EXECUTIVE SUMMARY” and "GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING," pages Executive Summary 1 to 4 and GR1 through GR6.

6.0 User Provided Information

6.1 *Review of Title Information* - Easements for public utilities are known at the site. No evidence was found that may indicate use of the property for the process, storage, disposal or transportation of hazardous materials.

6.2 *Owners* - The following are the owners and Assessors Parcel Number for the subject site:

APNs: 009-030-142: Owner is Nahal Farms, LLC.
See Assessors Maps in Appendix B for site configuration.

6.3 *Environmental Liens or Activity and Use Limitations*

No environmental liens or Activity and Use Limitations are known for this site, according to an AFX Environmental Lien and AUL Report # 79-326191-47, dated 10/27/2023 and the USER Questionnaire which are attached in Appendix B.

6.5 *Commonly Known or Reasonably Ascertainable Information*

- The user has some historical information that covers the site’s usage.
- The user has no knowledge of specific chemicals used at the site.
- The user has no knowledge of some spills or other chemical releases that have taken place at the site.

- The user has no knowledge of an environmental cleanup that has taken place at the site.

See attached User Questionnaire attached in Appendix B for more detail.

6.6 Valuation Reduction for Environmental Issues
The property was purchased approximately 10 years ago. At the time, fair market value was paid for the property. See attached User Questionnaire attached in Appendix B for more detail.

6.7 Owner, Property Manager and Occupant Information
A User Questionnaire and an interview via an Environmental Questionnaire and Disclosure Statement with Rupinder Nahal, who is a Owner of the site and President of Nahal Farms, was conducted by SEI. The information from this interview has been incorporated into this report.

6.8 Reason for Performing Phase 1 ESA
The Phase 1 ESA is being performed as part of the due diligence prior to the purchase of the property.

6.9 Other
None.

7.0 Geology and Hydrology

7.1 The regional area of the site has a general, gentle southwesterly slope with the majority of surface elevations matching adjacent roads and properties (See Physical Setting Map, Plate 4).

7.1.1 *Geologic Setting* - The project site rests on a considerable thickness of granitic alluvium, identified as "Recent Alluvial Fan Deposits" on geologic maps within the San Joaquin Valley. The site area is not located within the California Earthquake Fault Zone. Near surface soils within the zone of influence of future developments consist of interbedded sand, silt, and clay layers overlying bedrock, which is located several thousand feet below the surface. These sediments were derived in the Sierra Nevada Mountains to the east and deposited by local drainages.

7.1.2 *Surface Lithology* - Earth materials expected to be present at this site would likely consist a fine sandy loam and stratified sandy loam to loam conisting of Silts and Clays from 0 to 72 inches based on the Soil Layer Information in pages A-6 to A-7 within Geocheck-Physical Setting Source Summary in the EDR. These soils are classified as CL and ML, respectively, in the Unified Soils Classification System.

7.2 Hydrology

7.2.1 *Depth To Water* – According to data prepared by the Department of Water Resources and presented on the SGMA Data Viewer, depth to water is approximately 155' in the Spring of 2023. See Plate 7 for a Depth to Water Map.

7.2.2 *Groundwater Quality* - Groundwater data from a public state well CA1610003_036_036 located adjacent to the site to the west, indicates total dissolved solids of 350 ppm in 12/14/2021.

7.2.3 *Plate 4 "Physical Setting Source Map,"* - depicts general site topography including elevation contour lines.

7.2.4 *Water Wells* – There were no water wells on-site. One water well was indicated within 1/8 mile of the property on the DWR water library and in the EDR GeoCheck.

7.2.5 *The California Regional Water Quality Control Board* - Leaking Underground Storage Tank (LUST) records were reviewed. A list of agencies with LUST information is given on pages GR1 to GR6. The California Regional Water Quality Control Board and the Kings County Environmental Health Services maintain databases of underground storage tanks and leaking underground storage tanks in the Kings County area, including the subject site. Independent database searches were performed by Environmental Data Resources Inc (EDR) and by SEI through the State GeoTracker website.

7.2.6 *Wetlands* – No wetlands appear to be present within ¼-mile of the site according to the Overview Map on Plate 5 and the National Wetlands Inventory Map.

8.0 Oil and Gas Well Locations were reviewed on CalGEM Online Mapping System. No oil wells are shown on the subject property. No Oil/Gas wells are present within 1-mile of the site. See attached Plate 8 for more detail.

9.0 Surrounding Properties - Plate 5, "Overview Map" shows the locations of sites that were listed on one of the Databases searched (See Section 5.2 for more detail).

9.1 Data Base Search – There were five (5) sites (some listed more than once) were mapped within a one-mile radius of the site as potential environmental threats (see Overview Map, Plate 5). For more details see Plate 6, Detail Map and pages 9 to 10 in Appendix A.

9.2 Orphan Summary List – The database search indicated 14 addresses that were insufficient to plot on the site Overview Map. A list is provided on the "Orphan Summary Sheet," on page 20 in Appendix A.

9.3 Historical Use Information on Adjoining Properties

At this point in time, the adjoining properties to the subject site the Berkshire Crossing Apartments to the north, a drainage sump/Grangeville Tank Site to the west, Grangeville Blvd/residential/SoCal Gas Pipeline to the south, and Centennial Drive and residential to the east. None of these adjoining sites currently appear to have significant environmental issues of potential concern to the subject site.

10.0 Interviews - The following interviews were conducted during this Phase 1 ESA.

10.1 Interview with Owner
A User Questionnaire and an interview via an Environmental Questionnaire and Disclosure Statement with Rupinder Nahal, who is a Owner of the site and President of Nahal Farms, was conducted by SEI. The information from this interview has been incorporated into this report.

10.2 Interview with Site Manager
None.

10.3 Interview with Occupants
No occupants were interviewed.

10.4 Interviews with Local Government Officials
SEI conducted phone or e-mail interviews with the Kings County Environmental Health Services, and the City of Hanford Community Development – Building Division, concerning the sites historical activities and adjoining properties.

10.5 Interviews with Others
No other interviews were conducted for this site.

11.0 Findings

The following was identified at the site during this investigation:

- The review of Kings County Environmental Health Services and the State GeoTracker records along with the EDR Database Search indicate that no off-site properties within a one-mile radius of the site boundaries are of environmental concern and are not currently a threat to the subject property.

- Agricultural activities occurred at this site from at least 1934 to at least 1994. No indications of mixing areas, or storage areas were observed in the historical aerial photos available for review. Based on this information the former agricultural use on this site is considered a *de-minimis* condition and not a REC.

- No Recognized Environmental Conditions (RECs), Historical RECs, nor Controlled RECs were identified at this site.

12.0 Opinion

The following is SEI's opinion as to the known or suspected recognized environmental conditions identified at the site.

- No further environmental assessment is recommended.

13.0 Conclusions & Deviations

13.1.1 Conclusions - SEI has performed a Phase 1 Environmental Site Assessment, in conformance with the scope and limitations of ASTM Practice E 1527-21, for the Property located Northwest of Grangeville Boulevard and Centennial Drive, Hanford, CA with APN: 009-030-142. Any exceptions to or deletions from this practice are described in section 13.2 of this report. This assessment has revealed no recognized environmental condition (REC), no Historical RECs, and no Controlled REC in connection with this property.

13.2 Deviations – The following deletions or additions to the ASTM E 1527-21 standard practice were conducted during this investigation:

Deletions

- None

13.3 Additional Services

- Reporting of average radon concentrations in the general area of the site.
- Evaluating the possibility of asbestos containing materials (ACMs).
- Evaluating the presence of Emerging Contaminants.

13.2.1 Data Gaps - SEI is of the opinion that no significant data gaps were uncovered that might impact the integrity of this report.

14.0 Attachments

14.1 Location Map - Plate 1, shows the location of the site with relationship to roads and land features.

14.2 Plot Plan Map - Plate 2, shows the location and lot configuration of the property.

14.3 Photo Map - Plate 3, shows the location and direction of photos taken at the site. See attached pictures.

14.4 Physical Setting Source Map - Plate 4, shows the property location referenced to major city streets and physical features.

14.5 Overview Map - Plate 5, the property location referenced to neighboring streets and potentially environmental sensitive sites up to 1 mile away is attached.

14.6 Detail Map - Plate 6, the property location referenced to neighboring streets and potentially environmental sensitive sites within 1/4 mile is attached.

14.7 Depth to Water Map – Plate 7, the property location referenced to the approximate depth to groundwater.

14.8 CalGEM – Plate 8, the property shown in reference to nearby oil and gas wells as shown on CalGEM Mapping System. Plate 8 shows the approximate location of the closest oil wells.

14.9 Appendix A - Contains the EDR Summary Radius Map Report - TM, Inquiry No.: 7480082.2s, dated October 25, 2023; the Certified Sanborn Map Report; the Historical Topographic Maps; the EDR-City Directory Abstract and a Vapor Encroachment Screen.

14.10 Appendix B - Contains a copy of the Assessors Map. Environmental Questionnaire and Disclosure Statements and User Questionnaire are also included. AFX Environmental Lien & AUL Search Report Order#:79-326191-47

14.11 Appendix C - Aerial Photographs contains copies of available aerial photographs (1934 to 2023).

14.12 Appendix D - Quality Assurance/Quality Control

14.12.1 A site inspection check list has been completed as a part of the site reconnaissance survey and is attached on QA/QC Form D-1.

14.12.2 Form QA/QC - D-2 provides a checklist of summary of historical research items included in the scope of the investigation.

14.12.3 A list of aerial photographs reviewed are given on QA/QC Form D-3

14.12.4 Areas excluded from review because of inaccessibility or for other causes, not included in the site reconnaissance are listed on QA/QC - D-4.

15.0 Statement of Qualifications

15.1 This *preliminary site assessment* was prepared by Mr. Robert J. Becker, a California Professional Geologist (PG-5076), and a Certified Engineering Geologist (EG 2238). Mr. Becker has a Bachelor of Science degree from Oregon State University with a major in geology. Mr. Becker is also registered in the State of Oregon (PG).

Mr. Becker has performed numerous preliminary environmental assessments and site characterizations, and risk assessments for known contamination on raw land, on existing residential, commercial, and industrial properties for public and private sector clientele. Mr. Becker's experience includes; installation of monitoring wells, vapor extraction system installations and operation, bioremediation of contaminated soil, groundwater treatment system installations and operation, preliminary endangerment assessments of proposed school sites and risk assessments.

16.0 References

- Environmental Data Resources (EDR): The EDR Summary Radius Map Report; EDR Historical Topographic Maps, Certified Sanborn Map Report, City Directory Abstract and Vapor Encroachment Screening.
- California Geologic Energy Management (CalGEM) Division, Online Well Finder.
- Kings County Environmental Health Services
- California Division of Mines and Geology – 2010 Geologic Map of California and Geologic Map of California-Fresno Sheet.
- City of Hanford Community Development - Building
- Kings County Assessor - https://common1.mptsweb.com/mbap/kings/asr
- Aerial Photographs –Google Earth & EDR.
- GeoTracker: https://geotracker.waterboards.ca.gov/
- Wetlands Mapper: http://www.fws.gov/wetlands/Data/Mapper.html
- Department of Water Resources, SGMA Data Viewer Groundwater Map, Spring 2023

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **Location Map**	**PLATE** **1**

SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 11/23
PROJECT: 23-19311

Property
NW of Grangerville Blvd. & Centennial Drive
Hanford, Kings County, California

Plot Plan

PLATE
2

0' Approximate Scale 100'

Photo # & Direction

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **PHOTO MAP**	**PLATE** **3**

Picture 1. Looking east from the SWC of the site.

Picture 2. Looking northeast from the SWC of the site.

Picture 3. Looking north from the SWC of the site.

Picture 4. Looking at a S. California Gas Pipeline Marker adjacent to the southern border.

Picture 5. Looking southeast from the NWC of the site.

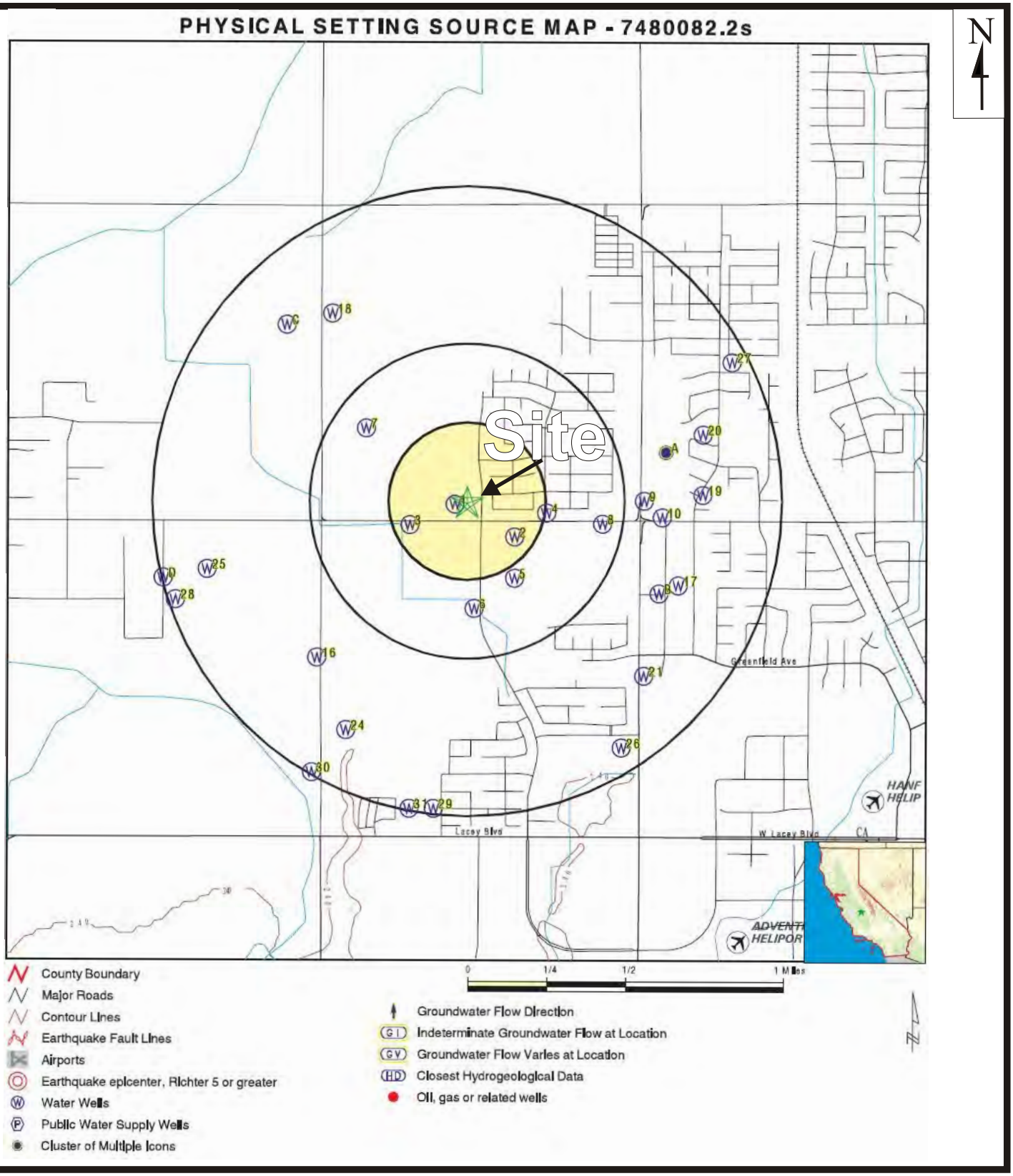
Picture 6. Looking east from the NWC of the site.

Picture 7. Looking west from the NEC of the site.

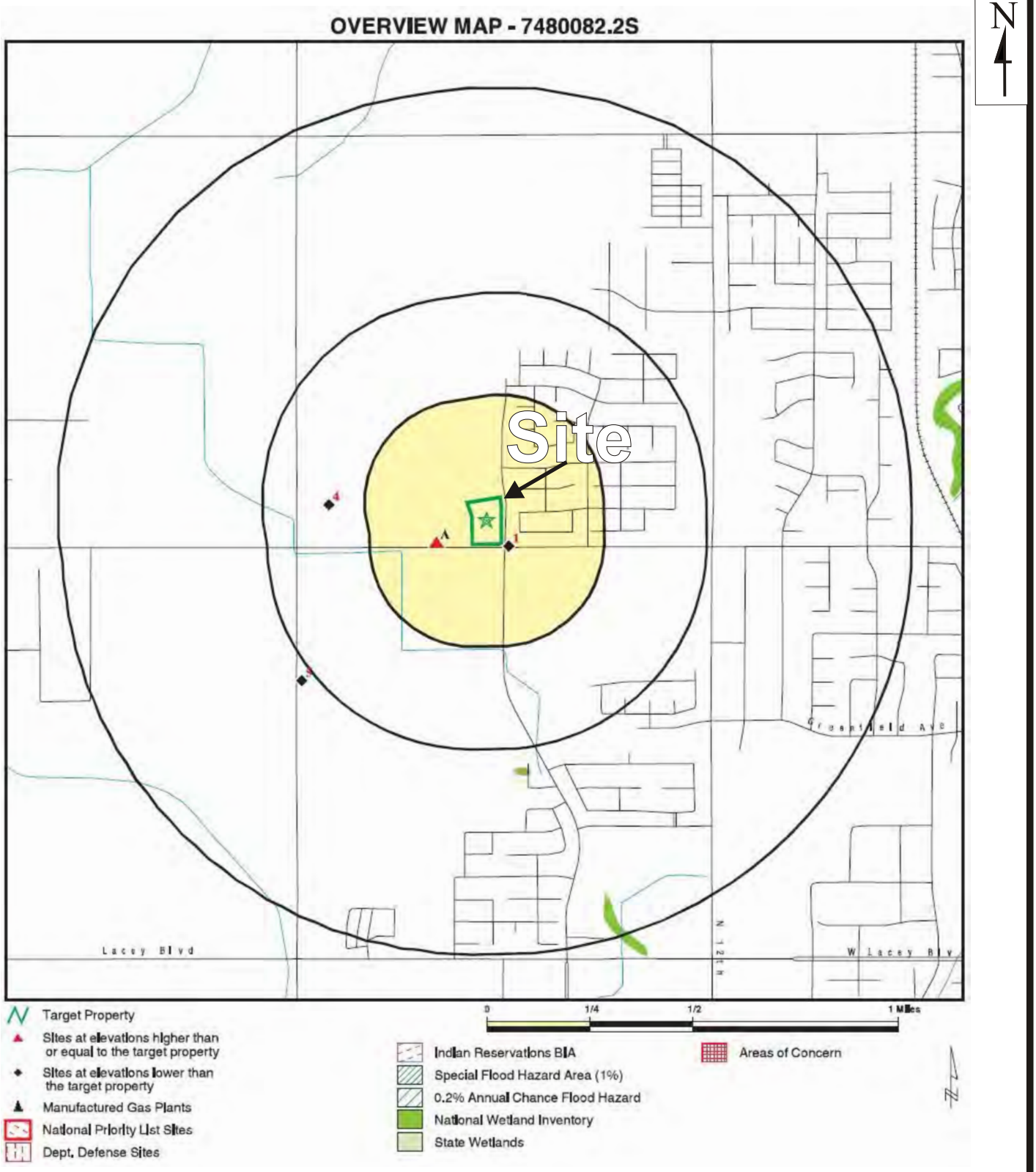
Picture 8. Looking south from the NEC of the site.

Picture 9. Looking north from the SEC of the site.

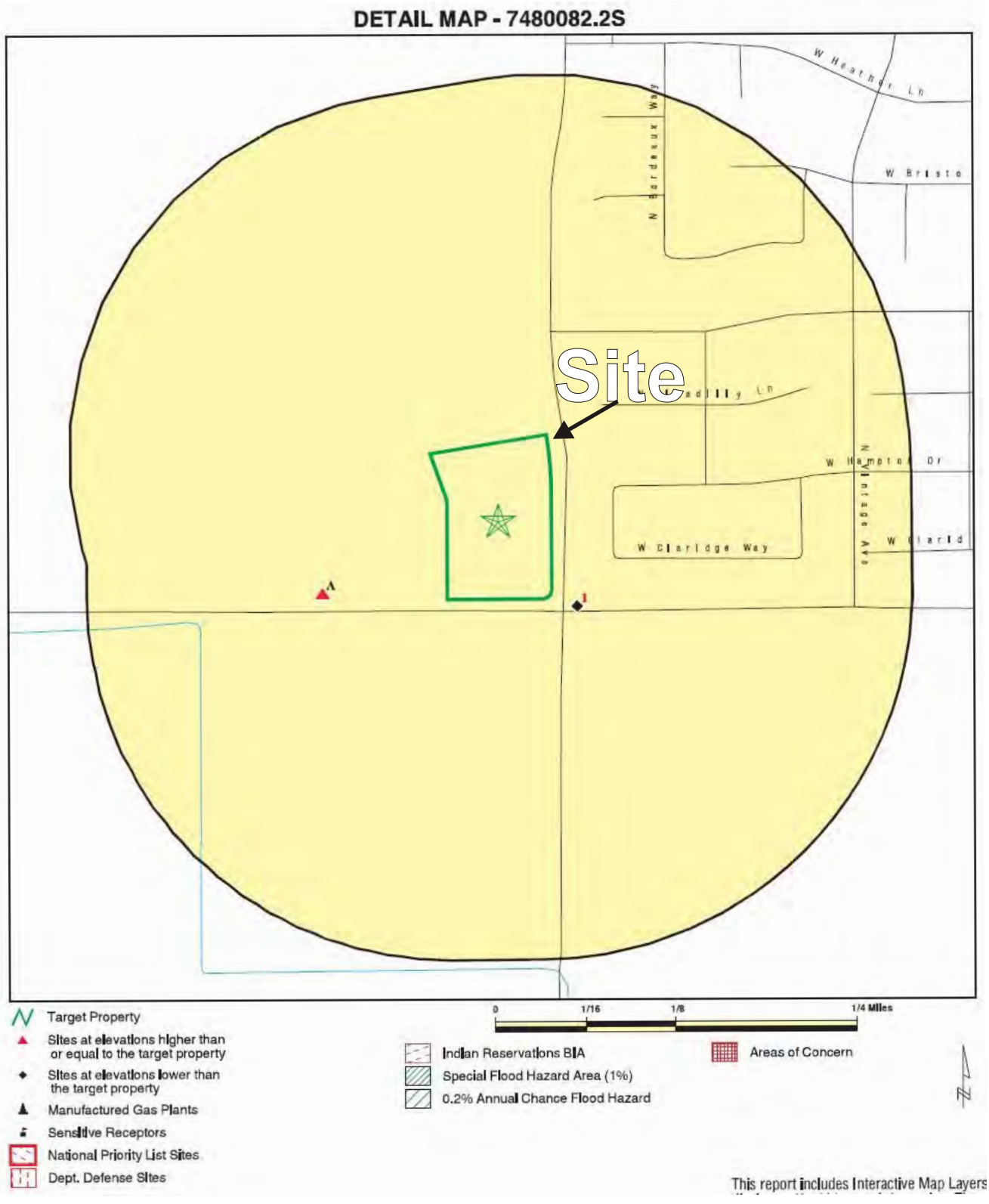
Picture 10. Looking west from the SEC of the site.



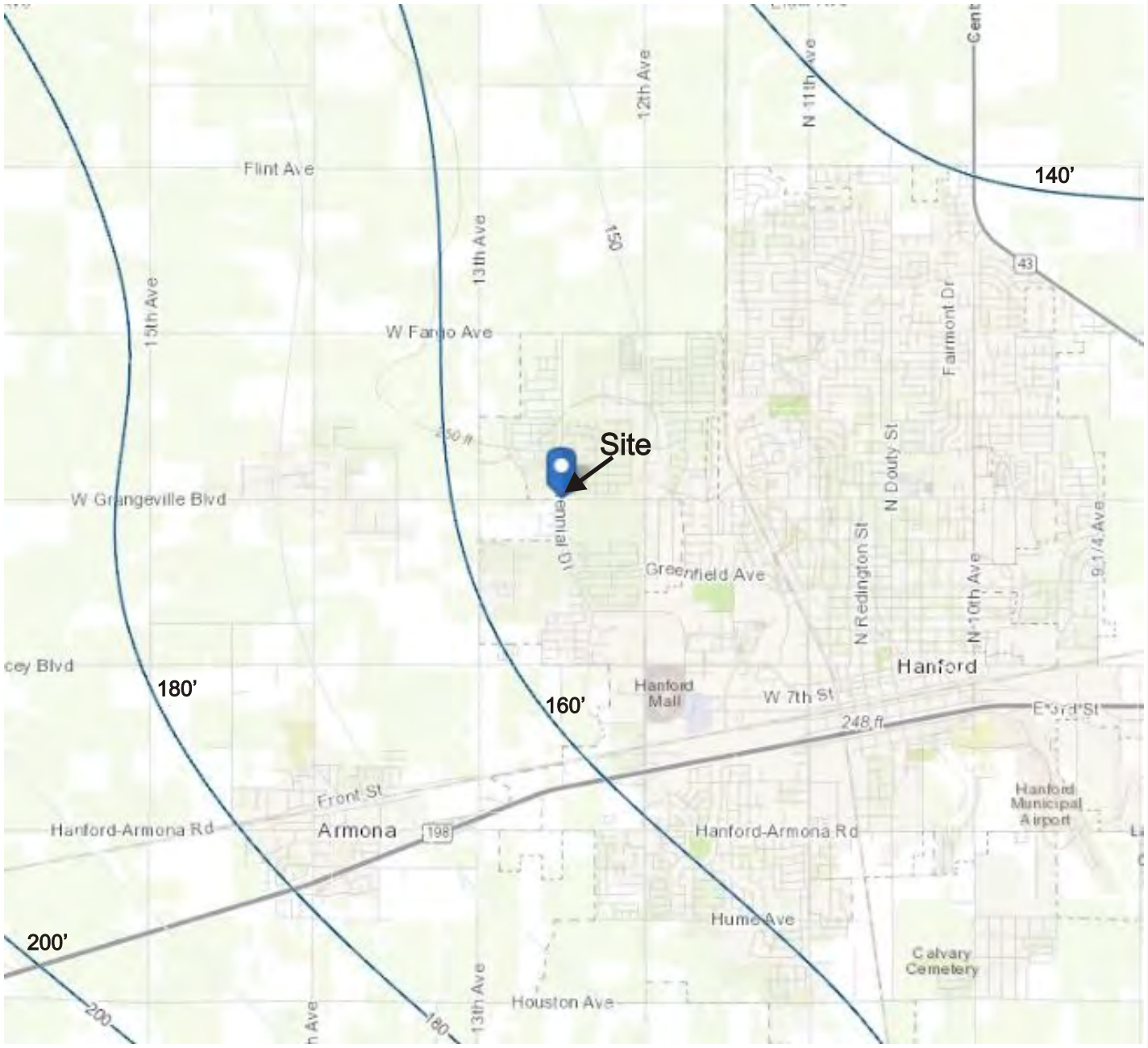
SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **Physical Settings Source Map**	**PLATE** **4**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **OVERVIEW MAP**	**PLATE** **5**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **DETAIL MAP**	**PLATE** **6**



Source: Department of Water Resources (DWR), SGMA Data Viewer, Spring 2023 Depth To Water Levels

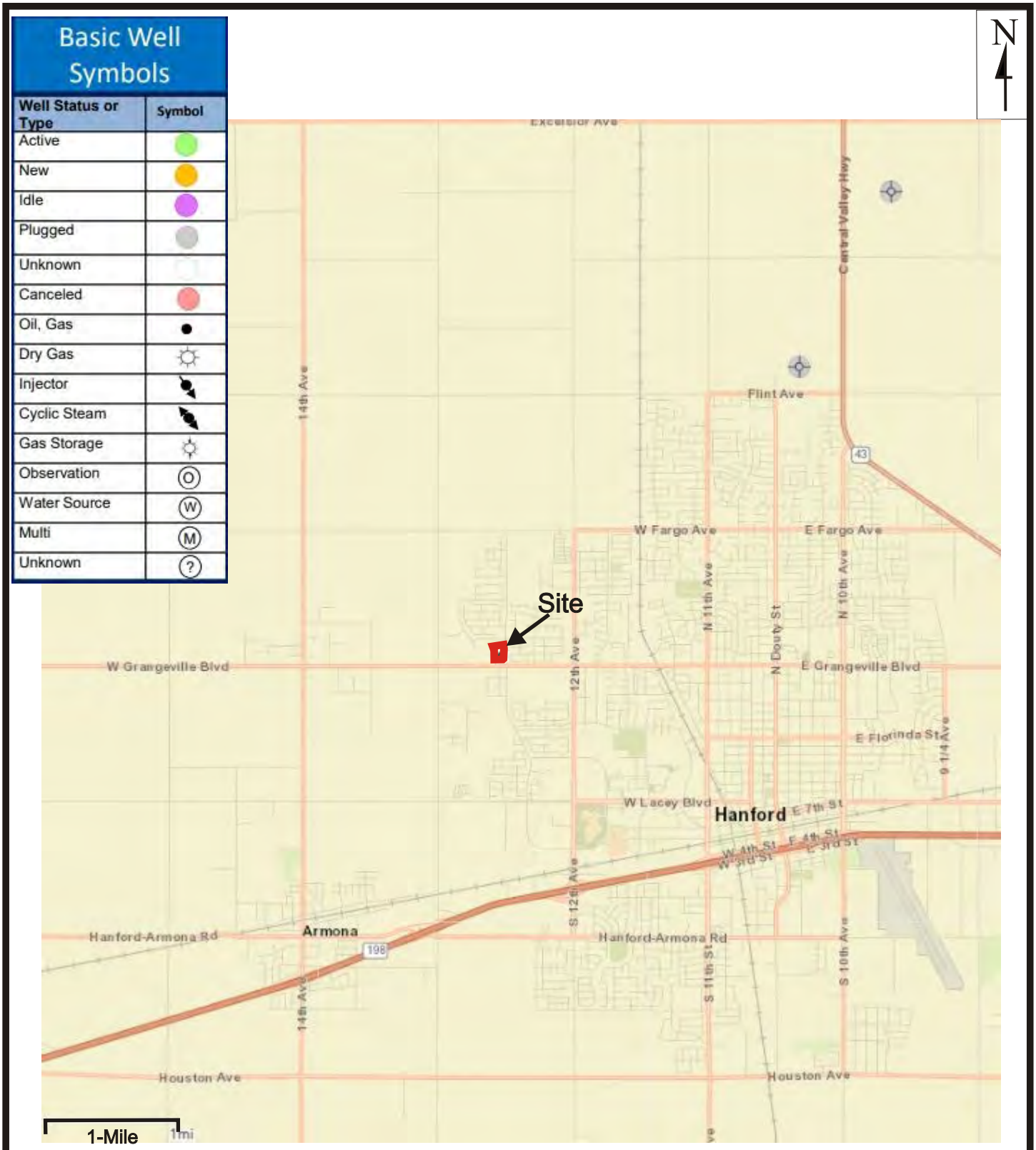
SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 11/23
PROJECT: 23-19311

Property
NW of Grangerville Blvd. & Centennial Drive
Hanford, Kings County, California

Depth To Water Map

PLATE
7



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 11/23
PROJECT: 23-19311

Property
NW of Grangerville Blvd. & Centennial Drive
Hanford, Kings County, California

CalGEM OIL WELL MAP

8

Appendix A

EDR Summary Radius Map Report, EDR Historical Topographic Map Report, Certified Sanborn Map Report, EDR City Directory Search Abstract, and EDR Vapor Encroachment Screening Report

Hanford Site
NW of Grangeville & Centennial
Hanford, CA 93230

Inquiry Number: 7480082.2s
October 25, 2023

EDR Summary Radius Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527 - 21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E2247 - 16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E1528 - 22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NW OF GRANGEVILLE & CENTENNIAL
HANFORD, CA 93230

COORDINATES

Latitude (North):	36.3435380 - 36° 20' 36.73''
Longitude (West):	119.6827150 - 119° 40' 57.77''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	259234.1
UTM Y (Meters):	4025193.2
Elevation:	249 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20200705
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NW OF GRANGEVILLE & CENTENNIAL
HANFORD, CA 93230

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	FAITH FARMS-SITE #2	12494 GRANGEVILLE	CUPA Listings	Lower	106, 0.020, SE
A2	JOSH ROGERS	12700 GRANGEVILLE BL	RCRA NonGen / NLR	Higher	457, 0.087, WSW
A3	JOSH ROGERS	12700 GRANGEVILLE BL	RCRA NonGen / NLR	Higher	457, 0.087, WSW
4	FRONTIER ELEMENTARY	NE CORNER OF GRANGEV	ENVIROSTOR, SCH	Lower	1778, 0.337, West
5	CANADY 13TH AVENUE S	9431 13TH AVENUE	ENVIROSTOR, VCP	Lower	2808, 0.532, SW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: A review of the ENVIROSTOR list, as provided by EDR, and dated 07/24/2023 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
FRONTIER ELEMENTARY Facility Id: 60000380 Status: No Further Action	***NE CORNER OF GRANGEV***	***W 1/4 - 1/2 (0.337 mi.)***	***4***	***9***
CANADY 13TH AVENUE S Facility Id: 16010001 Status: No Further Action	***9431 13TH AVENUE***	***SW 1/2 - 1 (0.532 mi.)***	***5***	***9***

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

RCRA NonGen / NLR: A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 07/24/2023 has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JOSH ROGERS EPA ID:: CAC003001073	12700 GRANGEVILLE BL	WSW 0 - 1/8 (0.087 mi.)	A2	9
JOSH ROGERS	12700 GRANGEVILLE BL	WSW 0 - 1/8 (0.087 mi.)	A3	9

EXECUTIVE SUMMARY

EPA ID:: CAC002997706

CUPA Listings: A review of the CUPA Listings list, as provided by EDR, has revealed that there is 1 CUPA Listings site within approximately 0.25 miles of the target property.

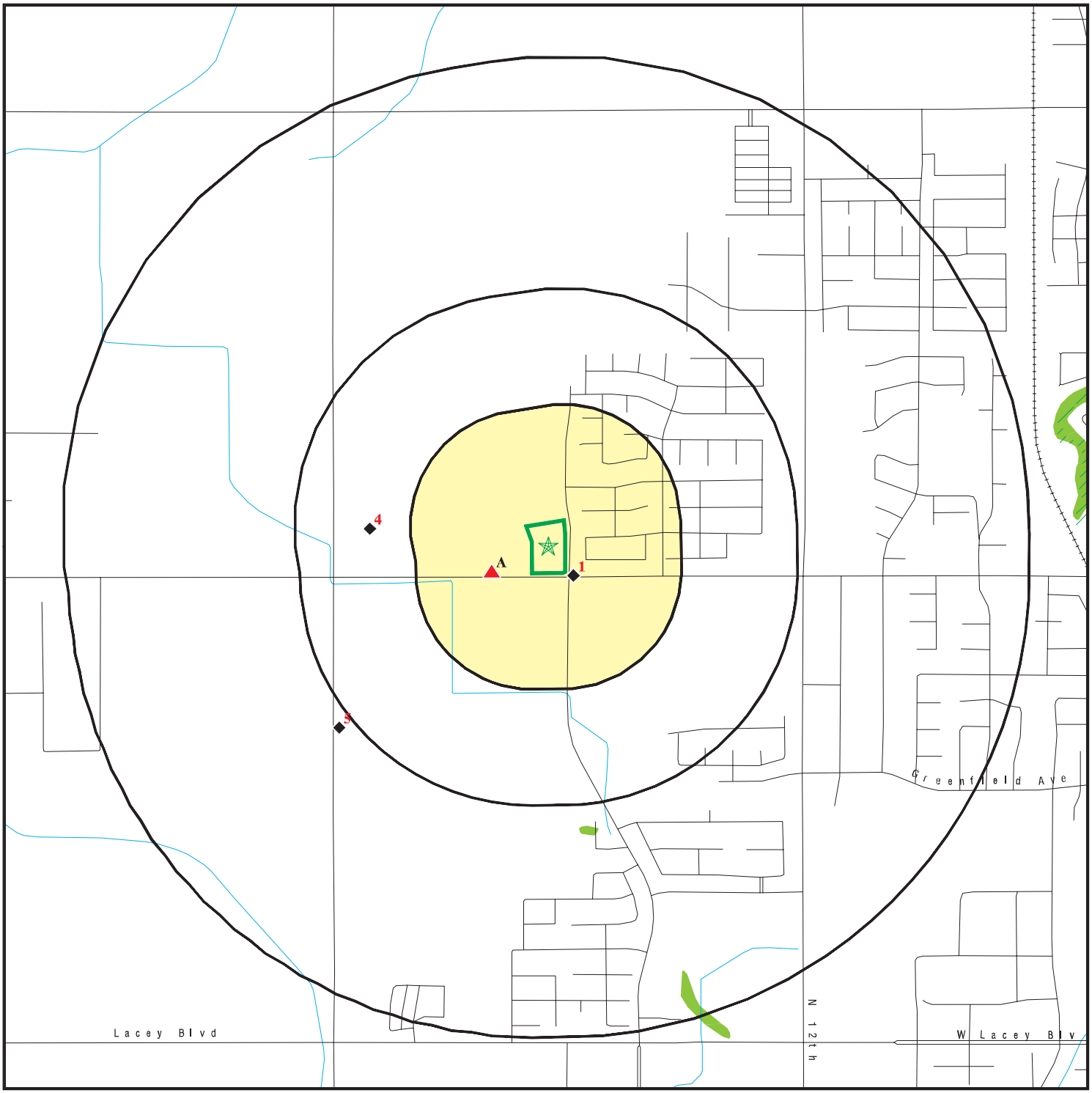
Lower Elevation	Address	Direction / Distance	Map ID	Page
FAITH FARMS-SITE #2	12494 GRANGEVILLE	SE 0 - 1/8 (0.020 mi.)	1	9

Database: CUPA KINGS, Date of Government Version: 12/03/2020
Status: I
Facility Id: FA0000342

Count: 14 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HANFORD	S108723595		11TH AVE, 1/4 MI N OF ELDER RD	93230	CDL
HANFORD	S107534515		4TH AVE, NORTH OF FLINT AVE		CDL
HANFORD	S121674847	SOFTBALL COMPLEX HANFORD LEARNING	CENTENNIAL DR & GREENFIELD AVE	93230	CIWQS
HANFORD	S121642893	HANFORD AUTO MALL	NW CORNER OF 12TH & HWY 198	93230	CIWQS
HANFORD	S121628952	CHILIS RESTAURANT HANFORD CALIFORN	SW CORNER OF 12TH AVE AND MALL	93230	CIWQS
HANFORD	S121642895	HANFORD BUSINESS PARK	SE CORNER OF BAILEY & MALL DR	93230	CIWQS
HANFORD	S130242991	HANFORD HS NEIGHBOR BOWL	120 GRANGEVILLE BLVD	93230	CIWQS
HANFORD	S107538902		IDAHO AVE, +/- MI E OF 4TH AVE	93230	CDL
HANFORD	S107539484		NAPLE ST, 1/2 N MI OF EXCELSIO	93230	CDL
HANFORD	S121642902	HANFORD SAFETY CENTER	NEC OF 13TH AVE & LACEY BLVD	93230	CIWQS
HANFORD	S107539973		ON NO GRANGEVILLE RD, 1 MI E O	93230	CDL
HANFORD	S121653967	MARKETPLACE HANFORD	NWC 12TH AVE & CENTENNIAL AVE	93230	CIWQS
KINGS COUNTY	S107539476		N SIDE OF DOVER AVE/E OF HWY 4		CDL
TRAVER	S107534514		4TH AVE (NORTH OF DENVER)	93230	CDL

OVERVIEW MAP - 7480082.2S

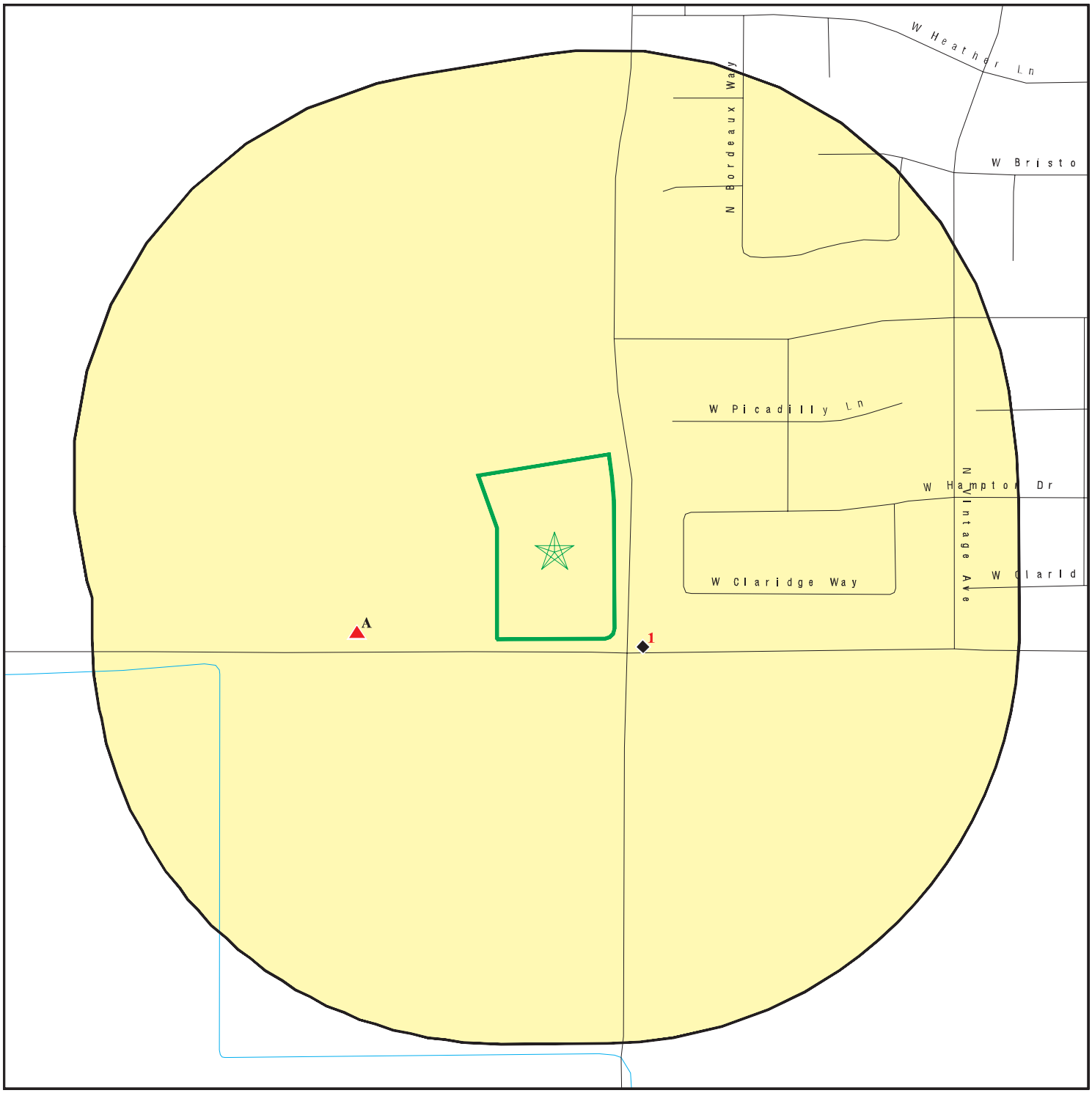


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Hanford Site	CLIENT:	Soils Engineering, Inc.
ADDRESS:	NW of Grangeville & Centennial Hanford CA 93230	CONTACT:	Robert Becker
LAT/LONG:	36.343538 / 119.682715	INQUIRY #:	7480082.2s
		DATE:	October 25, 2023 2:15 pm

DETAIL MAP - 7480082.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
Sensitive Receptors
National Priority List Sites
Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA
Special Flood Hazard Area (1%)
0.2% Annual Chance Flood Hazard
Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Hanford Site	CLIENT:	Soils Engineering, Inc.
ADDRESS:	NW of Grangeville & Centennial Hanford CA 93230	CONTACT:	Robert Becker
LAT/LONG:	36.343538 / 119.682715	INQUIRY #:	7480082.2s
		DATE:	October 25, 2023 2:17 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	1	1	NR	2
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		2	0	NR	NR	NR	2
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
MINES MRDS	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS TRIS	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
BIOSOLIDS	0.001		0	NR	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
CHROME PLATING	0.500		0	0	0	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		1	0	NR	NR	NR	1
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWTS	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
HAZMAT	0.250		0	0	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	3	0	1	1	0	5

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
SE
< 1/8
0.020 mi.
106 ft.

Relative:
Lower

FAITH FARMS-SITE #2
12494 GRANGEVILLE
HANFORD, CA 93230

CUPA Listings **S118585402**
N/A

Click here for full text details

CUPA Listings
Facility Id FA0000342
Status I

A2
WSW
< 1/8
0.087 mi.
457 ft.

Relative:
Higher

JOSH ROGERS
12700 GRANGEVILLE BLVD
HANFORD, CA 93230

RCRA NonGen / NLR **1024781106**
CAC003001073

Click here for full text details

RCRA NonGen / NLR
EPA Id CAC003001073

A3
WSW
< 1/8
0.087 mi.
457 ft.

Relative:
Higher

JOSH ROGERS
12700 GRANGEVILLE BLVD
HANFORD, CA 93230

RCRA NonGen / NLR **1024777762**
CAC002997706

Click here for full text details

RCRA NonGen / NLR
EPA Id CAC002997706

4
West
1/4-1/2
0.337 mi.
1778 ft.

Relative:
Lower

FRONTIER ELEMENTARY SCHOOL
NE CORNER OF GRANGEVILLE AND 13TH
HANFORD, CA 93230

ENVIROSTOR **S108054430**
SCH **N/A**

Click here for full text details

ENVIROSTOR
Facility Id 60000380
Status No Further Action

SCH
Facility Id 60000380
Status No Further Action

5
SW
1/2-1
0.532 mi.
2808 ft.

Relative:
Lower

CANADY 13TH AVENUE SITE
9431 13TH AVENUE
HANFORD, CA 93230

ENVIROSTOR **S102008344**
VCP **N/A**

Click here for full text details

ENVIROSTOR
Facility Id 16010001

CANADY 13TH AVENUE SITE (Continued) **S102008344**

Status No Further Action

VCP

Facility Id 16010001
Status No Further Action

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	AQUEOUS FOAM	Former Fire Training Facility Assessments Listing	State Water Resources Control Board	06/02/2023	06/02/2023	08/23/2023
CA	AST	Aboveground Petroleum Storage Tank Facilities	California Environmental Protection Agency	07/06/2016	07/12/2016	09/19/2016
CA	BROWNFIELDS	Considered Brownfieds Sites Listing	State Water Resources Control Board	06/14/2023	06/14/2023	09/06/2023
CA	CA BOND EXP. PLAN	Bond Expenditure Plan	Department of Health Services	01/01/1989	07/27/1994	08/02/1994
CA	CA FID UST	Facility Inventory Database	California Environmental Protection Agency	10/31/1994	09/05/1995	09/29/1995
CA	CDL	Clandestine Drug Labs	Department of Toxic Substances Control	12/31/2020	11/30/2022	02/09/2023
CA	CERS	CalEPA Regulated Site Portal Data	California Environmental Protection Agency	07/17/2023	07/18/2023	10/06/2023
CA	CERS HAZ WASTE	California Environmental Reporting System Hazardous Waste	CalEPA	07/17/2023	07/18/2023	10/06/2023
CA	CERS TANKS	California Environmental Reporting System (CERS) Tanks	California Environmental Protection Agency	07/17/2023	07/18/2023	10/06/2023
CA	CHMIRS	California Hazardous Material Incident Report System	Office of Emergency Services	06/01/2023	07/18/2023	10/05/2023
CA	CHROME PLATING	Chrome Plating Facilities Listing	State Water Resources Control Board	06/08/2023	06/08/2023	09/26/2023
CA	CIWQS	California Integrated Water Quality System	State Water Resources Control Board	05/25/2023	05/25/2023	08/14/2023
CA	CORTESE	"Cortese" Hazardous Waste & Substances Sites List	CAL EPA/Office of Emergency Information	06/14/2023	06/14/2023	09/06/2023
CA	CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	CUPA LIVERMORE-PLEASANTON	CUPA Facility Listing	Livermore-Pleasanton Fire Department	03/31/2023	05/08/2023	07/31/2023
CA	DEED	Deed Restriction Listing	DTSC and SWRCB	05/25/2023	05/25/2023	08/14/2023
CA	DRYCLEAN AMADOR	Amador Air District Drycleaner Facility Listing	Amador Air Quality Management District	04/26/2023	04/27/2023	07/13/2023
CA	DRYCLEAN AVAQMD	Antelope Valley Air Quality Management District Drycleaner L	Antelope Valley Air Quality Management Distri	05/22/2023	05/24/2023	08/14/2023
CA	DRYCLEAN BAY AREA DIST	Bay Area Air Quality Management District Drycleaner Facility	Bay Area Air Quality Management District	02/20/2019	05/30/2019	05/01/2023
CA	DRYCLEAN BUTTE CO DIST	Butte County Air Quality Management DistrictDrycleaner Facil	Butte County Air Quality Management District	12/31/2018	04/23/2019	05/01/2023
CA	DRYCLEAN CALAVERAS CO DIST	Calaveras County Environmental Management Agency Drycleaner	Calaveras County Environmental Management Age	06/17/2019	06/19/2019	05/01/2023
CA	DRYCLEAN EAST KERN DIST	Eastern Kern Air Pollution Control District District Dryclea	Eastern Kern Air Pollution Control District	01/12/2023	04/26/2023	07/14/2023
CA	DRYCLEAN FEATHER RIVER DIST	Feather River Air Quality Management District Drycleaner Fac	Feather River Air Quality Management District	03/08/2023	03/09/2023	06/05/2023
CA	DRYCLEAN GLENN CO DIST	Glenn County Air Pollution Control District Drycleaner Facil	Glenn County Air Pollution Control District	05/02/2023	05/03/2023	07/25/2023
CA	DRYCLEAN GRANT	Grant Recipients List	California Air Resources Board	12/31/2020	02/04/2021	05/01/2023
CA	DRYCLEAN IMPERIAL CO DIST	Imperial County Air Pollution Control District Drycleaner Fa	Imperial County Air Pollution Control Distric	04/25/2023	04/26/2023	07/14/2023
CA	DRYCLEAN LAKE CO DIST	Lake County Air Quality Management District Drycleaner Facil	Lake County Air Quality Management District	04/29/2019	05/07/2019	05/01/2023
CA	DRYCLEAN MENDO CO DIST	Mendocino County Air Quality Management District Drycleaner	Mendocino County Air Quality Management Distr	04/27/2023	04/28/2023	07/14/2023
CA	DRYCLEAN MOJAVE DESERT DIST	Mojave Desert Air Quality Management District Drycleaner Fac	Mojave Desert Air Quality Management District	04/26/2023	04/27/2023	07/14/2023
CA	DRYCLEAN MONTEREY BAY DIST	Monterey Bay Air Quality Management District Drycleaner Faci	Monterey Bay Air Quality Management District	04/25/2023	04/26/2023	07/14/2023
CA	DRYCLEAN NO COAST UNIFIED DIST	North Coast Unified Air Quality Management District Dryclean	North Coast Unified Air Quality Management Di	11/30/2016	04/19/2019	05/01/2023
CA	DRYCLEAN NO SIERRA DIST	Northern Sierra Air Quality Management District Drycleaner F	Northern Sierra Air Quality Management Distri	05/07/2019	05/07/2019	05/01/2023
CA	DRYCLEAN NO SONOMA CO DIST	Norther Sonoma County County Air Pollution Control District	Santa Barbara County Air Pollution Control Di	04/17/2019	04/17/2019	05/01/2023
CA	DRYCLEAN PLACER CO DIST	Placer County Air Quality Management District Drycleaner Fac	Placer County Air Quality Management District	05/15/2023	05/17/2023	08/14/2023
CA	DRYCLEAN SACRAMENTO METRO DIST	Sacramento Metropolitan Air Quality Management DistrictDrycl	Sacramento Metropolitan Air Quality Managemen	04/25/2023	04/28/2023	07/19/2023
CA	DRYCLEAN SAN DIEGO CO DIST	San Diego County Air Pollution Control District Drycleaner F	San Diego County Air Pollution Control Distri	02/01/2019	05/01/2019	05/01/2023
CA	DRYCLEAN SAN JOAQ VAL DIST	San Joaquin Valley Air Pollution Control District District D	San Joaquin Valley Air Pollution Control Dist	05/24/2023	05/30/2023	08/21/2023
CA	DRYCLEAN SAN LUIS OB CO DIST	San Luis Obispo County Air Pollution Control District Drycle	San Luis Obispo County Air Pollution Control	07/26/2023	07/27/2023	10/13/2023
CA	DRYCLEAN SANTA BARB CO DIST	Santa Barbara County Air Pollution Control District Dryclean	Santa Barbara County Air Pollution Control Di	02/19/2019	04/17/2019	05/01/2023
CA	DRYCLEAN SHASTA CO DIST	Shasta County Air Quality Management District District Drycl	Shasta County Air Quality Management District	04/26/2023	04/27/2023	07/14/2023
CA	DRYCLEAN SOUTH COAST	South Coast Air Quality Management District Drycleaner Listi	South Coast Air Quality Management District	05/17/2023	05/18/2023	08/09/2023
CA	DRYCLEAN TEHAMA CO DIST	Tehama County Air Pollution Control District Drycleaner Faci	Tehama County Air Pollution Control District	04/24/2019	04/24/2019	05/01/2023
CA	DRYCLEAN VENTURA CO DIST	Drycleaner Facility Listing	Ventura County Air Pollution Control District	04/16/2019	04/17/2019	05/01/2023
CA	DRYCLEAN YOLO-SOLANO DIST	Yolo-Solano Air Quality Management District Drycleaner Facil	Yolo-Solano Air Quality Management District	04/25/2023	04/27/2023	07/14/2023
CA	DRYCLEANERS	Cleaner Facilities	Department of Toxic Substance Control	08/27/2021	09/01/2021	11/19/2021
CA	EMI	Emissions Inventory Data	California Air Resources Board	12/31/2021	06/09/2023	08/30/2023
CA	ENF	Enforcement Action Listing	State Water Resoruces Control Board	07/17/2023	07/18/2023	10/05/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	ENVIROSTOR	EnviroStor Database	Department of Toxic Substances Control	07/24/2023	07/25/2023	10/11/2023
CA	Financial Assurance 1	Financial Assurance Information Listing	Department of Toxic Substances Control	09/13/2023	09/14/2023	09/21/2023
CA	Financial Assurance 2	Financial Assurance Information Listing	California Integrated Waste Management Board	05/04/2023	05/25/2023	08/16/2023
CA	HAULERS	Registered Waste Tire Haulers Listing	Integrated Waste Management Board	11/16/2022	11/22/2022	02/13/2023
CA	HAZNET	Facility and Manifest Data	California Environmental Protection Agency	12/31/2021	07/05/2022	09/19/2022
CA	HIST CAL-SITES	Calsites Database	Department of Toxic Substance Control	08/08/2005	08/03/2006	08/24/2006
CA	HIST CORTESE	Hazardous Waste & Substance Site List	Department of Toxic Substances Control	04/01/2001	01/22/2009	04/08/2009
CA	HIST UST	Hazardous Substance Storage Container Database	State Water Resources Control Board	10/15/1990	01/25/1991	02/12/1991
CA	HWP	EnviroStor Permitted Facilities Listing	Department of Toxic Substances Control	05/15/2023	05/16/2023	08/09/2023
CA	HWT	Registered Hazardous Waste Transporter Database	Department of Toxic Substances Control	06/29/2023	06/29/2023	09/19/2023
CA	HWTS	Hazardous Waste Tracking System	Department of Toxic Substances Control	04/13/2023	04/18/2023	07/10/2023
CA	ICE	Inspection, Compliance and Enforcement	Department of Toxic Subsances Control	05/15/2023	05/16/2023	08/09/2023
CA	LDS	Land Disposal Sites Listing (GEOTRACKER)	State Water Qualilty Control Board	06/05/2023	06/05/2023	08/25/2023
CA	LIENS	Environmental Liens Listing	Department of Toxic Substances Control	06/06/2023	06/07/2023	08/25/2023
CA	LUST	Leaking Underground Fuel Tank Report (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	LUST REG 1	Active Toxic Site Investigation	California Regional Water Quality Control Boa	02/01/2001	02/28/2001	03/29/2001
CA	LUST REG 2	Fuel Leak List	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
CA	LUST REG 3	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	05/19/2003	05/19/2003	06/02/2003
CA	LUST REG 4	Underground Storage Tank Leak List	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	LUST REG 5	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	07/01/2008	07/22/2008	07/31/2008
CA	LUST REG 6L	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	09/09/2003	09/10/2003	10/07/2003
CA	LUST REG 6V	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	06/07/2005	06/07/2005	06/29/2005
CA	LUST REG 7	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	02/26/2004	02/26/2004	03/24/2004
CA	LUST REG 8	Leaking Underground Storage Tanks	California Regional Water Quality Control Boa	02/14/2005	02/15/2005	03/28/2005
CA	LUST REG 9	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	03/01/2001	04/23/2001	05/21/2001
CA	MCS	Military Cleanup Sites Listing (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/25/2023
CA	MILITARY PRIV SITES	Military Privatized Sites (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	MILITARY UST SITES	Military UST Sites (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	MINES	Mines Site Location Listing	Department of Conservation	06/02/2023	06/02/2023	08/23/2023
CA	MWMP	Medical Waste Management Program Listing	Department of Public Health	05/08/2023	05/25/2023	08/16/2023
CA	NON-CASE INFO	Non-Case Information Sites (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	NOTIFY 65	Proposition 65 Records	State Water Resources Control Board	06/06/2023	06/07/2023	08/25/2023
CA	NPDES	NPDES Permits Listing	State Water Resources Control Board	05/08/2023	05/08/2023	07/31/2023
CA	OTHER OIL GAS	Other Oil & Gas Projects Sites (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	PEST LIC	Pesticide Regulation Licenses Listing	Department of Pesticide Regulation	05/25/2023	05/25/2023	08/16/2023
CA	PFAS	PFAS Contamination Site Location Listing	State Water Resources Control Board	06/02/2023	06/02/2023	08/23/2023
CA	PROC	Certified Processors Database	Department of Conservation	06/02/2023	06/02/2023	08/23/2023
CA	PROD WATER PONDS	Produced Water Ponds Sites (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	PROJECT	Project Sites (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	RESPONSE	State Response Sites	Department of Toxic Substances Control	07/24/2023	07/25/2023	10/11/2023
CA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Resources Recycling and Recover		07/01/2013	01/13/2014
CA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	State Water Resources Control Board		07/01/2013	12/30/2013
CA	SAMPLING POINT	Sampling Point ? Public Sites (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	SAN FRANCISCO AST	Aboveground Storage Tank Site Listing	San Francisco County Department of Public Hea	04/28/2023	04/28/2023	07/14/2023
CA	SAN JOSE HAZMAT	Hazardous Material Facilities	City of San Jose Fire Department	11/03/2020	11/05/2020	01/26/2021
CA	SANTA CRUZ CO SITE MITI	Site Mitigation Listing	Santa Cruz Environmental Health Services	12/03/2018	06/23/2023	07/13/2023
CA	SCH	School Property Evaluation Program	Department of Toxic Substances Control	07/24/2023	07/25/2023	10/11/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	SLIC REG 1	Active Toxic Site Investigations	California Regional Water Quality Control Boa	04/03/2003	04/07/2003	04/25/2003
CA	SLIC REG 2	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board San Fran	09/30/2004	10/20/2004	11/19/2004
CA	SLIC REG 3	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	05/18/2006	05/18/2006	06/15/2006
CA	SLIC REG 4	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Region Water Quality Control Board Los Angele	11/17/2004	11/18/2004	01/04/2005
CA	SLIC REG 5	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board Central	04/01/2005	04/05/2005	04/21/2005
CA	SLIC REG 6L	SLIC Sites	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	SLIC REG 6V	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board, Victorv	05/24/2005	05/25/2005	06/16/2005
CA	SLIC REG 7	SLIC List	California Regional Quality Control Board, Co	11/24/2004	11/29/2004	01/04/2005
CA	SLIC REG 8	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Region Water Quality Control Board	04/03/2008	04/03/2008	04/14/2008
CA	SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	09/10/2007	09/11/2007	09/28/2007
CA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	06/06/2012	01/03/2013	02/22/2013
CA	SWEEPS UST	SWEEPS UST Listing	State Water Resources Control Board	06/01/1994	07/07/2005	08/11/2005
CA	SWF/LF (SWIS)	Solid Waste Information System	Department of Resources Recycling and Recover	05/08/2023	05/08/2023	07/31/2023
CA	SWRCY	Recycler Database	Department of Conservation	06/02/2023	06/02/2023	08/23/2023
CA	TOXIC PITS	Toxic Pits Cleanup Act Sites	State Water Resources Control Board	07/01/1995	08/30/1995	09/26/1995
CA	UIC	UIC Listing	Deaprtment of Conservation	06/02/2023	06/02/2023	08/23/2023
CA	UIC GEO	Underground Injection Control Sites (GEOTRACKER)	State Water Resource Control Board	06/05/2023	06/05/2023	08/28/2023
CA	UST	Active UST Facilities	SWRCB	06/05/2023	06/05/2023	08/28/2023
CA	UST CLOSURE	Proposed Closure of Underground Storage Tank (UST) Cases	State Water Resources Control Board	05/31/2023	06/02/2023	08/23/2023
CA	VCP	Voluntary Cleanup Program Properties	Department of Toxic Substances Control	07/24/2023	07/25/2023	10/11/2023
CA	WASTEWATER PITS	Oil Wastewater Pits Listing	RWQCB, Central Valley Region	02/11/2021	07/01/2021	09/29/2021
CA	WDR	Waste Discharge Requirements Listing	State Water Resources Control Board	06/02/2023	06/02/2023	08/23/2023
CA	WDS	Waste Discharge System	State Water Resources Control Board	06/19/2007	06/20/2007	06/29/2007
CA	WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)	State Water Resources Control Board	06/05/2023	06/05/2023	08/28/2023
CA	WIP	Well Investigation Program Case List	Los Angeles Water Quality Control Board	07/03/2009	07/21/2009	08/03/2009
CA	WMUDS/SWAT	Waste Management Unit Database	State Water Resources Control Board	04/01/2000	04/10/2000	05/10/2000
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	06/13/2023	06/14/2023	08/14/2023
US	AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing	Environmental Protection Agency	07/05/2023	07/06/2023	09/25/2023
US	BIOSOLIDS	ICIS-NPDES Biosolids Facility Data	Environmental Protection Agency	07/16/2023	07/18/2023	08/28/2023
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2021	03/09/2023	03/20/2023
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2021	04/14/2023	07/10/2023
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	01/12/2017	03/05/2019	11/11/2019
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	06/30/2023	07/19/2023	10/10/2023
US	CORRACTS	Corrective Action Report	EPA	07/24/2023	07/31/2023	08/14/2023
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/06/2021	05/21/2021	08/11/2021
US	DOD	Department of Defense Sites	USGS	06/07/2021	07/13/2021	03/09/2022
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	01/02/2020	01/28/2020	04/17/2020
US	Delisted NPL	National Priority List Deletions	EPA	09/19/2023	10/03/2023	10/19/2023
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	06/24/2023	06/29/2023	09/25/2023
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	06/12/2023	06/20/2023	08/14/2023
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	06/23/2023	06/23/2023	09/20/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	04/02/2018	04/11/2018	11/06/2019
US	FEMA UST	Underground Storage Tank Listing	FEMA	03/08/2023	03/09/2023	05/30/2023
US	FINDS	Facility Index System/Facility Registry System	EPA	05/04/2023	05/25/2023	07/24/2023
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	08/07/2023	08/15/2023	10/10/2023
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	08/14/2023	08/15/2023	10/19/2023
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	03/03/2023	03/03/2023	06/09/2023
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	06/19/2023	06/23/2023	09/20/2023
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/20/2023	05/09/2023	07/14/2023
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	04/20/2023	05/09/2023	07/14/2023
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	04/20/2023	05/09/2023	07/14/2023
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	04/14/2023	05/09/2023	07/14/2023
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	04/26/2023	05/09/2023	07/14/2023
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	04/25/2023	05/09/2023	07/14/2023
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	04/19/2023	05/09/2023	07/14/2023
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	04/19/2023	05/09/2023	07/14/2023
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	04/20/2023	05/09/2023	07/14/2023
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	04/20/2023	05/09/2023	07/14/2023
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	04/20/2023	05/09/2023	07/14/2023
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/14/2023	05/09/2023	07/14/2023
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	04/26/2023	05/09/2023	07/14/2023
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	04/25/2023	05/09/2023	07/14/2023
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	04/20/2023	05/09/2023	07/14/2023
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	04/19/2023	05/09/2023	07/14/2023
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	09/19/2023	10/03/2023	10/19/2023
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	09/19/2023	10/03/2023	10/19/2023
US	LUCIS	Land Use Control Information System	Department of the Navy	08/03/2023	08/07/2023	10/10/2023
US	MINES MRDS	Mineral Resources Data System	USGS	08/23/2022	11/22/2022	02/28/2023
US	MINES VIOLATIONS	MSHA Violation Assessment Data	DOL, Mine Safety & Health Admi	07/05/2023	07/05/2023	09/25/2023
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	07/20/2023	09/01/2023	09/20/2023
US	NPL	National Priority List	EPA	09/19/2023	10/03/2023	10/19/2023
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	03/20/2023	04/04/2023	06/09/2023
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	09/13/2019	11/06/2019	02/10/2020
US	PCS	Permit Compliance System	EPA, Office of Water	07/14/2011	08/05/2011	09/29/2011
US	PCS ENF	Enforcement data	EPA	12/31/2014	02/05/2015	03/06/2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	PFAS ATSDR	PFAS Contamination Site Location Listing	Department of Health & Human Services	06/24/2020	03/17/2021	11/08/2022
US	PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing	Environmental Protection Agency	07/05/2023	07/05/2023	09/25/2023
US	PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing	Environmental Protection Agency	07/05/2023	07/05/2023	09/25/2023
US	PFAS FEDERAL SITES	Federal Sites PFAS Information	Environmental Protection Agency	07/05/2023	07/05/2023	10/02/2023
US	PFAS NPDES	Clean Water Act Discharge Monitoring Information	Environmental Protection Agency	07/05/2023	07/05/2023	10/02/2023
US	PFAS NPL	Superfund Sites with PFAS Detections Information	Environmental Protection Agency	07/05/2023	07/05/2023	10/02/2023
US	PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing	Environmental Protection Agency	07/05/2023	07/05/2023	09/25/2023
US	PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing	Environmental Protection Agency	07/05/2023	07/05/2023	10/02/2023
US	PFAS TRIS	List of PFAS Added to the TRI	Environmental Protection Agency	07/05/2023	07/05/2023	10/02/2023
US	PFAS TSCA	PFAS Manufacture and Imports Information	Environmental Protection Agency	07/05/2023	07/05/2023	10/02/2023
US	PFAS WQP	Ambient Environmental Sampling for PFAS	Environmental Protection Agency	09/23/2023	10/03/2023	10/10/2023
US	PRP	Potentially Responsible Parties	EPA	09/19/2023	10/03/2023	10/19/2023
US	Proposed NPL	Proposed National Priority List Sites	EPA	09/19/2023	10/03/2023	10/19/2023
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	07/24/2023	07/31/2023	08/14/2023
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	07/24/2023	07/31/2023	08/14/2023
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	07/24/2023	07/31/2023	08/14/2023
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	07/24/2023	07/31/2023	08/14/2023
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	07/24/2023	07/31/2023	08/14/2023
US	RMP	Risk Management Plans	Environmental Protection Agency	05/09/2023	06/29/2023	09/25/2023
US	ROD	Records Of Decision	EPA	09/19/2023	10/03/2023	10/19/2023
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	07/30/2021	02/03/2023	02/10/2023
US	SEMS	Superfund Enterprise Management System	EPA	09/19/2023	10/03/2023	10/19/2023
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	09/19/2023	10/03/2023	10/19/2023
US	SSTS	Section 7 Tracking Systems	EPA	07/17/2023	07/18/2023	10/10/2023
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2021	02/16/2023	05/02/2023
US	TSCA	Toxic Substances Control Act	EPA	12/31/2020	06/14/2022	03/24/2023
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	08/30/2019	11/15/2019	01/28/2020
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	04/06/2023	04/13/2023	04/19/2023
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	05/22/2023	05/23/2023	07/10/2023
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	05/22/2023	05/23/2023	07/24/2023
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	06/19/2023	06/20/2023	08/14/2023
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	05/22/2023	05/23/2023	07/10/2023
US	US INST CONTROLS	Institutional Controls Sites List	Environmental Protection Agency	05/22/2023	05/23/2023	07/24/2023
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	05/01/2023	05/24/2023	07/24/2023
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	01/07/2022	02/24/2023	05/17/2023
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	UXO	Unexploded Ordnance Sites	Department of Defense	11/09/2021	10/20/2022	01/10/2023

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CT	CT MANIFEST	Hazardous Waste Manifest Data	Department of Energy & Environmental Protecti	08/07/2023	08/08/2023	10/24/2023
NJ	NJ MANIFEST	Manifest Information	Department of Environmental Protection	12/31/2018	04/10/2019	05/16/2019
NY	NY MANIFEST	Facility and Manifest Data	Department of Environmental Conservation	01/01/2019	10/29/2021	01/19/2022
PA	PA MANIFEST	Manifest Information	Department of Environmental Protection	06/30/2018	07/19/2019	09/10/2019
RI	RI MANIFEST	Manifest information	Department of Environmental Management	12/31/2020	11/30/2021	02/18/2022
WI	WI MANIFEST	Manifest Information	Department of Natural Resources	05/31/2018	06/19/2019	09/03/2019
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
CA	Daycare Centers	Sensitive Receptor: Licensed Facilities	Department of Social Services			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
CA	State Wetlands	Wetland Inventory	Department of Fish and Wildlife			
US	Topographic Map		U.S. Geological Survey			
US	Oil/Gas Pipelines		Endeavor Business Media			
US	Electric Power Transmission Line Data		Endeavor Business Media			

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

HANFORD SITE
NW OF GRANGEVILLE & CENTENNIAL
HANFORD, CA 93230

TARGET PROPERTY COORDINATES

Latitude (North):	36.343538 - 36° 20' 36.74''
Longitude (West):	119.682715 - 119° 40' 57.77''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	259234.1
UTM Y (Meters):	4025193.2
Elevation:	249 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12012179 HANFORD, CA
Version Date:	2018

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

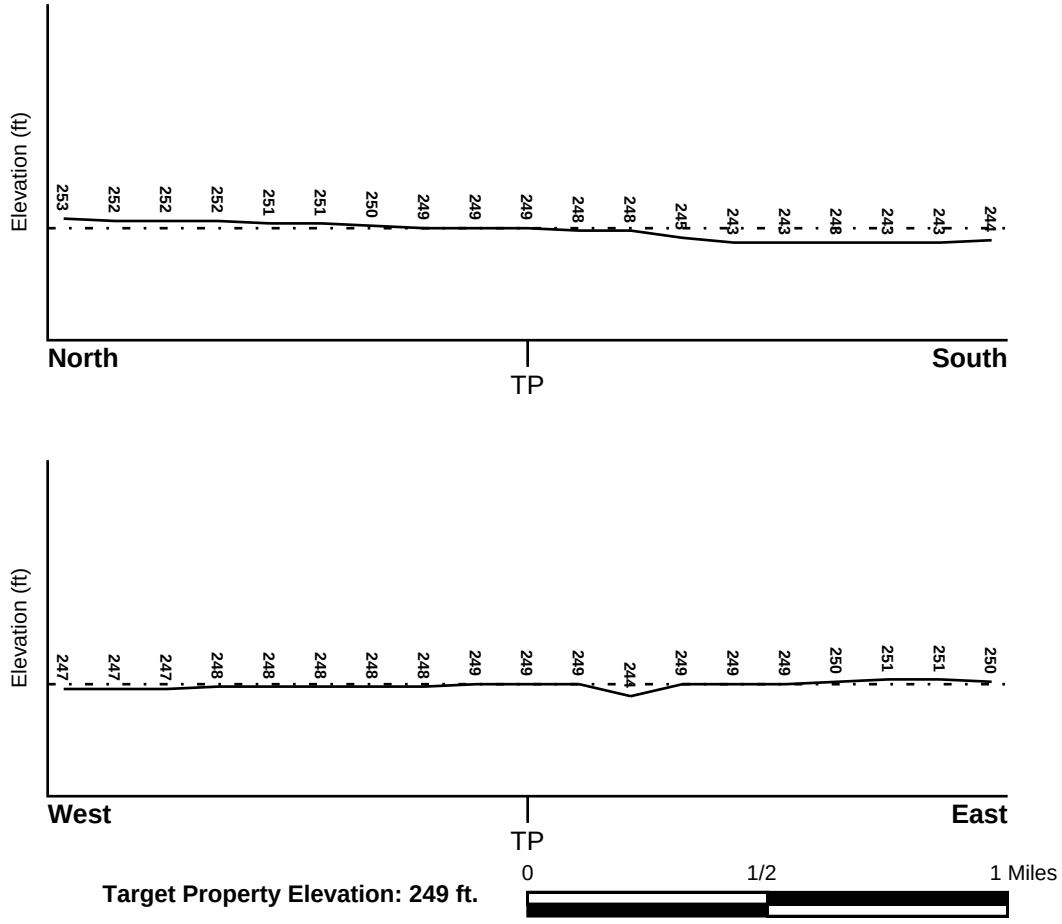
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 249 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06031C0185C	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
0600860075B	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
HANFORD	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

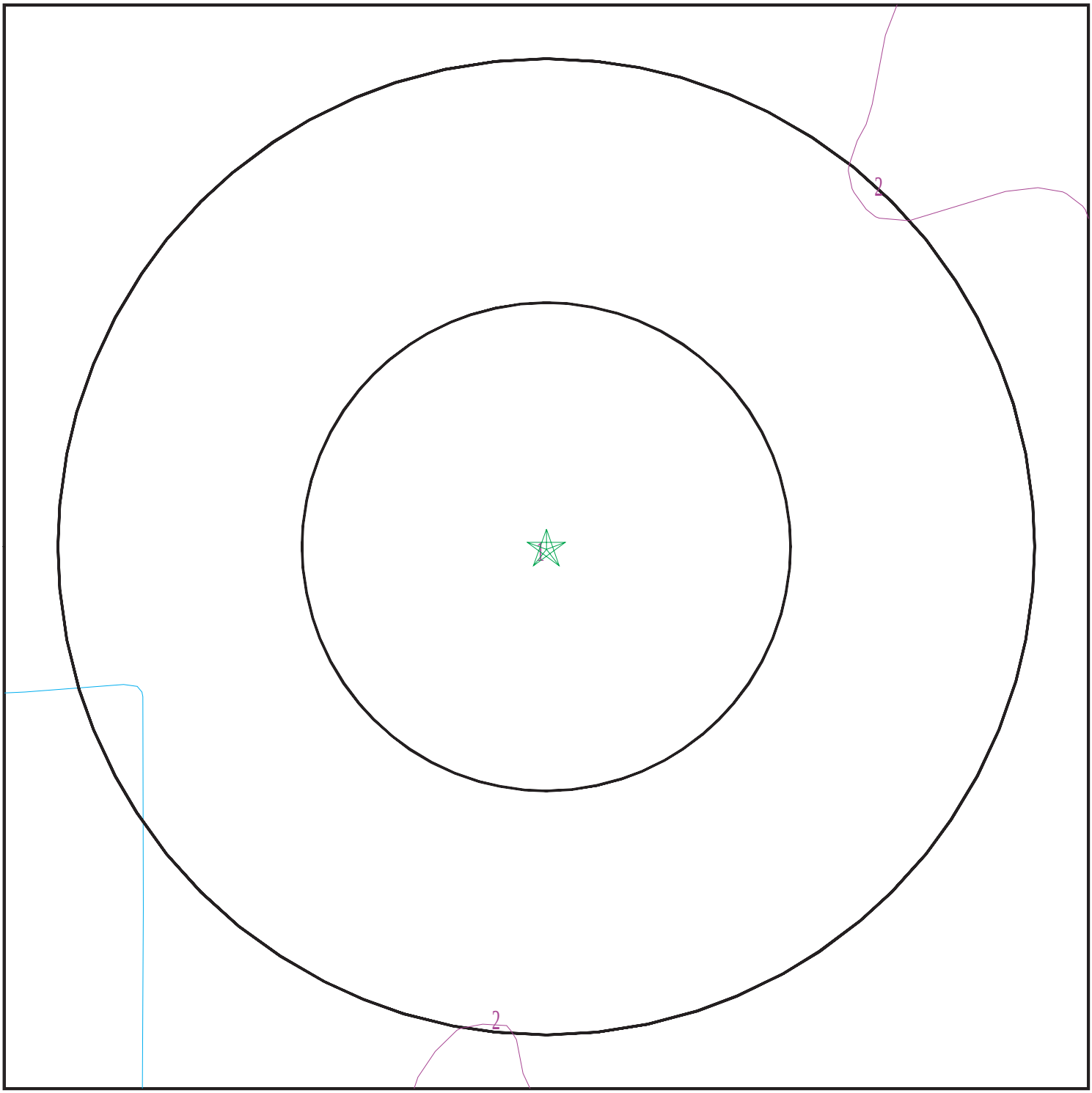
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7480082.2s



SITE NAME:	Hanford Site	CLIENT:	Soils Engineering, Inc.
ADDRESS:	NW of Grangeville & Centennial Hanford CA 93230	CONTACT:	Robert Becker
LAT/LONG:	36.343538 / 119.682715	INQUIRY #:	7480082.2s
		DATE:	October 25, 2023 2:17 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: NORD

Soil Surface Texture:

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.4
2	18 inches	72 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: NORD

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.4
2	18 inches	72 inches	stratified sandy loam to loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
3	USGS40000172425	1/8 - 1/4 Mile WSW
4	USGS40000172450	1/4 - 1/2 Mile East
7	USGS40000172519	1/4 - 1/2 Mile NW
9	USGS40000172478	1/2 - 1 Mile East
A11	USGS40000172505	1/2 - 1 Mile ENE
16	USGS40000172357	1/2 - 1 Mile SW
17	USGS40000172381	1/2 - 1 Mile ESE
18	USGS40000172580	1/2 - 1 Mile NW
19	USGS40000172482	1/2 - 1 Mile East
20	USGS40000172517	1/2 - 1 Mile ENE
21	USGS40000172337	1/2 - 1 Mile SE
24	USGS40000172300	1/2 - 1 Mile SSW
29	USGS40000172236	1/2 - 1 Mile South
30	USGS40000172265	1/2 - 1 Mile SSW
31	USGS40000172237	1/2 - 1 Mile South

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

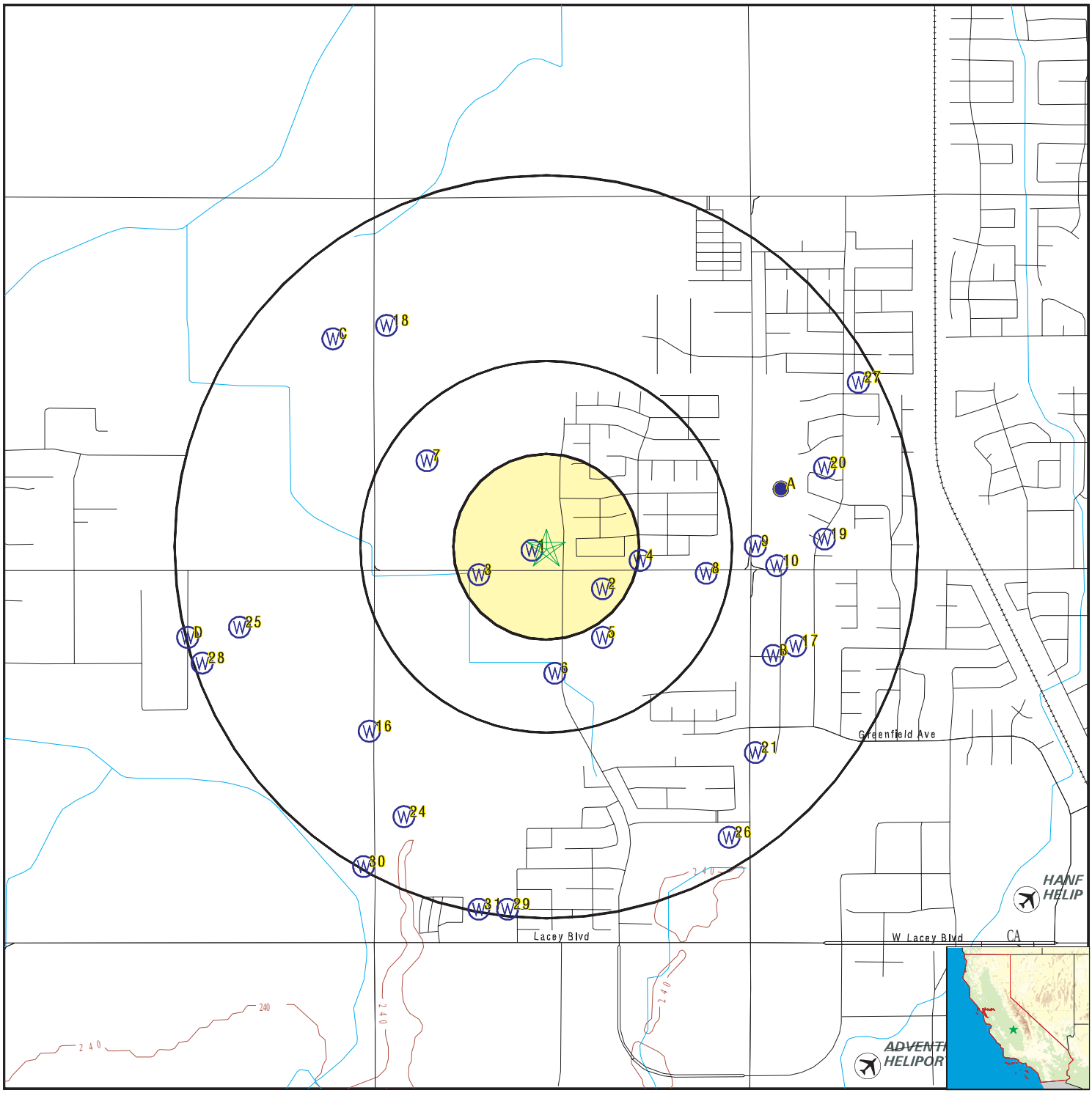
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADDW0000006722	0 - 1/8 Mile WSW
2	CADWR0000017802	1/8 - 1/4 Mile SE
5	CADWR9000025525	1/4 - 1/2 Mile SSE
6	CADDW0000011920	1/4 - 1/2 Mile South
8	CADWR9000025548	1/4 - 1/2 Mile East
10	CADDW0000010839	1/2 - 1 Mile East
B12	CADWR0000019522	1/2 - 1 Mile ESE
B13	13776	1/2 - 1 Mile ESE
A14	CADWR9000025625	1/2 - 1 Mile ENE
B15	13775	1/2 - 1 Mile ESE
C22	CADWR0000002258	1/2 - 1 Mile NW
C23	CADWR9000025685	1/2 - 1 Mile NW
25	CAEDF0000000851	1/2 - 1 Mile WSW
26	CAEDF0000027410	1/2 - 1 Mile SSE
27	13767	1/2 - 1 Mile ENE
28	CADDW0000008611	1/2 - 1 Mile WSW
D32	CADDW0000021354	1/2 - 1 Mile WSW
D33	CADWR9000025522	1/2 - 1 Mile WSW
D34	CADDW0000021531	1/2 - 1 Mile WSW

PHYSICAL SETTING SOURCE MAP - 7480082.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Hanford Site	CLIENT:	Soils Engineering, Inc.
ADDRESS:	NW of Grangeville & Centennial Hanford CA 93230	CONTACT:	Robert Becker
		INQUIRY #:	7480082.2s
LAT/LONG:	36.343538 / 119.682715	DATE:	October 25, 2023 2:17 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **WSW** **0 - 1/8 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADDW0000006722**
2 **SE** **1/8 - 1/4 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR0000017802**
3 **WSW** **1/8 - 1/4 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172425**
4 **East** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000172450**
5 **SSE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR9000025525**
6 **South** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADDW0000011920**
7 **NW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000172519**
8 **East** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR9000025548**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
9 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000172478**
10 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADDW0000010839**
A11 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000172505**
B12 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR0000019522**
B13 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**13776**
A14 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR9000025625**
B15 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**13775**
16 **SW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172357**
17 **ESE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172381**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
18 **NW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000172580**
19 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000172482**
20 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000172517**
21 **SE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172337**
C22 **NW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR0000002258**
C23 **NW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**CADWR9000025685**
24 **SSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172300**
25 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CAEDF0000000851**
26 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CAEDF0000027410**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
27 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**CA WELLS**	**13767**
28 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADDW0000008611**
29 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172236**
30 **SSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172265**
31 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000172237**
D32 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADDW0000021354**
D33 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADWR9000025522**
D34 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**CA WELLS**	**CADDW0000021531**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93230	24	1

Federal EPA Radon Zone for KINGS County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 93230

Number of sites tested: 6

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	2.300 pCi/L	83%	17%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

Hanford Site

NW of Grangeville & Centennial

Hanford, CA 93230

Inquiry Number: 7480082.4

October 25, 2023

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

10/25/23

Site Name:

Hanford Site
NW of Grangeville & Centennia
Hanford, CA 93230
EDR Inquiry # 7480082.4

Client Name:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93313
Contact: Robert Becker

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Soils Engineering, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 19310 - EDR
Project: Hanford Site

Coordinates:

Latitude:	36.343538 36° 20' 37" North
Longitude:	-119.682715 -119° 40' 58" West
UTM Zone:	Zone 11 North
UTM X Meters:	259239.88
UTM Y Meters:	4025394.66
Elevation:	249.00' above sea level

Maps Provided:

2018
2015
2012
1976
1954
1926

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets

Hanford
2018
7.5-minute, 24000

2015 Source Sheets

Hanford
2015
7.5-minute, 24000

2012 Source Sheets

Hanford
2012
7.5-minute, 24000

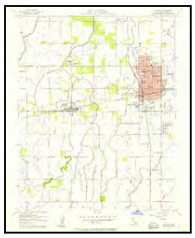
1976 Source Sheets

Hanford
1976
7.5-minute, 24000
Aerial Photo Revised 1976

Topo Sheet Key

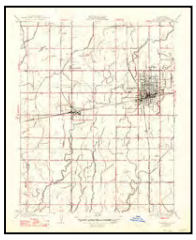
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1954 Source Sheets



Hanford
1954
7.5-minute, 24000
Aerial Photo Revised 1950

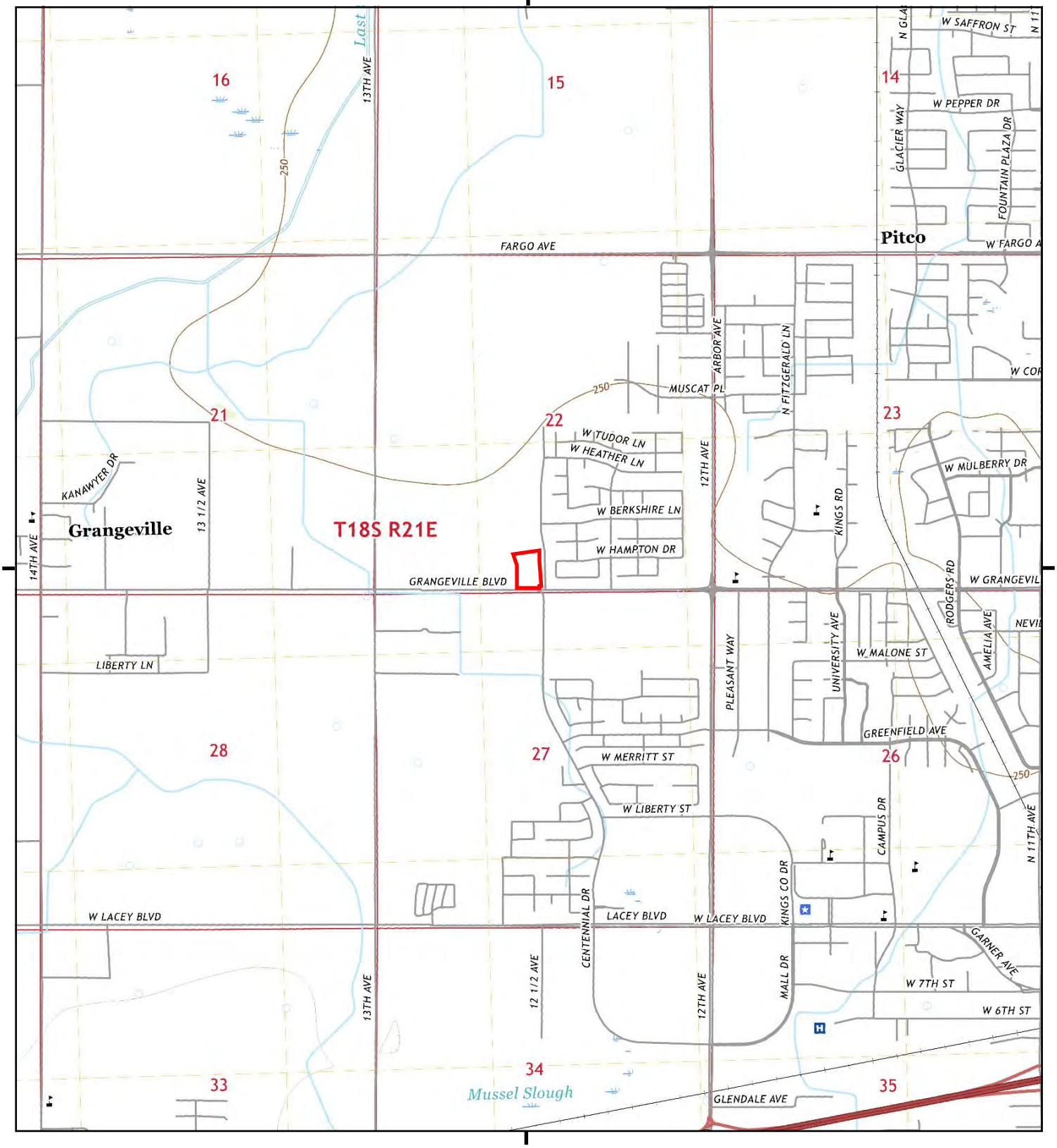
1926 Source Sheets



Hanford
1926
7.5-minute, 31680

Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

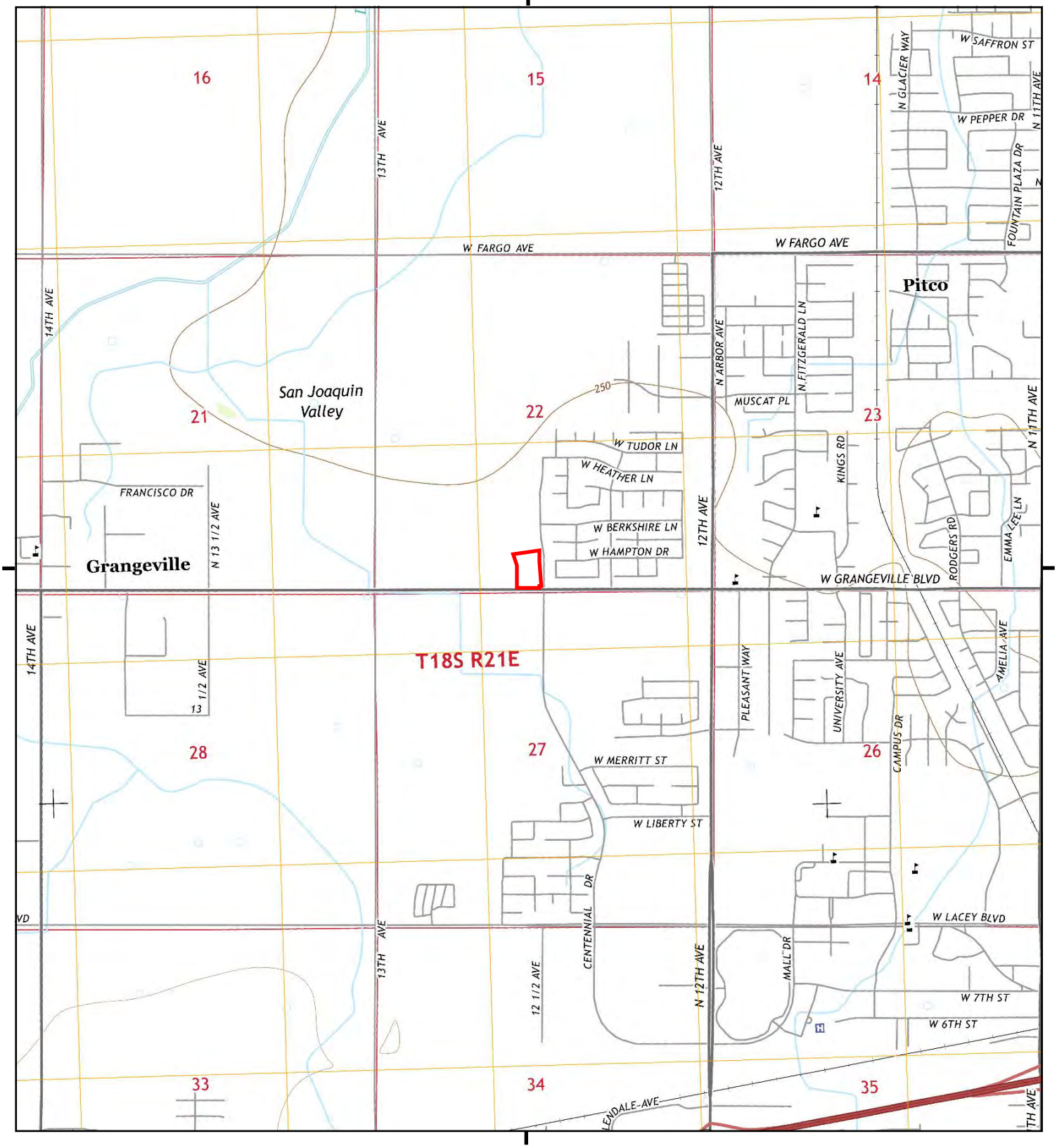
TP, Hanford, 2018, 7.5-minute

SITE NAME: Hanford Site
ADDRESS: NW of Grangeville & Centennial
Hanford, CA 93230
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

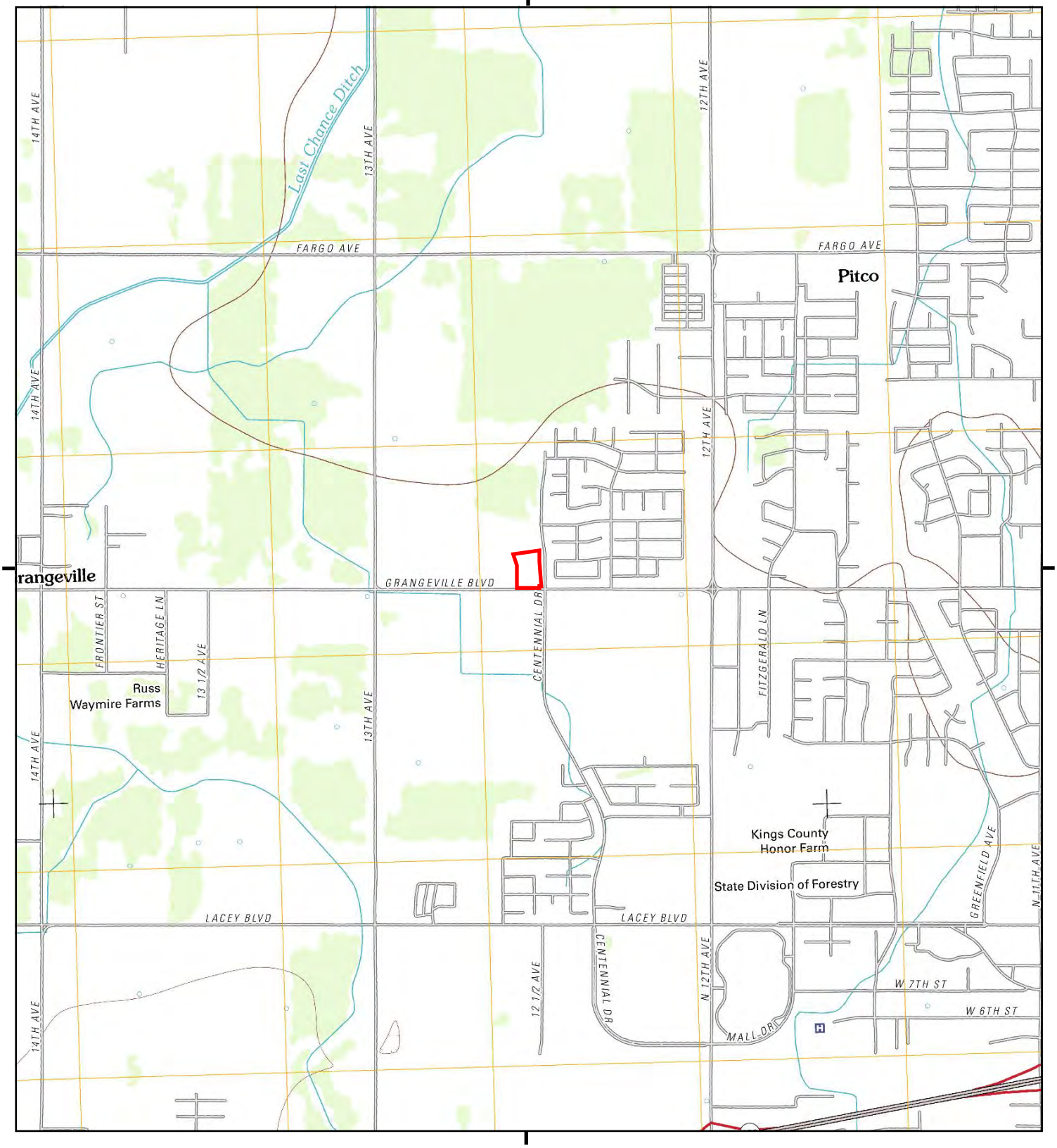
TP, Hanford, 2015, 7.5-minute

SITE NAME: Hanford Site
ADDRESS: NW of Grangeville & Centennial
Hanford, CA 93230
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

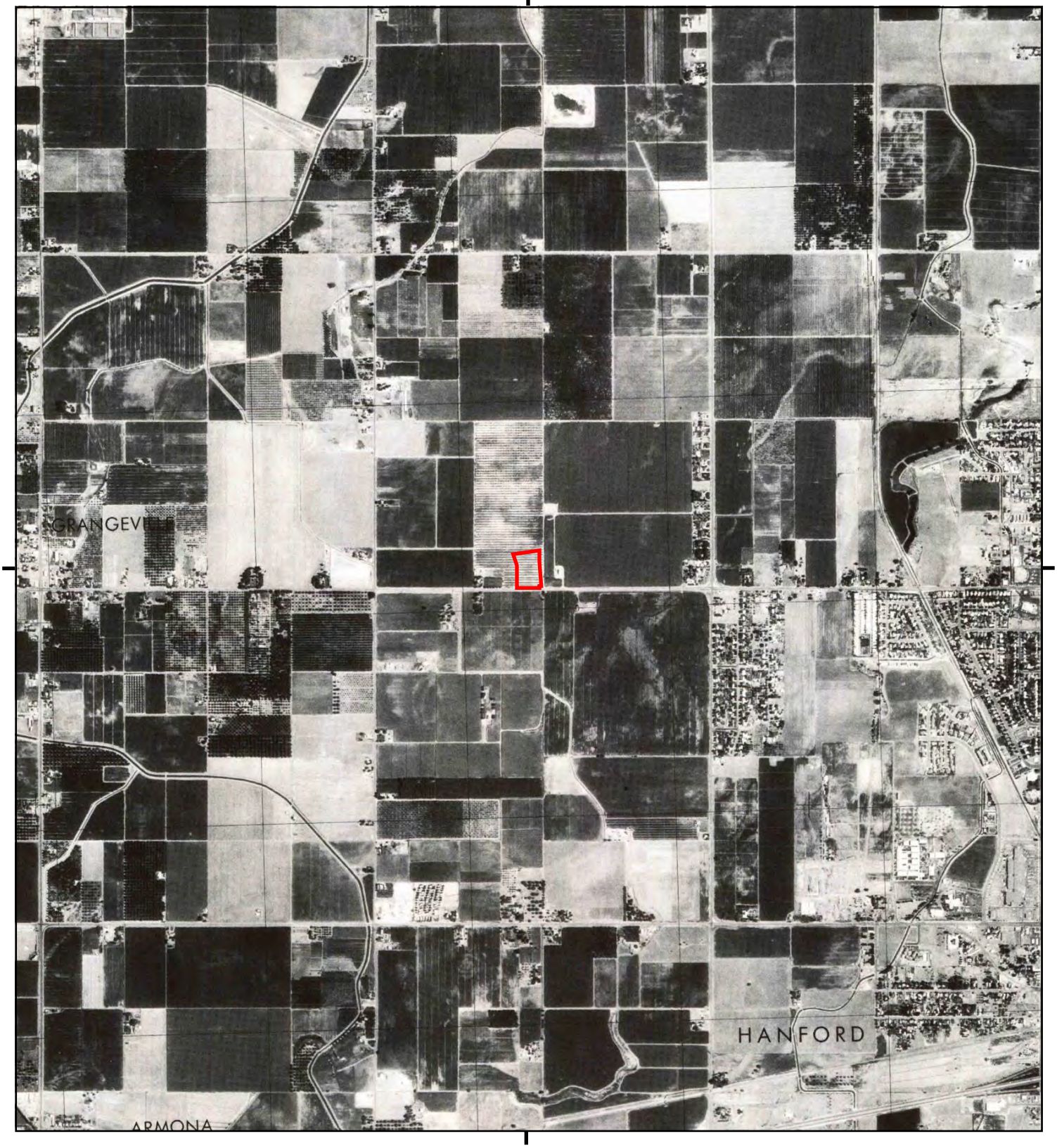
TP, Hanford, 2012, 7.5-minute

SITE NAME: Hanford Site
ADDRESS: NW of Grangeville & Centennial
Hanford, CA 93230
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

1976



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

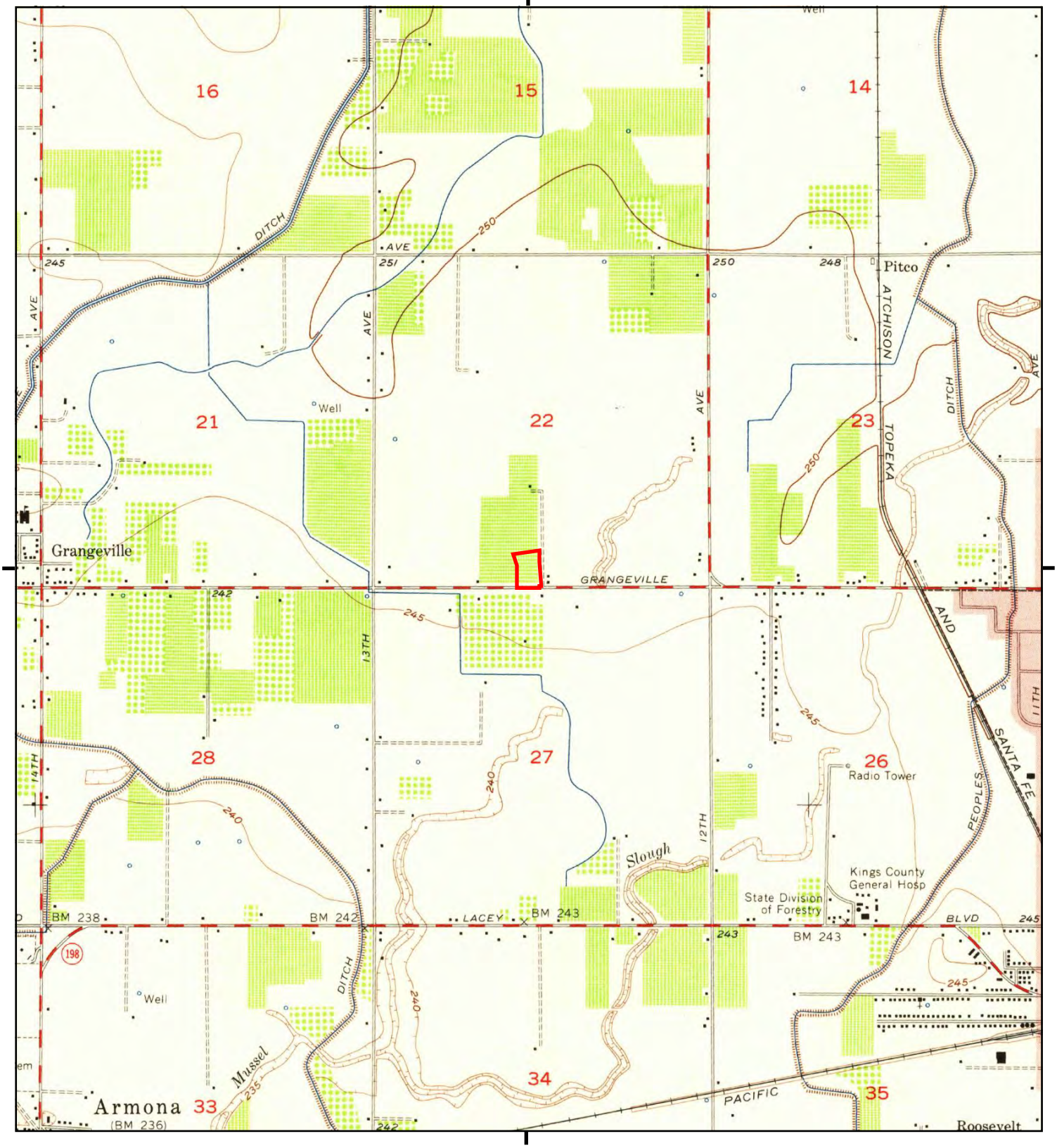
TP, Hanford, 1976, 7.5-minute

SITE NAME: Hanford Site
ADDRESS: NW of Grangeville & Centennial
Hanford, CA 93230
CLIENT: Soils Engineering, Inc.

N

Historical Topo Map

1954



This report includes information from the following map sheet(s).

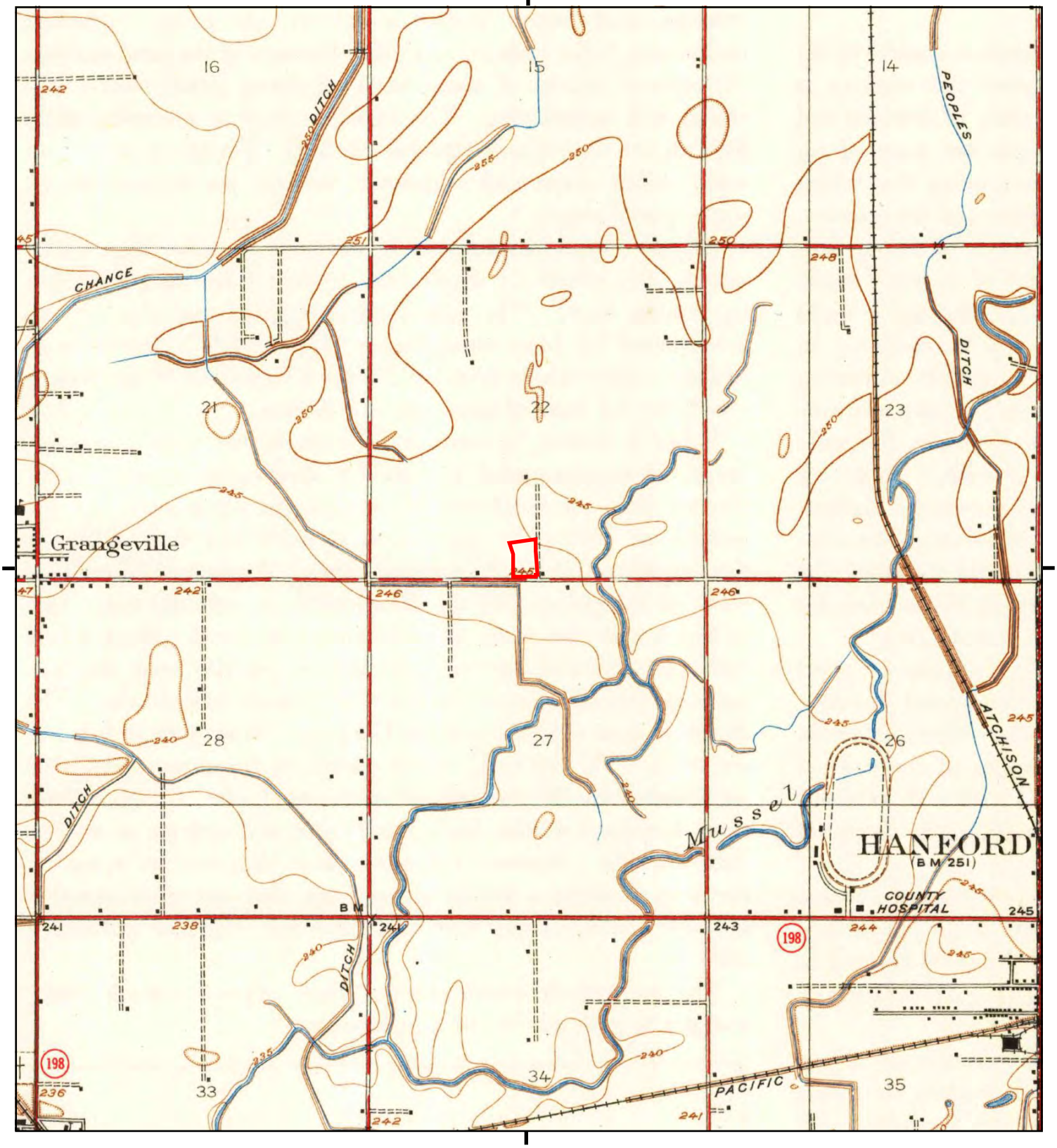
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Hanford, 1954, 7.5-minute

SITE NAME: Hanford Site
ADDRESS: NW of Grangeville & Centennial
Hanford, CA 93230
CLIENT: Soils Engineering, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Hanford, 1926, 7.5-minute

SITE NAME: Hanford Site
ADDRESS: NW of Grangeville & Centennial
Hanford, CA 93230
CLIENT: Soils Engineering, Inc.

N

Hanford Site

NW of Grangeville & Centennial

Hanford, CA 93230

Inquiry Number: 7480082.3

October 25, 2023

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/25/23

Site Name:

Hanford Site
NW of Grangeville & Centennia
Hanford, CA 93230
EDR Inquiry # 7480082.3

Client Name:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93313
Contact: Robert Becker

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Soils Engineering, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 9B01-407D-B4BB

PO # 19310 - EDR

Project Hanford Site

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 9B01-407D-B4BB

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Hanford Site
NW of Grangeville & Centennial
Hanford, CA 93230

Inquiry Number: 7480082.5
October 27, 2023

The EDR-City Directory Image Report

Environmental Data Resources Inc
6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2020	☑	☐	EDR Digital Archive
2017	☑	☐	Cole Information
2014	☑	☐	Cole Information
2010	☑	☐	Cole Information
2005	☑	☐	Cole Information
2000	☑	☐	Cole Information
1995	☑	☐	Cole Information
1992	☑	☐	Cole Information
1990	☑	☐	Haines Criss-Cross Directory
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1975	☑	☐	Haines Criss-Cross Directory
1973	☑	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

NW of Grangeville & Centennial
Hanford, CA 93230

Year	*CD Image*	*Source*

GRANGEVILLE BLVD

2020	pg A1	EDR Digital Archive
2017	pg A2	Cole Information
2014	pg A3	Cole Information
2010	pg A4	Cole Information
2005	pg A5	Cole Information
2000	pg A6	Cole Information
1995	pg A7	Cole Information
1992	pg A8	Cole Information
1990	pg A9	Haines Criss-Cross Directory
1985	pg A10	Haines Criss-Cross Directory
1980	pg A11	Haines Criss-Cross Directory
1975	pg A12	Haines Criss-Cross Directory
1973	pg A13	Haines Criss-Cross Directory

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

GRANGEVILLE BLVD 2020

2249	ELIZABETH VEENENDAAL
2613	JANIE REYES
3012	DE GROOT DAIRY FARMS
	DOBOY LLC
	ELIZABETH DE GROOT
	ROCHELLE DEGROOT
	TONY DE GROOT
3018	DG BAR RANCH
	WILLY ARTS
3101	MARIA NEGRETE
3533	ART DEHOOP
	ELLIE DEHOOP
	HELIA DE HOOP
	THYS DE HOOP
3540	GARY ATSMA
	JOAN PURDOM

Target Street	Cross Street	Source
✓	-	Cole Information

GRANGEVILLE BLVD 2017

1345	GILBERT, LYNLEA
1508	CARL, ADAM J
2613	REYES, JANIE
3011	LOCATELLI, JASON
3018	ARTS WILLY
3357	PARSONS, CINDY D
3533	DEHOOP, ART A
3540	EARNEST, MARISA J

Target Street	Cross Street	Source
✓	-	Cole Information

GRANGEVILLE BLVD 2014

1255	MATHEWS, JUANITA F
1345	VOGELGESANG, CHRISTY M
1508	OCCUPANT UNKNOWN,
2249	OCCUPANT UNKNOWN,
2446	DEGROOT, D
2575	OCCUPANT UNKNOWN,
3011	MAJORS, TOM A
3012	DEGROOT, TON
3018	OCCUPANT UNKNOWN,
3101	NEGRETE, SERGIO N
3263	OCCUPANT UNKNOWN,
3319	OCCUPANT UNKNOWN,
3357	STRUIKMAN, ERIC R
3533	DEHOOP, ART A
3540	ATSMA, GARY W

Target Street	Cross Street	Source
✓	-	Cole Information

GRANGEVILLE BLVD 2010

1255	MATHEWS, JUANITA F
1345	PANTOJA, ELVIRA
1392	ALCASER, MONICA
1508	CARL, BRANDI
1878	PEREIRA, TAMMY A
2249	VEENENDAAL, DON E
2446	DEGROOT, D
2575	OCCUPANT UNKNOWN,
3011	MAJORS, TOM A
3012	DE GROOT DAIRY FARMS
	DEGROOT, TONY C
3018	DG BAR RANCH
	OCCUPANT UNKNOWN,
3101	NEGRETE, SERGIO N
3263	OCCUPANT UNKNOWN,
3319	MARTINEZ, JUAN
3357	MARTINEZ, VICKY M
3533	DEHOOP, ART A
3540	ATSMA, GARY W

Target Street	Cross Street	Source
✓	-	Cole Information

GRANGEVILLE BLVD 2005

1255	PANNELL, JIMMIE T
1508	PANTOJA, ELSA
1878	PEREIRA, TAMMY
2249	VEENENDAAL, DON E
2446	DEGROOT, D
2575	OCCUPANT UNKNOWN,
3011	MAJORS, TOM
3012	DE GROOT FARMS
	DEGROOT, TONY C
	TONY DE GROOT DAIRY
3018	OCCUPANT UNKNOWN,
3101	NEGRETE, SERGIO N
3263	OCCUPANT UNKNOWN,
3319	GOMEZ, EDWIN
3357	OCCUPANT UNKNOWN,
3533	DE HOOP ART
	DEHOOP, ART A
3540	ATSMA, GARY W

Target Street	Cross Street	Source
✓	-	Cole Information

GRANGEVILLE BLVD 2000

1337	OCCUPANT UNKNOWN,
1345	OCCUPANT UNKNOWN,
1500	OCCUPANT UNKNOWN,
1508	VILLARREAL, MAXIMO
1537	OCCUPANT UNKNOWN,
2446	DEGROOT DAIRY
3011	OCCUPANT UNKNOWN,
3012	DEGROOT, TONY
3018	OCCUPANT UNKNOWN,
3101	OCCUPANT UNKNOWN,
3319	OCCUPANT UNKNOWN,
3357	MORAN, SUSAN G
3506	OCCUPANT UNKNOWN,
3533	DEHOOP, ART
3540	ATSMA, GARY

Target Street	Cross Street	Source
✓	-	Cole Information

GRANGEVILLE BLVD 1995

3011	DEGROOT, TONY JR
3012	DEGROOT, TONY
3018	ARTS, WILLY
3101	DEGROOT, TONY
3319	OCCUPANT UNKNOWNN
3357	OCCUPANT UNKNOWNN
3533	DEHOOP, ART
3540	ATSMA, GARY

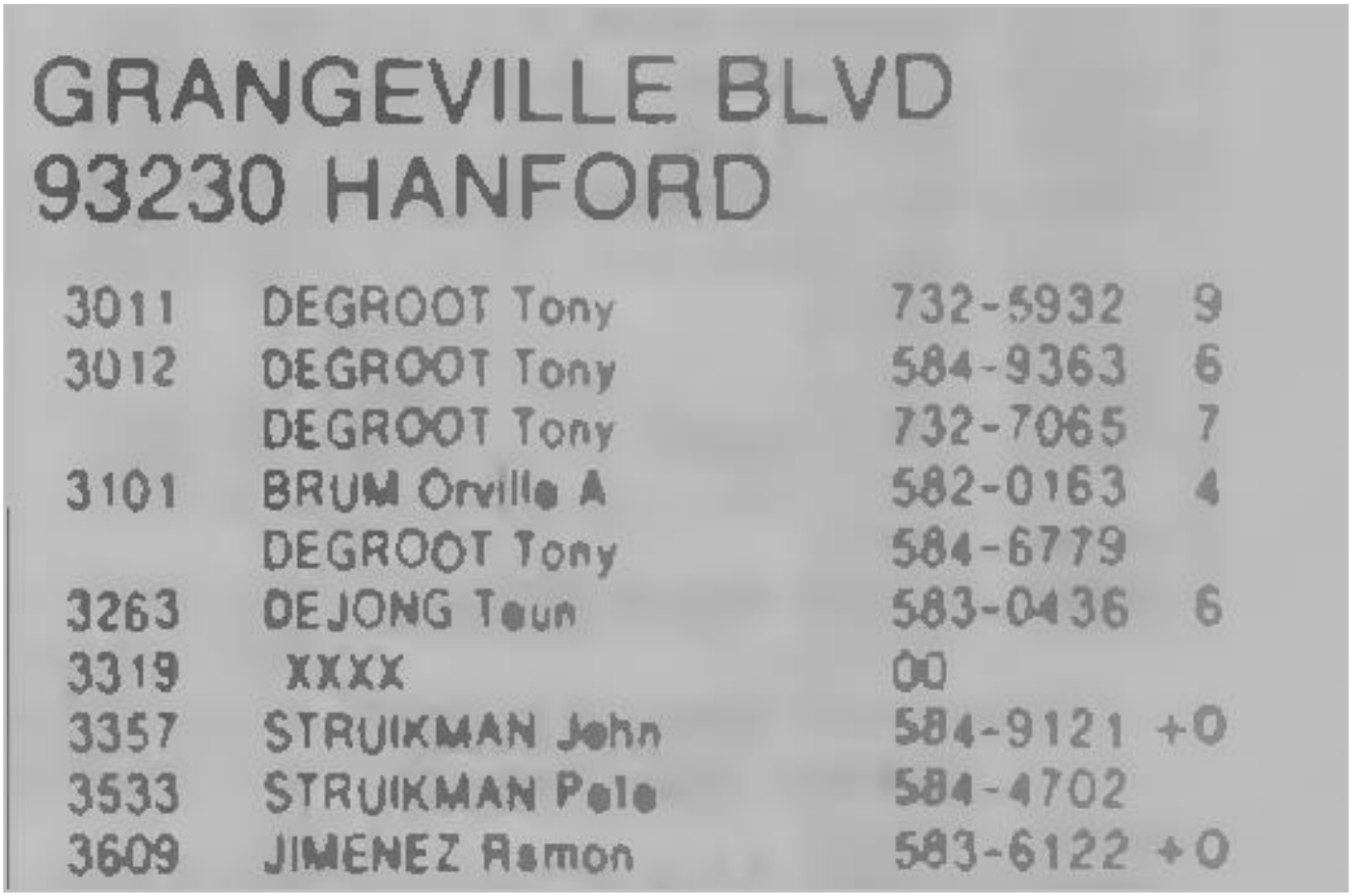
Target Street	Cross Street	Source
✓	-	Cole Information

GRANGEVILLE BLVD 1992

1073	SILACCI, DONALD
2446	DE GROOT DAIRY
3011	DEGROOT, TONY
3012	DEGROOT, TONY
3101	DEGROOT, TONY
3357	STRUIKMAN, JOHN
3533	DEHOOP, ART
	STRUIKMAN, PETE

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

GRANGEVILLE BLVD 1990

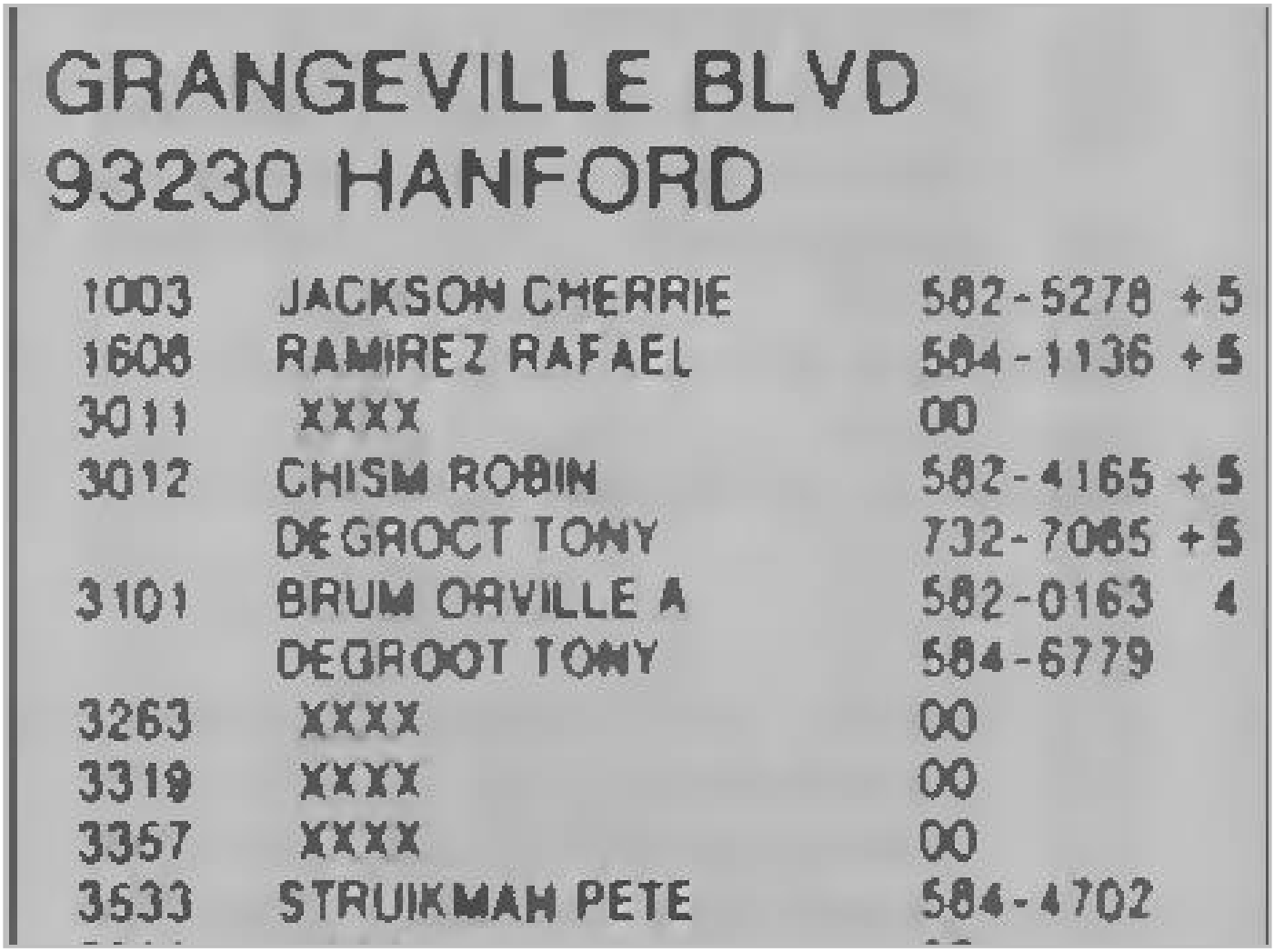


GRANGEVILLE BLVD
93230 HANFORD

3011	DEGROOT Tony	732-5932	9
3012	DEGROOT Tony	584-9363	6
	DEGROOT Tony	732-7065	7
3101	BRUM Orville A	582-0163	4
	DEGROOT Tony	584-6779	
3263	DEJONG Teun	583-0436	6
3319	XXXX	00	
3357	STRUIKMAN John	584-9121	+0
3533	STRUIKMAN Pete	584-4702	
3609	JIMENEZ Ramon	583-6122	+0

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

GRANGEVILLE BLVD 1985

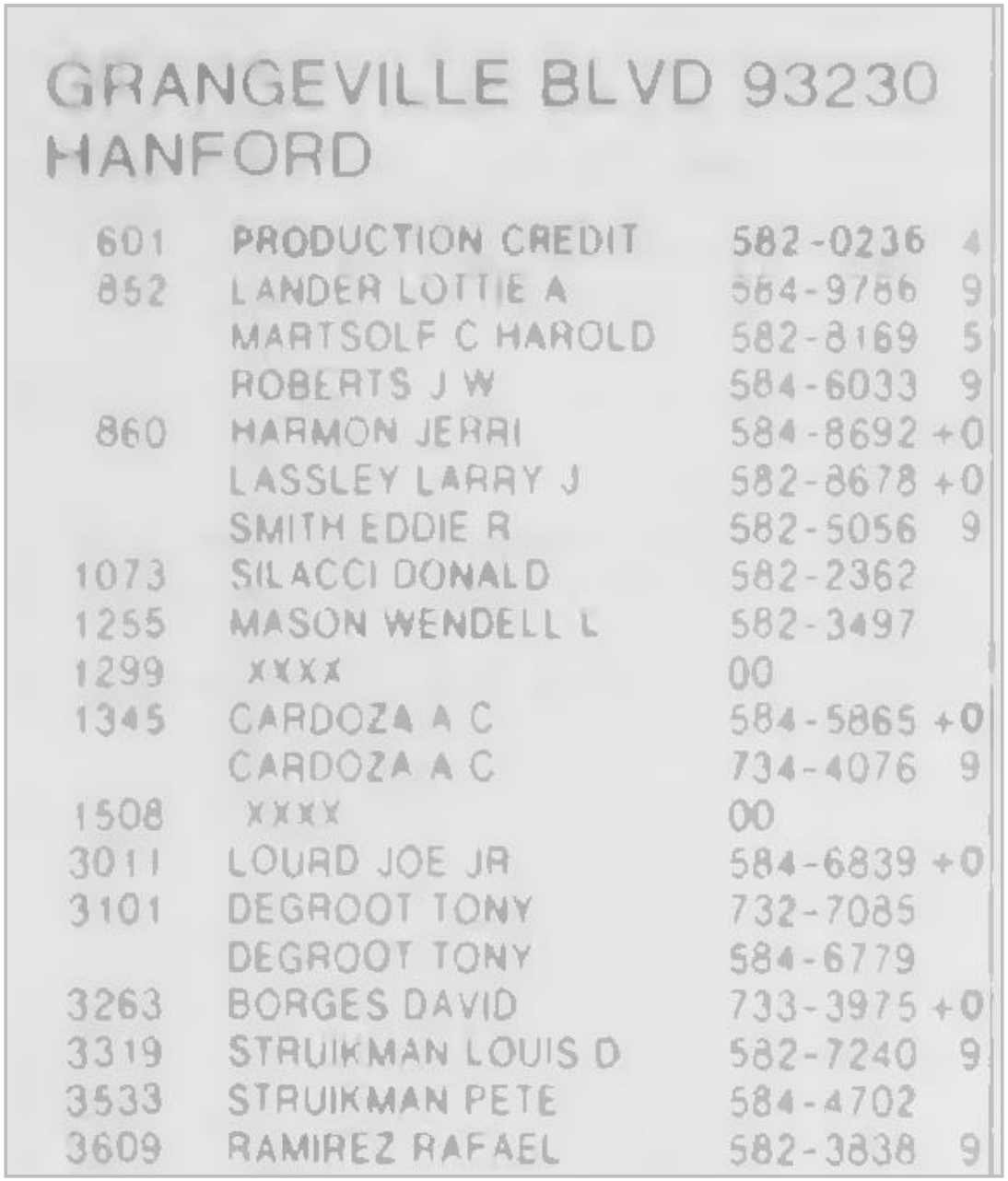


GRANGEVILLE BLVD
93230 HANFORD

1003	JACKSON CHERRIE	582-5278 +5
1606	RAMIREZ RAFAEL	584-1136 +5
3011	XXXX	00
3012	CHISM ROBIN	582-4165 +5
	DEGROOT TONY	732-7065 +5
3101	BRUM ORVILLE A	582-0163 4
	DEGROOT TONY	584-6779
3263	XXXX	00
3319	XXXX	00
3357	XXXX	00
3533	STRUIKMAN PETE	584-4702

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

GRANGEVILLE BLVD 1980

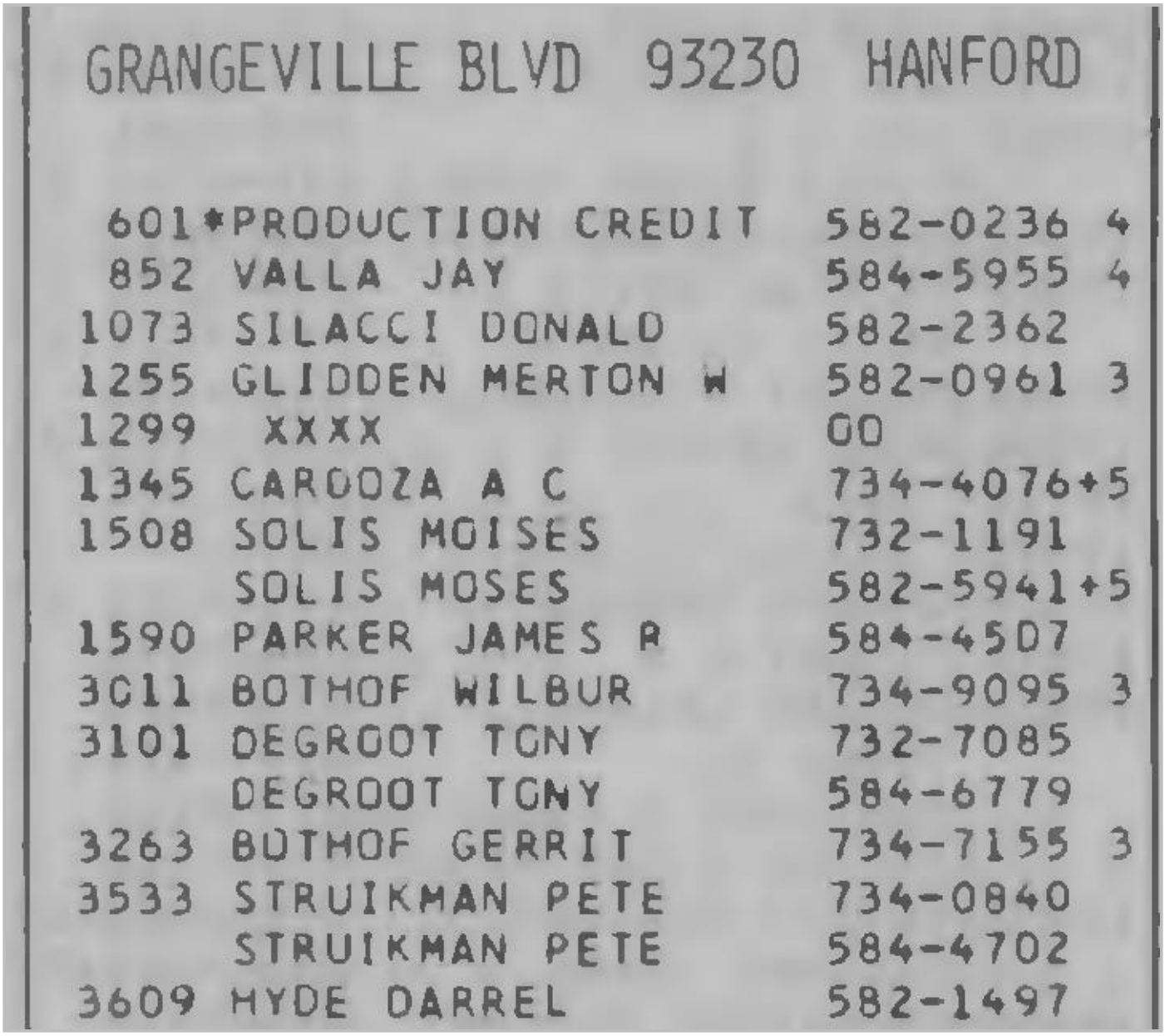


GRANGEVILLE BLVD 93230
HANFORD

601	PRODUCTION CREDIT	582-0236	4
852	LANDER LOTTIE A	584-9786	9
	MARTSOLF C HAROLD	582-8169	5
	ROBERTS J W	584-6033	9
860	HARMON JERRI	584-8692	+0
	LASSLEY LARRY J	582-8678	+0
	SMITH EDDIE R	582-5056	9
1073	SILACCI DONALD	582-2362	
1255	MASON WENDELL L	582-3497	
1299	XXXX	00	
1345	CARDOZA A C	584-5865	+0
	CARDOZA A C	734-4076	9
1508	XXXX	00	
3011	LOURD JOE JR	584-6839	+0
3101	DEGROOT TONY	732-7085	
	DEGROOT TONY	584-6779	
3263	BORGES DAVID	733-3975	+0
3319	STRUIKMAN LOUIS D	582-7240	9
3533	STRUIKMAN PETE	584-4702	
3609	RAMIREZ RAFAEL	582-3838	9

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

GRANGEVILLE BLVD 1975



GRANGEVILLE BLVD 93230 HANFORD

601	*PRODUCTION CREDIT	582-0236 4
852	VALLA JAY	584-5955 4
1073	SILACCI DONALD	582-2362
1255	GLIDDEN MERTON W	582-0961 3
1299	XXXX	OO
1345	CAROOZA A C	734-4076+5
1508	SOLIS MOISES	732-1191
	SOLIS MOSES	582-5941+5
1590	PARKER JAMES R	584-4507
3011	BOTHOF WILBUR	734-9095 3
3101	DEGROOT TONY	732-7085
	DEGROOT TONY	584-6779
3263	BOTHOF GERRIT	734-7155 3
3533	STRUIKMAN PETE	734-0840
	STRUIKMAN PETE	584-4702
3609	HYDE DARREL	582-1497

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

GRANGEVILLE BLVD 1973

GRANGEVILLE BLVD 93230 HANFORD

1073	SILACCI OONALD	582-2362
1255	GLIDDEN MERTON W	582-0961+3
1299	XXXX	OO
1345	CARDOZA A C	584-5865+3
1508	SOLIS MOISES	732-1191
1590	PARKER JAMES R	584-4507
3011	BOTHOF WILBUR	734-9095+3
3101	DEGROOT TONY	732-7085
	DEGROOT TONY	584-6779
3263	BOTHOF GERRIT	734-7155+3
3533	STRUIKMAN PETE	734-0840
	STRUIKMAN PETE	584-4702
3609	HYDE DARREL	582-1497

VAPOR ENCROACHMENT SCREEN

Prepared by: Soils Engineering, Inc.

11/7/2023

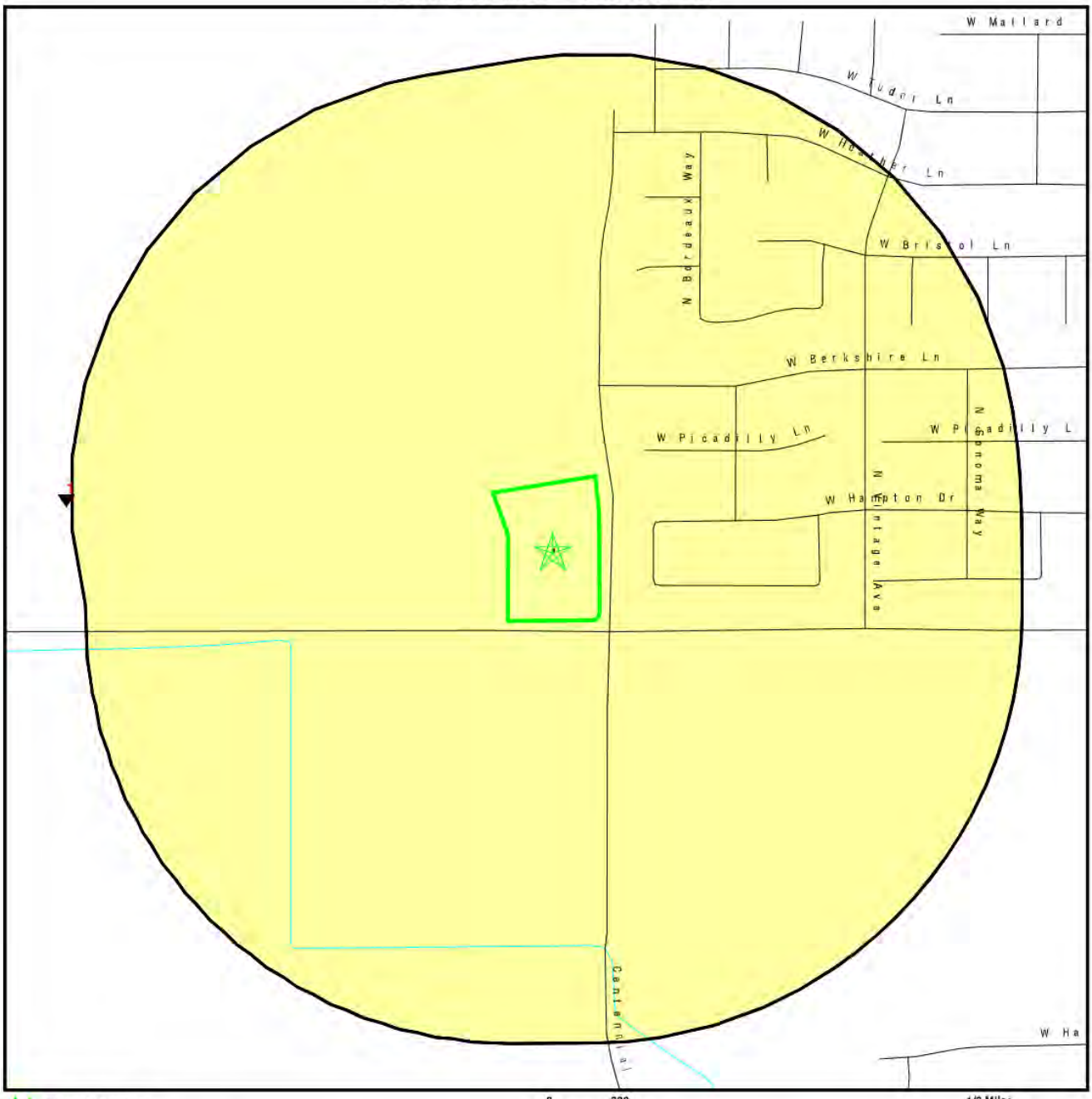
TABLE OF CONTENTS

EXECUTIVE SUMMARY

FRONTIER ELEMENTARY SCHOOL **NE CORNER OF GRANGEVILLE AND 13TH, HANFORD, CA, 93230**	S108054430
Impact on Target Property: VEC does not exist	

CANADY 13TH AVENUE SITE **9431 13TH AVENUE, HANFORD, CA, 93230**	S102008344
Impact on Target Property: VEC does not exist	

PRIMARY MAP - 7480082.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Hanford Site	CLIENT: Soils Engineering, Inc.
ADDRESS: NW of Grangeville & Centennial Hanford CA 93230	CONTACT: Robert Becker
LAT/LONG: 36.343538 / 119.682715	INQUIRY #: 7480082.2s DATE: October 25, 2023 2:16 pm

MAP FINDINGS

FRONTIER ELEMENTARY SCHOOL NE CORNER OF GRANGEVILLE AND 13TH, HANFORD, CA, 93230			S108054430
Map ID: 1	Distance: W 1/3 - 1/2 (1778 ft. / 0.337 mi.)	Elevation: 1 ft. Lower Elevation 248 ft. Above Sea Level	Lists of state- and tribal hazardous waste facilities Local Lists of Hazardous waste / Contaminated Sites

Worksheet:

Impact on Target Property: VEC does not exist

Comments: Chemicals of concern are not likely to be present at this source.

Conditions:
Chemicals of Concern: YES

MAP FINDINGS

CANADY 13TH AVENUE SITE 9431 13TH AVENUE, HANFORD, CA, 93230			S102008344
Map ID: 2	Distance: SW 1/2 - 1 (2808 ft. / 0.532 mi.)	Elevation: 3 ft. Lower Elevation 246 ft. Above Sea Level	Lists of state- and tribal hazardous waste facilities Lists of state and tribal voluntary cleanup sites

Worksheet:

Impact on Target Property: VEC does not exist

Comments: The source is not within the area of concern, based on its distance, gradient and suspected chemical of concern.

Conditions:
Chemicals of Concern: YES

Appendix B

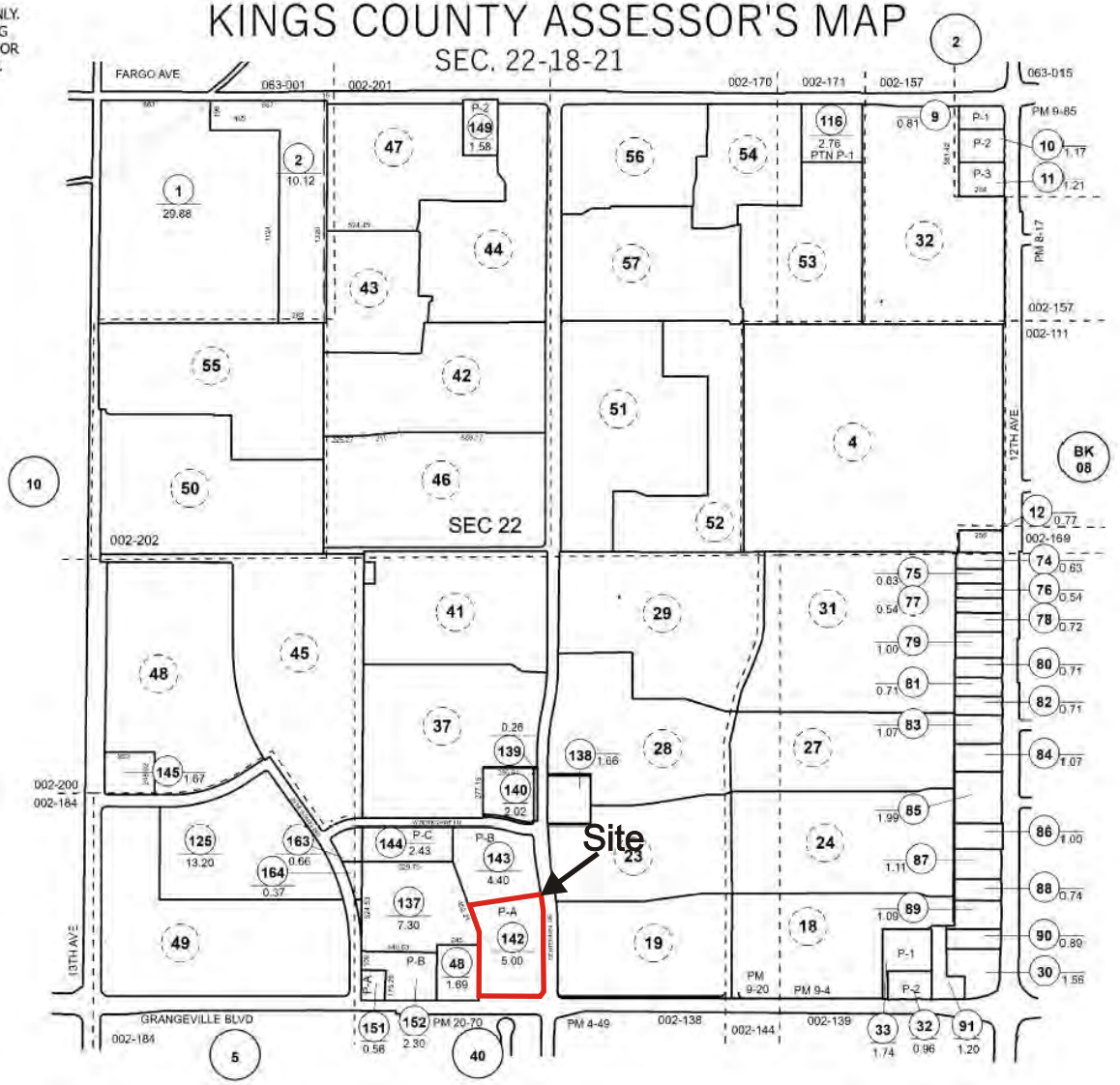
Assessors Map, Environmental Questionnaire and Disclosure Statements and User Questionnaire. AFX Environmental Lien & AUL Search Report Order#:79-326191-47

THIS MAP IS FOR ASSESSMENT PURPOSES ONLY.
IT IS NOT TO BE CONSTRUED AS PORTRAYING
LEGAL OWNERSHIP OF DIVISIONS OF LAND FOR
PURPOSES OF ZONING OR SUBDIVISION LAW.
AUGUST 2023

KINGS COUNTY ASSESSOR'S MAP

SEC. 22-18-21

09-03



SOILS ENGINEERING, INC.
4400 Yeager Way
Bakersfield, CA 93313
(661) 831 - 5100

DATE: 11/23
PROJECT: 23-19311

Property
NW of Grangerville Blvd. & Centennial Drive
Hanford, Kings County, California

Assessors Map

PLATE

Please Fill Out & Return To: SEI at 4400 Yeager Way, Bakersfield, CA 93313 Attn: Bob Becker
Or Fax: 661-831-2111

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT - USER QUESTIONNAIRE

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *"Brownfields Amendments"*), the *user* must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that *"all appropriate inquiry"* is not complete.

(1.) Are you aware of any environmental cleanup liens against the *property* that are filed or recorded under federal, tribal, state or local law? **No**

(2.) Are you aware of any activity and land use limitations (AULs), such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? **No**

(3.) As the *user* of this Environmental Site Assessment (*ESA*) do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?
No

(4.) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property?* If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property?*
This property was purchased approximately 10 years ago. At the time, fair market value was paid For the property.

(5.) Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example, as *user,*

(a.) Do you know the past uses of the *property?* **It is my understanding that at one time in the past, it was used for agricultural production, although I am not aware of the crop(s) grown) or any methods of the farming operation.**

(b.) Do you know of specific chemicals that are present or once were present at the *property?*
No

(c.) Do you know of spills or other chemical releases that have taken place at the *property?*
No

(d.) Do you know of any environmental cleanups that have taken place at the *property?*
No

(6.) As the *user* of this *ESA*, based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of contamination at the *property?***No**

In addition, certain information should be collected, if available, and provided to the *environmental professional*. This information is intended to assist the *environmental professional* but is not necessarily required to qualify for one of the *LLPs*. The information includes:

(a) the reason why the Phase I is required, **The City of Hanford Planning Department required the Phase I in connection with a General Plan Amendment and Rezone application filed for**

the property

(b) the type of *property* and type of *property* transaction, for example, sale, purchase, exchange, etc., **As mentioned above, this is in regards to a Planning entitlement being processed through the City of Hanford and not a transfer of title.**

(b) the complete and correct address for the *property* (a map or other documentation showing *property* location and boundaries is helpful), **An address has not as yet been assigned by the City of Hanford. The property is Assessor's Parcel No. 090-030-142**

(c) the scope of services desired for the Phase I (including whether any parties to the *property* transaction may have a required standard scope of services on whether any considerations beyond the requirements of Practice E 1527 are to be considered),

(e) identification of all parties who will rely on the Phase I *report*, **The City of Hanford Planning Department and lenders for the project development (construction and take-out loans) yet to be determined.**

(f) identification of the site contact and how the contact can be reached,
Rupinder Nahal

2497 N. 10th Avenue
Hanford, California 93230
559.707.0509

(g) any special terms and conditions which must be agreed upon by the *environmental professional*, and
None

(h) any other knowledge or experience with the *property* that may be pertinent to the *environmental professional* (for example, copies of any available prior *environmental site assessment reports*, documents, correspondence, etc., concerning the *property* and its environmental condition.
None

Site Name: Grangville & Centennial

Signature of User

Date 11-16-23

Please return this form by mail, e-mail of fax to SEI at:

Soils Engineering, Inc.
4400 Yeager Way
Bakersfield, CA 93313

Attn: Bob Becker Tel: (661) 831-5100, Fax (661) 831-2111
bob@soilsengineering.com

ENVIRONMENTAL QUESTIONNAIRE AND DISCLOSURE STATEMENT

SITE INFORMATION	
Current Site Address	Not assigned at this time
Current Site Use	Vacant
Current Site Zoning	Neighborhood Commercial
Current Assessor's Parcel Number	090-030-142
Addresses Formerly Assigned To Site (if any)	None Assigned

SITE OWNERSHIP AND PAST USE		
Owner Name, Address & Phone	Period of Ownership/Use	Type of Use
Current:	NAHAL FARMS, LLC. Owner Dec 2020	Vacant
Former	CLARK FARMS	N/A
Former		

ADJACENT PROPERTY USE		
Direction	Type of Use	Length of Use
North	Multi Family Residential	
East	Single Family Residential	
South	Single Family Residential / Agriculture	
West	Ponding Basin / City Water Well Site	

EXISTING SITE STRUCTURES			
Structure Description	Location	Use	Date of Construction
None			

FORMER SITE STRUCTURES			
Structure Description	Former Location	Use	Date of Demolition
None			

SITE LESSEES		
Name, Address & Phone	Length/Years of Lease	Type of Use
Present: None		
Former:		
Former:		

SITE UTILITIES	
Utility	Provider
Electricity	Southern California Edison
Natural Gas	The Gas Company
Drinking Water	City of Hanford

Storm Water Drainage	City of Hanford
Solid Waste Disposal	City of Hanford
Sanitary Sewer	City of Hanford
Emergency Power Source	N/A

**********PLEASE PROVIDE DETAILS FOR ALL YES ANSWERS **********

#	Specific Uses of Site or Adjacent Property	SITE			ADJACENT		
		Yes	No	Don't Know	Yes	No	Don't Know
1	Agricultural chemical formulation, distribution, or application			X			X
2	Airport and/or airplane maintenance		X			X	
3	Automotive wrecking yard		X			X	
4	Bulk chemical or fuel storage		X			X	
5	Commercial printing		X			X	
6	Dry cleaning		X			X	
7	Landfill		X			X	
8	Metal plating or finishing		X			X	
9	Mining or minerals processing		X			X	
10	Motor vehicle or equipment repair and/or maintenance		X			X	
11	Photographic laboratory		X			X	
12	Service station		X			X	
13	Skeet shooting or gun club		X			X	
14	Waste treatment, storage, disposal, processing or recycling, other than a landfill		X			X	

"Adjacent Property" includes those properties that border the immediate site and properties located across the street from the site.

**********PLEASE PROVIDE DETAILS FOR ALL YES ANSWERS **********

#	ON-SITE HAZARDOUS MATERIALS USE, STORAGE AND DISPOSAL	Yes	No	Don't Know

1	Are asbestos-containing materials present in on-site structures?		X	
2	Has an asbestos survey been conducted for on-site structures?		N/A	
3	Are any electrical transformers or capacitors on-site?		X	
4	Are any electrical transformers or capacitors on-site not owned by an electrical utility?		X	
5	Has an Environmental Audit or Assessment been conducted for the site?			X
6	Do you know of any current or former aboveground storage tanks?		X	
7	Do you know of any current or former underground storage tanks (not septic)?		X	
8	Do you know of any fill dirt having been imported to the site?		X	
9	Do you know of any current or former wells on-site, including, domestic drinking water, irrigation water, disposal, oil and/or abandoned wells?			X
10	Do you know of any pesticides/herbicides permits for the site?			X
11	Do you know of any pesticides/herbicides stored or used on-site?			X
12	Are solvents, petroleum products, or paint products stored on-site?		X	
13	Are you aware of any permits having been issued for the site by the local fire, environmental health, or air pollution control agencies?		X	

**********PLEASE PROVIDE DETAILS FOR ALL YES ANSWERS **********

#	ON-SITE HAZARDOUS MATERIALS USE, STORAGE AND DISPOSAL	Yes	No	Don't Know
1	Is liquid waste disposed of to a septic tank on-site?		X	
2	Is liquid waste disposed of		X	
3	Are any ponds, sumps, basins, lagoons, or clarifiers used on-site to collect, treat, or dispose of liquid?		X	
4	If liquid waste is disposed of on-site, is a waste discharge permit required?		N/A	
5	Is liquid waste disposed of to an off-site treatment works?		X	
6	Is solid waste disposed of on-site (burned or buried)?		X	
7	Does any solid or liquid off-site waste disposal require a waste manifest or disposal permit?		X	
8	Is any hazardous waste generated, stored, or treated on-site?		X	
9	Are any spills or releases of hazardous materials known or suspected to have occurred at the site?		X	

THIS ENVIRONMENTAL QUESTIONNAIRE AND DISCLOSURE STATEMENT WAS PREPARED BY:

Name Rupinder Nahal Title Owner

Firm NAHAL FARMS Relationship to Site Resident

Address 2497 N. 10th Avenue
Hanford, CA 03230

Phone 559.707.0509 Date 11-16-23

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's knowledge not material facts have been suppressed or misstated.

Signed

11-16-23
Date

ENVIRONMENTAL LIEN AND AUL REPORT

Order Number:
19311

AFX Reference Number:
79-326191-47

Subject Property:
2497 N 10TH AVE
HANFORD, CA 93230

Effective:
10/20/2023

Completed:
10/27/2023

AFX RESEARCH, LLC

A Quarter-Century of Title Document Research Expertise

999 Monterey St. Suite 380, San Luis Obispo, CA 93401

(877) 848-5337 / www.afxllc.com

Order #: 19311 | Reference #: 79-326191-47 | Completed: 10/27/2023 | Effective: 10/20/2023

SOURCES SEARCHED

Source 1:	KINGS COUNTY RECORDER'S OFFICE
Source 2:	CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
Source 3:	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Examiner Notes:	**NOTICE:** JUDICIAL RECORDS NOT SEARCHED. BASED ON AVAILABLE INFORMATION EVALUATED BY THE TITLE SEARCH PROFESSIONAL, THE JURISDICTION DOES NOT REQUIRE A SEARCH OF JUDICIAL RECORDS IN ORDER TO IDENTIFY ENVIRONMENTAL LIENS.

TARGET PROPERTY

Current Owner(s):	NAHAL FARMS, LLC		
Street Address:	2497 N 10TH AVE		
City, State Zip Code:	HANFORD, CA 93230		
APN/Parcel/PIN:	009-030-142-000	County:	KINGS
Legal Description:	LOT: A,B		

PROPERTY OWNERSHIP

Instrument: **GRANT DEED**

Date Recorded:	12/31/2020	Instrument:	2025563
Dated:	11/20/2020		
Grantor(s):	CAL-CLARK FARMS, INC.		
Grantee(s):	NAHAL FARMS, LLC		

ENVIRONMENTAL LIENS

NO ENVIRONMENTAL LIENS FOUND.

ACTIVITY AND USE LIMITATIONS (AUL)

NO AUL FOUND.

LEASES

NO LEASES FOUND.

MISCELLANEOUS INSTRUMENTS

NO MISCELLANEOUS INSTRUMENTS FOUND.

THANK YOU FOR YOUR ORDER

For questions, please contact our office at 1-877-848-5337.

Order Number:
19311

AFX Reference Number:
79-326191-47

Our Environmental Lien and AUL report provides a summary of recorded information on a specific property from the time the current owner purchased the property, to present time. The report is intended to assist in the search for environmental liens filed in land title records. The report will verify property ownership and provide information on recorded environmental liens and/or Activity and Use Limitations that have been recorded from the time the current owner purchased the property, forward. This report complies with ASTM 1527-21 standards when used in conjunction with a review of the owner's most recent insurance title policy. Environmental Liens and Activity Use Limitations may exist in the insurance title policy that do not appear within this report.

Our professional network of trained researchers follow established industry protocols and use client-supplied property information to complete this Environmental Lien and AUL report. The research is conducted at all appropriate government offices based on the location of the subject property. This would include City, County, State, Federal and Tribal offices as needed. The report includes:

- Current deed information (i.e. grantor, grantee, recording dates)
- Legal Description
- Environmental Lien information
- Activity and Use Limitation information
- Any Environmental Liens and/or documents referencing AULs that are listed within our summary report

Appendix C

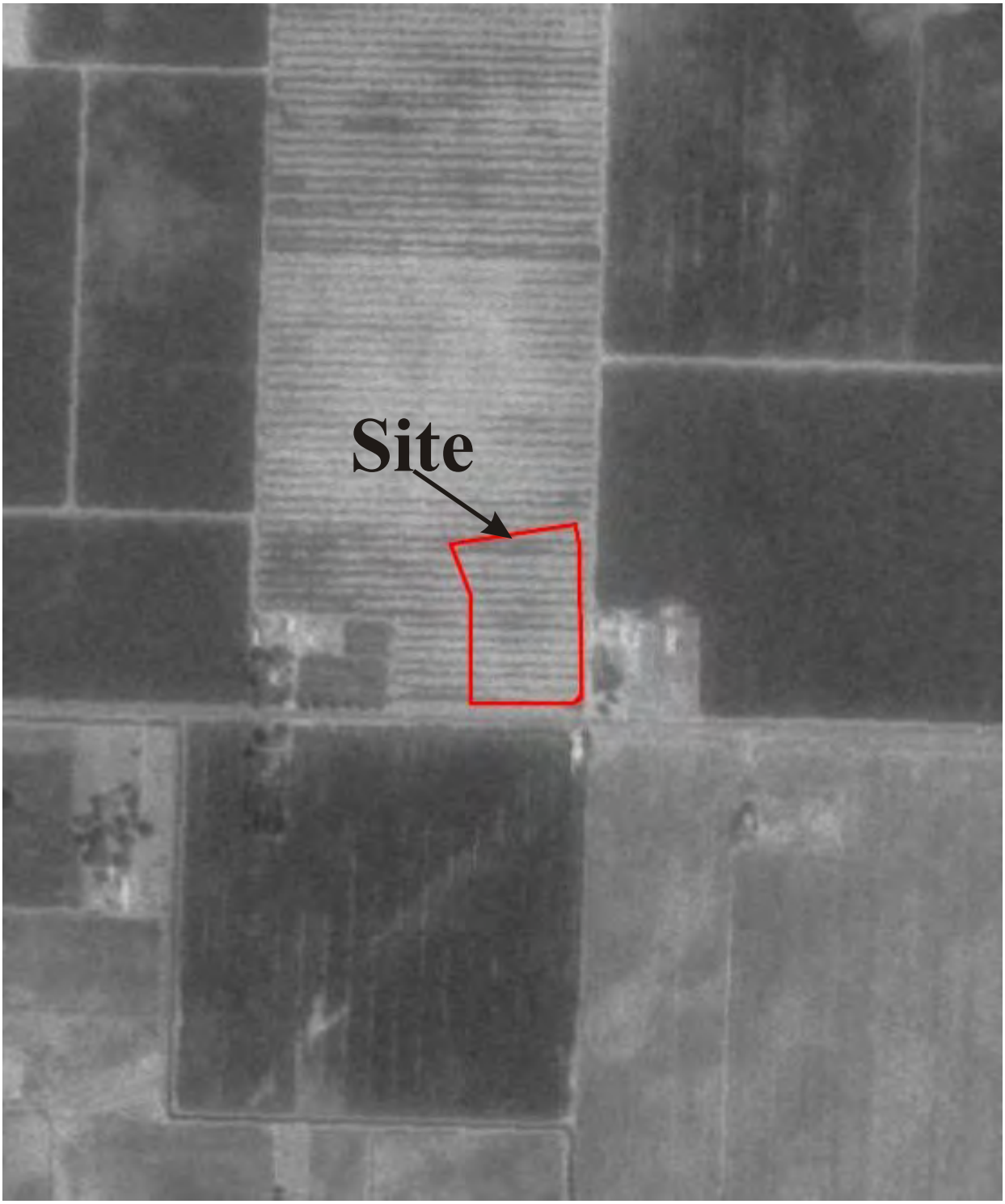
Aerial Photographs

Type text here

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **1934 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **1950 Aerial Photograph**	**PLATE**

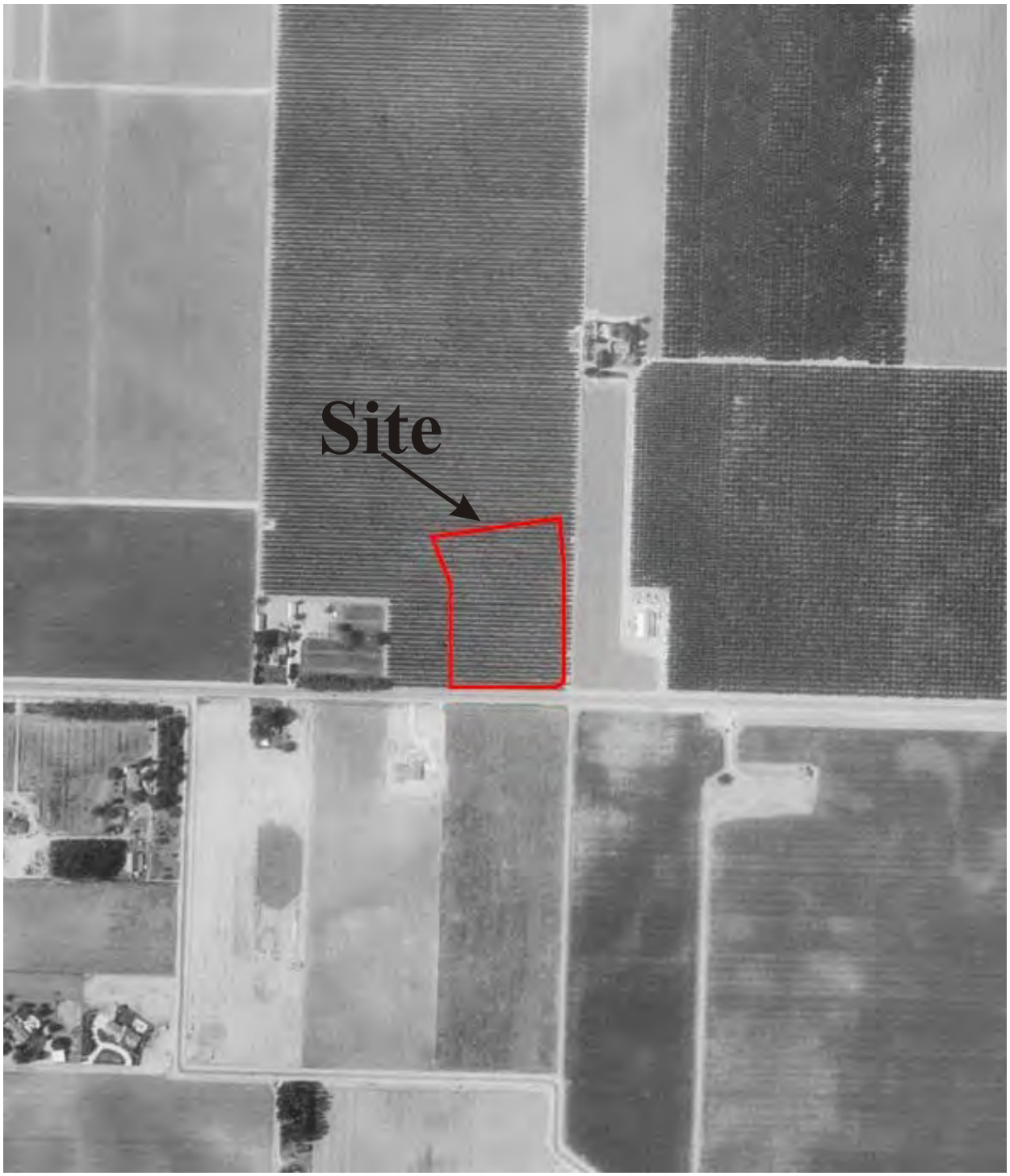
SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **1966 Aerial Photograph**	**PLATE**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **1974 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **1976 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **1984 Aerial Photograph**	**PLATE**



SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **1994 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **2003 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **2006 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **2009 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **2012 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **2016 Aerial Photograph**	**PLATE**

SOILS ENGINEERING, INC. **4400 Yeager Way** **Bakersfield, CA 93313** **(661) 831 - 5100** DATE: 11/23 PROJECT: 23-19311	**Property** **NW of Grangerville Blvd. & Centennial Drive** **Hanford, Kings County, California** **2023 Aerial Photograph**	**PLATE**

Appendix D

QA/QC Sheets

QA/QC - FORM D-1
Specific Issues

Y/N	Issue	Y/N	Issue
N	Above Ground Storage Tank(s)	N	Underground Storage Tank(s)
N	Clarifiers	N	Fill (Earth Berms)
N	Vent Pipes (irrigation lines)	N	Fuel Islands
N	Drums	Y	Other Containers
N	Surface Staining (minor)	N	Solid Waste Disposal
N	Former Suspected Oil Activities Related Sump	N	Pits, Lagoons, Canals or Ditches
N	Ponds	Y	Pesticide Use
N	Stockpiled Soils	N	Distressed Vegetation
N	Oil or Gas Wells	N	Monitoring Wells
N	Water Well	N	Dry Wells- Oil Exploration
N	Electrical Transformers (Pole-Mounted)	N	Chemical Process
N	Waste Treatment	N	Hazardous Waste Discharge
N	Septic Systems	N	Waste Water Discharge
N	Dry Cleaners	N	Repair or Servicing Facilities
N	Photo Processing	N	Manufacturing
N	Distribution Warehouse	N	Asbestos Containing Materials
N	High Radon Levels (See Geocheck Version2.1	N	Suspect Lead Containing Paint (Possible)
N	Lead in Water	N	Others
N	Is/was heating fuel provided by on-site storage fuel oil?		
N	On-site use, disposal, treatment, storage, or emission, of significant quantities of hazardous materials or wastes.		
N	Evidence of any on-site release of hazardous materials which could impact the subject site?		
N	Evidence of any off-site release of hazardous materials which could impact the subject site?		

Source/Year	2023	2016	2012	2009	2006	2003	1994	1984	1976	1974	1966	1950	1934	MORE
Title Search, Environmental Lien & AUL Search	X													
Aerial Photos	X	X	X	X	X	X	X	X	X	X	X	X	X	
Building Department Permits	X	X	X	X	X	X	X	X	X	X	X			
Building Department Plans														
Planning Department Records	X													
Fire Insurance Maps	X													
Oil and Gas Maps	X													
Fire Department Records	X													
UST Permits and Registrations	X													
Street Directories	X													
Observation (2023)	X													
Personal knowledge	X													
Others	X													
Personnel Interviews (2023)	X													

QA/QC FORM D-3 AERIAL PHOTOGRAPH REVIEW		
Concern	On-Site	Off-Site
Improvements	Former Agricultural, Idle Vacant Tilled Land	Residential, Grangeville Tank Site, Drainage Sump, Berkshire Crossing Apartments, SoCal Gas Pipeline
USE - Note evidence of:		
Above Ground Storage Tanks (Water)	N	Y
Fuel Islands	N	N
Drums	N	N
Agricultural Land (Former)	Y	Y
Surface Staining (Oil Staining)	N	N
Solid Waste Disposal/Land Fill	N	N
Pits, Ponds, Canals, Drainage Sump	N	Y
Stockpiled Soils	N	N
Distressed Vegetation	N	N
Wells (Oil Well)	N	N
Repair or Servicing Facilities	N	N
Industrial/Manufacturing	N	N
Warehouse	N	N
Gas Station	N	N
Others:	N	N
Note: Not found where left blank		

QA/QC - FORM D-4
Exception Items

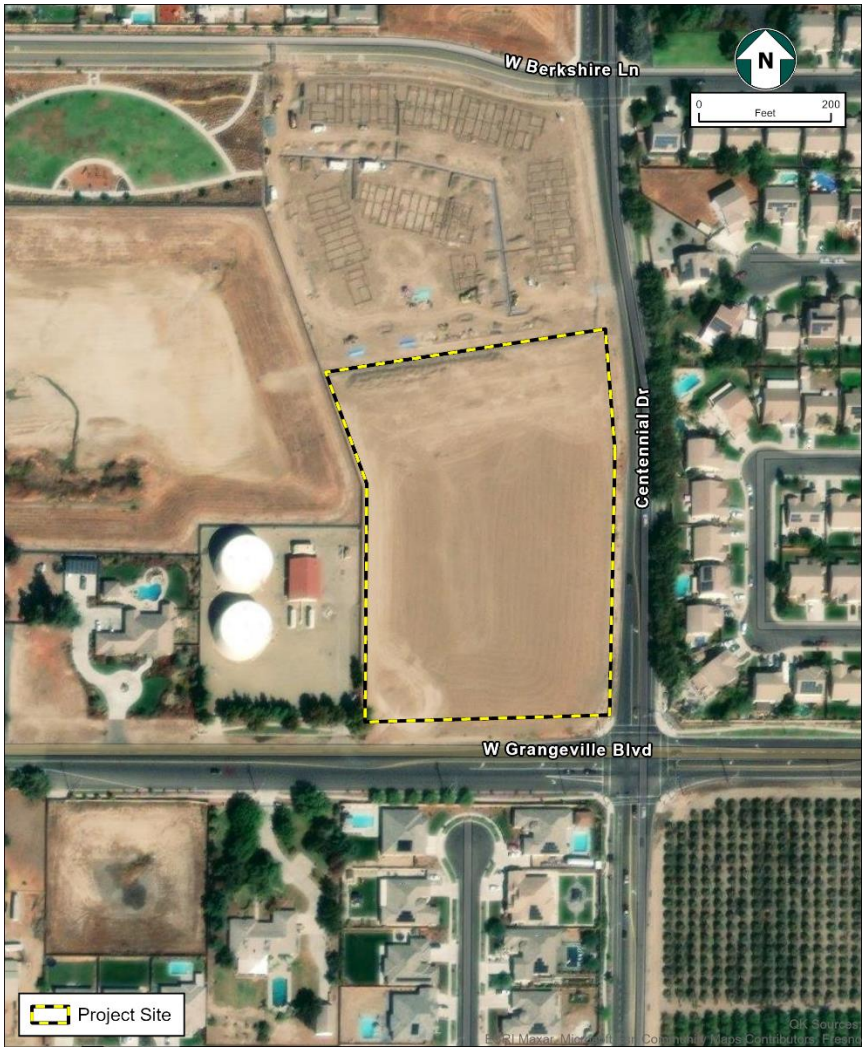
Areas Not Available and Restrictions on Accessibility to Environmental. Data		Status of Documents and Agency Reviews	
Areas	**Restrictions**	**List of Documents Requested**	**Status of Availability**
None	None		

APPENDIX F

WATER SUPPLY ASSESSMENT

WATER SUPPLY ASSESSMENT

MIXED-USE DEVELOPMENT AT GRANGEVILLE BLVD. AND CENTENNIAL DR.



NOVEMBER 2023

WATER SUPPLY ASSESSMENT

MIXED-USE DEVELOPMENT AT GRANGEVILLE BLVD. AND CENTENNIAL DR.

Prepared for:

City of Hanford - Community Development Department
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Bakersfield, CA 93309
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Brian Shoener, PE
Phone: (661) 616-2600

November 2023

Project #230244

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SECTION 1 - INTRODUCTION

1.1 - Regulatory Requirement

Senate Bill 610 (Chapter 643, Statutes of 2001) amended State law, effective January 1, 2002, to improve the link between information on water supply availability and land use decisions made by cities and counties. The statute requires detailed information regarding water availability to be provided to city and county decision-makers prior to approval of specified large development projects which are subject to CEQA (the California Environmental Quality Act) approval. These include residential, commercial, and industrial uses. The statute also requires this detailed information to be included in the administrative record that serves as the evidentiary basis for an entitlement action by the city or county on such projects. The statute-required water supply assessment (WSA) must examine the availability and sufficiency of an identified water supply under normal year, single dry year, and multiple dry year conditions over a 20-year projection, accounting for the projected water demand of the Project in addition to other existing and planned future uses of the identified water supply.

The State Department of Water Resources "Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001" (Guidebook) and the sample format presented in the Guidebook were used as guides in preparing this water supply assessment. Pertinent excerpts from the law stipulating requirements for water supply assessments precede Sections of this report. The full text of Chapter 643, Statutes of 2001 (SB 610) is included in Appendix A.

1.2 - Project Description and Location

The Project is located on a 5-acre parcel identified by Assessor's Parcel Number (APN) 009-030-142, located northwest of the intersection of Grangeville Boulevard and Centennial Drive in Hanford, California. The parcel is currently vacant and has been subject to past disturbance, including grading (Figures 1-1 and 1-2).

The proposed Project consists of a new mixed-use development, including a 64-unit multifamily housing development and commercial development. The residential development will be located on the northern 3.75-acre of the project site, while the commercial development will be on the southern 1.25-acre portion of the site. The commercial portion of the Project would be developed in a separate phase and is anticipated to include a gas station and fast-food restaurant (Figure 1-3).

The proposed residential component includes eight buildings, three open space areas, nine carports, four trash enclosures, and other associated amenities throughout the site. The open spaces areas would include landscaping and walkways. The central open space area would feature a community pool, shade structures, picnic tables, and walkways. Sidewalks, crosswalks, and landscaping would be provided throughout the project site. The residential development would be gated and would feature masonry fencing along the project boundaries.

Water for the proposed development would be supplied by the City of Hanford.

1.3 - Project Water Requirements and Setting

Water needed for construction and potable use by the construction crews will be obtained from the City of Hanford. The City obtains groundwater from the Tulare Lake Basin. The current water distribution system is adjacent to the project site. The construction process is estimated to take approximately 24 months. Construction water demands are estimated to be approximately 11.2 acre-feet, which is equivalent to approximately 3,650,000 gallons (~5,000 gpd).

Initial construction water usage will be in support of site preparation and grading activities. During earthwork for grading of access road foundations, building foundations, and project components, the principal use of water would be for compaction and dust control. Smaller quantities would be required for preparation of the concrete required for foundations and other minor uses. After the earthwork activities, water usage will be used for dust suppression and normal construction water requirements that are associated with construction of the buildings, internal access roads, and revegetation.

The long-term average day operational water demand for the various production processes listed in Section 1.2 is approximately 6.94 million gallons per year or 24.77 acre-feet per year for the total build-out of the Project. This is based on using an average day water demand of 19,000 gallons per day. The average day demand was calculated based on 16 one-bedroom units, 36 two-bedroom units, and 12 three-bedroom units (64 total unit) for a total 124 bedrooms. Using the Department of Water Resources (DWR) indoor water use efficiency standard of 55 gallons per capita per day, the residential units would average 6,820 gallons per day. For the 1.25 acres of commercial development, an average water demand of 220 gallons per day/1,000 square feet were used for a total of 12,000 gallons per day. The total between the residential and commercial development is rounded to 19,000 gallons per day.

Figures 1-4 and 1-5 illustrate the location of the Project site within the Tulare Lake Hydrologic Region, Tulare Lake Groundwater Basin, and the borders of these water resource areas. Construction and operational water for the Project will be from sources pumping groundwater from this basin. The Tulare Lake Groundwater Basin does not have any adjudicated areas.

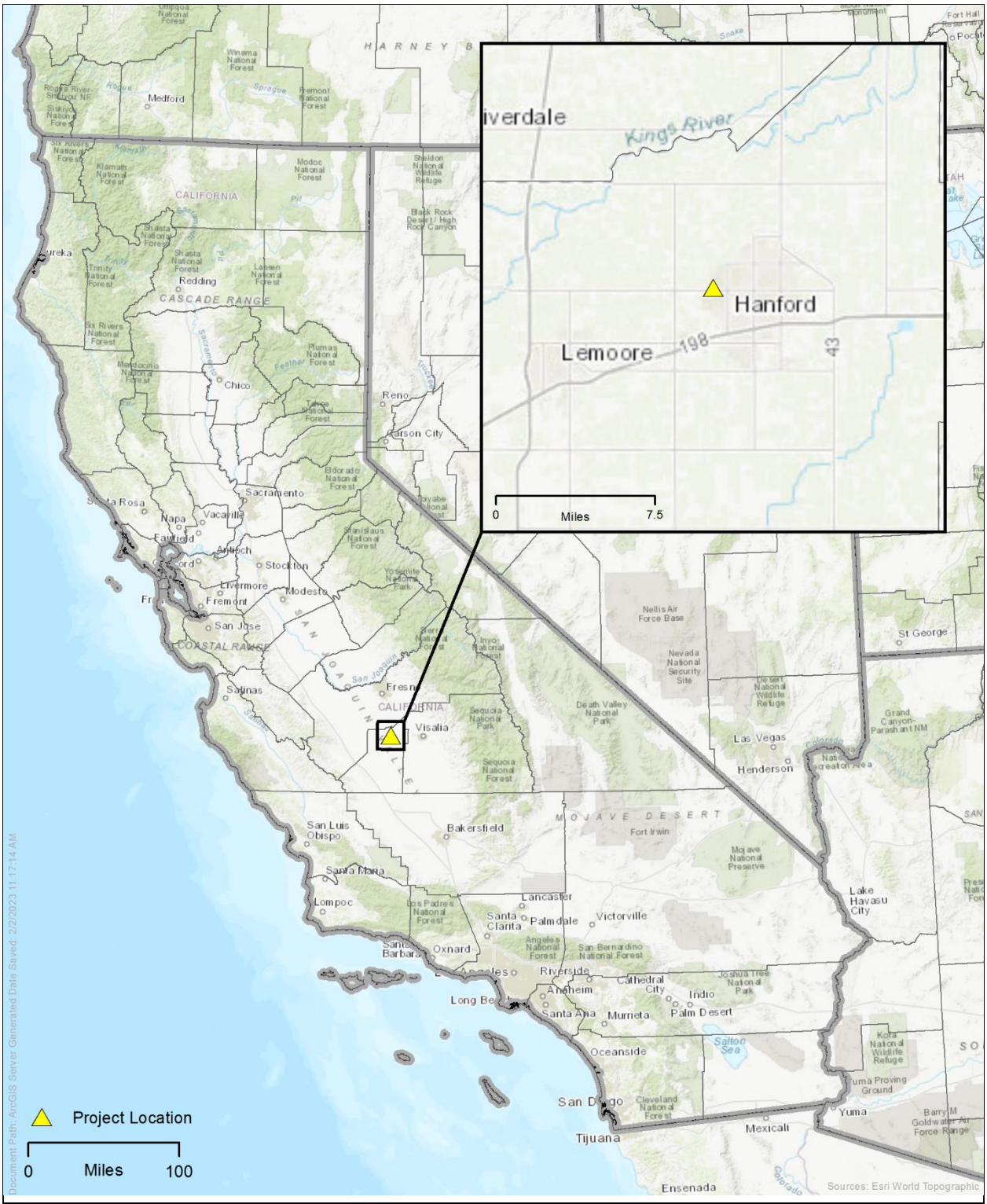

Figure 1-1
Regional Location

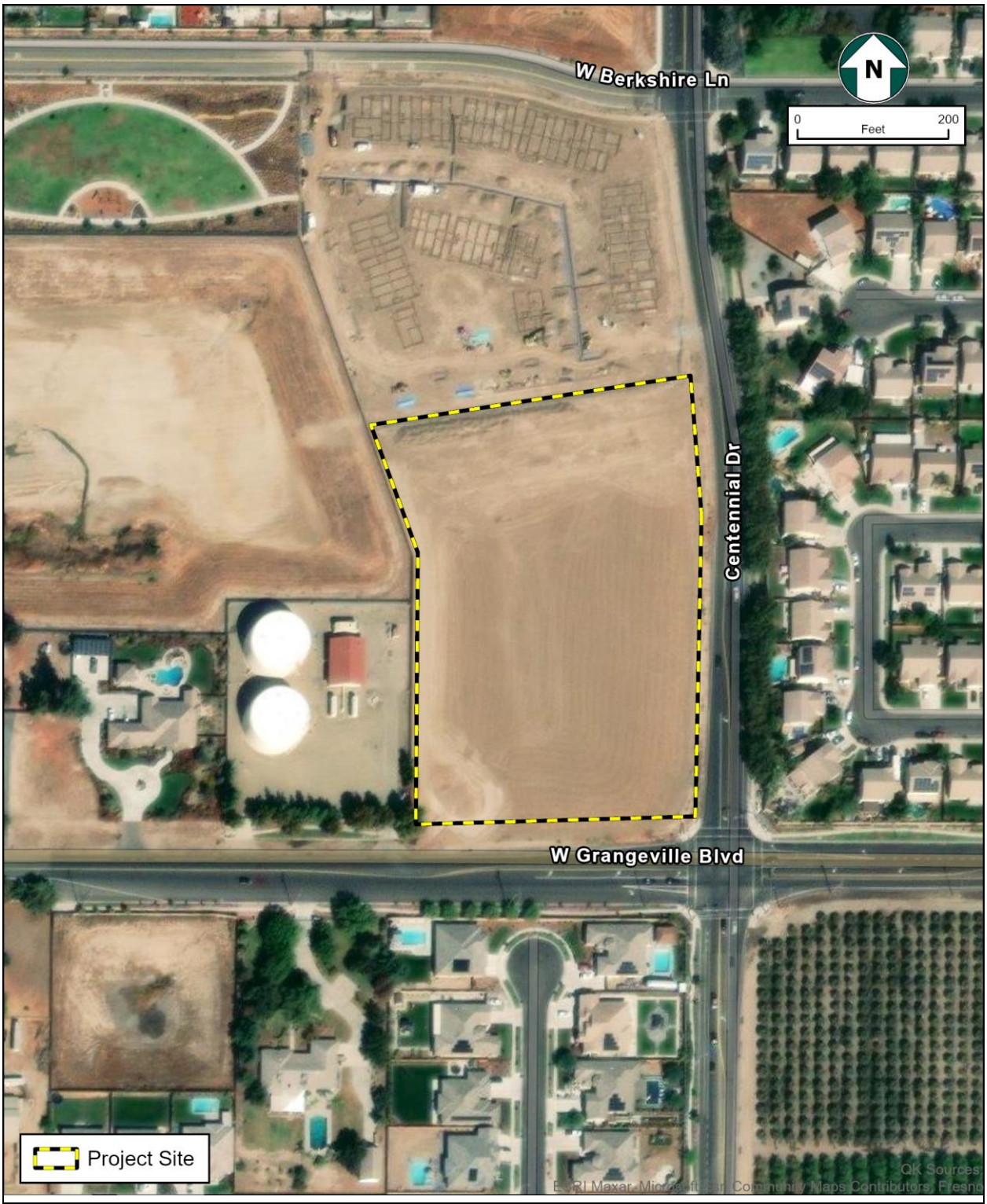

Figure 1-2
Project Site

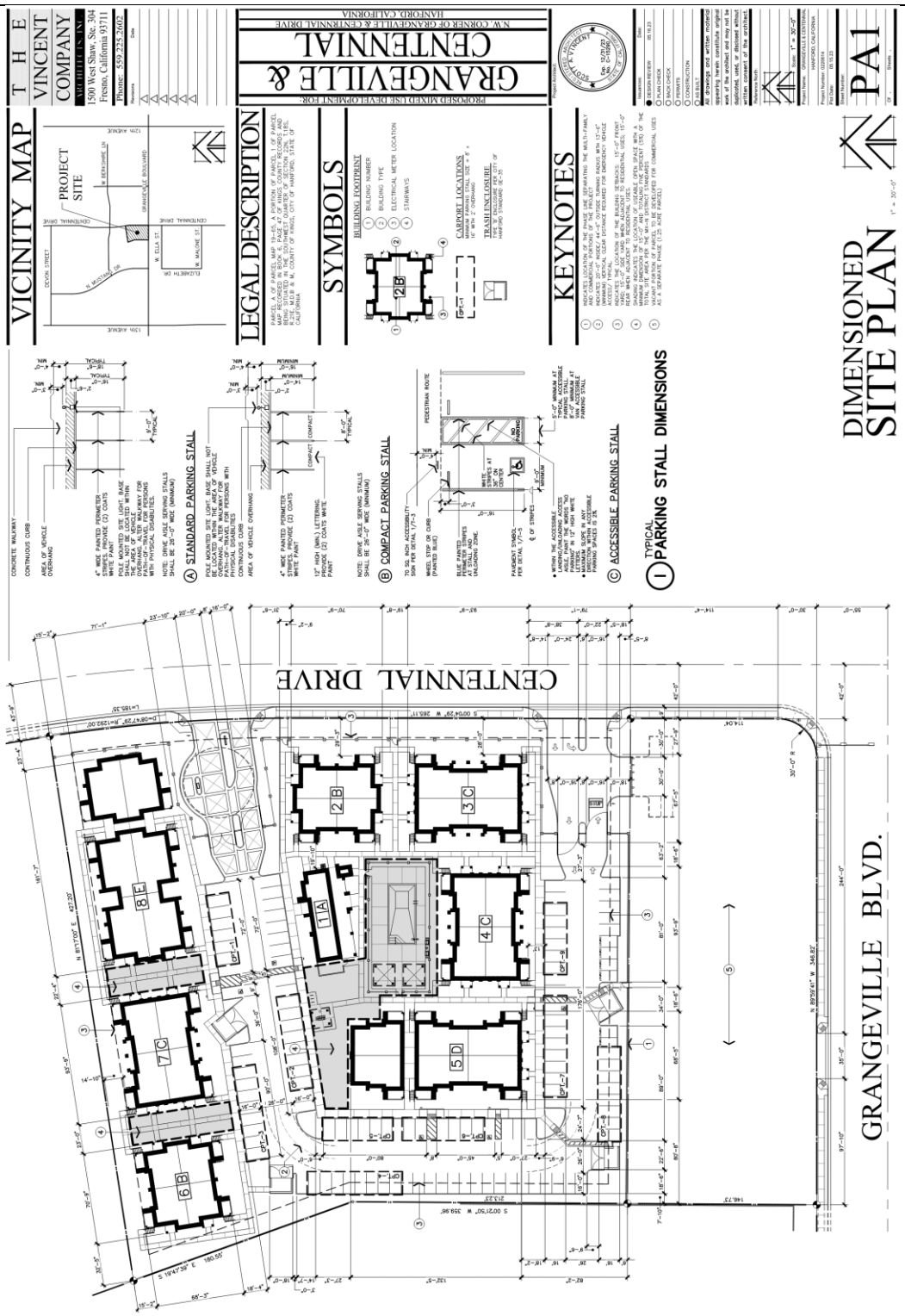

Figure 1-3
Project Site Plan

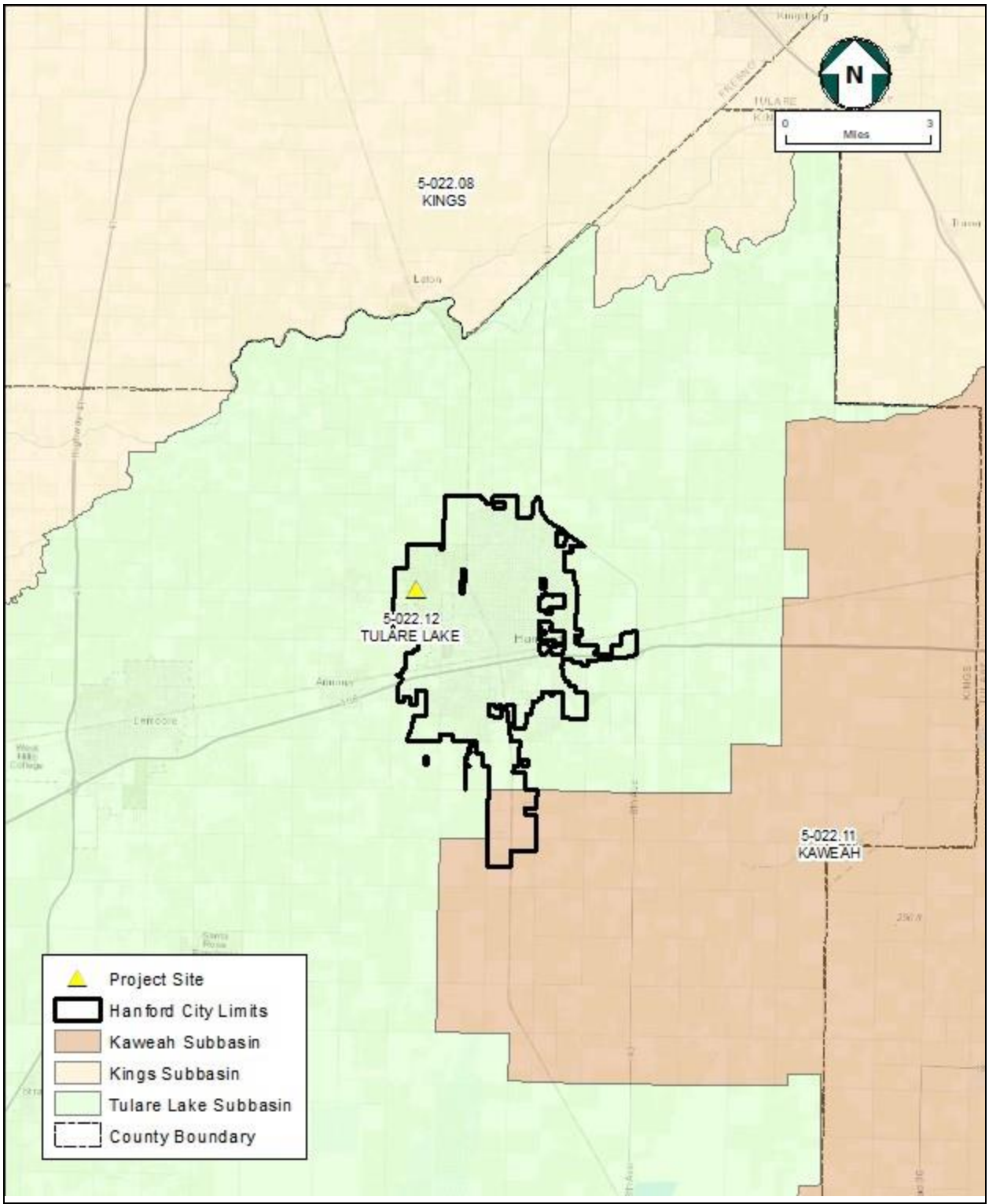

Figure 1-4
Project Location: Tulare Lake Hydrologic Region

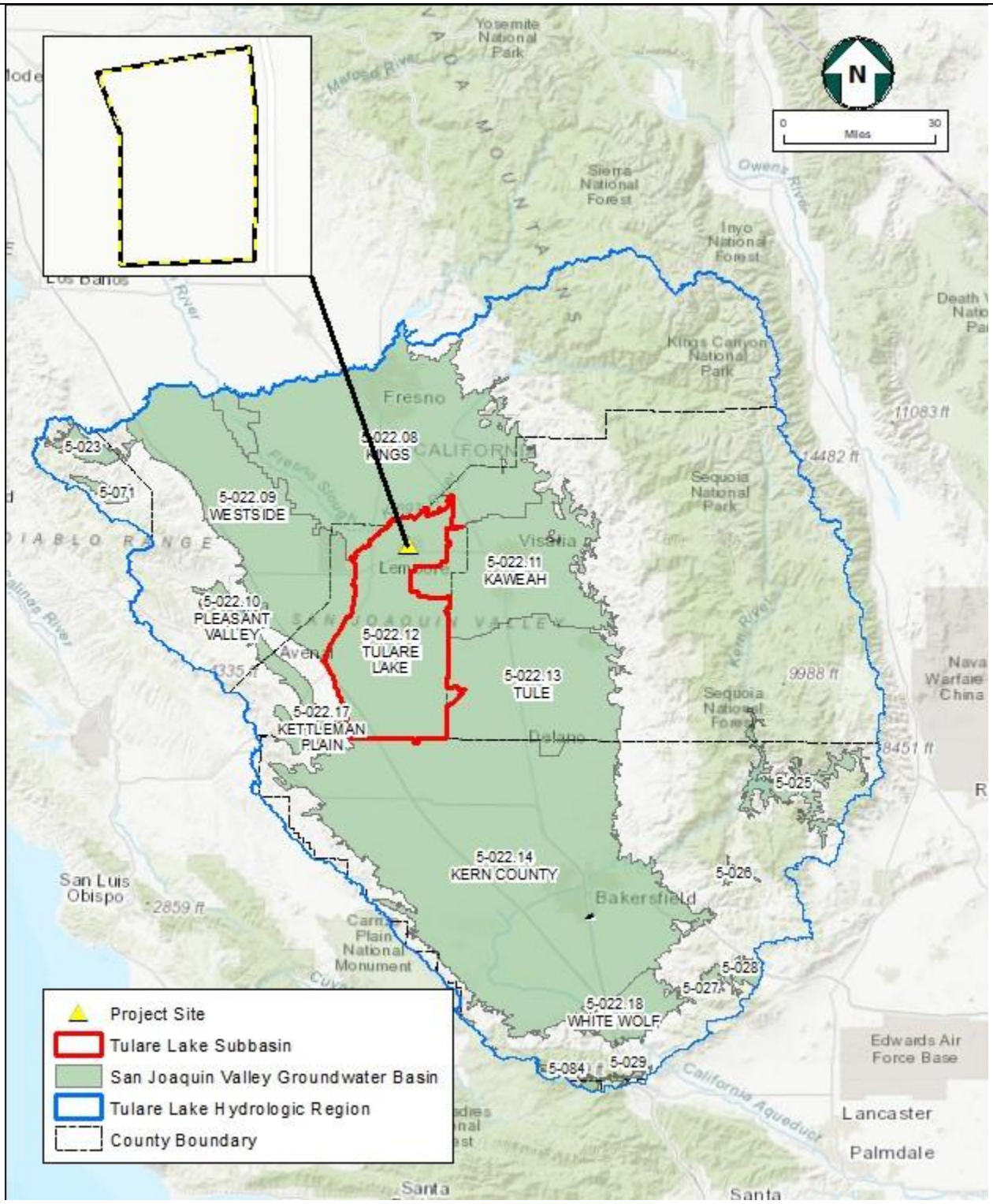

Figure 1-5
Project Location: Tulare Lake Hydrologic Region

SECTION 2 - WATER RESOURCES/WATER SUPPLY

2.1 - Proposed Water Supply

The Project will be served by a public water system as required by Water Code section 10910(b). The purpose of the Water Supply Assessment is to determine "If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g). If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses." (SB610, Appendix A, Page 10)

The City of Hanford is required to adopt an Urban Water Management Plan (UWMP) since the City serves more than 3,000 connections. The 2020 UWMP will be used for this water supply assessment. The 2020 UWMP will be used to obtain the following:

> "a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project."

In making the sufficiency determination, the public water system shall include an assessment of the following:

Water Code Section 10910

> (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.
>
> (b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system whose service area includes the project site and any water system adjacent to the project site that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public

water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

The long-term average day operational water demand will be for the residential and commercial users and is anticipated to be approximately 6.94 million gallons per year or 24.77 acre-feet per year for the total build-out of the Project. This is based on using an average day water demand of 19,000 gallons per day.

It is assumed that the City of Hanford will supply water during construction and for the developed property via the wells and distribution system.

2.2 - Hydrologic Region

The Water Supply Assessment evaluates the physical availability of and adequate groundwater supply, in all "water years" for a 20-year period.

This Assessment describes the relevant Hydrologic Region, and Basin, describes the principal water agency (City of Hanford) serving and regulating Basin water planning and surface water importation, and lists water sufficiency and planning documents regarding the Basin. Section 3 includes the latest (2020) City of Hanford projection of water availability (ground) for the Basin for a 20-year period under the normal, single dry and multiple dry year scenarios, as required by SB 610.

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2)(A) A description of any groundwater basin or basins from which the proposed project will be supplied.

(B) For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree.

(C) For a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4 , information regarding the following:

(i) Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924 .

(ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

(D) For a basin that has not been adjudicated that is a basin designated as low- or very low priority pursuant to Section 10722.4 , information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

2.2.1 - THE TULARE LAKE HYDROLOGIC REGION

The California Department of Water Resources, (DWR) has divided the State into 10 Hydrologic Regions. The Project site is located within the Tulare Lake Hydrologic Region in a Basin ranked as "high priority" in a statewide ranking of groundwater importance. Additionally, the Basin is listed as being in "critical overdraft". The Region encompasses approximately 16,800 square miles (see Figure 1-5).

2.2.2 - THE TULARE LAKE GROUNDWATER SUBBASIN

The project site is located above the Tulare Lake Hydrologic Region, for which the Kings County Water District (KCWD) is the principal groundwater management agency. This basin can further be divided into subbasins that help better define the aquifer below the city. These subbasins are interconnected and help filter, transmit, and store water. The subbasins that subdivide the San Joaquin Valley Groundwater Basin are the Kings, Kern County, Kaweah, Tulare Lake, Tule, Pleasant Valley, and Westside groundwater basin. The Tulare Lake subbasin is the specific groundwater subbasin in which the project resides and has a surface area of approximately 524,000 acres (see Figure 2-1 – Basin 5-22.12). It is bounded to the north by the Kings Groundwater Basin, to the south by the Kings-Kern County line, to the east by the Westside groundwater basin, and to the west by the California Aqueduct; the subbasin has a surface area of approximately 818 square miles.

The Tulare Lake Groundwater Subbasin is not an adjudicated groundwater basin. In characterizing the groundwater budget, the DWR has classified the subbasin as Type B, which means that enough data is available to estimate groundwater extraction to meet local needs, but not enough data is available to characterize the groundwater budget. Well yields in the Tulare Lake subbasin average between 300 and 1,000 gallons per minute (gpm), with a maximum of 3,000 gpm.

As of 1995, the DWR estimated the total water storage of the subbasin using an estimated specific yield of 8.5 percent and water levels collected by the DWR as well as other cooperators. Based on these calculations, the DWR estimates the total storage capacity of the subbasin to be 17,100,000 AF to a depth of 300 ft and 82,500,000 AF to the base of fresh groundwater.

The 2003 DWR Bulletin 118 describes the subbasin water level as declining from 1970 to 2000, with fluctuation in the intervening years. Fluctuations can range from a general increase of 24 feet to decrease of up to 23 feet, with an average decline of 17 feet. According to the DWR, fluctuations are most significant in the lakebed area of the subbasin, with the area experiencing some of the steepest decreases and increases in water levels.

According to 2020 Tulare Lake Groundwater Sustainability Plan, GSAs estimate the total annual change in storage in the Subbasin storage ranged from -392,280 AF (2015) to 361,230 AF (2011) and averaged approximately -85, 690 AF per year during the 1990-2016 period. Municipal pumping was assumed to increase slowly from about 25,060 AF (2017) to about 30,160 AF (2070).

Groundwater in the Basin is used for all water supply for the City of Hanford. The City of Hanford participates with the Mid-Kings Rivers Groundwater Sustainability Agency (GSA).

2.3 - City of Hanford – 2020 UWMP

The proposed water for the project is located within the City of Hanford. As such, the City of Hanford has detailed information regarding groundwater in the area.

The City of Hanford has a service population of approximately 61,326 people. In 2020, approximately 11,714 acre-feet of water was delivered to an estimated 17,965 water service connections of which approximately 68 percent of the water use is for residential services. The remainder is for institutional, commercial, and industrial uses.

The City currently utilizes local groundwater as its sole source of water supply. Groundwater is extracted by fourteen active production wells located within the City's sphere of influence. In addition to production wells, the City has three water storage tanks.

The 2020 UWMP took into account the future water demand from the proposed Project since it is within the City boundary.

The Planning Documents

The following documents were essential to the development of this report:

- City of Hanford, 2020 Urban Water Management Plan, October 2021
- Tulare Lake Subbasin Groundwater Sustainability Plan (GSP), January 2020
- Department of Water Resources Bulletin 118

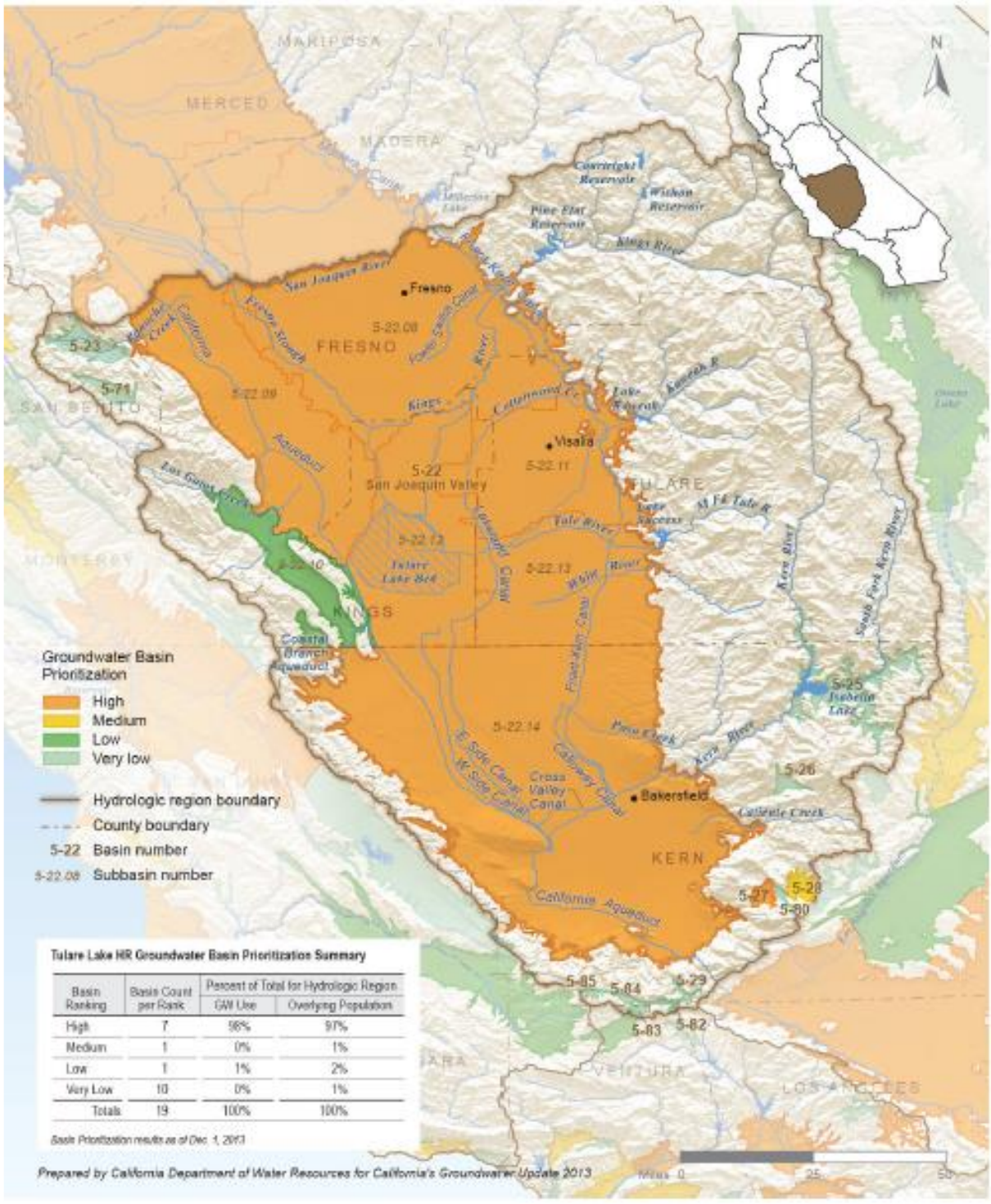

Figure 2-1
Tulare Lake Groundwater Basin Prioritization

SECTION 3 - WATER SUPPLY SUFFICIENCY

Water Code Section 10910, Section 4.5

…(C)(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single, dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

The sufficiency of the Project water supply is analyzed on two bases: the physical availability of the City to provide water in the amounts required for Project construction and operation; and the estimates (in the 2020 City of Hanford, Urban Water Management Plan) of normal water years, single dry water year and multiple dry water years, water supply and demand-related water availability with respect to projected water demand during a 20-year projection. The City of Hanford is a participant of the Tulare Lake Subbasin Groundwater Sustainability Plans (GSP) that was developed in January 2020. The 2020 Urban Water Management Plan is following the Tulare Lake Subbasin GSP.

3.1 - Physical Availability

The information regarding the physical availability of water at and near to the Project site supports the conclusion that the groundwater aquifer pumping history are sufficient for both Project construction and Project operation and that there will be sufficient water to serve project needs for 20 years under the water scenarios described below.

3.2 - The 2020 City of Hanford, Urban Water Management Plan – Water Years Adequacy Projections

The following text excerpted from the Urban Water Management Plan illustrates the total groundwater resources available to the City of Hanford, and the projected usage demand on such supplies through 2040. The following text extract from Page 7-7, Section 7.3 of the 2020 UWMP explains the City water supply adequacy.

> *Historical production records indicate that during drought water years, water demands during the single dry and multiple dry periods vary from the normal year baseline. Figure 7-1 documents historical per capita water use between 1984 and 2020 and summarizes the City's historical response to periods of dry weather. 1987 is shown as the first year of the multiple dry water year period and reflects the significant variation between the annual per capita water use and the historical trend; in 1987, the per capita water use was approximately 10.6% above the historical trend. While this year remains the significant deviation between annual per capita water use*

and the historical trend, 2013 is another year of significant deviation. During California's recent drought, the City's per capita water use was approximately 11.6% above the historical trend.

While the magnitude of the current drought is similar to that of the 1987 water year, increased water conservation measures put in place by the City have resulted in lower per capita water use.

In order to account for demand variation during drought water years, the projected water demands during the single dry and multiple dry water years (Table 7-3 and Table 7-4) are increased by a factor that reflects the greatest deviation (11.6% in 2013) of per capita water use from the historical trend.

The City's DRA is summarized at the beginning of the following page in Table 7-5. Using assumptions for available supplies consistent with previous planning efforts, and accounting for an unconstrained demand condition, the DRA shows that the City will be able to meet projected water demands under a 5-consecutive-year drought starting in 2021. At this point in time no water shortage declarations or shortage response actions are required to be implemented.

The following tables from the 2020 City of Hanford Urban Water Master Plan show the supply and demand comparisons for a normal year, single dry year, and five consecutive dry years.

3.2.1 - AVERAGE (OR NORMAL) YEAR

Normal year supply and demand projections and differences are presented in Table 3-1 (UWMP Table 7-2, Page 7-6).

Table 3-1
Normal Year Supply and Demand Comparison

Table 7-2 Normal Year Supply and Demand Comparison

	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Supply	15,110	15,351	15,602	15,866	16,142
Demand	11,623	12,172	12,748	13,351	13,982
Difference	3,488	3,179	2,855	2,515	2,160

As shown in Table 3-1, future water supplies are anticipated to be met.

3.2.2 - SINGLE DRY YEAR

Projected supplies were compared to the increased demands for a single dry year and are presented in Table 3-2 (UWMP Table 7-3, Page 7-6).

Table 3-2
Single Dry Year Supply and Demand Comparison

Table 7-3 Single Dry Year Supply and Demand Comparison

	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Supply	15,110	15,351	15,602	15,866	16,142
Demand	12,971	13,584	14,227	14,899	15,604
Difference	2,140	1,767	1,376	967	538

As shown in Table 3-2, anticipated groundwater supplies are enough to meet all demands through the year 2045 even under single year drought conditions.

3.2.3 - FIVE CONSECUTIVE DRY-YEAR RELIABILITY ASSESSMENT

Projected supplies were compared to the increased demands for five-consecutive dry-year scenarios and are presented in Table 3-3 (UWMP Table 7-4, Page 7-7).

Table 3-3
Five Consecutive Dry Years Supply and Demand Comparison

Table 7-4 Multiple Dry Years Supply and Demand Comparison

		2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
First year (1987)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Second year (1988)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Third year (1989)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Fourth year (1990)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Fifth year (1991)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538

As shown in Table 3-3, anticipated groundwater supplies are sufficient to meet all demands through the year 2045 even under multiple dry year drought conditions.

The long-term operational water demand for the various production processes listed in Section 1.2 is approximately 6.94 million gallons per year or 24.77 acre-feet per year for the total build-out of the Project. This is based on using an average day water demand of 19,000 gallons per day.

The City has a projected 538 acre-feet of available water when looking at the fifth dry year based on 2045 projections (Table 3-3). The Project's long-term operational water demand is 0.78 percent (24.77 acre-feet/3,180 acre-feet) of the available water supply in the City.

The increased water demand for the project could be supplied by City of Hanford as shown in Table 3-3.

The tables and accompanying text indicate that the responsible water agency for the Project area has taken appropriate steps to assure that the total water supply for the service area will be adequate.

3.3 - Water Supply Management

The City of Hanford uses groundwater from the Mid-Kings Rivers Groundwater Sustainability Agency (GSA) to meet customer demands. Kings County Water District

(KCWD) operates numerous recharge basins in the area using water obtained from the Kings River and Kaweah and St. John's Rivers. Department of Water Resources has defined the Tulare Lake Basin as a critically over-drafted basin. In accordance with the Sustainable Groundwater Management Act, the Mid-Kings Rivers Groundwater Sustainability Agency has developed a Groundwater Sustainability Plan (GSP). The GSP outlines criteria to evaluate groundwater conditions and projects to reach sustainability within the basin by 2040.

In order to reduce the burden on groundwater resources during periods of prolonged drought, the City has developed a Water Shortage Contingency Plan that can be implemented to prevent and prohibit the wasting of water while also encouraging the community to conserve.

The City's supply reliability is dependent on the rate of available recharge for the groundwater subbasins beneath the City. KCWD imports raw water for the purpose of recharging the groundwater subbasins they manage, which includes the Tulare Lake subbasin. During periods of drought, the imported water supplies available to KCWD can be reduced or not provided at all, which would reduce the amount of recharge available to the groundwater basins. In periods of water shortage, KCWD works closely with the water suppliers extracting water from groundwater subbasins they manage in order to minimize overdraft and subsidence. Typically, when KCWD identifies a risk to regional supply reliability, they call for urban water suppliers to reduce their water use through voluntary and mandatory water conservation measures.

Additionally, during a drought, KCWD anticipates the City to use groundwater reserves. Historical groundwater monitoring by KCWD in the Tulare Lake subbasin also indicates stable groundwater conditions during multiple-year droughts. Through KCWD's implementation of conjunctive use programs, the Tulare Lake groundwater subbasin has historically experienced well managed levels. As a result of this management, the Tulare Lake subbasin is considered a reliable source of supply during water shortages. While pumping may exceed recharge during a drought, basin management practices have prevented long-term adverse conditions.

The DRA water demand and supply comparisons are documented in Table 3-4, which assumes that the available groundwater supplies are equal to the projected unconstrained demand through 2025 should a five-year drought occur.

Table 3-4
Five Consecutive Dry Drought Supply and Demand Comparison

Totals	2021	2022	2023	2024	2025
Demands					
Total Water Use	12,502	12,619	12,737	12,854	12,971
Supplies					
Groundwater Supplies	15,004	15,031	15,057	15,084	15,110
Surplus/Shortfall without WSCP Action	0	0	0	0	0
Planned WSCP Actions (use reduction and supply augmentation)					
WSCP - supply augmentation benefit	0	0	0	0	0
WSCP - use reduction savings benefit	0	0	0	0	0
Revised Surplus/(shortfall)	**2,502**	**2,411**	**2,321**	**2,230**	**2,140**
Resulting % Use Reduction from WSCP action	**0%**	**0%**	**0%**	**0%**	**0%**

SECTION 4 - CONCLUSIONS

This Water Supply Assessment has provided the data and analysis needed to verify that a sufficient Project water supply is physically available (Section 3.1) and that the Project water supply is in accord with SB 610's normal year/dry year/multiple dry year requirements, sufficient (Section 3.2).

It is recommended that the City of Hanford conclude that the proposed water supplies be found enough to meet the projected Project water demands.

SECTION 5 - REFERENCES

2003. Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001. (online): http://www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf. Accessed February 1, 2021

California Department of Water Resources (DWR). 2015. California's Groundwater Bulletin 118.135 p.

City of Hanford, 2020 Urban Water Management Plan

Tulare Lake Subbasin Groundwater Sustainability Plan (GSP), January 2020

APPENDIX A

CHAPTER 643, STATUTES OF 2001 (SENATE BILL 610)

Senate Bill No. 610
CHAPTER 643

An act to amend Section 21151.9 of the Public Resources Code, and to amend Sections 10631, 10656, 10910, 10911, 10912, and 10915 of, to repeal Section 10913 of, and to add and repeal Section 10657 of, the Water Code, relating to water.

[Filed with Secretary of State October 09, 2001. Approved by Governor October 09, 2001.]

LEGISLATIVE COUNSEL'S DIGEST

SB 610, Costa. Water supply planning.

(1) Existing law requires every urban water supplier to identify, as part of its urban water management plan, the existing and planned sources of water available to the supplier over a prescribed 5-year period. Existing law prohibits an urban water supplier that fails to prepare or submit its urban water management plan to the Department of Water Resources from receiving drought assistance from the state until the plan is submitted.

This bill would require additional information to be included as part of an urban water management plan if groundwater is identified as a source of water available to the supplier. The bill would require an urban water supplier to include in the plan a description of all water supply projects and programs that may be undertaken to meet total projected water use. The bill would prohibit an urban water supplier that fails to prepare or submit the plan to the department from receiving funding made available from specified bond acts until the plan is submitted. The bill, until January 1, 2006, would require the department to take into consideration whether the urban water supplier has submitted an updated plan, as specified, in determining eligibility for funds made available pursuant to any program administered by the department.

(2) Existing law, under certain circumstances, requires a city or county that determines an environmental impact report is required in connection with a project, as defined, to request each public water system that may supply water for the project to assess, among other things, whether its total projected water supplies will meet the projected water demand associated with the proposed project. Existing law requires the public water system to submit the assessment to the city or county not later than 30 days from the date on which the request was received and, in the absence of the submittal of an assessment, provides that it shall be assumed that the public water system has no information to submit. Existing law makes legislative findings and declarations concerning "Proposition C," a measure approved by the voters of San Diego County relating to regional growth management, and provides that the procedures established by a specified review board established in connection with that measure are deemed to comply with the requirements described above relating to water supply planning by a city or county.

This bill would revise those provisions. The bill, instead, would require a city or county that determines a project is subject to the California Environmental Quality Act to identify any public water system that may supply water for the project and to request those public water systems to

prepare a specified water supply assessment, except as otherwise specified. The bill would require the assessment to include, among other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts. The bill would require the city or county, if it is not able to identify any public water system that may supply water for the project, to prepare the water supply assessment after a prescribed consultation. The bill would revise the definition of "project," for the purposes of these provisions, and make related changes.

The bill would prescribe a timeframe within which a public water system is required to submit the assessment to the city or county and would authorize the city or county to seek a writ of mandamus to compel the public water system to comply with requirements relating to the submission of the assessment.

The bill would require the public water system, or the city or county, as applicable, if that entity concludes that water supplies are, or will be, insufficient, to submit the plans for acquiring additional water supplies.

The bill would require the city or county to include the water supply assessment and certain other information in any environmental document prepared for the project pursuant to the act. By establishing duties for counties and cities, the bill would impose a state-mandated local program.

The bill would provide that the County of San Diego is deemed to comply with these water supply planning requirements if the Office of Planning and Research determines that certain requirements have been met in connection with the implementation of "Proposition C."

(3) The bill would incorporate additional changes in Section 10631 of the Water Code proposed by AB 901, to be operative only if this bill and AB 901 are enacted and become effective on or before January 1, 2002, each bill amends Section 10631 of the Water Code, and this bill is enacted last.
(4) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

DIGEST KEY

BILL TEXT

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1.

(a) The Legislature finds and declares all of the following:

(1) The length and severity of droughts in California cannot be predicted with any accuracy.

(2) There are various factors that affect the ability to ensure that adequate water supplies are available to meet all of California's water demands, now and in the future.

(3) Because of these factors, it is not possible to guarantee a permanent water supply for all water users in California in the amounts requested.

(4) Therefore, it is critical that California's water agencies carefully assess the reliability of their water supply and delivery systems.

(5) Furthermore, California's overall water delivery system has become less reliable over the last 20 years because demand for water has continued to grow while new supplies have not been developed in amounts sufficient to meet the increased demand.

(6) There are a variety of measures for developing new water supplies including water reclamation, water conservation, conjunctive use, water transfers, seawater desalination, and surface water and groundwater storage.

(7) With increasing frequency, California's water agencies are required to impose water rationing on their residential and business customers during this state's frequent and severe periods of drought.

(8) The identification and development of water supplies needed during multiple-year droughts is vital to California's business climate, as well as to the health of the agricultural industry, environment, rural communities, and residents who continue to face the possibility of severe water cutbacks during water shortage periods.

(9) A recent study indicates that the water supply and land use planning linkage, established by Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code, has not been implemented in a manner that ensures the appropriate level of communication between water agencies and planning agencies, and this act is intended to remedy that deficiency in communication.

(b) It is the intent of the Legislature to strengthen the process pursuant to which local agencies determine the adequacy of existing and planned future water supplies to meet existing and planned future demands on those water supplies.

SEC. 2.

Section 21151.9 of the Public Resources Code is amended to read:

21151.9.

Whenever a city or county determines that a project, as defined in Section 10912 of the Water Code, is subject to this division, it shall comply with Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code.

SEC. 3.

Section 10631 of the Water Code is amended to read:

10631.

A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments as described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of such savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

SEC. 3.5.

Section 10631 of the Water Code is amended to read:

10631.

A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that

characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments as described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed

description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

SEC. 4.

Section 10656 of the Water Code is amended to read:

10656.

An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

SEC. 4.3.

Section 10657 is added to the Water Code, to read:

10657.

(a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

SEC. 4.5.

Section 10910 of the Water Code is amended to read:

10910.

(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

(d) (1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water

systems or water service contractholders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

(g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

(2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.

(3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public water system to comply with the requirements of this part relating to the submission of the water supply assessment.

(h) Notwithstanding any other provision of this part, if a project has been the subject of a water supply assessment that complies with the requirements of this part, no additional water supply assessment shall be required for subsequent projects that were part of a larger project for which a water supply assessment was completed and that has complied with the requirements of this part and for which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has concluded that its water supplies are sufficient to meet the projected water demand associated with the proposed project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses, unless one or more of the following changes occurs:

(1) Changes in the project that result in a substantial increase in water demand for the project.

(2) Changes in the circumstances or conditions substantially affecting the ability of the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), to provide a sufficient supply of water for the project.

(3) Significant new information becomes available which was not known and could not have been known at the time when the assessment was prepared.

SEC. 5.

Section 10911 of the Water Code is amended to read:

10911.

(a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

SEC. 6.

Section 10912 of the Water Code is amended to read:

10912.

For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3000 or more service connections. A public water system includes all of the following:

(1) Any collection, treatment, storage, and distribution facility under control of the operator of the system which is used primarily in connection with the system.

(2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the system.

(3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

SEC. 7.

Section 10913 of the Water Code is repealed.

SEC. 8.

Section 10915 of the Water Code is amended to read:

10915.

The County of San Diego is deemed to comply with this part if the Office of Planning and Research determines that all of the following conditions have been met:

(a) Proposition C, as approved by the voters of the County of San Diego in November 1988, requires the development of a regional growth management plan and directs the establishment of a regional planning and growth management review board.

(b) The County of San Diego and the cities in the county, by agreement, designate the San Diego Association of Governments as that review board.

(c) A regional growth management strategy that provides for a comprehensive regional strategy and a coordinated economic development and growth management program has been developed pursuant to Proposition C.

(d) The regional growth management strategy includes a water element to coordinate planning for water that is consistent with the requirements of this part.

(e) The San Diego County Water Authority, by agreement with the San Diego Association of Governments in its capacity as the review board, uses the association's most recent regional growth forecasts for planning purposes and to implement the water element of the strategy.

(f) The procedures established by the review board for the development and approval of the regional growth management strategy, including the water element and any certification process established to ensure that a project is consistent with that element, comply with the requirements of this part.

(g) The environmental documents for a project located in the County of San Diego include information that accomplishes the same purposes as a water supply assessment that is prepared pursuant to Section 10910.

SEC. 9.

Section 3.5 of this bill incorporates amendments to Section 10631 of the Water Code proposed by both this bill and AB 901. It shall only become operative if (1) both bills are enacted and become effective on or before January 1, 2002, (2) each bill amends Section 10631 of the Water Code, and (3) this bill is enacted after AB 901, in which case Section 3 of this bill shall not become operative.

SEC. 10.

No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

APPENDIX B

2020 CITY OF HANFORD, URBAN WATER MANAGEMENT PLAN

FINAL

City of Hanford

OCTOBER 2021

2020 Urban Water Management Plan

AKEL
ENGINEERING GROUP, INC.

CITY OF HANFORD

2020

URBAN WATER MANAGEMENT PLAN

Final

October 2021

AKEL
ENGINEERING GROUP, INC.

AKEL
ENGINEERING GROUP, INC.

Smart Planning Our Water Resources

November 8th, 2021

City of Hanford
319 North Douty Street
Hanford California, 93230

Attention: James Ross, Deputy Public Works Director

Subject: **2020 Urban Water Management Plan**

Dear Jim:

We are pleased to submit the City of Hanford 2020 Urban Water Management Plan (2020 UWMP) which is intended to address the Urban Water Management Planning Act (UWMPA) of 1983 and amendments thereof.

The City's 2015 UWMP received letters of review and completeness from the Department of Water Resources. This 2020 UWMP addresses additional amendments to the UWMPA and new guidelines established by the Department of Water Resources, including a 2020 Water Shortage Contingency Plan (2020 WSCP), as a separate document. Water supply reliabilities and demands are projected through a planning horizon of 2045.

We extend our thanks to you; John Doyel, Public Works Director; Christine Baca, Regulatory Compliance Analyst; Bob Williams, Utilities Supervisor, and other City staff whose courtesy and cooperation were valuable in reviewing and completing this study.

Sincerely,

AKEL ENGINEERING GROUP, INC.

Tony Akel, P.E.
Principal

Enclosure: 2020 Urban Water Management Plan

7433 NORTH FIRST STREET, SUITE 103 • FRESNO, CALIFORNIA 93720 • (559) 436-0600 • FAX (559) 436-0622
www.akeleng.com

City of Hanford
2020 Urban Water Management Plan

Contact Sheet

Date this plan was submitted to the Department of Water Resources:

Name of Person(s) preparing this plan:

Jim Ross, Deputy Public Works Director
City of Hanford
Phone: (559) 585-2567
Email: jross@cityofhanfordca.com

Tony Akel, P.E., Project Manager
Akel Engineering Group, Inc.
Phone: (559) 436-0600
Fax (559) 436-0622
Email: takel@akeleng.com

The Water supplier is a Municipality

The Water supplier is a Retailer

Utility Services provided by the water supplier include: Water, Sewer, Recycled Water

Is this Agency a Bureau of Reclamation Contractor? No

Is this Agency a State Water Project Contractor? No

Acknowledgements

City Council

Francisco Ramirez, Mayor

Diane Sharp, Vice Mayor

Amanda Saltray

Kalish Morrow

Art Brieno

Management Personnel

John Doyel, Director of Public Works

Jim Ross, Deputy Public Works Director

Christine Baca, Regulatory Compliance Analyst

Bob Williams, Utilities Supervisor

City of Hanford
2020 Urban Water Management Plan

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2020 Urban Water Management Plan

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CHAPTER 1 – INTRODUCTION AND OVERVIEW

This chapter introduces the purpose of the Urban Water Management Plan (UWMP) and its importance to the City of Hanford (City) as well as Department of Water Resources (DWR). This chapter also includes the coordination and outreach that took place for this UWMP to come to fruition as well as documenting the milestones for adopting the UWMP and for submitting it to the DWR.

1.1 BACKGROUND AND PURPOSE

Water suppliers must submit an Urban Water Management Plan to the Department of Water Resources in accordance with California Water Code requirements. The purpose of the UWMP is to review and maintain the reliability of urban water supplies, ensure that future beneficial use can be complemented by sufficient water supply, continue to promote policies and programs that benefit water conservation, and provide a means for response during water supply shortages and drought conditions. In addition to being filed every five years, the Urban Water Management Plan must satisfy requirements defined in the Urban Water Management Planning Act (UWMPA) of 1983 and any amendments thereof.

Since the passage of the UWMPA, there have been more than 20 amendments to the Act. According to the UWMPA, a UWMP must be prepared by an urban water supplier that supplies over 3,000 acre-feet (AF) of water a year, or services 3,000 or more connections.

In October 2017, DWR completed the review of the City's 2015 UWMP and its supplements, and issued a letter of completeness. The UWMPA has undergone significant expansion and revision since the last UWMP Guidebook was prepared in 2015. Prolonged droughts, groundwater overdrafts, and regulatory revisions affect not only each Supplier's water reliability determinations, but also the broad picture of statewide water reliability overseen by DWR, the State Water Resources Control Board (State Water Board), and the Legislature. Accordingly, the Act has grown to address changing conditions and it guides California's water resources management.

Thus, this 2020 UWMP includes updates to the 2015 UWMP and addresses additional amendments to the UWMPA and new guidelines established by DWR. This report references the tables required by DWR in their 2020 UWMP Guidebook published in March 2021, which have been completed and included in **Appendix A**.

1.2 URBAN WATER MANAGEMENT PLANNING AND THE CALIFORNIA WATER CODE

The drought of 1976-1977 created shortages of water supplies throughout California. With several cities and water districts/agencies witnessing reductions in their water supplies and having to look for additional water sources elsewhere, an immediate need for a statewide, local level, long-term water management planning arose. To dramatically reduce future emergencies caused by inadequate planning of water resources, the Urban Water Management Planning Act was proposed and adopted in 1983. State Assembly Bill 797 modified the California Water Code Division 6 in 1983, creating the UWMPA. Since this Assembly Bill, more than 20 amendments have changed the quantity of data required, as well as increasing the planning elements included in this 2020 plan.

Early amendments to the UWMPA required 20-year planning horizons in 5-year increments for the comparison of water use to sources of water supply. More recently, these planning projections have been extended to 25-year planning horizons in order to maintain the 20-year projections, while the subsequent UWMP is completed.

Additional amendments included requirements that water supplier's UWMP provides provisions for a Water Shortage Contingency Plan, which would meet the specifications set forth in the UWMPA; demand management measures; and provisions for recycled water use. Recycled water use was added to reporting requirements due to its additional reliability for alternative water supply, and most notably, as an additional supply for future water use demand. Individual water purveyors, in coordination with other water purveyors in the same general area and to the extent practicable, must work to prepare the Water Shortage Contingency Plan. The individual water supplier must also describe the water demand management measures that are currently in practice, or those scheduled to be practiced.

More than 15 amendments have been passed since the year 2000, amending the UWMPA and increasing reporting for the UWMP. Included in these amendments are SB 610 (Costa, 2001) and AB 901 (Daucher, 2001), which require urban water purveyors to review information regarding water to supply new large developments. Additionally, SB 318 (Alpert, 2004) requires the plan to review opportunities involved in the development of desalinated water, included but not limited to, ocean, brackish, and groundwater, as a long-term supply. AB 105 (Wiggins, 2004) requires suppliers to submit their completed UWMP to the California State Library. SBX7-7 requires the state and its municipal water purveyors to achieve a 20 percent reduction in urban per capita water usage by the year 2020. The "20X2020" plan is intended to reduce water usage per capita by 10% by the year 2015, and 20% by the year 2020.

The most recent of these amendments are:

- AB2242 (2018) requires an urban water supplier to include in its UWMP an assessment of the reliability of its water service to customers during normal, dry, and multiple dry years,

including a repeat of the five consecutive historic driest years the urban water supplier has experienced.

- SB606 (2018) adds new requirements to the UWMP process as well as established updated urban water use objectives and water use reporting requirements,
    - Prepare a drought risk assessment that examines water shortage risks for a drought lasting for the next five years.
    - Prepare a comprehensive Water Shortage Contingency Plan that will include water budgeting forecast procedures, standard water shortage levels, shortage response actions, and other protocols.

Enacts an annually required water supply and demand assessment wherein an urban water supplier will assess local demand and supply conditions and provide that information to DWR.

1.3 REPORT ORGANIZATION

This report is organized in accordance with the outline suggested by the Department of Water Resources for the 2020 Urban Water Management Plans.

Chapter 1 – Introduction and Overview. This chapter introduces the purpose of the Urban Water Management Plan (UWMP) and its importance to the City of Hanford (City) as well as the Department of Water Resources (DWR).

Chapter 2 – Plan Preparation. This chapter describes the process that was used for the development of the UWMP. This chapter also includes the coordination and outreach that took place for this UWMP to come to fruition, as well as documenting the milestones for adopting the UWMP and for submitting it to the DWR.

Chapter 3 – System Description. This chapter describes the City's water service area. This description includes discussion of the City's location, the boundaries of the water service area, existing and future land use types, and climate. This chapter also summarizes the historical and projected population as well as a review of the City's demographics and socioeconomic conditions.

Chapter 4 – System Water Use. This chapter provides a description of the current and projected water uses within the City's service area. Additionally, a description of potential recycled water uses is provided. Water demands are projected through the year 2045.

Chapter 5 – Baseline and Targets. This chapter summarizes the methods used to estimate the target water use. As part of the 2020 UWMP update, this chapter evaluates if the City achieved the required water use reduction target.

Chapter 6 – System Supplies. The purpose of this chapter is to summarize the City's current and planned water supply sources and volumes. This includes a description of the groundwater basins used by the City as a source of supply. Ongoing planning efforts for the potential use of recycled water within the City's service area are also summarized.

Chapter 7 – Water Supply Reliability. This chapter assesses the reliability of the City's water supply under normal conditions, single year dry conditions, and five-year dry conditions. The reliability assessment includes a comparison of projected water use versus expected water supply for the next 25 years. This chapter also includes the newly required Drought Risk Assessment, which is a review of the capability of the City's water supplies to meet the demand for the next five years assuming a five-year drought occurs.

Chapter 8 – Water Shortage Contingency Plan. This chapter summarizes the City's Water Shortage Contingency Plan (WSCP). The WSCP is a separately adopted planning document that most notably outlines levels of water shortage conditions, demand reduction methods to be implemented in the event of a water shortage and the process the City will implement to perform an annual Supply and Demand assessment. The WSCP also includes discussion of the City's communication protocols during a water shortage, methods of determining compliance and enforcing water use prohibitions, estimating the financial consequences of a water shortage, and the methods the City has in place to monitor and report the effectiveness of any water demand reduction methods implemented.

Chapter 9 – Demand Management Measures. This chapter summarizes the demand management measures, which are additional measures the supplier plans on implementing to achieve its water use targets and maintain ongoing water conservation.

Chapter 10 – Plan Adoption, Submittal and Implementation. This chapter summarizes the process for adopting and submitting the UWMP as well as the ways the public can access the adopted UWMP.

1.4 PUBLIC PARTICIPATION AND PLAN ADOPTION

Law

> *10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published ... After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

In accordance with the stated law, the City held a public hearing for members of the community to provide comments, learn about existing and future water supplies of the city, and raise concerns towards the plan being adopted. A notice of the public hearing was published in the local

newspaper on September 20th and September 28th, 2021, notifying interested parties that the draft 2020 UWMP was available at various City facilities and on the City's web page (www.cityofhanfordca.com) for review two successive weeks prior to adoption. After public review, the plan was adopted on October 19th, 2021 and subsequently submitted to DWR for approval on October 26th, 2021.

1.5 UWMP AND GRANT OR LOAN ELIGIBILITY

Law

10608.56	*(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.* *(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier …applicable to the water funds.* *(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier … as a disadvantaged community.* *(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier … is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).*
10656	*An urban water supplier is not eligible for a water grant or loan awarded or administered by the state unless the urban water supplier complies with this part.*

Beginning in 2016, changes to California law require that urban retail water suppliers must comply with water conservation requirements established by the Water Conservation Act of 2009 in order to be eligible for State water grants or loans. For 2020 UWMPs, compliance with the Water Conservation Act of 2009 means that a water agency must have met its 2020 Urban Water Use Target, discussed further in Chapter 5; this compliance must be reported in the 2020 UWMP.

1.6 PREVIOUS URBAN WATER MANAGEMENT PLANS

The City of Hanford prepared a 2015 UWMP, which was adopted on June 21st, 2016. This UWMP documented the SBX7-7 baseline per capita was use, as well as the interim and 2020 water use targets. This UWMP documented the groundwater conditions, future water supply projects, the water shortage contingency plan, and demand management measures implemented to reduce water demands. The 2015 UWMP serves as a benchmark for the 2020 UWMP, as the 2020 UWMP will update the target projections consistent with the final Guidebook release from the Department of Water Resources.

CHAPTER 2 – PLAN PREPARATION

This chapter describes the process that was used for the development of the UWMP. This chapter also summarizes the coordination and outreach that was conducted during the preparation of the UWMP.

2.1 BASIS FOR PREPARING A PLAN

The California Water Code (CWC) defines an "Urban water supplier" as a publicly or privately owned supplier of water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. At the time of preparation of the 2020 UWMP, the City supplied water to over 17,900 active service connections, as summarized in Table 2-1, thereby qualifying as an urban water supplier and required to prepare an Urban Water Management Plan every five years.

Table 2-1 Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 (AF)
1610003	City of Hanford	17,965	11,714

2.2 REGIONAL PLANNING

The City's 2020 UWMP is prepared as an individual UWMP and the City is not part of any regional alliance for planning purposes, as summarized in Table 2-2.

Table 2-2 Plan Identification

Select Only One	Type of Plan		Name of RUWMP or Regional Alliance
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		

2.3 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

Consistent with the 2015 UWMP, the 2020 UWMP reports solely on the City's service area and is not a part of a regional alliance or regional urban water management plan (RUWMP).

2.4 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

This UWMP has been prepared using calendar year data and includes complete 2020 data, as required by the DWR guidelines. The units of measure reported in all tables are acre-feet (AF), as shown in **Table 2-3**.

Table 2-3 Supplier Identification

Type of Supplier	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
Units of Measure Used in UWMP[1]	
AF	

Notes:

1. Units of DWR required tables are consistent in SBX7-7 verification tables

2.5 COORDINATION AND OUTREACH

The City's 2020 UWMP is an update to the 2015 UWMP and is intended to address those aspects of the UWMPA which are under the control of the City, specifically water supply and water use. The City submitted its draft plan to regional stakeholders, and made the draft plan available to the public in hard copy form and electronic form. The City did notify wholesale water suppliers, as shown in **Table 2-4**.

Table 2-4 Water Supplier Information Exchange

Wholesale Water Supplier Informed of Projected Water Use
Kings County Water District
Kings County Water Commission

CHAPTER 3 – SYSTEM DESCRIPTION

This chapter describes the City's water service area. This description includes discussion of the City's location, the boundaries of the water service area, existing and future land use types, and climate. This chapter also summarizes the historical and projected population as well as a review of the City's demographics and socioeconomic conditions.

3.1 GENERAL DESCRIPTION

This section documents the City's location, service area, land use, and socioeconomic conditions.

3.1.1 Location

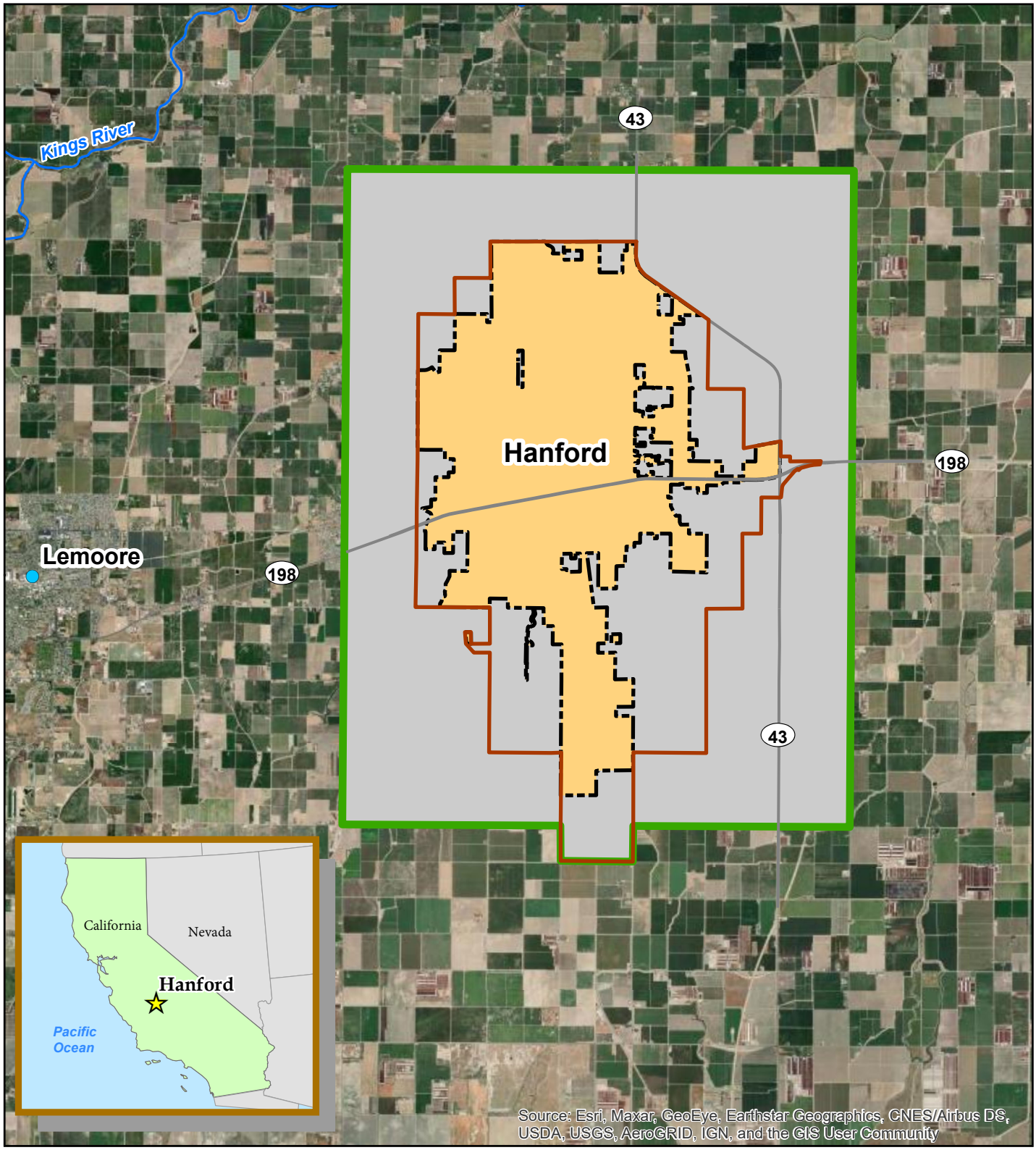
The City is located in Kings County, approximately 30 miles southeast of the city of Fresno and 20 miles west of the city of Visalia (**Figure 3-1**). The City's closest neighbor, the city of Lemoore, is located 8 miles to the west. Highway 198 bisects the southern boundary of the City in the east-west direction, and Highway 43 lies just east of the City's eastern boundary. In 2002, the City outlined the long-term Ultimate Growth Boundary (UGB), which was approved by City Council, and identified lands intended for future urbanization within the City service area.

3.1.2 Water Service Area

The City's most recent General Plan, adopted in April 2017, outlines the boundary for future growth for the City. The planned area boundary outlined in the 2035 General Plan update encompasses a gross area of approximately 31.3 square miles and it is assumed to describe the future water system service area. The City limits currently describe the existing water service area, as shown in **Figure 3-2**.

3.1.3 Land Use

The planning area boundary of the City's 2035 General Plan includes an approximate net area of 16,032 acres, which includes the following land use types: 6,872 acres of residential; 826 acres of mixed use; and 8,334 acres of non-residential, which includes commercial, industrial, institutional, and open space land use types. The residential component can be further subdivided, with 82 percent of the units as low density, and 15 and 3 percent of units being medium and high densities, respectively. The City's 2017 Water System Master Plan used the 2035 General Plan Land use as the basis for estimating future demands, and this future land use is considered acceptable for incorporation as part of the 2020 UWMP update. The City's existing and future land use maps are shown in **Figure 3-3** and **Figure 3-4**, respectively.



Legend

PRELIMINARY

- Cities
- City Limits Area
- 2035 Growth Boundary
- General Plan Area
- Highways
- River

N W GIS E S

0 0.5 1 2 Miles

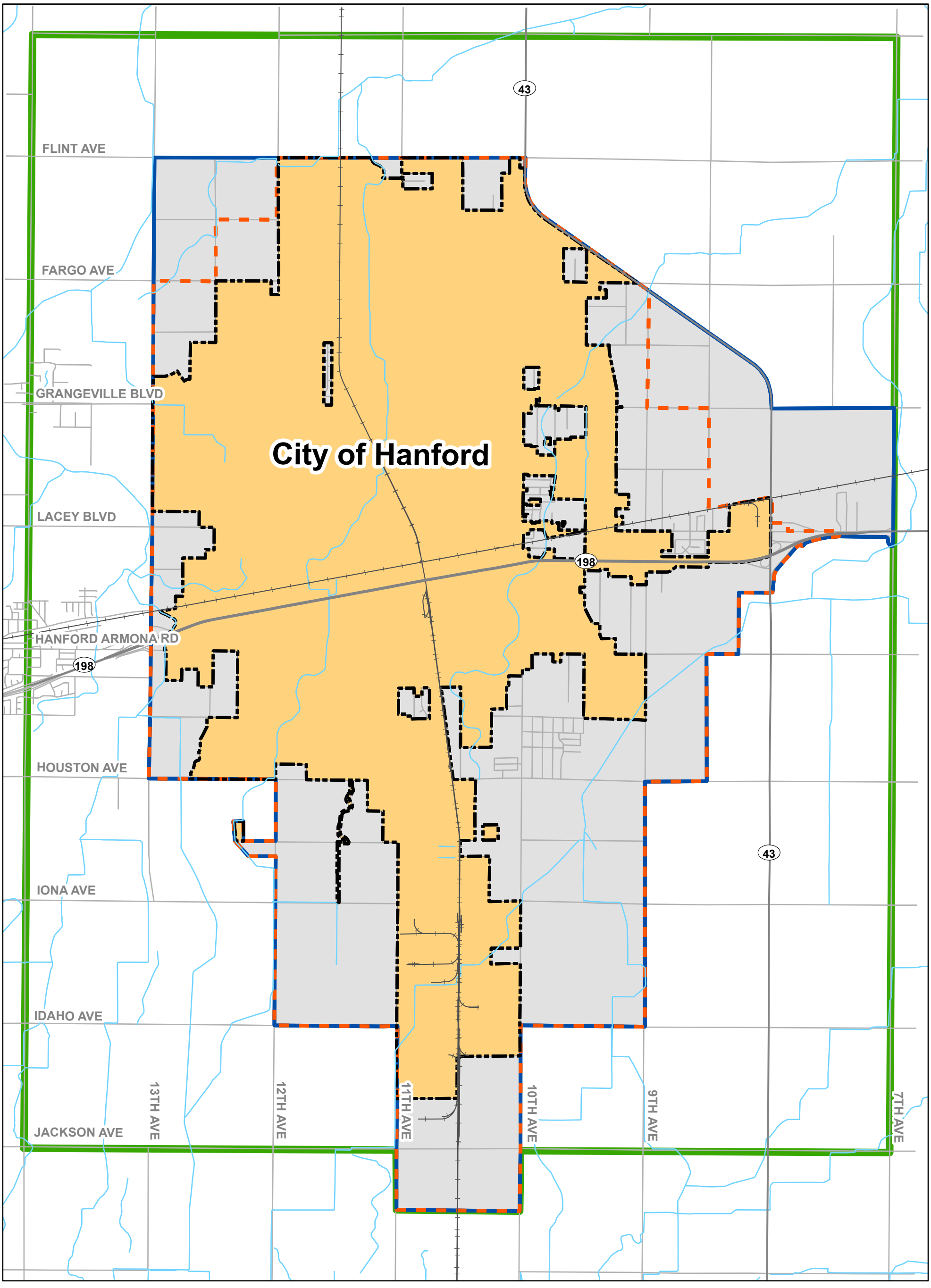
Update: May 20, 2021

AKEL ENGINEERING GROUP, INC.

File Path: P:\xGIS\GIS_Projects\Hanford\Water\2020-UWMP\HF_Fig3-1_RLM_052021.mxd

Figure 3-1
Regional Location Map

2020 Urban Water Management Plan
City of Hanford



Legend

- Streets
- Waterways
- City Limits
- 2035 Growth Boundary
- Planned Area Boundary
- General Plan Study Area Boundary

PRELIMINARY

Update: May 20, 2021

0 0.25 0.5 1 Mile

N W GIS E S

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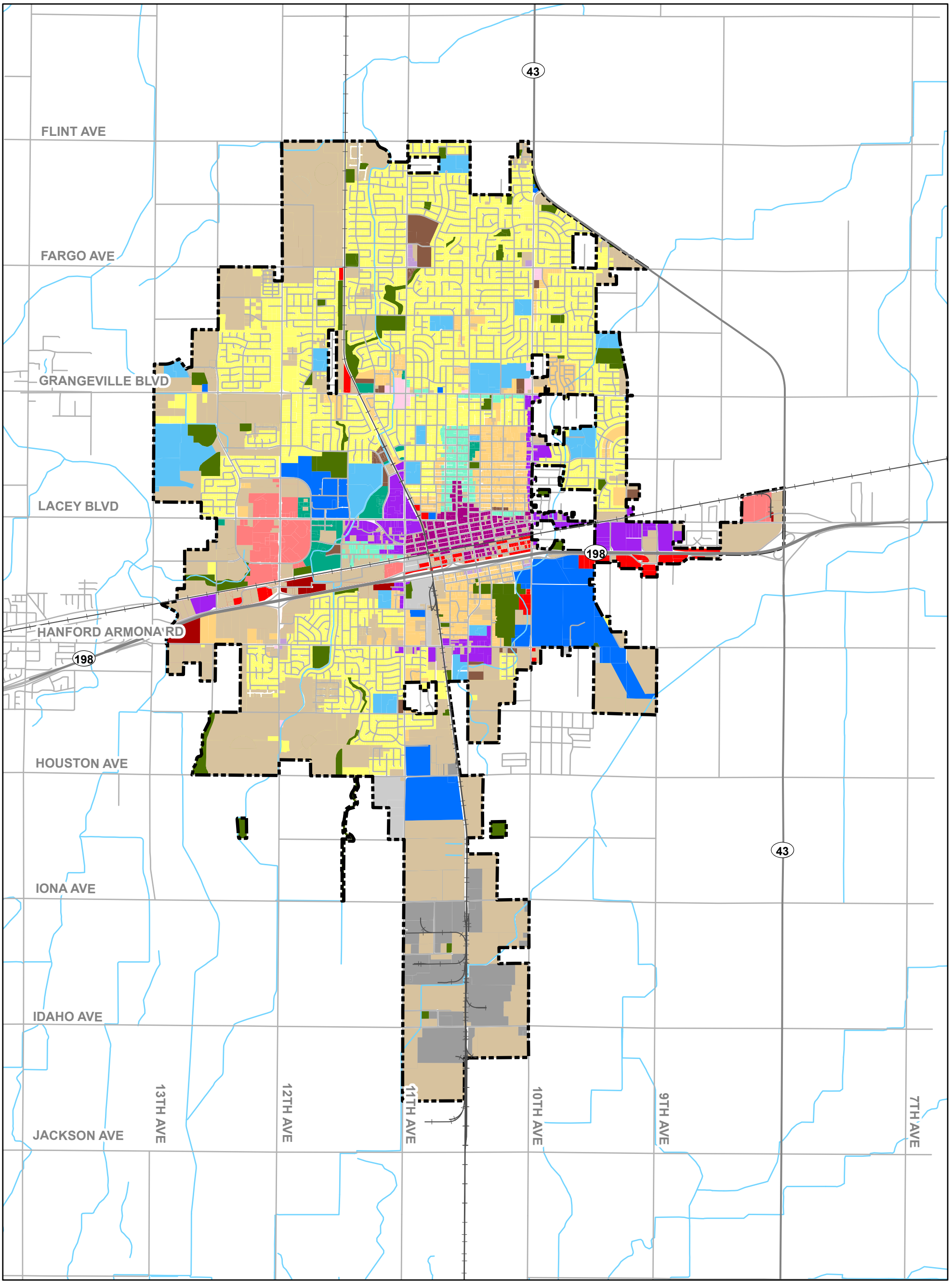
Figure 3.2
Existing Service Area

2020 Urban Water Management Plan
City of Hanford



Legend

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Neighborhood Commercial
- Regional Commercial
- Service Commercial
- Highway Commercial
- Office Residential
- Office
- Light Industrial
- Heavy Industrial
- Neighborhood Mixed Use
- Corridor Mixed Use
- Downtown Mixed Use
- Airport Protection
- Open Space
- Educational Facilities
- Public Facilities
- Interest Area
- Vacant/Agriculture
- City Limits
- Streets
- Waterways

PRELIMINARY

N W GIS E S

0 0.25 0.5 1 Mile

Update: May 25, 2021

AKEL ENGINEERING GROUP, INC.

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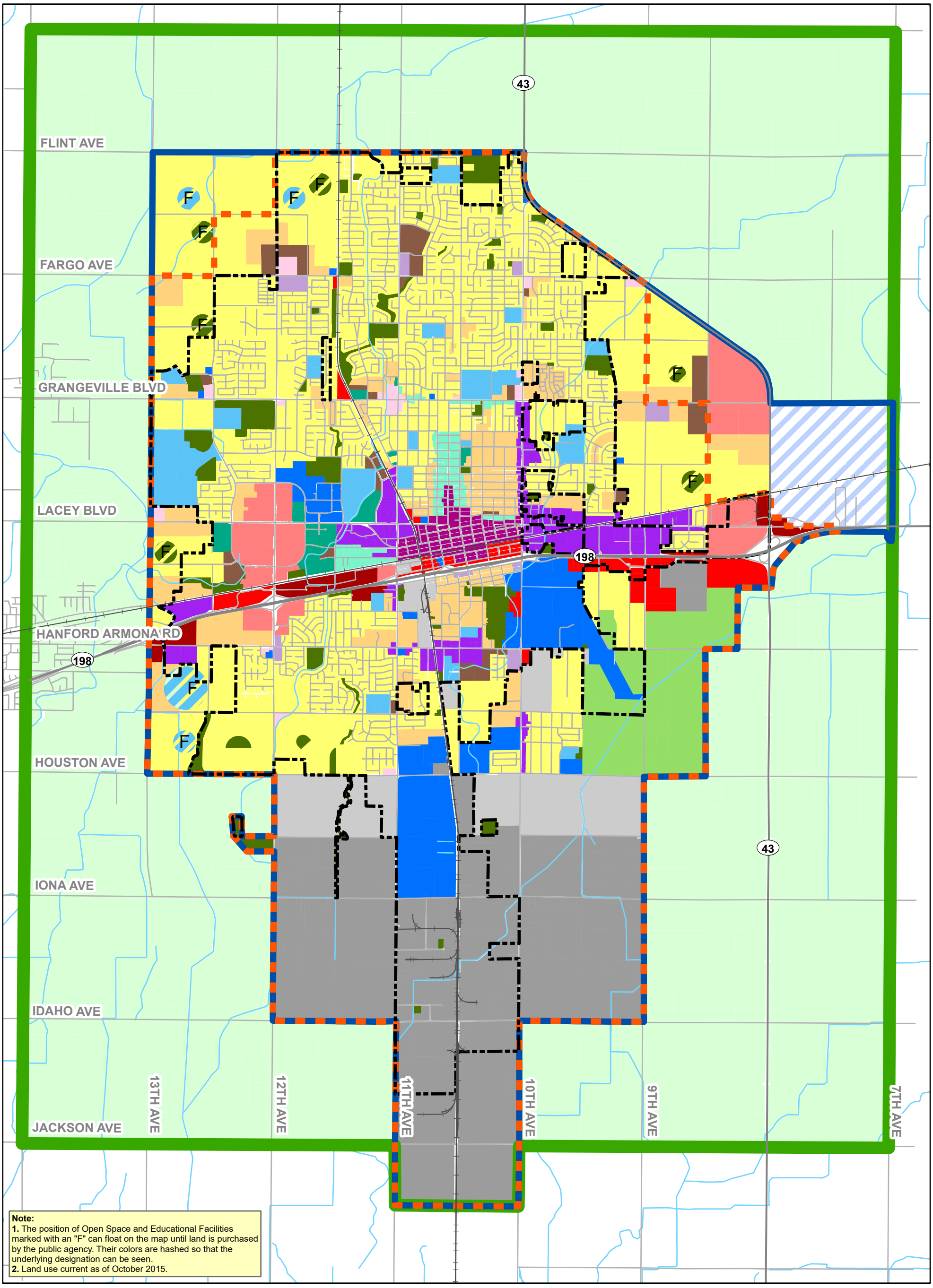
Figure 3-3
Existing Land Use

2020 Urban Water Management Plan
City of Hanford



Legend

- Low Density Residential
- Medium Density Residential
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- Neighborhood Commercial
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- Corridor Mixed Use
- Downtown Mixed Use
- Airport Protection
- Open Space
- Educational Facilities
- Public Facilities
- Interest Area
- City Limits
- 2035 Growth Boundary
- Planned Area Boundary
- General Plan Study Area Boundary
- Streets
- Highways
- Waterways

PRELIMINARY

N W GIS E S

0 0.25 0.5 1 Mile

Update: May 25, 2021

AKEL ENGINEERING GROUP, INC.

File Path: P:\xGIS\GIS_Projects\Hanford\Water\2020-UWMP\HF_Fig3-4_FutureLandUse_052421.mxd

Figure 3-4
2035 General Plan Land Use

2020 Urban Water Management Plan
City of Hanford

3.1.4 Socioeconomic Conditions

Based on data from the U.S. Census American Community Survey, the City of Hanford has a median household income of approximately $62,400 per year and a per capita income of approximately $27,400 per year as of 2019. Approximately 19% of the population has a bachelor's degree or higher, and 80% have a high school diploma or higher. Approximately 15.3% of the population lives below the poverty line.

According to population and housing statistics prepared by the California Department of Finance, the City of Hanford has an average household occupancy of 2.96 people per household. Approximately 77% of the current residential units are single family residences, with the other 23% reflecting multiple family dwelling units. The 2020 residential vacancy rate is approximately 3.1%.

According to U.S. Census American Community Survey, the primary job sectors within the City are educational and health services, retail, and agricultural production. The most recent unemployment rate was listed as 8.9%.

3.2 CLIMATE DATA

The following sections includes a description of the City's historical climate data as well as a summary of the potential impacts of climate change.

3.2.1 Historic Climate Data

Yearly extremes in temperature vary, with the peak high rising to above 100 °F and winter lows receding to the 20 °F range. The City has a historical average annual rainfall of approximately 8.4 inches, with the majority of the rainfall occurring from November to April. According to the California Irrigation Management Information System (CIMIS), the approximate average annual evapotranspiration (Eto) for the City is 61.6 inches. Average climate data is included in Table 3-1.

Table 3-1 Average Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall (inches)	1.6	1.5	1.5	0.8	0.3	0.1	0.0	0.0	0.2	0.4	0.8	1.2	**8.4**
Max. Daily Temp. (°F)	54.7	61.9	67.5	74.9	83.6	91.4	97.8	96.1	90.5	80.0	66.2	55.4	**76.7**
Min. Daily Temp. (°F)	35.2	38.6	42.1	46.4	52.5	58.3	62.5	60.4	55.5	47.4	38.8	34.6	**47.7**
Average ETo (inches)	1.3	2.2	4.2	6.1	8.1	9.0	9.0	8.1	6.1	4.2	2.2	1.2	**61.6**

Historical rainfall in the city is shown in Figure 3-5 and has ranged from 0.89 inches in 1984 to 15.57 inches in 1983.

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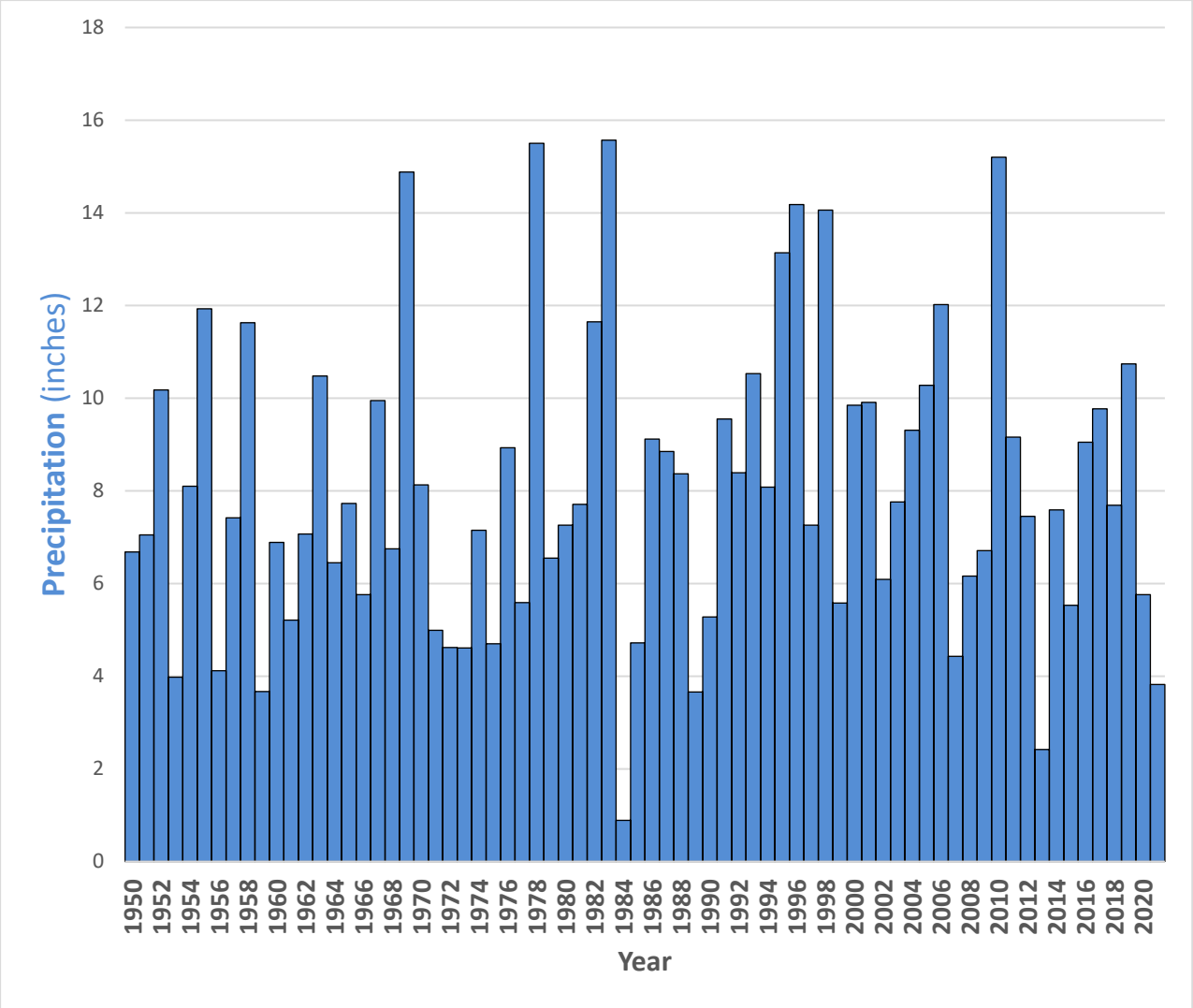


Figure 3-5 Historical Annual Rainfall

3.2.2 Climate Change

As part of the 2020 UWMP update, the California Water Code requires urban water suppliers to provide a general description of the potential effect of climate change within the service area. Based on the City's location and current climate, the most likely changes are related to increasing average temperature, intensifying storm events, and periods of extended drought. Other effects, such as decreasing snowpack or rising sea levels, do not have a direct impact on the City's water demand or supply. Changes in annual precipitation and temperature could have an impact on the City's overall water use as well as available supply volumes.

3.3 SERVICE AREA POPULATION AND DEMOGRAPHICS

The City is a growing community with an estimated 2020 population of 59,178. According to the California Department of Finance (DOF), which accounts for approximately 39 percent of the population of Kings County. Additionally, the city also supplies domestic water to 651 accounts out of the City limit, which are equaled to 2,148 population. Therefore, the City's water system serves a total population of 61,326. The City has an average historical growth rate of approximately 0.9% per year, which is used to project populations through the year 2045. The current and projected service area populations are summarized in **Table 3-2.**

According to 2019 United States Census Bureau's data, the City is comprised of predominantly Hispanic (49.9%) and white (38.9%) ethnicities, with the remaining population comprised of, Black or African American (4.0%), American Indian and Alaska Native (0.4%), and Asian, Native Hawaiian and Pacific Islander (0.2%), Hispanic or Latino (50.4%), with the rest more than one race or other race.

Table 3-2 Population - Current and Projected

2020	2025	2030	2035	2040	2045
61,326	64,227	67,264	70,444	73,776	77,265

Notes:

1. Projected population assumes historical average annual growth of 0.9%.
2. Based on Department of Finance E-5 Table, City of Hanford's 2020 population was 59,178.
3. City of Hanford also supplied 651 accounts outside of the city limit, which included 2,148 residents.

CHAPTER 4 – SYSTEM WATER USE

This chapter provides a description of the current and projected water uses within the City's service area. Additionally, a description of non-potable water use is provided. Water demands are projected through the year 2045.

4.1 NON-POTABLE VERSUS POTABLE WATER USE

The California State Water Code requires documentation of water use within the City's service area for potable, recycled, and raw water demands, as applicable. While the City does not provide any deliveries of raw water, treated wastewater effluent is used to irrigate crops on privately owned land and is discussed in more detail in Chapter 6. The remaining sections within this chapter summarize the historical and projected water use. The water use projection also includes preliminary estimation for recycled water demands, based on potable water demand and return-to-sewer ratio.

4.2 WATER USES BY SECTOR

This section documents the historical and projected water use as well as the maximum day demand.

Law

10631. (d) (1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.
(J) Distribution system water loss.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

4.2.1 Historical Water Use

The City currently provides domestic water to residential, commercial, industrial and institutional customers within the City limits. At the time of preparation of the 2020 UWMP, the City had recorded metered water deliveries to 17,965 accounts. The total amount of metered water delivered in 2020 was 10,911 AF, which does not account for an additional 803 AF of unmetered use and water loss. The City's gross water use, 11,714 AF, is summarized in Table 4-1.

Table 4-1 Demands for Potable and Non-Potable Water – Actual

Use Type	Metered Delivered Volume (AF)
Single Family	6,903
Multi-Family	1,002
Commercial[1]	1,005
Industrial	334
Landscape	750
Other	854
Other[2]	62
Losses	803
Total	**11,714**

Notes

1. Includes Commercial and institutional use Types
2. Constriction Billing

Figure 4-1 displays water use compared to population, which shows decreases in water use following droughts in 2007-2010 and 2013-2015 despite a rising population during the time period.

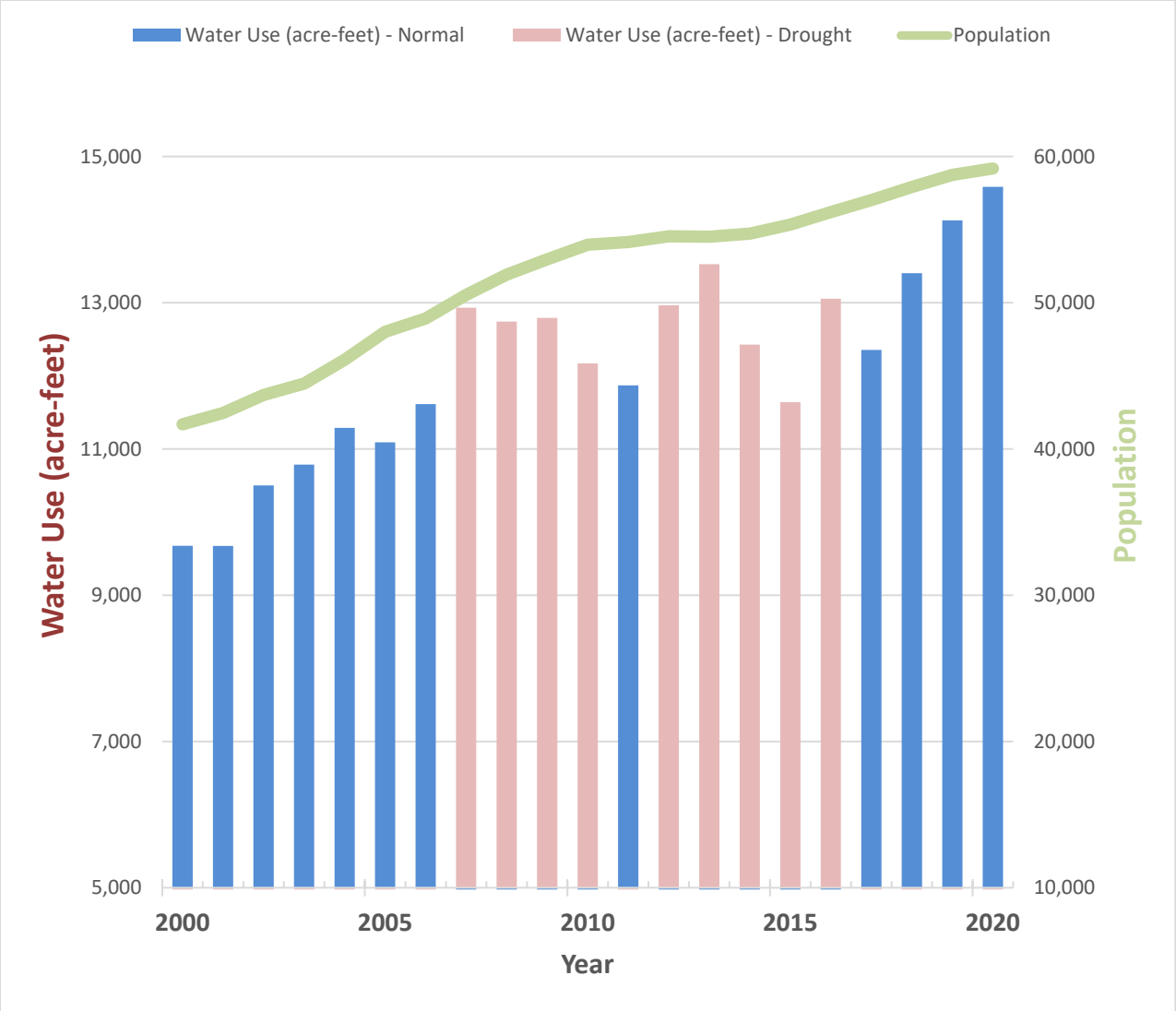


Figure 4-1 Historical Water Use and Population

4.2.2 Projected Water Use

Table 4-2 and Table 4-3, found on the following page, summarize the potable water demand projection through the year 2045. To calculate the projected potable water demand through the UWMP planning horizon of 2045, the City's 2020 urban water use target of 179 gallons per capita per day (gpcd) was applied to the projected population set forth in the 2035 General Plan. The projected demands were then reduced by five percent to account for future water use reductions of up to five percent due to active water savings, as described in more detail in Section 4.4. For conservative planning purposes, the projected water loss amount was estimated as a percentage of other potable water uses based on historical water loss audit information. Table descriptions are as follows:

- Table 4-2 summarizes the projected City-wide water demand by water use type.

- Table 4-3 summarizes the total projected water demand.

Table 4-2 Use for Potable and Non-Potable Water - Projected

Use Type	Projected Water Use				
	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Single Family	6,849	7,173	7,512	7,868	8,240
Multi-Family	994	1,041	1,090	1,142	1,196
Commercial[1]	997	1,044	1,093	1,145	1,199
Industrial	332	347	364	381	399
Landscape	744	780	817	855	896
Other	848	888	930	974	1,020
Other[2]	62	65	68	71	74
Losses	797	834	874	915	959
Total	**11,623**	**12,172**	**12,748**	**13,351**	**13,982**

Notes:

1. Includes Commercial and Institutional use types
2. Construction Billing

Table 4-3 Total Water Use (Potable and Non-Potable)

Demand Type	Demand					
	2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Potable and Raw Water	11,714	11,623	12,172	12,748	13,351	13,982
Total	**11,714**	**11,623**	**12,172**	**12,748**	**13,351**	**13,982**

4.2.3 Maximum Day Demand

Maximum Day Demand is a significant demand condition on the water supply system. This condition is defined as the maximum 24-hour use period in the year. Peaking factors are commonly used as a way of simulating the maximum day demand for future demand scenarios. This multiplier is assessed to the average day demand, and is commonly in the order of 2 to 2.5 times greater than the average day demand. The September 2017 City Water System Master Plan specified a maximum day demand peaking factor of 1.75 for the main pressure zone and a factor of 2 for the industrial park pressure zone.

4.3 DISTRIBUTION SYSTEM WATER LOSSES

Law

10631 (d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…

(J) Distribution system water loss

(3)(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process.

The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

As part of the 2020 UWMP update, urban water suppliers are required to quantify the previous five years' distribution system water losses in a manner consistent with the American Water Works Association (AWWA) water system balance methodology. The City has completed the required water loss audit worksheet in accordance with the DWR guidelines for the years 2016-2019, while the audit for 2020 will be completed before the October 2021 deadline. **Table 4-4** documents the estimated water loss volume for 2020 based on submitted Water Loss Audits and a comparison of available production and consumption records.

Table 4-4 Last Five Years of Water Loss Audit Reporting

Reporting Period Start Date	Volume of Water Loss (AF)
January 2016	1,144
January 2017	1,528
January 2018	1,742
January 2019	732
January 2020	803

Note: 2020 water loss was estimated by a comparison of groundwater wells production and billed consumption record.

4.4 ESTIMATING FUTURE WATER SAVINGS

Law

10631 (d)(4) (A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

The City's projected water demands include estimated future water savings from active conservation activities (Table 4-5). These estimated water savings reflect future ongoing water use reductions and do not include short-term demand reductions achieved through the implementation of the City's Water Shortage Contingency Plan.

4.4.1 Active Conservation Program Savings

Active conservation is achieved through activities and programs the City implements as part of its water conservation program. The City's water conservation programs and demand management measures are discussed in detail in Chapter 9 – Demand Management Measures. For planning purposes, it is assumed that the City will achieve up to an additional five percent reduction in

water use as a result of active water savings. This reduction is incorporated in the demand projections shown in Table 4-2 and Table 4-3.

4.4.2 Passive Water Savings

Passive water savings include water use reduction that results from codes, standards, ordinances, and other plans. These various sources of water savings typically result from state or regional requirements or guidelines, which are then implemented by the City. Examples of these codes and ordinances are as follows:

- **Model Water Efficient Landscape Ordinance (MWELO):** In 2015 DWR was tasked with updating the MWELO to increase water efficiency standards for new and retrofitted landscapes. This includes the encouragement the use of more efficient irrigation systems, graywater usage, and onsite storm water capture.
- **California Energy Commission Title 20:** This includes appliance standards for toilets, urinals, faucets, and showerheads. This standard impacts both new construction and replacement fixtures in existing homes.
- **CALGreen Building Code:** The code requires residential and non-residential water efficiency and conservation measures for new buildings and structures.

Passive water savings typically contribute less to water use reductions than active water conservation programs. Therefore, at this time, reductions from passive water savings are not included in the City's demand projections.

Table 4-5 Inclusion in Water Use Projections

Are Future Water Savings Included in Projections?	Yes
Are Lower Income Residential Demands Included In Projections?	Yes

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

Law

> *10631.1 (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.*
>
> *California Health and Safety Code 50079.5*
> *(a) "Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families…In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.*

SB 1087 (Florez, 2005) amended the UWMPA to require urban water suppliers to include single family and multi-family residential units for lower income households as identified by the City, County, or combination of both within the service area of the provider. In the 2015 UWMP, the low-income projected water demands were calculated based on the 2015 Draft Kings County 2016-2024 Housing Element, which identified approximately 35 percent of households as low income. According to the 2016 Adopted Kings County 2016-2024 Housing Element, approximately 35 percent of households are considered low income. As indicated by **Table 4-5**, the low-income water demands are included in the total water demand projection that is summarized in **Table 4-2**.

4.6 CLIMATE CHANGE

Based on the City's location and current climate, the most likely changes in climate are related to increasing average temperature, intensifying storm events, and periods of extended drought. While the precise effects of climate change on water demand remain uncertain, it is expected that water demands will be affected by increased temperatures and periods of extended drought. Increases in outdoor water use are expected as temperatures increase.

CHAPTER 5 – BASELINES AND TARGETS

Senate Bill X7-7 (SBX7-7) was approved by the Governor of California on November 10, 2009, This Senate Bill required urban water suppliers to set target goals for water conservation, which were to be achieved by the year 2020. These goals were referred to as the "20X2020" goals and included reducing per capita consumption by 20 percent by the year 2020. This chapter summarizes the methods used to estimate the target water use. As part of the 2020 UWMP update, this chapter evaluates if the City achieved the required water use reduction target.

Due to ongoing water conservation policies and practices within the City's service area the 2020 per capita water demand target has been achieved.

5.1 2010 UWMP BASELINE AND TARGETS

The evaluation of a supply source or storage needs for future growth is commonly achieved by evaluating past water consumption on a per person basis. The future needs of the supply source can then be evaluated by applying the per capita consumption rate, expressed as gallons per capita per day (gpcd), to the projected population. Table 5-1 summarizes the baseline periods and per capita water use targets determined as part of the SBX7-7 calculations. The City had an average gpcd of 216 from 1995 to 2000, while the average from 2001 to 2010 remained relatively flat at approximately 214 gpcd. Conservation efforts were successful in lowering the water consumption to a per capita water consumption rate of 188 gpcd in the year 2015, and 171 gpcd in the year of 2020.

Table 5-1 Baselines and Targets Summary

Baseline Period	Start Year	End Year	Per Capita Water Use	
			Average Baseline (gpcd)	Confirmed 2020 Target (gpcd)
10-15 year	1995	2004	215	179
5 Year	2006	2010	215	

5.3 BASELINE PERIODS

This section discusses the baseline periods used in the UWMP. The baseline periods discussed in this section are consistent with the 2015 UWMP.

5.3.1 Determination of the 10-15 Year Baseline Period (Baseline GPCD)

Law

> *10608.12 (b) "Base daily per capita water use" means any of the following:*
>
> *(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*
>
> *(2) For an urban retail water supplier that meets at least 10 percent of its measure retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004 and no later than December 31, 2010.*

To adequately project future water use, SBX7-7 must be considered with the appropriate reductions. As part of the new requirements for reductions in water use, a range in years needs to be selected for calculating the base daily (historical) per capita water use.

SBX7-7 allows the selection of either 10 or 15 years as a base period for calculating the average consumption per capita. If the recycled water use exceeds 10 percent of potable water production, a 15-year base period is allowed. Otherwise, a 10-year base period should be used. Additionally, a 5-year base period is to be identified for interim target projections.

The 10- to 15-year base period must end between December 31, 2004 and December 31, 2010; and the 5-year base period must end between December 31, 2007 and December 31, 2010.

The City's calculations for the base periods are documented on the following page in **SBX7-7 Table 1**. Since the recycled water usage in 2008 did not account for more than 10 percent of the total potable water production, the City must use the 10-year baseline period. The 10-year base period is selected based on the highest average per capita water use in any 10-year period within the DWR guidelines. The 2020 UWMP uses baseline periods consistent with 2015 UWMP, where the 10-year baseline period is defined as1995 to 2004.

SBX7-7 Table 1 Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	12,741	AF
	2008 total volume of delivered recycled water	0	AF
	2008 recycled water as a percent of total deliveries	0.00%	%
	Number of years in baseline period	10	Years
	Year beginning baseline period range	1995	
	Year ending baseline period range	2004	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range	2010	

5.3.2 Determination of the 5-year Baseline Period (Target Confirmation)

Law

10608.12 (b).

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

In order to confirm that the calculated 2020 Urban Water Use target meets the minimum water use reduction requirements, water use must also be calculated over a 5-year baseline period. The 2010 and 2015 UWMP selected a 5-year range of 2006-2010, and this range is not updated as part of the 2020 UWMP.

5.4 SERVICE AREA POPULATION

Law

10608.20 (e) An urban retail water supplier shall include in its urban water management plan due in 2010…the baseline daily per capita water use, …along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

10644 (a)(2) The plan…shall include any standardized forms, tables, or displays specified by the department

California DOF population estimates were used to determine historical populations as part of the 10-year average per capita water use, as indicated on **SBX7-7 Table 2**. The baseline service area population is summarized on the following page in **SBX7-7 Table 3.** This population over the baseline period is used in the calculation of the baseline period average per capita water use. The City is a growing community with an estimated 2020 population of 59,178, according to the California Department of Finance (DOF). Additionally, the city also supplies domestic water to 651 accounts out of the City limit, which are equaled to 2,148 population. Therefore, the City's water system serves a total population of 61,326.

SBX7-7 Table 2 Method for Population Estimates

Method Used to Determine Population	
☑	**1. Department of Finance (DOF)** DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2020)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other**

SBX7-7 Table 3 Service Area Population

Year		Population
10 to 15 Year Baseline Population		
Year 1	1995	37,400
Year 2	1996	38,150
Year 3	1997	39,300
Year 4	1998	39,900
Year 5	1999	40,350
Year 6	2000	41,450
Year 7	2001	42,462
Year 8	2002	43,869
Year 9	2003	44,466
Year 10	2004	46,096
5 Year Baseline Population		
Year 1	2006	48,920
Year 2	2007	50,534
Year 3	2008	51,922
Year 4	2009	52,970
Year 5	2010	53,967
2015 Compliance Year Population		
2015		55,337
2020 Compliance Year Population		
2020		61,326

5.5 GROSS WATER USE

Law

10608.12 (g) "Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:
(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier
(2) The net volume of water that the urban retail water supplier places into long term storage
(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier
(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article
Section 596 (a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid the disproportionate burden on another customer section.

In order to determine the baseline per capita water use, gross water use entering the distribution system of the supplier must be determined for each year within the baseline period. There are a number of exclusions taken into consideration when determining the annual gross water use, including recycled water delivered in the service area; water volume placed into long term storage; water conveyed for use by another urban water supplier; water delivered; with certain exceptions, for agricultural use, and industrial water use if the total industrial use is greater than or equal to 12% of gross water use.

Based on historical production reports, and consistent with the 2015 UWMP, there are no exceptions to be taken into consideration when calculating the City's gross water use. The City's historical gross water use is summarized on the following page in **SBX7-7 Table 4**, with the gross water use in the 2020 compliance year equal to 11,714 AF. The volume of water entering the distribution system from the City's groundwater source is summarized, following **SBX7-7 Table 4**, in **SBX7-7 Table 4-A**.

SBX7-7 Table 4 Annual Gross Water Use

Baseline Year		Volume Into Distribution System (AF)	Deductions					Annual Gross Water Use (AF)
			Exported Water (AF)	Change in Dist. System Storage (+/-) (AF)	Indirect Recycled Water (AF)	Water Delivered for Agricultural Use (AF)	Process Water (AF)	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1995	9,198						9,198
Year 2	1996	9,348						9,348
Year 3	1997	10,379						10,379
Year 4	1998	8,704						8,704
Year 5	1999	9,855						9,855
Year 6	2000	9,649						9,649
Year 7	2001	9,673						9,673
Year 8	2002	10,502						10,502
Year 9	2003	10,784						10,784
Year 10	2004	11,260						11,260
						10 - 15 year baseline average gross water use		**9,935**
5 Year Baseline - Gross Water Use								
Year 1	2006	11,613						11,613
Year 2	2007	12,930						12,930
Year 3	2008	12,742						12,742
Year 4	2009	12,792						12,792
Year 5	2010	12,172						12,172
						5 year baseline average gross water use		**12,450**
2015 Compliance Year - Gross Water Use								
2015		11,640				**2015 gross water use**		**11,640**
2020 Compliance Year - Gross Water Use								
2020		11,714				**2020 gross water use**		**11,714**

SBX7-7 Table 4-A Volume Entering Distribution System

Name of Water Source: Tulare Lake Groundwater Subbasin		
☑ The supplier's own water source ☐ A purchased or imported water source		
Baseline Year		Volume Entering Distribution System (AF)
10 to 15 Year Baseline - Water into Distribution System		
Year 1	1995	9,198
Year 2	1996	9,348
Year 3	1997	10,379
Year 4	1998	8,704
Year 5	1999	9,855
Year 6	2000	9,649
Year 7	2001	9,673
Year 8	2002	10,502
Year 9	2003	10,784
Year 10	2004	11,260
5 Year Baseline - Water into Distribution System		
Year 1	2006	11,613
Year 2	2007	12,930
Year 3	2008	12,742
Year 4	2009	12,792
Year 5	2010	12,172
2015 Compliance Year - Water into Distribution System		
2015		11,640
2020 Compliance Year - Water into Distribution System		
2020		11,714

5.6 BASELINE DAILY PER CAPITA WATER USE

The final baseline calculation is to determine the per capita water use in each baseline year and the average per capita water use over the entire baseline period. Using the baseline period and service area population as described in previous sections, the per capita water use for each year has been calculated as documented on the following page in **SBX7-7 Table 5**. The maximum and minimum per capita water use over the baseline period respectively are 236 gpcd in 1997 and 195 gpcd in 1998. The average per capita water use over the 10-year baseline period is 215 gpcd. In the following pages, **SBX7-7 Table 6** summarizes the 10-year baseline per capita water use, the 5-year baseline per capita water use, and the 2020 compliance year per capita water use.

5.7 2020 FINAL TARGETS

Consistent with the 2015 UWMP, the 2020 Urban Water Use Target was calculated using Method 3, which is indicated on the following pages in **SBX7-7 Table 7**. Method 3, as defined by DWR, assigns a static 2020 urban water use target based on a water supplier's location within one of the ten regional urban water use target areas. Using Method 3, the City's 2020 urban water use target is documented as 95% of the hydrologic regional (Tulare Lake) target, as 179 gpcd; the water use targets for the ten water use regions are summarized in **SBX7-7 Table 7-E** on the following pages. The 179 gpcd target is intended to be maintained through the UWMP horizon of 2045.

SBX7-7 Table 5 Gallons Per Capita Per Day (GPCD)

Baseline Year		Service Area Population	Annual Gross Water Use (AF)	Daily Per Capita Water Use (gpcd)
10 to 15 Year Baseline Per Capita Water Use				
Year 1	1995	37,400	9,198	220
Year 2	1996	38,150	9,348	219
Year 3	1997	39,300	10,379	236
Year 4	1998	39,900	8,704	195
Year 5	1999	40,350	9,855	218
Year 6	2000	41,450	9,649	208
Year 7	2001	42,462	9,673	203
Year 8	2002	43,869	10,502	214
Year 9	2003	44,466	10,784	217
Year 10	2004	46,096	11,260	218
		10-15 Year Average Baseline GPCD		215
5 Year Baseline Per Capita Water Use				
Year 1	2006	48,920	11,613	212
Year 2	2007	50,534	12,930	228
Year 3	2008	51,922	12,742	219
Year 4	2009	52,970	12,792	216
Year 5	2010	53,967	12,172	201
		5 Year Average Baseline GPCD		215
2015 Compliance Year Per Capita Water Use				
2015		55,337	11,640	188
2020 Compliance Year Population				
2020		61,326	11,714	171

SBX7-7 Table 6 Gallons per Capita per Day Summary

	Per Capita Water Use (gpcd)
10-15 Year Baseline	215
5 Year Baseline	215
2020 Compliance Year	171

SBX7-7 Table 7 2020 Target Method

Target Method		Supporting Documentation
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D
☑	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator

5.7.1 5-Year Baseline – 2020 Target Confirmation

Law

> *10608.22 Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.*

The 2020 Urban Water Use Target is required to reduce the City's 2020 water use by a minimum of 5 percent from the 5-year baseline period (2006-2010). As calculated in **SB X7-7 Table 5**, the average per capita water use for the 5-year baseline period is 215 gpcd. The 2020 urban water use target of 179 gpcd is an approximate 17 percent reduction from the 5-year average per capita water use, thereby confirming the 2020 Urban Water Use Target as documented in **SBX7-7 Table 7-F**.

SBX7-7 Table 7-E Target Method 3

Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets (gpcd)	Method 3 Regional Targets (95%) (gpcd)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☑	100%	Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
			Target	**179**

SBX7-7 Table 7-F Confirm Minimum Reduction for 2020 Target

5 Year Baseline GPCD (gpcd)	Maximum 2020 Target[1] (gpcd)	Calculated 2020 Target (gpcd)	Confirmed 2020 Target (gpcd)
215	205	179	179

Notes:

1. Maximum 2020 Target is 95% of the 5-year Baseline per capita water use

5.8 2020 COMPLIANCE DAILY PER CAPITA WATER USE

Law

10608.12 (f)	*"Compliance daily per-capita water use" means the gross water use during the final year of the reporting period…*
10608.20 (e)	*An urban retail water supplier shall include in its urban water management plan due in 2010…compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.*

Using the City population and gross water use for the 2020 compliance year, the per capita water use was calculated as 171 gpcd, meaning the City has met the 2020 target per capita water use of 179 gpcd. Table 5-2 and SBX7-7 Table 9 summarizes the City's compliance with the 2020 per capita water use targeted reduction.

SBX7-7 Table 9/Table 5-2 2020 Compliance

2020 GPCD			2020 Confirmed Target GPCD	Did Supplier Achieve Targeted Reduction for 2020?
Actual 2020 GPCD	2020 Total Adjustments	Adjusted 2020 GPCD		
171	-	171	179	Yes

5.9 REGIONAL ALLIANCE

The DWR allows water supply agencies to comply with SBX7-7 through a Regional Alliance, and the corresponding SBX7-7 compliance information must be reported in a Regional Alliance Report. The City is not part of a regional alliance and is not reporting any compliance information in a Regional Alliance Report.

CHAPTER 6 – SYSTEM SUPPLIES

The purpose of this chapter is to summarize the City's current and planned water supply sources and volumes. This includes a description of the groundwater basins used by the City as a source of supply. Ongoing planning efforts for the potential use of recycled water within the City's service area are also summarized.

6.1 PURCHASED OR IMPORTED WATER

The City currently uses local groundwater as the sole source of water supply and does not purchase or import water from any other water suppliers or entities.

6.2 GROUNDWATER

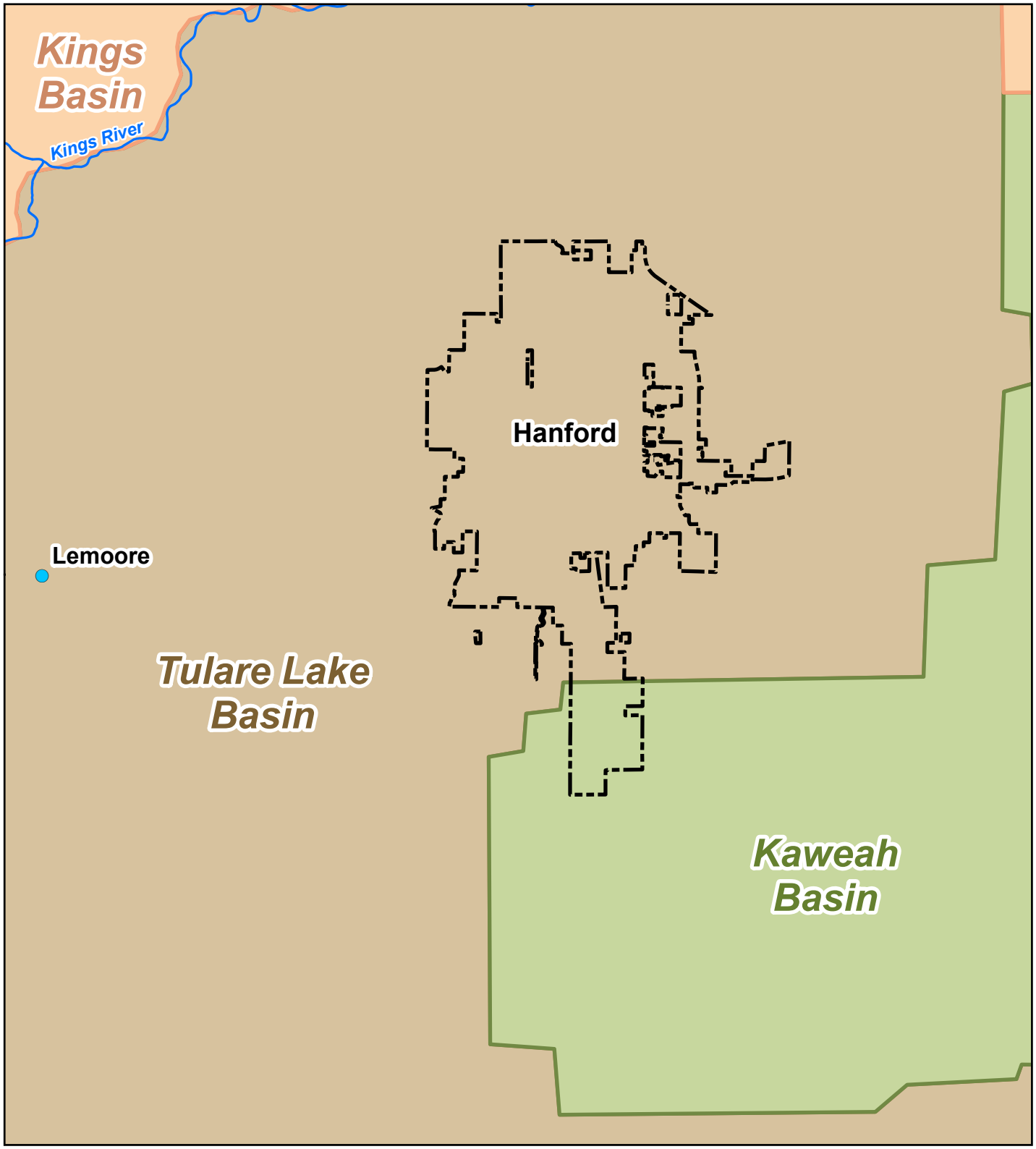
For planning purposes, the State of California has been divided into ten separate hydrologic regions by the DWR, based on the State's major drainage basins. According to the California Water Plan 2018 Update, the City is located in the Tulare Lake Hydrologic Region. Each hydrologic region is divided into distinct groundwater basins, each of which is typically divided further into smaller interconnected groundwater subbasins. The following section summarizes the groundwater basin and subbasin underlying the City.

6.2.1 Basin Description

Law

10631. (b)(4)	*If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:* *(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater.*

The City is located above the San Joaquin Valley Groundwater Basin, for which the Kings County Water District (KCWD) is the principal groundwater management agency. This basin can further be divided into subbasins that help better define the aquifer below the city. These subbasins are interconnected and help filter, transmit, and store water. The subbasins that subdivide the San Joaquin Valley Groundwater Basin are the Kings, Kern County, Kaweah, Tulare Lake, Tule, Pleasant Valley, and Westside groundwater basin. The Tulare Lake subbasin is the specific groundwater subbasin in which the City resides and has a surface area of approximately 524,000 acres (**Figure 6-1**). It is bounded to the north by the Kings Groundwater Basin, to the south by the Kings-Kern County line, to the east by the Westside groundwater basin, and to the west by the California Aqueduct; the subbasin has a surface area of approximately 818 square miles.



Legend **PRELIMINARY**

Groundwater Subbasins

- Kings (5-22.08)
- Kaweah (5-22.11)
- Tulare Lake (5-22.12)

Hanford City Limits

0 0.5 1 2 Miles

N W GIS E S

Update: May 20, 2021

AKEL ENGINEERING GROUP, INC.

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Figure 6-1
Groundwater Subbasins

2020 Urban Water Management Plan
City of Hanford

The Tulare Lake Groundwater Subbasin is not an adjudicated groundwater basin. In characterizing the groundwater budget, the DWR has classified the subbasin as Type B, which means that enough data is available to estimate groundwater extraction to meet local needs, but not enough data is available to characterize the groundwater budget. Well yields in the Tulare Lake subbasin average between 300 and 1,000 gallons per minute (gpm), with a maximum of 3,000 gpm.

As of 1995, the DWR estimated the total water storage of the subbasin using an estimated specific yield of 8.5 percent and water levels collected by the DWR as well as other cooperators. Based on these calculations, the DWR estimates the total storage capacity of the subbasin to be 17,100,000 AF to a depth of 300 ft and 82,500,000 AF to the base of fresh groundwater.

The 2003 DWR Bulletin 118 describes the subbasin water level as declining from 1970 to 2000, with fluctuation in the intervening years. Fluctuations can range from a general increase of 24 feet to decrease of up to 23 feet, with an average decline of 17 feet. According to the DWR, fluctuations are most significant in the lakebed area of the subbasin, with the area experiencing some of the steepest decreases and increases in water levels.

According to 2020 Tulare Lake Groundwater Sustainability Plan, GSAs estimate the total annual change in storage in the Subbasin storage ranged from -392,280 AF (2015) to 361,230 AF (2011) and averaged approximately -85, 690 AF per year during the 1990-2016 period. Municipal pumping was assumed to increase slowly from about 25,060 AF (2017) to about 30,160 AF (2070).

6.2.2 Groundwater Management

Law

10631. (b)(4) *…if groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:*

(C) The current version of any groundwater sustainability plan or … any groundwater management plan adopted by the urban water supplier…or any other specific authorization for groundwater management.

(D) For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

The Tulare Lake Groundwater Sustainability Plan, adopted in January 2020, was developed for the Tulare Lake Subbasin pursuant to the Sustainable Groundwater Management Act. The Tulare Lake Subbasin is classified as a high-priority subbasin by DWR and is subdivided into five local GSAs. The Mid-Kings River GSA covers the portion of the Tulare Lake Subbasin from which the City extracts its groundwater supplies.

According to the Tulare Lake Subbasin GSP, the intent of the plan is to manage groundwater resources such that adequate water supplies are maintained for existing users and established management objectives maintain a sustainable groundwater yield. The sustainability goals for the Subbasin will be achieved by implementing the measures below, as extracted from the GSP.

- Understanding the interaction between existing and future conditions
- Analyzing and identifying the effects of exiting management actions on the Subbasin
- Implementing the GSP and its associated measures, including projects and management actions to halt and avoid future undesirable results
- Collaborating between agencies to achieve goals and protect beneficial uses
- Assessing at interim milestones the successes and challenges of the implemented projects and

6.2.3 Overdraft Conditions

The Tulare Lake subbasin has been identified by DWR as a high-priority groundwater basin and is one of multiple subbasins within the state listed as being in a condition of critical overdraft. The Tulare Lake Subbasin GSP indicates that the Mid-Kings Rivers GSA intends to coordinate with KCWD to implement ongoing basin management objectives and overdraft mitigation measures. Several efforts to mitigate overdraft were documented in the KCWD 2001 Groundwater Management Plan Update, which are briefly summarized below.

- **Water Conservation Efforts:** KCWD and the City of Hanford participate in several water conservation and education programs, contributing both funds and staff time. The agricultural users within the KCWD service area use the delivered water responsibly through various highly efficient irrigation systems. Additionally, water deliveries are metered and billed based on volume used and customers therefore have an incentive to minimize water usage.
- **Increasing Surface Water Imports:** KCWD currently delivers surface water to several water and canal companies. Utilization of surface water supplies decreases the demand on groundwater, serving as a form of in-lieu recharge. KCWD strives to provide surface water at a rate low enough to customers to encourage utilizing as much surface water as possible before resorting to groundwater pumping.
- **Increasing Groundwater Recharge:** KCWD operates 25 direct groundwater recharge basins and also leaves many earthen canals unlined for the purpose of recharge through seepage. The total recharge surface area, including both basins and unlined canals, is approximately 1,300 acres; the amount of recharge varies from year to year, and the most significant recharge effects occur during wet years.

6.2.4 Historical Groundwater Pumping

Law

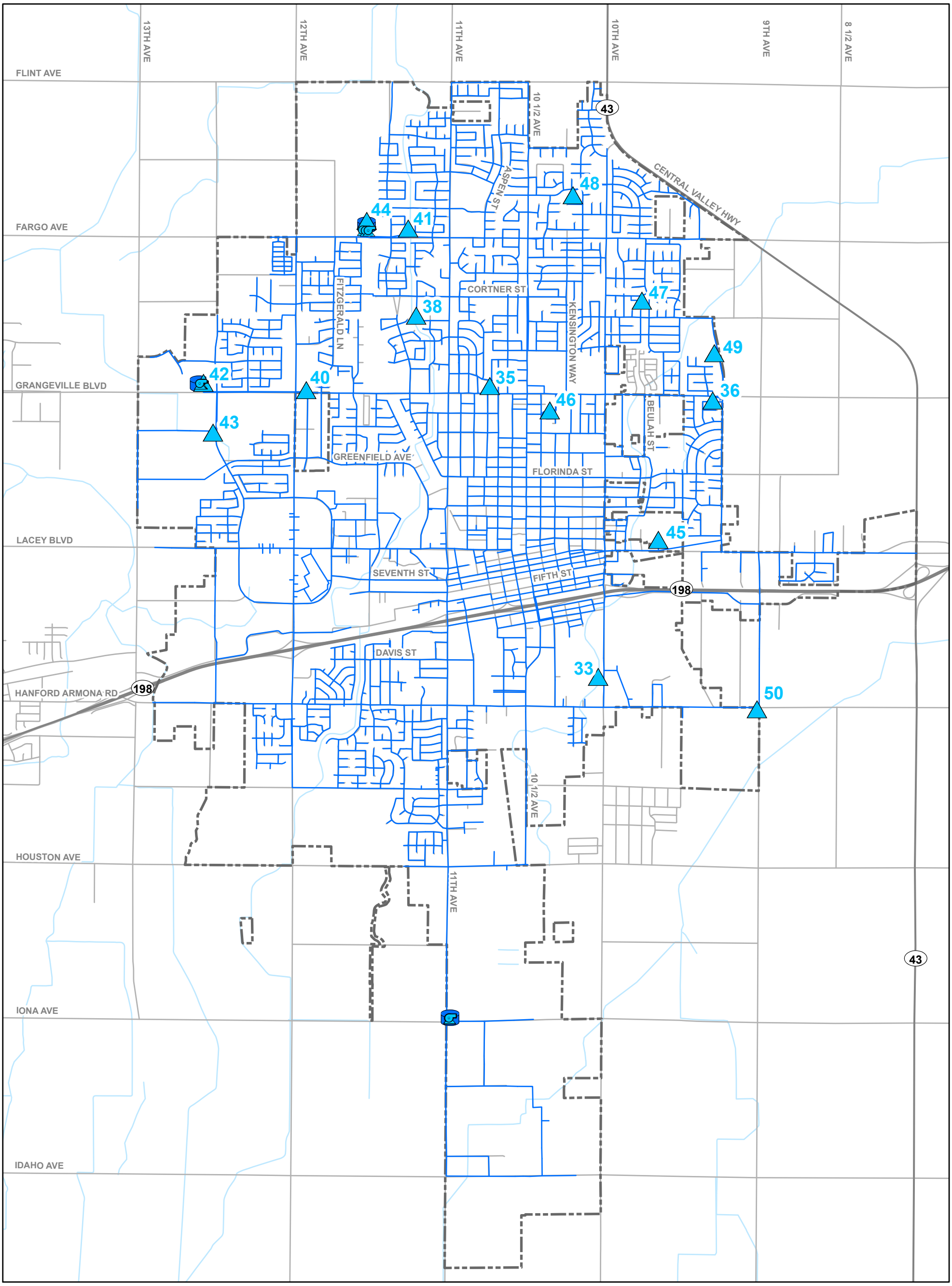
10631. (b)(4)	*…if groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:* *(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonable available, including, but not limited to, historic use records.*

According to the 2017 WSMP there are currently 14 active groundwater wells located throughout the City, as shown in **Figure 6-2**, with a combined supply capacity of approximately 34.5 million gallons per day (mgd). The firm capacity, designated as the total capacity less the largest unit out of service, of the City wells is 31.6 mgd.

The volume of groundwater pumped by the City over the past five years is summarized in **Table 6-1**. Historically, the Tulare Lake subbasin has adequately met the City's water demands, and it is anticipated that the subbasin will adequately meet the City's water demands in the future.

Table 6-1 Groundwater Volume Pumped

Groundwater Type	Location or Basin Name	Volume				
		2016 (AF)	2017 (AF)	2018 (AF)	2019 (AF)	2020 (AF)
Alluvial Basin	San Joaquin Valley Groundwater Basin, Tulare Lake Subbasin	10,910	11,073	11,557	10,927	11,714
	Total	**10,910**	**11,073**	**11,557**	**10,927**	**11,714**


13TH AVE
12TH AVE
11TH AVE
10TH AVE
9TH AVE
8 1/2 AVE
10 1/2 AVE
FLINT AVE
FARGO AVE
GRANGEVILLE BLVD
LACEY BLVD
HANFORD ARMONA RD
HOUSTON AVE
IONA AVE
IDAHO AVE
ASPEN ST
CENTRAL VALLEY HWY
CORTNER ST
FITZGERALD LN
KENSINGTON WAY
BEULAH ST
GREENFIELD AVE
FLORIDA ST
SEVENTH ST
FIFTH ST
DAVIS ST
43
198
44
41
48
38
47
49
42
40
35
46
36
43
45
33
50
Legend
Existing System
Tanks
Wells
Pump Stations
Valves
Pipes
City Limits
Streets
Waterways
PRELIMINARY
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AKEL
ENGINEERING GROUP, INC.
Figure 6-2
Existing Groundwater
Well Locations
2020 Urban Water Management Plan
City of Hanford

6.3 SURFACE WATER

At the time of preparation of the 2020 UWMP, the City does not use surface water as part of its water supply.

6.4 STORMWATER

At the time of preparation of the 2020 UWMP, the City does not use stormwater as part of its water supply.

6.5 WASTEWATER AND RECYCLED WATER

This section discusses the use of recycled water, and the characteristics of the wastewater treated at the City owned and operated treatment plant.

6.5.1 Recycled Water Coordination

Law

> *10633 The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.*

The City of Hanford is responsible for the collection, treatment, and disposal of wastewater within the City limits. The subsequent sections document information regarding the wastewater treatment facility, the use of reclaimed wastewater, and the coordination between agencies regarding the treated wastewater.

6.5.2 Wastewater Collection, Treatment, and Disposal

This section describes wastewater collection and disposal.

Law

> *10633 (a) A description the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal*
> *(b) A description the quantity of treated wastewater that meets recycled water standards, is being discharge, and is otherwise available for use in a recycled water project.*

6.5.2.1 Wastewater Collected Within Service Area

The City collects wastewater from residential, commercial, and industrial customers within the City limits and some unincorporated areas. The collected flows are conveyed through a trunk system to a Wastewater Treatment Facility (WWTF) in the south of the City. The City's large industrial area near the southern boundary of the City limits collect flows at a series of lift stations before

being pumped north to the WWTF. Based on available data received from City staff, the WWTF treated an average annual wastewater flow of approximately 4,944AF in 2020 (Table 6-2).

Table 6-2 Wastewater Collected Within Service Area in 2020

Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2020 (AF)	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party?
City of Hanford	Metered	4,944	City of Hanford	City of Hanford WWTF	Yes	No

6.5.2.2 Wastewater Treatment and Discharge Within Service Area

The City's WWTF has an existing design capacity of 8.0 mgd and includes the following treatment components: a headworks, two primary clarifiers, two primary trickling filters, two secondary trickling filters, one oxidation ditch, four secondary clarifiers, three anaerobic digesters, one dissolved air flotation sludge thickener, sixteen sludge drying beds, one facultative sludge lagoon, one effluent equalization basin, six effluent disposal/percolation ponds, and two emergency effluent storage ponds. Treated wastewater is discharged to the facility's equalization basin and then pumped to evaporation/percolation ponds or farmlands for agricultural irrigation. The City's treatment and discharge of wastewater are summarized in Table 6-3.

Table 6-3 Wastewater Treatment and Discharge Within Service Area in 2020

Wastewater Treatment Plant Name	Discharge Location Name and Description	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2020 Volume			
					Wastewater Treated (AF)	Discharged Treated Wastewater (AF)	Recycled Within Service Area (AF)	Recycled Outside of Service Area (AF)
City of Hanford WWTF	Equalization basin storage of treated effluent	Land disposal	No	Secondary Disinfected – 23 MPN	4,944	0	0	4,944

6.5.3 Recycled Water System

Law

> *10633 (c) A description the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.*

The City currently distributes the chlorinated secondary-treated effluent wastewater to agriculture users, east and west of the WWTF, for crop irrigation. The irrigation of crops on privately owned land is permitted under the City's two monitoring report programs (MRP) from the Regional Water Quality Control Board (RWQCB). The first program, MRP 5-00-222, governs the use of recycled water on 11,500 acres of privately owned farmland within the Lakeside Irrigation Water Irrigation District (LIWD). In an agreement with LIWD, the City pays $30 per acre-foot to dispose of its recycled wastewater effluent. The second program, MRP 5-00-223, governs the use of recycled water on a 1,600-acre site owned by the City as well as several small privately owned farms near the WWTF. **Appendix B** includes the City's Reclamation Project Agreement, which stipulates the City's use of recycled water.

The City's recycling of the disinfected secondary effluent on agricultural farmland does not directly offset potable water use. As such this recycled water use is not able to assist the City in meeting its 2020 Urban Water Use Target and is not used in the calculations set forth in Chapter 5. However, the City's recycled water use does offset groundwater and surface water that would otherwise be used by farmers in the area. Furthermore, the recycled water consumer, LIWD locates outside of the city limit, therefore, LIWD's recycled water demand is excluded from Hanford's recycled demand projection in this report (2020 UWMP).

Delivery of the secondary treated effluent to permitted lands involves two separate pump stations, each with a 24-inch discharge pipeline. One pump station delivers recycled water from the WWTF to land west of the WWTF through a 24-inch diameter reinforced concrete pipe. Recycled water delivered to the east and south of the WWTF is pumped by the second pump station through a 24-inch diameter polyvinyl chloride (PVC) pipeline.

6.5.4 Recycled Water Beneficial Uses

This section documents the current uses of WWTF treated effluent.

Law

> *10633 (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.*
> *(e) A description the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, 20 years and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*

6.5.4.1 Current and Planned Uses of Recycled Water

According to the City's 2000 Recycled Water Engineering Report, irrigation demand for the LIWD lands alone are 27,103 acre-feet per year (afy). This demand will continue to exceed the amount of recycled water available from the WWTF and is the most economically and technically feasible method for the City's disposal of its treated effluent. However, the recycled water consumer, LIWD, is located outside of the city limit, therefore LIWD's recycled water demand projection is not included in Hanford's recycled water demand projection, nor documented in Table 6-4.

Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☑	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	Volume				
			2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
		Total	0	0	0	0	0	0

The City may decide in the future to reevaluate the need or desirability of expanding its recycled water use to serve municipal customers. This would involve constructing a recycled water distribution system throughout the City and would require an upgrade to the WWTF to provide tertiary treatment.

6.5.4.2 Planned Versus Actual Use of Recycled Water

Law

> *10633 (e) …. (Provide) a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*

2015 UWMP have identified agricultural irrigation in Lakeside Irrigation Water District (LIWD) as the sole method of recycling the City's treated wastewater effluent., however, LIWD is located outside of the City Limit. In this report (2020 UWMP), the recycled water use in LIWD is excluded from the Hanford's Recycled water use, as shown in Table 6-5.

Table 6-5 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual

Use Type	2015 Projection for 2020 (AF)	2020 Actual Use (AF)
Agricultural irrigation	5,606	0
Total	**5,606**	**0**

Note: Agricultural irrigation volumes were documented in the 2015 UWMP for the informational purposes only and reflected the recycled water demands for Lakeside Irrigation Water District, but not the City. This agricultural irrigation use is not documented as part of the 2020 UWMP.

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

Law

10633 (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

As previously discussed, the City's current method of recycling its WWTF effluent through agricultural irrigation on LIWD permitted farmland is the most economically and technically feasible method of disposal. Therefore, additional measures taken by the City to encourage recycled water use, such as financial incentives or informational programs, are not expected to result in additional recycled water use, as summarized in Table 6-6.

Table 6-6 Methods to Expand Future Recycled Water Use

Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
TBD	The City currently does not have a plan to expand recycled water use.		

6.6 DESALINATED WATER OPPORTUNITIES

Law

> *10631 (g) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply*

The groundwater under the City is not brackish in nature and does not require desalination. However, the City could provide financial assistance to other water purveyors in exchange for water supplies; the City could consider this option should the need arise.

6.7 EXCHANGES OR TRANSFERS

Law

> *10631 (c) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.*

There are currently no known exchanges, transfers, or interties that exist between the City and any other water system.

6.8 FUTURE WATER PROJECTS

Law

> *10631 (f) …The urban water supplier shall include a detailed description of expected future water projects and programs…that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.*

As discussed in previous sections, the City's sole source of potable water is groundwater. As such, the only method available to provide additional supply capacity for growing demand is the construction of new wells, and there are no additional types of future water projects the City plans to implement.

The City's total supply capacity is approximately 38,600 afy (34.5 MGD); its firm capacity, designated as the total capacity less the largest unit out of service, is approximately 35,400 afy (31.6 MGD). The 2017 WSMP identified needs for additional groundwater wells as the City's demands increase, which are reflected in the City's capital improvement program. Previous planning efforts have identified two additional wells for construction. The rated capacity of these additional wells has yet to be determined, but for planning purposes is assumed equal to the average rated capacity of the City's 14 existing wells, which is approximately 2,700 afy. The City also plans to construct a new tank to serve the southern industrial park, which will improve the

reliability of the industrial park's distribution system. These improvements are summarized on the following page in Table 6-7.

Table 6-7 Expected Future Water Supply Projects or Programs

Name of Future Projects or Programs	Joint Project with other agencies?	Description	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier (AF)
Additional Wells	No	Two new wells planned for next 5 years as part of city's Capital Improvement Program	2020-2025	All Year Types	5,400
Industrial Park Tank	No	New tank to serve south Industrial Park	2020-2025	All Year Types	

Notes:

1. For planning purposes, the expected increase to the City's water supply for future wells with a capacity that is to be determined is equal to the average supply capacity of the City's existing wells. This average supply capacity is approximately equal to 2,700 afy per well site.

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

Law

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision 10631(a).

(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonable available, including, but not limited to, historic use records.

The City's groundwater supply has been adequate to meet the City's historical demands and Table 6-8 summarizes the total amount of groundwater pumped in 2020. In order to meet the growing demand, new groundwater wells will have to be constructed. The City intends to continue to use groundwater as the sole source of potable water supply. Annual projections for the City's groundwater supplies are estimated based on the groundwater sustainability analysis (Appendix C), which consolidated the estimated sustainable yield information documented in Tulare Lake GSP and the City's planning water service area.

Annual projections for the City's recycled water supplies are summarized in Table 6.9 and assume that the City will continue to use 100 percent of its recycled water for agricultural irrigation, although a portion of the water will be lost to evaporation and percolation. Projected

recycled water supply was assumed to be equal to the projected annual wastewater flow of the WWTP. This projected wastewater flow was calculated based on the projected water demand and historical average of the city-wide return-to-sewer ratio, using available data between 2006 and 2020. Consistent with the 2015 UWMP all treated wastewater effluent is expected to be used to irrigate agricultural lands. Table 6-9 summarizes the total projected water supply, including groundwater and recycled water sources, available through 2045.

It should be noted that Tulare Lake subbasin which underlies the City is not adjudicated, and the projected groundwater supply volumes are not intended to and do not limit the City's water rights or maximum pumping volumes. The Mid-Kings River GSA continues to evaluate any options to enhance groundwater supplies; however, to date, Tulare Lake GSP has not restricted the maximum groundwater availabilities. The City of Hanford actively participates in the preparation of the GSP and monitors any potential changes to groundwater availability in the future.

Table 6-8 Water Supplies – Actual

Water Supply Source	2020	
	Actual Volume (AF)	Water Quality
Groundwater	11,714	Potable Water
Recycled Water	4,944	Recycled Water
Total	**16,658**	

Table 6-9 Water Supplies – Projected

Water Supply Source	Projected Water Supply				
	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Groundwater	10,033	10,033	10,033	10,033	10,033
Recycled Water	5,077	5,318	5,569	5,833	6,109
Total	**15,110**	**15,351**	**15,602**	**15,866**	**16,142**

6.10 CLIMATE CHANGE CONSIDERATIONS

Potential impacts of climate change may not only influence demand throughout the City's service area, but could alter the water supply availability. Based on the City's location and current climate, the most notable changes in climate would be related to increasing average temperature, intensifying storm events, and periods of extended drought. Other potential effects, such as decreasing snowpack or rising sea levels, would not have a direct impact on the City's water demand or supply. Changes in annual precipitation and temperature could have an impact on the City's overall water use as well as available supply volumes. The City, as well as other local water supply agencies, will continue to monitor available water supply volumes and year-on-year changes to determine actions necessary to mitigate potential supply shortages.

6.11 ENERGY INTENSITY

Law

10631.2.(a)	*In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:* *(1) An estimate of the amount of energy used to extract or divert water supplies.* *(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.* *(3) An estimate of the amount of energy used to treat water supplies.* *(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.* *(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.* *(6) An estimate of the amount of energy used to place water into or withdraw from storage.* *(7) Any other energy-related information the urban water supplier deems appropriate.*

An urban water supplier's energy intensity (EI) is the amount of energy (kWh) consumed for the purpose of supplying water from the point that it enters the City's service area to the point at which it exits the system at the point of delivery. The 2020 Urban Water Management Plan Guidebook provides guidance for estimating energy intensity associated with the source of water used by an urban water supplier. The purpose of calculating the City's energy intensity is to:

- Develop a baseline energy use per acre-foot of treated water delivered by the water system.
- Aid in Identifying energy saving opportunities in the future.
- Allow for comparing energy use among similar agencies.

The estimate of energy intensity includes requirements for the purpose of water conveyance, extraction, treatment, placing water into and taking it from storage, and distribution. The City's water energy intensity only accounts for the water management processes occurring within its

operational control. The following water management processes are accounted for in the City's energy intensity estimate, which is based on existing processes and available records:

- Extraction of groundwater from Tulare Lake Subbasin.
- Delivery of treated water to end users.

Energy use data relating to the extraction, diversion, conveyance, treatment, distribution and placing into and taking from storage in the City's water supply system was acquired from Southern California Edison (SCE) meter data for year 2020. The City, therefore, utilized Table O-1B (**Appendix A**) for its EI calculations instead of Table O-1A or O1-C, since it is not possible to distinguish between energy used for treatment and conveyance at this time.

Total energy use and volume of water entering the City's water system for year 2020 were 9,259,222 kWh and 11,714 AF, respectively, resulting in an Energy Intensity of 790. kWh/AF (2425.8 kWh/MG).

CHAPTER 7 – WATER SUPPLY RELIABILITY ASSESSMENT

This chapter assesses the reliability of the City's water supply under normal conditions, single year dry conditions, and five-year dry conditions. The reliability assessment includes a comparison of projected water use versus expected water supply for the next 20 years. This chapter also includes the newly required Drought Risk Assessment, which is a review of the capability of the City's water supplies to meet demands for the next five years, assuming a five-year drought occurs.

7.1 CONSTRAINTS ON WATER SOURCES

Law

10631 (b)(1)	*A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.*

As discussed in previous sections, the City's only current and planned source of supply is groundwater. The potential constraints on the City's water supply are summarized as follows.

7.1.1 Legal Factors

Examples of legal factors that could impact the supply reliability of a water distribution system include pumping limitations in adjudicated groundwater basins and surface water contracts. As noted in Chapter 6 the Tulare Lake Groundwater Subbasin, the sole basin from which the City extracts groundwater, is not an adjudicated groundwater basin and there are no legal limitations on the amount of groundwater the City can extract under the Mid-Kings River Groundwater Sustainability Agency's (MKR GSA) groundwater sustainability plan (GSP).

7.1.2 Environmental Factors

Environmental concerns can arise during the water planning process when a project's impact on the ecosystem is taken into consideration. These concerns can subsequently cause a lack of supply due to the enforcement of environmental legislation. The City's groundwater source is not expected to be limited by environmental concerns.

7.1.3 Water Quality Factors

If a surface water or groundwater source has water quality constituents that exceed allowable levels, the amount of water a supplier can obtain from that source can be limited. The City's

7.1.3 Water Quality Factors

If a surface water or groundwater source has water quality constituents that exceed allowable levels, the amount of water a supplier can obtain from that source can be limited. The City's groundwater supply has one water quality constituent that has historically required mitigation measures in order to ensure the supply is not limited, which is arsenic. Arsenic is concentrated in the clay strata beneath the City, and hydrogen sulfide, which may cause discoloration, adverse taste, and a smell typically compared to rotten eggs. The City has implemented a chlorination program for the water supply, and hydrogen sulfide is no longer considered a water constituent of concern. The steps taken by the City to ensure the water supply is unaffected by arsenic are summarized in the following section.

7.1.3.1 Arsenic

Congress passed the Safe Drinking Water Act (SDWA) in 1975 to protect public health. In accordance with the SDWA, the Environmental Protection Agency (EPA) established a maximum contaminant level (MCL) of 0.050 mg/L for arsenic. Amendments to the SDWA in 1996 required the EPA to establish a new MCL of arsenic, which is the current MCL of 0.010 mg/L.

Through the preparation of several studies, the City has determined the best methods for reducing the levels of arsenic in their water supply. These studies include:

- 1989 Water Quality Study (Carollo Engineers)
- 1996 Water System Master Plan (Boyle Engineers)
- 2005 Arsenic Reduction Study (Carollo Engineers)
- 2005 Water Supply and Distribution Capacity Analysis for the Arsenic Reduction Study (Carollo Engineers)

The alternative methods considered by the City to reduce arsenic concentrations below the MCL are summarized as follows:

- Abandon high arsenic wells and drill replacement wells with lower concentrations
- Blend water from wells with higher concentrations with wells of lower concentrations
- Install well head treatment
- Rehabilitate wells that produce water with high arsenic concentrations to a block of strata with low concentrations, producing water low in arsenic.

A non-treatment based approach was determined to be the most cost effective for the City and was comprised of the following three improvement projects:

- Abandon six shallow wells with low production and high arsenic concentration. Replace the abandoned wells with two wells of a higher production capacity and lower arsenic concentration.

- Abandon and replace three wells that could not be rehabilitated with new wells with higher production capacities and acceptable arsenic conditions.
- Three deep wells were rehabilitated to ensure they only extract groundwater from a zone with lower arsenic concentrations.

The City currently treats a groundwater well for Arsenic contamination. Upon the implementation of these arsenic improvement projects, the City's water supply is able to reliably produce water below the MCL for arsenic. Based on the current levels, the long-term reliability of the City's water supply is not restricted due to arsenic.

7.1.4 Climatic Factors

The primary climatic factors that affect the reliability of water supply system are precipitation and runoff characteristics, specifically the seasonal trend. Systems that rely heavily on surface water are most vulnerable to changes in water supply when a shift in precipitation and runoff amounts reduce the amount of surface water available. The City does not rely on surface water as a source of supply and is not vulnerable to these supply reductions.

7.2 RELIABILITY BY TYPE OF YEAR

This section discusses the yearly supply conditions, and the sources of data for supply evaluation.

7.2.1 Types of Years

This section discusses the type of years considered when evaluating water supply reliability. The conditions are as follows:

- **Average Water Year** – The average water year is a year that represents the median runoff levels from precipitation. The supply quantities would be similar to historical average supplies.
- **Single Dry Year** – The single dry year is defined as the individual year with the lowest usable water supply. This condition can be derived as the year with the lowest annual supply and is represented by the year 1984 (**Table 7-1**). It should be noted that under single dry year conditions the anticipated City-wide demand will increase slightly from a normal year as a response to reduced rainfall.
- **Five-Consecutive-Year Drought** – The five-consecutive year drought is defined as the five consecutive years with the lowest usable water supply. The multiple dry years are detrimental to the water supply system because of their adverse effect on the levels of local and state-wide reservoirs, as well as groundwater levels. Available supply percentage for these conditions is based on an analysis of historical per capita water use described in a later section. Consistent with the 2015 UWMP the period between 1987 and 1991 was selected to represent the five-consecutive-year drought (**Table 7-1**).

Table 7-1 Basis of Water Data

Year Type	Base Year	Percent of Average Supply (%)
Average Year	2000	100%
Single-Dry Year	1984	84%
Consecutive Dry Years 1st Year	1987	93%
Consecutive Dry Years 2nd Year	1988	90%
Consecutive Dry Years 3rd Year	1989	88%
Consecutive Dry Years 4th Year	1990	86%
Consecutive Dry Years 5th Year	1991	87%

7.2.2 Sources for Water Data

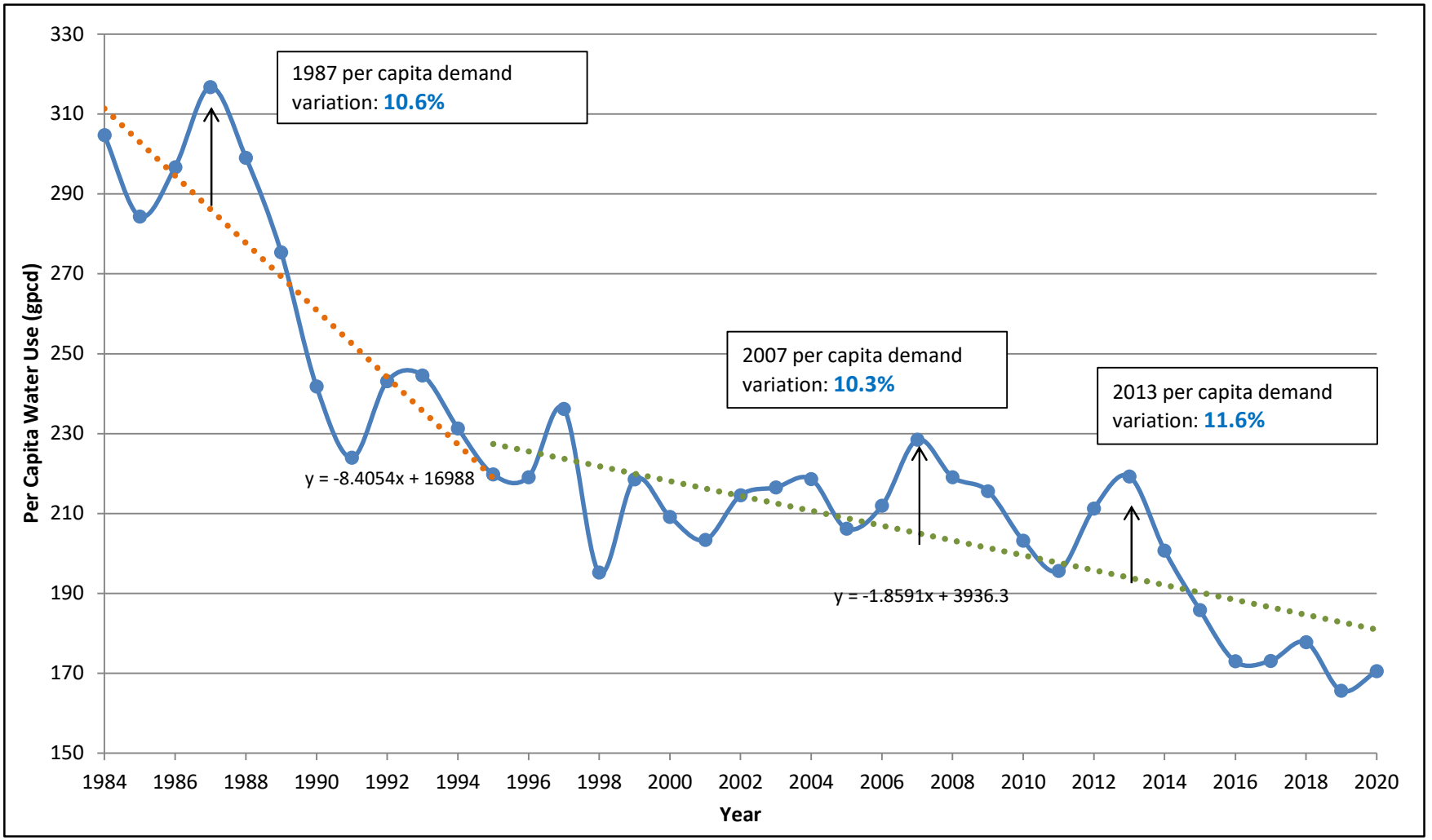
To establish a basis of normal year, single dry year, and five-consecutive-year drought's historical rainfall data available for the City of Hanford from the DWR California Data Exchange Center (CDEC) was analyzed.

7.3 SUPPLY AND DEMAND ASSESSMENT

Law

> *10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional or local agency population projections within the service area of the urban water supplier.*

During prolonged years of drought, City-wide water use patterns are expected to change. Typically, outdoor water use will initially increase as irrigation is used to offset decreased rainfall. These potential water use increases can be offset, in part, by increasing water conservation measures. To characterize the City's water use during years of drought, the City's historical per capita water usage was analyzed. Analyzing per capita water usage, rather than total volume consumed, normalizes water consumption with population and eliminates the increase in demand due to growth. The 2020 UWMP expands on the analysis performed as part of the 2015 UWMP, and includes historical per capita consumption between the years 1984 and 2020, as summarized on **Figure 7-1**.



Historic Water Use

Historic Water Use Trend (1995-2020)

Historic Water Use Trend (1984-1995)

AKEL ENGINEERING GROUP, INC.

Figure 7-1

Historic Per Capita Demand Variation

2020 Urban Water Management Plan

City of Hanford

Figure 7-1 indicates a downward trend in per capita water consumption, with a sharp decrease between the 1980s and mid-1990s, and a more gradual decrease from the mid-1990s to present. To account for this downward trend in the analysis, two linear fit trend lines were developed, characterizing the trend from 1984 to 1995 and 1995 to 2020.

Table 7-1 summarizes the supply available for the various hydrologic water years. Because the City utilizes groundwater as its sole source of supply, the available "supply" drawn from the aquifer in any year is equal to the system-wide water demand for that particular year. The demand projections for the various hydrologic water years are summarized in Table 7-2, Table 7-3, and Table 7-4 and assume the projected supply will be equal to the projected demand as the City's sole source is groundwater.

Table 7-2 Normal Year Supply and Demand Comparison

	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Supply	15,110	15,351	15,602	15,866	16,142
Demand	11,623	12,172	12,748	13,351	13,982
Difference	3,488	3,179	2,855	2,515	2,160

Table 7-3 Single Dry Year Supply and Demand Comparison

	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Supply	15,110	15,351	15,602	15,866	16,142
Demand	12,971	13,584	14,227	14,899	15,604
Difference	2,140	1,767	1,376	967	538

Table 7-4 Multiple Dry Years Supply and Demand Comparison

		2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
First year (1987)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Second year (1988)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Third year (1989)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Fourth year (1990)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Fifth year (1991)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538

Historical production records indicate that during drought water years, water demands during the single dry and multiple dry periods vary from the normal year baseline. **Figure 7-1** documents historical per capita water use between 1984 and 2020 and summarizes the City's historical response to periods of dry weather. 1987 is shown as the first year of the multiple dry water year period and reflects the significant variation between the annual per capita water use and the historical trend; in 1987, the per capita water use was approximately 10.6% above the historical trend. While this year remains the significant deviation between annual per capita water use and the historical trend, 2013 is another year of significant deviation. During California's recent drought, the City's per capita water use was approximately 11.6% above the historical trend. While the magnitude of the current drought is similar to that of the 1987 water year, increased water conservation measures put in place by the City have resulted in lower per capita water use.

In order to account for demand variation during drought water years, the projected water demands during the single dry and multiple dry water years (**Table 7-3** and **Table 7-4**) are increased by a factor that reflects the greatest deviation (11.6% in 2013) of per capita water use from the historical trend.

7.4 REGIONAL SUPPLY RELIABILITY

Law

> *10620 (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.*

As discussed previously, the City uses groundwater as its sole source of supply and no known opportunities currently exist for diversifying sources of supply. In order to reduce the burden on groundwater resources during periods of prolonged drought, the City has an aggressive water conservation ordinance to prevent and prohibit the wasting of water, while also encouraging the community to conserve.

7.5 DROUGHT RISK ASSESSMENT

Law

> *10635 (b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:*
>
> *(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.*
>
> *(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.*
>
> *(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.*
>
> *(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.*

As part of the 2020 UWMP, the California Water Code now requires urban water suppliers to develop a drought risk assessment (DRA). The DRA is a planning exercise that considers the effects on available water supply sources should a five-year drought occur immediately following the preparation of the DRA. It is similar in nature to the supply and demand assessment described in a previous section, but only evaluates the effects of a five-year drought. The DRA also considers the effect of the City's Water Shortage Contingency Plan on available supply and total demand. Ultimately, the DRA is a proactive planning review that readies the City for the worst-case water supply condition should it occur in the immediate future.

7.5.1 DRA Data, Methods, and Basis for Water Shortage Conditions

The DRA evaluates the effect on available water supply during the course of a five-year drought. Currently, the City's sole water supply source is groundwater. As such, the same data and methodology used for preparing the supply and demand assessment through 2045, described in a previous section, can be used for the purposes of the DRA.

For conservative planning purposes, the DRA considers an unconstrained demand condition within the City's service area, which means no additional demand management measures or water use reduction methods are in place outside of the City's year-round prohibitions. This conservative planning condition allows the DRA to identify if additional water use reductions, documented in the Water Shortage Contingency Plan, should be implemented.

7.5.2 DRA Individual Water Source Reliability

The DRA water demand and supply comparisons are documented in **Table 7-5**, which assumes that the available groundwater supplies are equal to the projected unconstrained demand through 2025 should a five-year drought occur.

7.5.3 DRA Total Water Supply and Use Comparison

The City's DRA is summarized at the beginning of the following page in **Table 7-5**. Using assumptions for available supplies consistent with previous planning efforts, and accounting for an unconstrained demand condition, the DRA shows that the City will be able to meet projected water demands under a 5-consecutive-year drought starting in 2021. At this point in time no water shortage declarations or shortage response actions are required to be implemented.

7.5.4 Management Tools and Options

Law

> *10620 (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.*

In order to reduce the burden on groundwater resources during periods of prolonged drought, the City has developed a Water Shortage Contingency Plan that can be implemented to prevent and prohibit the wasting of water while also encouraging the community to conserve.

The City's supply reliability is dependent on the rate of available recharge for the groundwater subbasins beneath the City. KCWD imports raw water for the purpose of recharging the groundwater subbasins they manage, which includes the Tulare Lake subbasin. During periods of drought, the imported water supplies available to KCWD can be reduced or not provided at all, which would reduce the amount of recharge available to the groundwater basins. In periods of

Table 7-5 Five-Year Drought Risk Assessment

Totals	2021	2022	2023	2024	2025
Demands					
Total Water Use	12,502	12,619	12,737	12,854	12,971
Supplies					
Groundwater Supplies	15,004	15,031	15,057	15,084	15,110
Surplus/Shortfall without WSCP Action	0	0	0	0	0
Planned WSCP Actions (use reduction and supply augmentation)					
WSCP - supply augmentation benefit	0	0	0	0	0
WSCP - use reduction savings benefit	0	0	0	0	0
Revised Surplus/(shortfall)	**2,502**	**2,411**	**2,321**	**2,230**	**2,140**
Resulting % Use Reduction from WSCP action	**0%**	**0%**	**0%**	**0%**	**0%**

water shortage, KCWD works closely with the water suppliers extracting water from groundwater subbasins they manage in order to minimize overdraft and subsidence. Typically, when KCWD identifies a risk to regional supply reliability, they call for urban water suppliers to reduce their water use through voluntary and mandatory water conservation measures.

Additionally, during a drought, KCWD anticipates the City to use groundwater reserves. Historical groundwater monitoring by KCWD in the Tulare Lake subbasin also indicates stable groundwater conditions during multiple-year droughts. Through KCWD's implementation of conjunctive use programs, the Tulare Lake groundwater subbasin has historically experienced well managed levels. As a result of this management, the Tulare Lake subbasin is considered a reliable source of supply during water shortages. While pumping may exceed recharge during a drought, basin management practices have prevented long-term adverse conditions.

CHAPTER 8 – WATER SHORTAGE CONTINGENCY PLANNING

This chapter summarizes the City's Water Shortage Contingency Plan (WSCP). The WSCP is a separately adopted planning document that most notably outlines levels of water shortage conditions, demand reduction methods to be implemented in the event of a water shortage and the process the City will implement to perform an annual Supply and Demand assessment. The WSCP also includes discussion of the City's communication protocols during a water shortage, methods of determining compliance and enforcing water use prohibitions, estimating the financial consequences of a water shortage, and the methods the City has in place to monitor and report the effectiveness of any water demand reduction methods implemented.

8.1 WATER SUPPLY RELIABILITY ANALYSIS

The City currently uses groundwater as the sole source of water supply, with wells extracting water from the Tulare Lake Subbasin of the San Joaquin Valley Groundwater Basin. These groundwater basins are managed by the Mid-Kings River Groundwater Sustainability Agency and the 2020 Tulare Lake Subbasin Groundwater Sustainability Plan lists the rates of natural recharge for these groundwater supply sources. Consistent with previous planning efforts, the City's Water Supply Reliability Analysis and the available supply drawn from the aquifer in any year is equal to the system-wide water demand for that particular year.

8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT

Updates to the California Water Code now require that urban water suppliers prepare an annual water supply and demand assessment (Annual Assessment) on an annual basis. The findings of this Annual Assessment will be summarized in a report submitted to the Department of Water Resources by July 1 of each calendar year, with the first report required for submission on July 1st, 2022. The purpose of this annual assessment is to ensure water suppliers are proactively considering the available water supplies and demand requirements, as well as identifying the potential need for implementing the Water Shortage Contingency Plan.

It should be noted that DWR is in the process of preparing a stand-alone guidance document that will outline general procedures to aid urban water suppliers in preparing the Annual Assessment. The decision-making process and Annual Assessment completion steps are preliminary at this point in time and will be further refined as the DWR guidance document is completed.

The City's Water Shortage Contingency Plan is provided in **Appendix D** and summarizes the decision-making process and methodology used to prepare the Annual Assessment. The reporting timeline is shown in **Figure 8-1**.

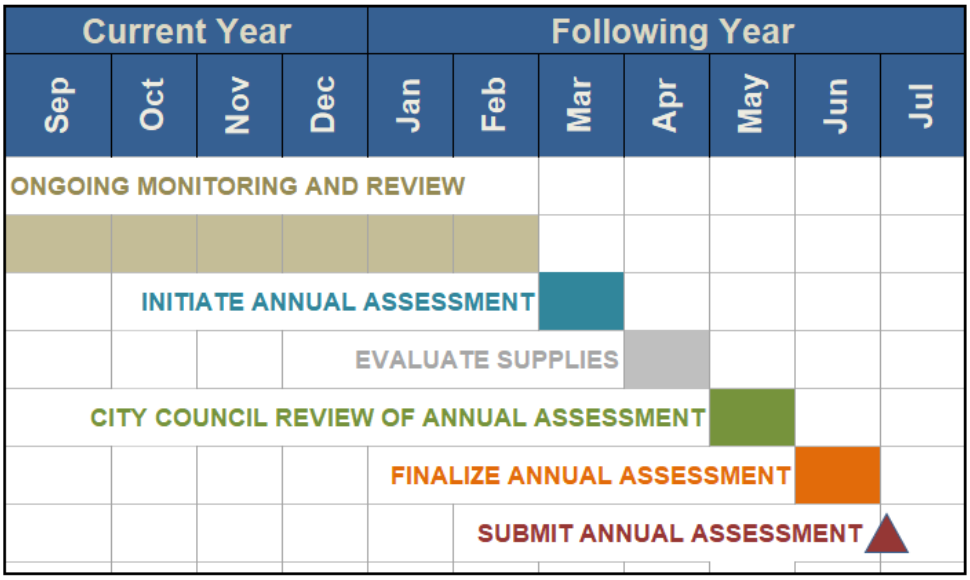


FIGURE 8-1 ANNUAL ASSESSMENT REPORTING TIMELINE

8.3 WATER SHORTAGE LEVELS

Law

> *10632 (a)(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.*

Water agencies that rely on groundwater as the sole source of supply are unlikely to experience water shortages like those agencies that rely on surface water. As the City is currently utilizing groundwater as its sole source of supply, it is not expected that the City will experience the water supply shortages that surface water dependent suppliers will.

As part of the City's efforts to conserve water, the City has permanent water use prohibitions in place. Additionally, the City's conservation ordinance describes a multiple stage water conservation plan. Each water rationing stage includes a water demand reduction percentage, which is to be applied to normal water demands. The plan is dependent on the cause, severity, and anticipated duration of the water shortage, and a combination of voluntary and mandatory water conservation measures can be put in place to reduce City-wide water usage. A comparison between the City's water shortage levels and the DWR recommended 6-level framework is documented in the WSCP. The water shortage levels are summarized in **Table 8-1**.

Table 8-1 Water Shortage Contingency Plan Levels

Stage	Percent Supply Reduction	Water Supply Condition
1	10%-20%	Minor Shortage Potential - Below average rainfall in the previous 12-24 months - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months
2	20%-35%	Moderate Shortage Potential - Below average rainfall in the previous 24-36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months
3	35%-50%+	Critical Shortage Potential - Below average rainfall for over 36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months

The water shortage stages become effective when the City Manager declares that the City is unable to provide sufficient water supply to meet ordinary demands, to the extent that insufficient supplies would be available for human consumption, sanitation, and fire protection. The declared stage will be based on the City Manager's judgment and to the degree of the immediate or future supply deficiency.

8.4 SHORTAGE RESPONSE ACTIONS

The City's WSCP includes shortage response actions that may be implemented during a water shortage. Additionally, the City's municipal code has multiple permanent water use restrictions in place year-round that minimize water waste. These shortage response actions and permanent water use restrictions are summarized in the WSCP, provided in **Appendix D**.

8.5 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

The WSCP adoption, submittal and availability process are the same as those for the City's UWMP. However, the WSCP may be periodically amended independently from the City's UWMP. Should an amendment to the WSCP be implemented, stakeholder and public notification methods consistent with the UWMP will be performed prior to the adoption of the amended plan.

CHAPTER 9 – DEMAND MANAGEMENT MEASURES

This chapter summarizes the demand management measures, which are additional measures the supplier plans on implementing to achieve its water use targets and maintain ongoing water conservation.

9.1 DEMAND MANAGEMENT MEASURES AND IMPLEMENTATION

The following section summarizes the Demand Management Measures planned and implemented by the City to promote water conservation. This section includes, as applicable, discussions on both the historical implementation and planned implementation of various measures.

Law

10631 (f)(A) …The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.
(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:
(i) Water waste prevention ordinances.
(ii) Metering.
(iii) Conservation pricing.
(iv) Public education and outreach.
(v) Programs to assess and manage distribution system real loss.
(vi) Water conservation program coordination and staffing support.
(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

9.1.1 Waste Water Prevention Ordinances

The City adopted a Water Waste Ordinance in 1976 requiring all new connections to the water system to have meters. Citations were issued for ordinance violations and a five dollar penalty was imposed after three violations; a water meter was installed after the fourth violation, with all installation costs being charged to the customer. In 1986 the Water Waste Ordinance was revised, increasing the penalty for the first violation to 15 dollars and every subsequent penalty to ten dollars. A flow restrictor is installed if the violations continue. In 2015, the Water Waste Ordinance was revised, increasing the penalty for the second violation to 50 dollars and the fourth violation to 200 dollars.

On August 4, 2014 the City Council adopted updated Water Supply Shortage Regulations and declared a Level 1 Water Supply Shortage, with the intent of reducing water use by 20% as compared to the previous year. Over the following 8-months, the City's customers achieved a 13.6% water use reduction compared to the same time period in the previous year, which was short of the 20% reduction goal. In May 2015, City staff recommended the implementation of additional water use reduction methods and the declaration of a Level 2 Water Supply Shortage,

which was adopted by the City Council. As part of this declaration, additional water reduction methods have been put in place, including but not limited to the prohibition of irrigating public medians with potable water, washing down sidewalks and driveways, and operating a decorative water feature without a recirculation system. The full summary of water use prohibitions and consumption reduction methods for each water supply shortage level is discussed in Chapter 8, as part of the City's Water Shortage Contingency Plan.

9.1.2 Metering

Law

> *526*
> *(a) Notwithstanding any other provisions of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract…shall do both of the following:*
> *(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings…located within its service area.*
> *527*
> *(a) An urban water supplier that is not subject to Section 526 shall do both of the following:*
> *(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2015.*

Since the 1976 adoption of a Water Waste Ordinance, all new connections to the water system have been required to have meters. The City requires the installation of a water meter for any unmetered customer that installs a swimming pool or constructs an addition to an existing home valued in excess of 5,000 dollars. The City has also worked to convert previous unmetered and flat rate accounts to the new AMR metering system currently in use throughout the City.

9.1.3 Conservation Pricing

Currently, the City bills customers at a monthly rate per 100 cubic feet. In December 2015, the City adopted a resolution (**Appendix E**) to increase the monthly water rate in order to provide sufficient funds to operate, maintain, and improve the water system and to pay debt service for bonds, maintain system facilities, and provide water quality compliance. The City currently does not utilize seasonal rates and has no declining rate structure.

9.1.4 Public Outreach

The City has undertaken multiple public information programs to help reduce water consumption and raise public awareness of methods of water conservation.

9.1.4.1 Public Information Programs

In order to raise awareness of water conservation, the City implements programs for the purpose of distributing water use information to the public through varying methods, which can include

brochures, radio or television broadcasts, or through school programs and videos. Additionally, information on water use conservation can be found on the City website.

The City currently distributes information about water-saving tips, outdoor water use restriction reminders, and water saving information in the local paper, in the monthly bill stuffers, at the City's seasonal farmers market, and at the Hanford Mall.

9.1.4.2 School Education Program

As a member of the Kings County Water Education Committee (KCWEC), the City sends representatives to public schools throughout the county to give presentations on water safety and water conservation. KCWEC also provides book covers to schools detailing water conservation and water safety information.

9.1.4.3 Residential Water Audits

In 2014, the City started providing residential water audits for members of the community who wished to have their system evaluated. In 2015, the City began auditing Commercial, Institutional, and Industrial users as part of a State Conservation Order.

9.1.5 Programs to Assess and Manage Distribution System Real Loss

When water enters the transmission and distribution system, it is difficult to account for the end result of the water. As a means to better account for water use in the system, a water supplier may use a water audit. Unaccounted for water is the difference between the water supplied to the system and the cumulative total of metered water use. The City's ability to accurately determine the amount of unaccounted for water is complicated by the number of unmetered service connections, and the City has not conducted a formal water auditing and leak detection program at this time. However, the City has been implementing an automated meter reading (AMR) retrofit for its existing connections, allowing City staff to identify users with high consumption rates. Additionally, the new meters allow the City to identify connections with relatively constant consumption rates throughout both day and night, indicating the customer may have a leak. The City identifies these potential leak locations and advises potentially affected customers.

Currently, the City does not meter sewer and hydrant flushing, as well as street sweeping, and the City compares well production with water usage to determine these uses. Additionally, unaccounted for water can be an indicator of leaks, meter errors, water system repair or maintenance, or illegal connections.

The City's annual capital improvement budget currently allocates funds for system repairs, including transmission and distribution mains, as well as pump stations and storage tanks. Leaks within the system are immediately fixed upon detection. The City keeps a record of all repaired leaks in the Public Works Department.

9.1.6 Water Conservation Program Coordination and Staffing Support

The Utilities Superintendent is responsible for coordinating and expanding the City's water conservation program as well as providing useful water conservation information to residents through the various public outreach programs. The City employs part-time staff to enforce water use prohibitions and write violations; the City recently hired a full-time water conservation technician to assist with the enforcement of the water conservation program.

9.1.7 Other Demand Management Measures - Large Landscape Conservation Program

In accordance with Assembly Bill 325, the Water Conservation Landscaping Act, the City has adopted a Water Efficient Landscape Ordinance, which limits the amount of turf in landscaping, requires plant groupings according to water needs, and provides some flexibility to the landscape designer while promoting landscape water efficiency. The Parks Superintendent is responsible for reviewing all commercial landscaping plans for compliance before permits are issued.

To ensure that commercial landscape water use does not exceed allowable levels, the Water Efficient Landscape Ordinance establishes a method of breaking up landscaped areas into zones that have similar water use requirements, either none, low, medium, or high. Based on the water use requirements of each zone, a multiplier is applied to the square footage of the zone and the sum of these zone calculations must not exceed the project's total landscaped area

CHAPTER 10 – PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

This section includes the process undertaken for adoption and submittal of the UWMP as well as the plan required to implement the UWMP. Ways in which the public can access the UWMP is also described in this section.

10.1 INCLUSION OF 2015 DATA

The City is preparing the 2020 UWMP on the basis of a calendar year, and preparation of the plan was completed following the end of the calendar year 2020. Relevant data has been updated through December of 2020.

10.2 NOTICE OF PUBLIC HEARING

This section documents the public notification process and when a notice was given.

10.2.1 Notice to Cities and Counties

Law

> *10621 (b) Every urban water supplier required to prepare a plan shall…at least 60 days prior to the public hearing on the plan…notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.*
>
> *10642 …The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area…*

The City provided notice to relevant stakeholders, summarized in Table 10-1, on April 27th, 2021; this notification date was more than the required 60 days prior to the public hearing on the 2020 UWMP.

Table 10-1 Notification to Cities and Counties

City or County Name	60 Day Notice	Notice of Public Hearing
Kings County	☑	☑
KCWD	☑	☑

10.2.2 Notice to the Public

Law

> *10642 …Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection…Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code…*
>
> *Government Code 6066*
> *Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.*

A notice of the public hearing was published in the local newspaper in a manner pursuant to the stated Government Code 6066. Documentation of the notice provided to the public is included in **Appendix E,** and the draft 2020 UWMP and WSCP were available for review at various City facilities and on the City's web page.

10.3 PUBLIC HEARING AND ADOPTION

Following the notification of relevant stakeholders, the City held a City Council meeting on October 5th, 2021, to address and review comments received from both stakeholders and members of the community. These comments were reviewed and addressed, and the final 2020 UWMP was adopted by City Council on October 19th, 2021; **Appendix F** includes a copy of the adopting resolution.

10.4 PLAN SUBMITTAL

The UWMPA requires water agencies to submit a copy of the adopted 2020 UWMP to the DWR within 30 days of adoption and before July 1st, 2021. Additionally, water agencies are required to submit a copy of the adopted 2020 UWMP to all relevant stakeholders within 30 days of adoption. The adopted 2020 UWMP was submitted to the DWR on October 26th, 2021. The adopted 2020 UWMP was submitted to relevant stakeholders and the California State Library within 30 days of adoption.

10.5 PUBLIC AVAILABILITY

Consistent with the UWMPA requirements, a copy of the 2020 UWMP was made available to the public in the office of the City Clerk at City Hall, located at 319 Douty St, and the Public Works Department, located at 900 S 10th Ave, within 30 days of adoption.

10.6 AMENDING AND ADOPTED UWMP

Any amendments to the adopted 2020 UWMP will be adopted and filed in a manner consistent with the UWMPA requirements. Additionally, all adopted amendments will be submitted to DWR and any relevant stakeholders within 30 days of adoption.

CHAPTER 11 – DWR CHECKLIST

This report is organized in accordance with the outline suggested by DWR for the 2020 Urban Water Management Plans. This additional chapter is included to guide the reviewers to the chapters or sections in this report that address the items listed in the DWR Checklist, as published in the Final Guidebook (March 2021)

Table 11-1 DWR Checklist

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
1	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	10615	Chapter 4, 6
2	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	10630.5	Chapter 1-10
3	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	10620(b)	-
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	10620(d)(2)	Section 10.2

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
5	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	10642	Section 10.2
6	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	10631(h)	Section 4.2.2, Section 6.1
7	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	10631(h)	-
8	Describe the water supplier service area.	System Description	10631(a)	Section 3.1,
9	Describe the climate of the service area of the supplier.	System Description	10631(a)	Section 3.2
10	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	10631(a)	Section 3.3
11	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	10631(a)	Section 3.1.4 Section 3.3
12	Indicate the current population of the service area.	System Description and Baselines and Targets	10631(a)	Sections 3.3
13	Describe the land uses within the service area.	System Description	10631(a)	Section 3.1.3

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
14	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	10631(d)(1)	Section 4.2
15	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	10631(d)(3)(C)	Section 4.3
16	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System Water Use	10631(d)(4)(A)	Section 4.4
17	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	10631(d)(4)(B)	-
18	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	10631(d)(3)(A)	Section 4.3
19	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	10631.1(a)	Section 4.5
20	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	10635(b)	Section 7.5
21	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	10608.20(e)	Chapter 5
22	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	10608.24(a)	Chapter 5
23	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	10608.36	-

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
24	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	10608.24(d)(2)	-
25	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5-year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	10608.22	Section 5.6
26	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	10608.4	Section 5.8
27	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	10631(b)(1)	Sections 7.2
28	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System Supplies	10631(b)(1)	Sections 7.2
29	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	10631(b)(2)	Section 6.2
30	Describe measures taken to acquire and develop planned sources of water.	System Supplies	10631(b)(3)	Section 6.1
31	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	10631(b)	Section 6.9

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
32	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	10631(b)	Section 6.2
33	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	10631(b)(4)(A)	Section 6.2.2
34	Describe the groundwater basin.	System Supplies	10631(b)(4)(B)	Section 6.2.1
35	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	10631(b)(4)(B)	Section 6.2
36	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	10631(b)(4)(B)	Section 6.2
37	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years.	System Supplies	10631(b)(4)(C)	Section 6.2.4
38	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	10631(b)(4)(D)	Section 6.9
39	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	10631(c)	Section 6.7

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
40	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	10633(b)	Section 6.5
41	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	10633(c)	Section 6.5.2
42	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	10633(d)	Section 6.5.4
43	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	10633(e)	Section 6.5.4
44	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	10633(f)	Section 6.5.4
45	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	10633(g)	Section 6.5.4
46	Describe desalinated water project opportunities for long-term supply.	System Supplies	10631(g)	Section 6.6
47	Describe the wastewater collection and treatment systems in the supplier’s service area with quantified amount of collection and treatment and the disposal methods.	System Supplies	10633(a)	Section 6.5.2

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
48	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	10631(f)	Section 6.9
49	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	10631.2(a)	Section 6.11
50	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	10634	Section 7.1
51	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	10620(f)	Section 6.2.2 Section 7.5.1
52	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	10635(a)	Section 7.3
53	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	10635(b)	Section 7.5
54	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	10635(b)(1)	Section 7.5
55	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	10635(b)(2)	Section 7.3

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
56	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	10635(b)(3)	Section 7.3 Section 7.5
57	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	10635(b)(4)	Section 7.3 Section 7.5
58	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	10632(a)	Chapter 8, Appendix D
59	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	10632(a)(1)	Chapter 8, Appendix D
60	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	10632(a)(10)	Chapter 8, Appendix D
61	Provide the written decision- making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	10632(a)(2)(A)	Chapter 8, Appendix D
62	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	10632(a)(2)(B)	Chapter 8, Appendix D

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
63	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	10632(a)(3)(A)	Chapter 8, Appendix D
64	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	10632(a)(3)(B)	Chapter 8, Appendix D
65	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	10632(a)(4)(A)	Chapter 8, Appendix D
66	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	10632(a)(4)(B)	Chapter 8, Appendix D
67	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	10632(a)(4)(C)	Chapter 8, Appendix D
68	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	10632(a)(4)(D)	Chapter 8, Appendix D
69	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	10632(a)(4)(E)	Chapter 8, Appendix D
70	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	10632.5	Chapter 8, Appendix D

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
71	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	10632(a)(5)(A)	Chapter 8, Appendix D
72	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	10632(a)(5)(B)10632(a)(5)(C)	Chapter 8, Appendix D
73	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	10632(a)(6)	Chapter 8, Appendix D
74	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	10632(a)(7)(A)	Chapter 8, Appendix D
75	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	10632(a)(7)(B)	Chapter 8, Appendix D
76	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	10632(a)(7)(C)	Chapter 8, Appendix D
77	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	10632(a)(8)(A)	Chapter 8, Appendix D
78	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	10632(a)(8)(B)	Chapter 8, Appendix D
79	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	10632(a)(8)(C)	Chapter 8, Appendix D

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
80	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	10632(a)(9)	Chapter 8, Appendix D
81	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	10632(b)	Chapter 8, Appendix D
82	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	10635(c)	Sections 8.12 and 10.4
83	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 days after adopted the plan.	Water Shortage Contingency Planning	10632(c)	Section 8.14
84	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	10631(e)(2)	Sections 9.1 and 9.3
85	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	10631(e)(1)	Sections 9.2 and 9.3
86	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	10608.26(a)	Chapter 10.3

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
87	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	10621(b)	Section 10.2.1
88	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	10621(f)	Section 10.4
89	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	10642	Sections 10.2
90	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	10642	Section 10.2
91	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	10642	Section 10.4
92	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	10644(a)	Section 10.4
93	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	10644(a)(1)	Section 10.4
94	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	10644(a)(2)	Sections 10.4

No.	UWMP Requirement	Subject	California Water Code Reference	UWMP Location
95	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	10645(a)	Section 10.5
96	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	10645(b)	Section 10.5
97	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	10621(c)	-
98	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	10644(b)	-

APPENDICES

APPENDIX A

DWR Recommended Tables

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
Add additional rows as needed			
1610003	City of Hanford	17,965	11,714
	TOTAL	17,965	11,714
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP * (select from drop down)	
Unit	AF
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES:	

Submittal Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name
Add additional rows as needed
Kings County Water District
Kings County Water Commission
NOTES:

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	61,326	64,227	67,264	70,444	73,776	77,265

NOTES:
1.Projected population assumes historical average annual growth of 0.9%.
2.Based on Department of Finance E-5 Table, City of Hanford's 2020 population was 59,178.
3.City of Hanford also supplied 651 accounts outside of the city limit, which included 2,148

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable [1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Single Family		Drinking Water	6,903
Multi-Family		Drinking Water	1,002
Commercial	Commercial and Institutional	Drinking Water	1,005
Industrial		Drinking Water	334
Landscape		Drinking Water	750
Other		Drinking Water	854
Other	Construction Billing	Drinking Water	62
Losses			803
		TOTAL	11,714

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3. [2]

NOTES:

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		6,849	7,173	7,512	7,868	8,240
Multi-Family		994	1,041	1,090	1,142	1,196
Commercial	Commercial and Institutional	997	1,044	1,093	1,145	1,199
Industrial		332	347	364	381	399
Landscape		744	780	817	855	896
Other		848	888	930	974	1,020
Other	Construction Billing	62	65	68	71	74
Losses		797	834	874	915	959
TOTAL		11,623	12,172	12,748	13,351	13,982

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	11,714	11,623	12,172	12,748	13,351	13,982
Recycled Water Demand[1] *From Table 6-4*	0	0	0	0	0	0
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]						
TOTAL WATER USE	11,714	11,623	12,172	12,748	13,351	13,982

[1] Recycled water demand fields will be blank until Table 6-4 is complete

*[2] Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier **may** deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.*

NOTES:

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
01/2016	1144
01/2017	1528
01/2018	1742
01/2019	732
01/2020	803
[1] *Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.* [2] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES:	

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	4.3
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

Submittal Table 5-1 Baselines and Targets Summary
From SB X7-7 Verification Form
Retail Supplier or Regional Alliance Only

Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	*1995*	*2004*	*215*	*179*
5 Year	*2006*	*2010*	*215*	

**All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD)*

NOTES:

Submittal Table 5-2: 2020 Compliance **SB X7-7 2020 Compliance Form** *Retail Supplier or Regional Alliance Only*				**From**
2020 GPCD				
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*	2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
171	*-*	*171*	*179*	*YES*
**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Alluvial Basin	San Joaquin Valley Groundwater Basin, Tulare Lake Subbasin	10910	11073	11557	10927	11714
	TOTAL	10,910	11,073	11,557	10,927	11,714
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2020 *	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
City of Hanford	Metered	4,944	City of Hanford	City of Hanford WWTF	Yes	No
Total Wastewater Collected from Service Area in 2020:		4,944				
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**						
NOTES:						

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020

☐ **No wastewater is treated or disposed of within the UWMP service area.** The supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal ***Drop down list***	Does This Plant Treat Wastewater Generated Outside the Service Area? ***Drop down list***	Treatment Level ***Drop down list***	2020 volumes [1]				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
City of Hanford		Equalization		Land disposal	No	Secondary,	4,944			4,944	
						Total	4,944	0	0	4,944	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.

[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES:

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area

☑ Recycled water is not used and is not planned for use within the service area of the supplier.
The supplier will not complete the table below.

Name of Supplier Producing (Treating) the Recycled Water:	
Name of Supplier Operating the Recycled Water Distribution System:	
Supplemental Water Added in 2020 (volume) *Include units*	
Source of 2020 Supplemental Water	

Beneficial Use Type *Insert additional rows if needed.*	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity) *Include volume units* [1]	General Description of 2020 Uses	Level of Treatment *Drop down list*	2020 [1]	2025 [1]	2030 [1]	2035 [1]	2040 [1]	2045 [1] (opt)
Agricultural irrigation										
Landscape irrigation (exc golf courses)										
Golf course irrigation										
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)										
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
				Total:	0	0	0	0	0	0
				2020 Internal Reuse						

[1] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☐	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.	
Beneficial Use Type	**2015 Projection for 2020 [1]**	**2020 Actual Use[1]**
Insert additional rows as needed.		
Agricultural irrigation	5,606	0
Landscape irrigation (exc golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	5,606	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.

NOTE: Agricultural irrigation volumes were documented in the 2015 UWMP for the informational purposes only and reflected the recycled water demands for Lakeside Irrigation Water District, but not the City. This agricultural irrigation use is not documented as part of the 2020 UWMP.

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use *
Add additional rows as needed			
TBD	The City currently does not have a plan to expand recycled water use.		
		Total	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Supplier* *This may be a range*
	Drop Down List (y/n)	*If Yes, Supplier Name*				
Add additional rows as needed						
Additional Wells	No		Two new wells planned for next 5 years as part of city's Capital Improvement Program	2020-2025	All Year Types	5,400
Industrial Park Tank	No		New tank to serve south Industrial Park	2020-2025	Average Year	
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: For planning purposes, the expected increase to the City's water supply for future wells with a capacity that is to be determined is equal to the average supply capacity of the City's existing wells. This average supply capacity is approximately equal to 2,700 afy per well site.						

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Groundwater (not desalinated)		11,714	Drinking Water	
Recycled Water		4,944	Recycled Water	
	Total	16,658		0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		**2025**		**2030**		**2035**		**2040**		**2045** (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Groundwater (not desalinated)		10,033		10,033		10,033		10,033		10,033	
Recycled Water		5,077		5,318		5,569		5,833		6,109	
Total		15,110	0	15,351	0	15,602	0	15,866	0	16,142	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*											
NOTES											

Urban Water Supplier: *City of Hanford*

Water Delivery Product (If delivering more than one type of product use Table O-1C)

Retail Potable Deliveries

Table O-1B: Recommended Energy Reporting - Total Utility Approach

Enter Start Date for Reporting Period	1/1/2020	**Urban Water Supplier Operational Control**		
End Date	12/31/2020			
☐ Is upstream embedded in the values reported?		**Sum of All Water Management Processes**	**Non-Consequential Hydropower**	
Water Volume Units Used	*AF*	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*11714*		*11714*
Energy Consumed (kWh)		*9259222*		*9259222*
Energy Intensity (kWh/vol. converted to MG)		*2425.8*	*#DIV/0!*	*2425.8*

Quantity of Self-Generated Renewable Energy

kWh

Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*

Metered Data

Data Quality Narrative:

Narrative:

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	**% of Average Supply**
Average Year	2000		100%
Single-Dry Year	1984		84%
Consecutive Dry Years 1st Year	1987		93%
Consecutive Dry Years 2nd Year	1988		90%
Consecutive Dry Years 3rd Year	1989		88%
Consecutive Dry Years 4th Year	1990		86%
Consecutive Dry Years 5th Year	1991		87%

Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

***Units of measure (AF, CCF, MG**) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals (*autofill from Table 6-9)*	15,110	15,351	15,602	15,866	16,142
Demand totals *(autofill from Table 4-3)*	11,623	12,172	12,748	13,351	13,982
Difference	3,488	3,179	2,855	2,515	2,160
NOTES:					

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	15,110	15,351	15,602	15,866	16,142
Demand totals*	12,971	13,584	14,227	14,899	15,604
Difference	2,140	1,767	1,376	967	538
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES:					

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	15,110	15,351	15,602	15,866	16,142
	Demand totals	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Second year	Supply totals	15,110	15,351	15,602	15,866	16,142
	Demand totals	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Third year	Supply totals	15,110	15,351	15,602	15,866	16,142
	Demand totals	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Fourth year	Supply totals	15,110	15,351	15,602	15,866	16,142
	Demand totals	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Fifth year	Supply totals	15,110	15,351	15,602	15,866	16,142
	Demand totals	12,971	13,584	14,227	14,899	15,604
	Difference	2,140	1,767	1,376	967	538
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)

2021	Total
Total Water Use	12,502
Total Supplies	15,004
Surplus/Shortfall w/o WSCP Action	2,502
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	2,502
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	12,619
Total Supplies	15,031
Surplus/Shortfall w/o WSCP Action	2,411
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	2,411
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	12,737
Total Supplies	15,057
Surplus/Shortfall w/o WSCP Action	2,321
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	2,321
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	12,854
Total Supplies	15,084
Surplus/Shortfall w/o WSCP Action	2,230
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	2,230
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	12,971
Total Supplies	15,110
Surplus/Shortfall w/o WSCP Action	2,140
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	2,140
Resulting % Use Reduction from WSCP action	0%

Submittal Table 8-1
Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Shortage Response Actions (*Narrative description*)
1	Up to 10%	A Level 1 Water Supply Shortage condition exists when the City notifies its water users that due to drought, the supply reductions targets are up to 10%.
2	Up to 20%	A Level 1 Water Supply Shortage condition exists when the City notifies its water users that due to drought, the supply reductions targets are 11 to 20%.
3	Up to 30%	A Level 2 Water Supply Shortage condition exists when the City notifies its water users that due to drought, the supply reductions targets are 21 to 30%.
4	Up to 40%	A Level 2 Water Supply Shortage condition exists when the City notifies its water users that due to drought, the supply reductions targets are 31 to 35%. A Level 3 Water Supply Shortage condition exists when the City notifies its water users that due to drought, the supply reductions targets are 36 to 40%.
5	Up to 50%	A Level 3 Water Supply Shortage condition exists when the City notifies its water users that due to drought, the supply reductions targets are 41 to 50%.
6	>50%	A Level 3 Water Supply Shortage condition exists when the City notifies its water users that due to drought, the supply reductions targets are greater than 50%

NOTES:

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Stage	Percent Supply Reduction	Water Supply Condition
1	10%-20%	Minor Shortage Potential - Below average rainfall in the previous 12-24 months - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months
2	20%-35%	Moderate Shortage Potential - Below average rainfall in the previous 24-36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months
3	35%-50%	Critical Shortage Potential - Below average rainfall in the previous 36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months

2020 Hanford WSCP			Corresponding Relationship ("crosswalk")	DWR 6 Standard Water Shortage Levels	
Stage	Precent Supply Reduction	Water Supply		Stage	
1	0-20%	Minor Shortage Potential - Below average rainfall in the previous 12-24 months - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months		1	Up to 10%
				2	10 to 20%
2	20%-35%	Moderate Shortage Potential - Below average rainfall in the previous 24-36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months		3	20 to 30%
				4	30 to 40%
3	35%+	Critical Shortage Potential - Below average rainfall in the previous 36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months		5	40 to 50%
				6	Greater than 50%

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Landscape - Limit landscape irrigation to specific days	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, premises or vegetation except on the following designated days: - Properties ending with even-numbered addresses: Tuesday and Saturday - Properties ending with odd-numbered addresses: Wednesday and Sunday.		Yes
1	Landscape - Limit landscape irrigation to specific days	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, premises or vegetation on any day of the week between the hoursof 10 a.m. and 6 p.m. during periods designated as "daylight savings time" (generally occurring between March and November).		Yes
1	Landscape - Other landscape restriction or prohibition	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, premises, or vegetation except by the use of a hand-held hose, a sprinkling device or an approved sprinkler system controlled by an automatic shut-off device or a person who is in immediate attendance of the sprinkling device or system.		Yes
1	Landscape - Other landscape restriction or prohibition	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, landscaping or vegetation during and up to 48 hours after measurable rainfall.		Yes
1	Landscape - Prohibit certain types of landscape irrigation	Prohibit sprinkling, irrigating, or otherwise applying water to any ornamental turf or public street medians.		Yes

1	Landscape - Other landscape restriction or prohibition	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, landscaping or vegetation outside of a newly constructed home or a building in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the California Department of Housing and Community Development.		Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Prohibit water used to irrigate any yard, ground, landscaping or vegetation to run or waste onto non-irrigated areas, private or public walkways, sidewalks, driveways, streets or adjoining or adjacent property.		Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Prohibit keeping, maintaining, operating, or using any water connection, hose, faucet, hydrant, pipe, outlet, or plumbing fixture which is not tight and free from leakage and dripping.		Yes
1	Other	Prohibit washing any type of vehicle, boat or trailer with water supplied by a hose unless the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.		Yes
1	Other - Prohibit use of potable water for washing hard surfaces	Prohibit use of water for sidewalk, driveway, or walkway washing cleaning, except as required to address an immediate public health or safety need.		Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	Prohibit operation of water fountains or other decorative water fixtures without recirculation pumps.		Yes
1	Other water feature or swimming pool restriction	Prohibit draining and filling of a swimming pool or similar water feature more than once during a one year period (all pool drainage must occur pursuant to a permit issued by the City's public works department.		Yes
1	Other	Prohibit willful of negligent waste of water in any manner.		Yes

1	CII - Lodging establishment must offer opt out of linen service	Require operators of hotels and motels to provide guests with the option of choosing not to have towels and linens laundered daily. Each hotel and motel shall prominently display notice of this option in each bathroom using clear and easily understood language.		Yes
1	Landscape - Prohibit certain types of landscape irrigation	Prohibit the planting of rye grass on any property that is serviced by the city's water system.		Yes
1	Other	The city may issue Conditional Water Permits that allow the watering of new landscaping planted outside of newly-constructed buildings on days and/or times other than those consistent with the current use restrictions.		Yes
1	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Prohibit charity and community vehicle wash events, including any event at which an individual or a group, which is not a commercial washing business operating legally in the city, offers to the general public or portion thereof the service of washing, with water, any type of vehicle, boat, or trailer in exchange for a fee, donation, other form of compensation, or for no compensation.		Yes
1	Landscape - Prohibit certain types of landscape irrigation	Eliminate watering of ornamental turf areas. Water only actively used turf areas no more than twice per week. Trees and shrubs may be water only twice per week using a handheld hose with a positive shutoff nozzle or drip irrigation. Use of reclaimed water (if available), is exempt.		Yes
1	Landscape - Limit landscape irrigation to specific days	Water no more than twice per week using only hand-held hoses with positive shutoff nozzle or drip irrigation systems. Eliminate sprinkler use.		Yes
1	CII - Restaurants may only serve water upon request	Prohibit the serving of drinking water, other than upon request, in eating or drinking establishments.		Yes

1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	When a leak is discovered by a customer in a customer's water system and a customer is charged for water that it has not used, as a result of the leakage, it shall be policy of the city to aid the customer in locating the leak. If the leak is repaired by the customer within a period of ten days of the date the leak was discovered and the customer can establish that a portion of the charges identified in its water bill are in excess of the amount normally charged to the customer, that excess amount of water use caused by the leakage shall be charged to the customer at the standard water rate. If the leak is not repaired by the customer within the 10 day period, the portion of the excess water usage which results from the leakage will be billed at two times the standard water rate until the leak is repaired by the customer. The city shall give prompt notice to a customer if the city obtains information indicating that a leak may exist in the customer's exclusive control.		Yes
1	Other - Prohibit use of potable water for construction and dust control	All construction water must be reclaimed or non-potable. Issuance of construction meters will be only for testing and disinfection of potable water lines.		Yes
NOTES:				

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
NOTES:			

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Kings County	Yes	Yes
NOTES:		

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Submittal Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	12,741	Acre Feet
	2008 total volume of delivered recycled water	-	Acre Feet
	2008 recycled water as a percent of total deliveries	0%	**See Note 1**
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1995	
	Year ending baseline period range[3]	2004	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	

[1] If the 2008 recycled water delivery is less than 10 percent of total water deliveries, then the 10-15year baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater of total deliveries, the 10-15 year baseline period is a continuous 10- to 15-year period.

[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

[3] The ending year for the 10-15 year baseline period must be between December 31, 2004 and December 31, 2010.

[4] The ending year for the 5 year baseline period must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	1995	37,400
Year 2	1996	38,150
Year 3	1997	39,300
Year 4	1998	39,900
Year 5	1999	40,350
Year 6	2000	41,450
Year 7	2001	42,462
Year 8	2002	43,869
Year 9	2003	44,466
Year 10	2004	46,096
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2006	48,920
Year 2	2007	50,534
Year 3	2008	51,922
Year 4	2009	52,970
Year 5	2010	53,967
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Acre Feet
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	Annual Gross Water Use
10 to 15 Year Baseline - Gross Water Use								
Year 1	1995	9,198			-		-	9,198
Year 2	1996	9,348			-		-	9,348
Year 3	1997	10,379			-		-	10,379
Year 4	1998	8,704			-		-	8,704
Year 5	1999	9,855			-		-	9,855
Year 6	2000	9,649			-		-	9,649
Year 7	2001	9,673			-		-	9,673
Year 8	2002	10,502			-		-	10,502
Year 9	2003	10,784			-		-	10,784
Year 10	2004	11,260			-		-	11,260
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**9,935**
5 Year Baseline - Gross Water Use								
Year 1	2006	11,613			-		-	11,613
Year 2	2007	12,930			-		-	12,930
Year 3	2008	12,742			-		-	12,742
Year 4	2009	12,792			-		-	12,792
Year 5	2010	12,172			-		-	12,172
5 year baseline average gross water use								**12,450**

*** Units of measure** (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	Tulare Lake Groundwater Subbasin
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System[1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1995	9,198		9,198
Year 2	1996	9,348		9,348
Year 3	1997	10,379		10,379
Year 4	1998	8,704		8,704
Year 5	1999	9,855		9,855
Year 6	2000	9,649		9,649
Year 7	2001	9,673		9,673
Year 8	2002	10,502		10,502
Year 9	2003	10,784		10,784
Year 10	2004	11,260		11,260
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2006	11,613		11,613
Year 2	2007	12,930		12,930
Year 3	2008	12,742		12,742
Year 4	2009	12,792		12,792
Year 5	2010	12,172		12,172

[1] ***Units of measure*** *(AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: Baseline Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1995	37,400	9,198	220
Year 2	1996	38,150	9,348	219
Year 3	1997	39,300	10,379	236
Year 4	1998	39,900	8,704	195
Year 5	1999	40,350	9,855	218
Year 6	2000	41,450	9,649	208
Year 7	2001	42,462	9,673	203
Year 8	2002	43,869	10,502	214
Year 9	2003	44,466	10,784	217
Year 10	2004	46,096	11,260	218
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**215**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2006	48,920	11,613	212
Year 2	2007	50,534	12,930	228
Year 3	2008	51,922	12,742	219
Year 4	2009	52,970	12,792	216
Year 5	2010	53,967	12,172	201
5 Year Average Baseline GPCD				**215**
NOTES:				

SB X7-7 Table 6: Baseline GPCD *From Table SB X7-7 Table 5*	*Summary*
10-15 Year Baseline GPCD	215
5 Year Baseline GPCD	215
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		**Supporting Tables**
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D
☑	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator *Located in the WUE Data Portal at wuedata.water.ca.gov* Resources *button*
NOTES:		

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☑	100%	Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
			2020 Target *(If more than one region is selected, this value is calculated.)*	**179**
NOTES:				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target					
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	**Calculated 2020 Target [2]**			**Confirmed 2020 Target[4]**
		As calculated by supplier in this SB X7-7 Verification Form	**Special Situations[3]**		
			Prorated 2020 Target	Population Weighted Average 2020 Target	
215	205	179			**179**

[1] ***Maximum 2020 Target*** *is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.*

[2] ***Calculated 2020 Target*** *is the target calculated by the Supplier based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target. Supplier may only enter one calculated target.*

[3] ***Prorated targets and population weighted target*** *are allowed for special situations only. These situations are described in Appendix P, Section P.3*

[4] ***Confirmed Target*** *is the lesser of the Calculated 2020 Target (C5, D5, or E5) or the Maximum 2020 Target (Cell B5)*

NOTES:

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☑	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES: City of Hanford also supplied water to 651 accounts outside of the City Limit, which included 2,148 population.	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	61,326
NOTES: City of Hanford also supplied water to 651 accounts outside of the City Limit, which included 2,148 population.	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	**2020 Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**2020 Deductions**					**2020 Gross Water Use**
		Exported Water *	**Change in Dist. System Storage*** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use***	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	11,713			-		-	**11,713**

* **Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Tulare Lake Groundwater Subbasin
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	11,713	-	11,713

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
11,713	61,326	**171**
NOTES:		

SB X7-7 Table 9: 2020 Compliance

Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD (Enter "0" if Adjustment Not Used)			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
171	-	-	-	-	171	179	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

APPENDIX B

Reclamation Project Agreement

RECLAMATION PROJECT AGREEMENT

This Reclamation Project Agreement ("Agreement") is made and entered into the 6th day of August, 2001, by and between the LAKESIDE IRRIGATION WATER DISTRICT, a California Water District ("Lakeside"), and the CITY OF HANFORD, a municipal corporation ("City").

WHEREAS, the City is in need of access to the Lakeside Ditch for the purpose of discharging disinfected secondary treated effluent from the City of Hanford Wastewater Treatment Facility and its holding ponds ("Treated Effluent"), and

WHEREAS, Lakeside owns water conveyance and distribution facilities and utilizes other such facilities owned by the Lakeside Ditch Company pursuant to a master agreement with the Company, and

WHEREAS, Lakeside has demand for additional water for crop irrigation and other beneficial uses throughout its service area, and

WHEREAS, the City and Lakeside jointly and cooperatively prepared and submitted an application for issuance of a Master Reclamation Permit by the California Regional Water Quality Control Board, Central Valley Region ("Regional Board") for the Lakeside and City Reclamation Project, and

WHEREAS, on October 27, 2000, the Regional Board approved and issued Order Number 5-00-222, Waste Discharge Requirements Master Reclamation Permit for Lakeside and City Reclamation Project ("Reclamation Permit") and

WHEREAS, the City and Lakeside wish to enter into this Agreement in order to implement the Lakeside and City Reclamation Project in accordance with the provisions of the Reclamation Permit.

NOW THEREFORE, in consideration of the mutual covenants herein contained and for other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged by the parties hereto, it is agreed as follows:

1. City, as the producer under the Reclamation Permit and Lakeside as the Distributor under the Reclamation Permit each agree to comply with their respective obligations, conditions and requirements identified in the Reclamation Permit. A true and correct copy of the Reclamation Permit is attached to this Agreement as Exhibit "A".

2. Lakeside shall construct, at its sole cost and expense, all the mitigation projects required and approved by the Regional Board as identified in the Reclamation Permit attached to this Agreement as Exhibit "A" (collectively "Mitigation Projects").

3. In consideration of the City's right to discharge Treated Effluent into the Lakeside Ditch in accordance with the provisions of the Reclamation Permit, City shall pay to Lakeside a one-time mitigation fee ("Mitigation Fee"). The Mitigation Fee shall be equal to 50% of the actual costs paid by Lakeside for the construction of the Mitigation Projects. Upon the completion of construction of the Mitigation Projects, Lakeside shall submit certified invoices/contracts identifying all of the actual costs paid by Lakeside for the construction of the Mitigation Projects. The City shall pay the Mitigation Fee to Lakeside within 60 days of receipt and validation of such invoices/contracts by the City.

4. The initial term of this Agreement shall be five (5) years, commencing on the date of this Agreement as set forth above. This Agreement shall automatically renew for successive terms of two (2) years each, unless terminated as provided in Paragraph 5 of this Agreement.

5. This Agreement may not be terminated during the initial five (5) year term. Thereafter, either party may terminate this Agreement by delivering written notice of termination to the other party two (2) years prior to the effective date of the termination.

6. The right of the City to discharge Treated Effluent into the Ditch shall be subject to all of the following conditions:

a. Subject to any legal obligations of the City regarding the delivery, use or storage of the Treated Effluent existing on the effective date of this Agreement, Lakeside shall have the first right to receive any available Treated Effluent.

b. The City shall make no discharge of Treated Effluent into the Ditch, which would violate any term, or condition of Waste Discharge Order No. 91-164 or future orders as may be issued by the Regional Board for operation of the City's Wastewater Treatment Facility or any term or condition contained in the Reclamation Permit which relates to the discharge of the Treated Effluent into the Ditch.

c. The City shall cease all discharges of Treated Effluent into the Ditch at any time there is evidence that such discharge is in violation of the provisions of Paragraph 6.b. of this Agreement, including without limitation, receipt of written notice from the Regional Board of such violation(s). Upon curing any such violation, the City may again commence discharging Treated Effluent into the Ditch.

d. The City shall develop facilities enabling discharge into the Ditch at the maximum capacity of the conveyance pipeline existing on the effective date of this Agreement. Except as provided herein, the rate of discharge into the Ditch shall be determined by Lakeside. Upon at least seventy-two hours notice to Lakeside, the City shall have the right to discharge up to twenty (20) cubic feet per second into the Ditch when the City's Treated Effluent storage basins are at or near capacity.

e. The City shall pay Lakeside a "Discharge Fee" of thirty dollars ($30.00) per acre foot of discharge into the Ditch. .

Payment of the Discharge Fee shall be made to Lakeside on or before the 25th of each month for all Treated Effluent discharged into the Ditch the previous month.

f. The maximum Discharge Fee paid by the City during any one-year period of the initial five-year term of this Agreement shall not exceed $125,000.00. After the expiration of the initial five-year term, the maximum Discharge Fee paid by the City for any one-year period during subsequent two-year renewal periods, shall not exceed $150,000.00 per year. For renewal periods beyond the third two-year renewal period (i.e. six years) the maximum Discharge Fee paid by the City for each year during each successive two-year renewal period shall not exceed an amount mutually agreed to by the Parties.

7. Subject to the rate of discharge limitation contained in 6(d) hereof, City shall have the right to discharge into the Ditch each year during the initial term and any successive term of this Agreement a minimum of 70% of the City's annual production of Treated Effluent. The City's annual production of Treated Effluent is currently estimated to be approximately 5000 acre-feet. Each January the City will provide written notification to Lakeside of the estimated volume of Treated Effluent to be delivered to the Ditch for that year.

8. Lakeside shall take immediate action to correct and/or eliminate any violation of the Reclamation Permit, Waste Discharge Order No. 91-164 or any other permit or order issued by the Regional Board and regarding the Treated Effluent, by Lakeside, its officers, directors, employees, agents, contractors, or landowners within the Lakeside service area. The City shall take immediate action to correct and or eliminate any violation of the Reclamation Permit, Waste Discharge Order No. 91-164 or any other permit or order issued by the Regional Board and regarding the Treated Effluent, by the City, its officers, directors, employees, agents, or contractors.

9. To provide for effective and efficient storage of the increasing production of Treated Effluent by the City and the use thereof for crop irrigation and other beneficial uses by Lakeside and the landowners within the Lakeside Service Area, Lakeside and the City will develop/construct projects to store, transport and distribute such Treated Effluent pursuant to mutually satisfactory agreements.

10. Lakeside and the City shall each designate a person who shall represent that party regarding its responsibilities under this Agreement. The representatives shall meet at least annually to review the user permit, irrigation water use, discharge needs, schedules, and anticipated capital improvements needs. The representatives shall also meet when necessary to address problems or complaints that may arise during the course of the year.

11. The City shall provide Lakeside a copy of all reports required by the monitoring and reporting requirements included in Waste Discharge Order No. 90-164. Notwithstanding the frequency of reporting requirements contained therein, the City shall provide Lakeside a general mineral constituent analysis of Treated Effluent discharged into the Ditch at least monthly. Such analysis shall conform to the constituents and testing methods specified in Exhibit "B".

12. City agrees to defend, indemnify and hold Lakeside, its officers, directors, employees and agents and landowners within the Lakeside water service area completely free and harmless from any and all claims, suits, losses, injuries, damages and costs, including attorney's fees occasioned or arising out of or in any way related to delivery of the Treated Effluent to the Lakeside Ditch System or any violation by the City of the provisions of the Reclamation Permit, Waste Discharge Order 91-164 or any other permit or order issued by the Regional Board and regarding Treated Effluent delivered to the Lakeside Ditch System.

13. Lakeside agrees to defend, indemnify and hold the City, its officials, employees and agents, completely free and harmless from any and all claims, suits, losses, injuries, damages and costs, including attorney's fees, occasioned or arising out of or in any way related to transportation of the Treated Effluent through the Lakeside Ditch System, maintenance of the Lakeside Ditch System and appurtenances thereto, and any violation by Lakeside or landowners within the Lakeside water service area of the provisions of the Reclamation Permit, Waste Discharge Order 91-164 or any other permit or order issued by the Regional Board and regarding Treated Effluent delivered to the Lakeside Ditch System.

14. Prior to instituting any actions to enforce the terms and conditions of this Agreement pursuant to Paragraph 15 hereof, a party shall notify the other party in writing of any alleged breach or default of any obligation arising under this Agreement ("Notice of Default"). The other party shall have 15 days to respond in writing to the Notice of Default ("Default Response") or to cure the alleged breach or default identified in the Notice of Default. If the other party fails to provide a Default Response to the other party within said 15 day period, the alleged breach or default identified in the Notice of Default shall be deemed admitted by the non-responding party. If the Default Response disputes the allegations in the Notice of Default, the parties shall meet and confer in good faith to attempt resolve the dispute. Such meeting shall take place within 15 days of the date of the Default Response. An alleged breach or default of any provision of this Agreement which would support a request for a temporary restraining order and preliminary injunction may be initiated without first complying with the provisions of this paragraph 14.

15. If, after meeting and conferring in good faith pursuant to Paragraph 14 hereof, the parties are unable to resolve the dispute, either party may initiate any action at law or in equity necessary to enforce or interpret the terms of this Agreement. If such action is initiated, the prevailing party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other reasonable relief to which he may be entitled. With respect to any

suit, action or proceeding arising out of or related to this Agreement, or the documentation related hereto, the parties hereby submit to the jurisdiction and venue of the Superior Court, whichever is applicable, in the County of Kings, State of California for any proceeding arising hereunder.

16. This Agreement shall be binding on the successors and assigns of the parties.

17. This Agreement and the Exhibits attached hereto supersedes any and all other agreements, either oral or in writing, between the parties hereto with respect to the matters set forth herein and contains all of the covenants and agreements between the parties regarding said matters. Each party to this Agreement acknowledges that no representations, inducements, promises or agreements, orally or in writing, have been made by any party or anyone acting on behalf of any party which are not embodied in this Agreement and no other agreement, statement or promise shall be valid or binding.

18. Except as otherwise expressly provided herein, any notice, consent, authorization or other communication to be given hereunder shall be in writing and shall be deemed duly given and received when delivered personally, when transmitted by facsimile or e-mail if receipt is acknowledged by the addressee, one business day after being deposited for next-day delivery with a nationally recognized overnight delivery service, or three business days after being mailed by first class mail, charges and postage prepaid, properly addressed to the party to receive such notice at the last address furnished for such purpose by the party to whom notice is directed and addressed as follows:

Lakeside Irrigation Water District
9304 Houston Avenue
Hanford, CA 93230

City of Hanford
Attn: Director of Public Works
900 S. 10th Avenue
Hanford, CA 93230

19. If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force and effect without being impaired or invalidated in any way.

20. No change, amendment or modification of this Agreement shall be valid unless the same is in writing and signed by the parties hereto.

21. No waiver or any breach of any terms, condition or provision of this Agreement shall constitute a waiver of any other breach of any other term, condition or provision and no consent of one party to any departures by the other shall be effective unless such waiver shall be in writing and shall be signed by the non-waiving party or a duly authorized agent thereof and the same shall be effective only for a period, on the conditions and for the specific instances and purposes specified in such writing. No notice to or demand on the non-waiver party in any case shall entitle the non-waiving party to any other or further notice or demand in similar or other circumstances.

22. This Agreement shall be construed and governed pursuant to the laws of the State of California.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on the date and year first above written.

CITY OF HANFORD

BY: _____
Jan E. Reynolds, City Manager

LAKESIDE IRRIGATION WATER DISTRICT

BY: _____
Don Mills, President

BY: _____
Ken Cartwright, Secretary

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APPENDIX C

Groundwater Sustainability Analysis

Table 1 Estimated Subbasins Sustainable Yield

Urban Water Manangment Plan

City of Hanford

Estimate of Ststainable Yield		
Tulare Lake Groundwater subbasin[1]		
Basin Area	(acres)	535,869
Average groundwater pumping	(AFY)	348,700
Average net recharge	(AFY)	335,360
Groundwater Overdraft	(AFY)	-13,340
Estimated Sustainable Yield	(AFY)	335,360
Sustainable Yield per Unit Area	(AFY/acre)	0.63
City of Hanford		
Planning Area	(acres)	16,032
Sustainable Yield per Unit Area	(AFY/acre)	0.63
Estimated Sustainable Yield	(AFY)	10,033

AKEL ENGINEERING GROUP, INC.

10/11/2021

Notes:

1. Source: Tulare Lake Subbasin Groundwater Sustainability Plan, January 2020.

APPENDIX D

Water Shortage Contingency Plan

FINAL

City of Hanford

OCTOBER 2021

2020 Water Shortage Contingency Plan

AKEL
ENGINEERING GROUP, INC.

CITY OF HANFORD

2020
WATER SHORTAGE CONTINGENCY PLAN

Final

October 2021

AKEL
ENGINEERING GROUP, INC.

AKEL
ENGINEERING GROUP, INC.

Smart Planning Our Water Resources

November 8th, 2021

City of Hanford
319 Douty Street
Hanford California, 93230

Attention: James Ross, Deputy Public Works Director

Subject: **Water Shortage Contingency Plan**

Dear Jim,

We are pleased to submit the City of Hanford 2020 Water Shortage Contingency Plan (2020 WSCP) which is intended to address the Urban Water Management Planning Act (UWMPA) of 1983 and amendments thereof.

The City's Water Shortage Contingency Plan (WSCP) was originally included in the 2015 UWMP, which received letters of review and completeness from the Department of Water Resources. As part of amendments to the UWMPA the WSCP is now required to be prepared and adopted separately from the UWMP. The 2020 WSCP builds upon previous water shortage contingency planning efforts completed by the City and reflects updates to the City's water shortage levels and water conservation measures for consistency with state-wide requirements provided by the Department of Water Resources.

We extend our thanks to you; John Doyel, Public Works Director; Christine Baca, Regulatory Compliance Analyst; Bob Williams, Utilities Supervisor, and other City staff whose courtesy and cooperation were valuable in reviewing and completing this study.

Sincerely,

AKEL ENGINEERING GROUP, INC.

Tony Akel, P.E.
Principal

Enclosure: 2020 Water Shortage Contingency Plan

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Acknowledgements

City Council

Francisco Ramirez, Mayor

Diane Sharp, Vice Mayor

Amanda Saltray

Kalish Morrow

Art Brieno

Management Personnel

John Doyel, Director of Public Works

Jim Ross, Deputy Public Works Director

Christine Baca, Regulatory Compliance Analyst

Bob Williams, Utilities Supervisor

City of Hanford
2020 Water Shortage Contingency Plan

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Section 1 INTRODUCTION

This report documents the City of Hanford's Water Shortage Contingency Plan (WSCP). This 2020 WSCP document builds upon previous water shortage contingency planning efforts completed by the City and documented in the 2010 and 2015 Urban Water Management Plans (UWMP). This WSCP reflects updates to the City's water shortage levels and water conservation measures for consistency with state-wide requirements provided by the Department of Water Resources. As part of the 2020 UWMP update, the Department of Water Resources requires urban water suppliers to prepare a stand-alone 2020 WSCP, that is separate from the 2020 UWMP, and intended to manage a water shortage. As the City continues to monitor the effectiveness of the WSCP, this document can be updated and adopted separately from the UWMP.

Though it is a stand-alone document, the 2020 WSCP is still considered one of the elements of the 2020 UWMP, as required by the State Law.

Based on Department of Water Resources (DWR) requirements, and consistent with previous planning efforts, this WSCP includes the following sections:

- Water Supply Reliability Analysis
- Annual Water Supply and Demand Assessment
- Shortage Response Actions
- Communication Protocols
- Compliance and Enforcement
- Legal Authorities
- Financial Consequences of WSCP Activation
- Monitoring and Reporting
- Special Water Feature Distinction
- Plan Adoption, Submittal, and Availability

Section 2 WATER SUPPLY RELIABILITY ANALYSIS

Law

10632 (a)(1)	*The analysis of water supply reliability conducted pursuant to Section 10635.*

The City currently uses groundwater as the sole source of water supply, with wells extracting water from the Tulare Lake Subbasin of the San Joaquin Valley Groundwater Basin. These groundwater basins are managed by Mid-Kings River Groundwater Sustainability Agency, and the 2020 Tulare Lake Subbasin Groundwater Sustainability Plan lists the rates of natural recharge for these groundwater supply sources. Consistent with previous planning efforts, the City's Water

Supply Reliability Analysis, the available supply drawn from the aquifer in any year is equal to the system-wide water demand for that particular year.

As part of the 2020 UWMP the City has also prepared a Drought Risk Assessment (DRA), which is a proactive planning review that readies the City for worst-case water supply conditions should they occur in the immediate future. The DRA compares the City's projected demands over the next five years to estimated available supplies should a five-year dry period occur. The results of the DRA prepared as part of the 2020 UWMP indicate that the City has sufficient supplies to meet projected demands over the next five years.

Section 3 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

Law

10632 (a)(2)	*The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:* *(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.* *(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:* *(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.* *(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.* *(iii) Existing infrastructure capabilities and plausible constraints.* *(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.* *(v) A description and quantification of each source of water supply.*
10632.1	*An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.*

Updates to the California Water Code now require that urban water suppliers prepare a water supply and demand assessment on an annual basis (Annual Assessment). The findings of this Annual Assessment will be summarized in a report submitted to the DWR by July 1st of each calendar year, with the first report required for submission on July 1st, 2022. The purpose of this annual assessment is to ensure water suppliers are proactively considering the available water

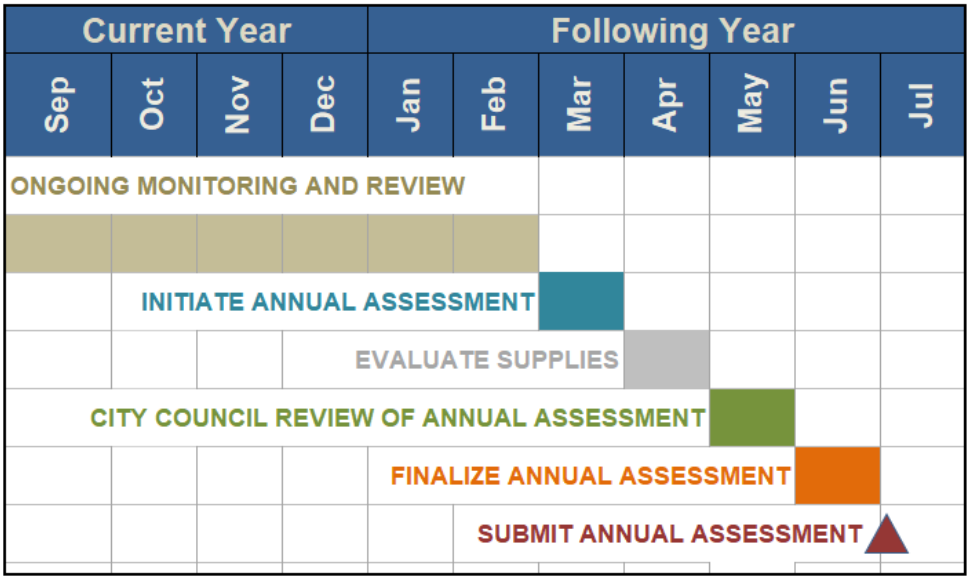
supplies and service area demand requirements, as well as identifying the potential need for implementing the Water Shortage Contingency Plan.

It should be noted that DWR is in the process of preparing a stand-alone guidance document that will outline general procedures to aid urban water suppliers in preparing the Annual Assessment. The decision-making process and Annual Assessment completion steps are preliminary at this point in time and will be further refined as the guidance document by DWR is completed.

3.1 Decision Making Process

This section describes the decision-making process to prepare and approve the Annual Assessment each year. It should be noted that the Annual Assessment and decision-making process will rely on the findings of the Tulare Lake Subbasin Annual Report, which will include documentation of available water supply information and any subbasin-wide required water shortage actions to be implemented.

Figure 3-1 Annual Assessment Report Timeline



September to February – Ongoing Monitoring and Review

For the majority of the year, City staff will continue to monitor and report monthly water consumption and production. This information will be used when the Annual Assessment is initiated to prepare a year-to-year comparison of system-wide water demands for the purpose of projecting demands for the following year.

March – Initiate WSCP Annual Assessment

City staff will initiate the Annual Assessment process by gathering the collected demand and production data. Other relevant information includes but is not limited to the following:

- Land Use/Planning: Changes in land use or number of building permits will be used in estimating the next year's demands.
- Hydrologic Year Review: The City's wet year typically ends in April and rainfall information over the past year can be gathered and reviewed.
- Climate Forecast: Any available climate projection information

The purpose of gathering this information will be to compare the various factors that affect water demand throughout the City's service area. This comparison will guide the City's projection for water demand in the upcoming year.

April – Review Available Supply Information

According to the Tulare Lake Groundwater Sustainability Plan, a Groundwater Annual Report will be completed by the month of April. City staff will review this document once available and use it as a basis for estimating the available supply in the upcoming year. If required, City staff will also prepare to initiate any water shortage response actions noted by Mid-Kings River Groundwater Sustainability Agency.

May – City Council Review of Annual Assessment

The draft of Annual Assessment will be presented to City Council for their information and discussion. If water shortage actions are recommended by the Annual Assessment, the City Council will be asked to begin the implementation of the recommended actions.

June – Finalize Annual Assessment

The Annual Assessment is finalized based on any feedback received during the City Council review process.

July – Submit Annual Assessment

The Annual Assessment will be submitted to DWR on or before July 1st.

3.2 Data and Methodologies

This section describes the key data and methodologies used in the preparation of the Annual Assessment. This includes historical water supply information, historical and projected water demand, demand and projected water supply demand, which city uses to evaluate their water supply reliability for a normal and a dry subsequent year.

3.2.1 Evaluation Criteria

The primary criteria used in preparing the City's Annual Assessment are the projected water demand and available supply. The supply information will be based on any available subarea-

wide review of available water supplies prepared by Mid-Kings River Groundwater Sustainability Agency, Kings County Water District, or other local groundwater planning agencies. The demand projections will be prepared using a combination of factors, including a comparison to historical demand, land use changes, building permits, and historical rainfall. The City will continue to review its Annual Assessment preparation process, and additional criteria may be added if considered appropriate.

3.2.2 Water Supply

The City currently relies on groundwater as the sole source of supply. There are numerous groundwater wells used by the City, each of which is monitored and has production reported on a monthly basis. These monthly production records will be used to characterize the City's current water production requirement and compared to previous years to estimate production requirements for the upcoming year.

As the Groundwater Sustainability Agency, Mid-Kings River GSA manages water supplies within the Tulare Lake Subbasin; this also includes the Mid-Kings River Subarea, which is used by the City for supply. The water supply analysis prepared by each GSAs within the Tulare Lake Subbasin in preparation of their Annual Report will provide a critical basis for water supply assumptions, regarding available water supply volumes and any pumping restrictions required to be implemented if any.

3.2.3 Current Year Unconstrained Customer Demand

Billed water consumption is reported on a monthly basis and will be used to characterize the current water consumption requirements for the City. The monthly records will be compared to corresponding months of the previous year to identify any significant changes in water use behavior throughout the City's service area. In addition to consumption records, known recent developments or current building permits will enable City staff to estimate changes to water demand in the upcoming year.

3.2.4 Current Year Available Supply

The Annual Assessment estimates the current year available supply for current hydrological conditions as well as a possible subsequent dry year. The supply estimate will be based on the Drought Risk Assessment supply estimation methodology documented in the 2020 UWMP and it will also incorporate information from the Tulare Lake Groundwater Annual Report and Mid-Kings Groundwater Sustainability Agency.

3.2.5 Infrastructure Considerations

The annual assessment will include a review of any ongoing capital projects that are expected to affect the demands and supply projections. Examples of such capital projects include water loss reductions, distribution expansion to serve the growth, or new groundwater wells.

Section 4 WATER SHORTAGE LEVELS

Law

10632 (a)(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.

10632 (a)(3)

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including but not limited to, a regional power outrage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage

The City's current water shortage contingency plan includes three water shortage levels. These water shortage stages reflect potential supply reductions due to reductions in average rainfall, groundwater well issues, or extended periods of summer weather. The City's water shortage levels are documented in **Table 4-1**. The comparison between the City's water shortage levels and the DWR recommended 6-level framework is provided in **Appendix A**.

Identifying the appropriate shortage level will be in accordance with the procedures outlined in *Section 3 – Annual Water Supply and Demand Assessment Procedures.* With recommendations from City staff, the City Council has the authority to declare the appropriate conservation level considered necessary to manage the system demands and mitigate the water shortage. The City Council can also downgrade, upgrade, or terminate a shortage response level based on City staff recommendations.

The City's groundwater supply is dependent on recharge from surface water sources as well as deep percolation of applied irrigation water. In periods of drought when the natural recharge sources are less than in typical years, the basin is at risk of overdraft. In order to reduce water consumption city-wide, the City's water conservation ordinance will be amended as necessary to respond to severe, prolonged drought.

As part of the City's efforts to conserve water, the City has permanent water use prohibitions in place. Additionally, the City's conservation ordinance describes a multiple-stage water conservation plan. Each water rationing stage includes a water demand reduction percentage, which is to be applied to normal water demands. The plan is dependent on the cause, severity, and anticipated duration of the water shortage, and a combination of voluntary and mandatory water conservation measures, which can be put in place to reduce City-wide water usage. City manager and Council have the authority to implement additional conservation measures as needed.

Table 4-1 Water Shortage Contingency Plan Levels

Stage	Percent Supply Reduction	Water Supply Condition
1	10%-20%	Minor Shortage Potential - Below average rainfall in the previous 12-24 months - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months
2	20%-35%	Moderate Shortage Potential - Below average rainfall in the previous 24-36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months
3	35%-50%	Critical Shortage Potential - Below average rainfall in the previous 36 months - Prolonged periods of low water pressure - 10 percent or more of municipal wells out of service - Warm weather patterns typical of summer months

Section 5 SHORTAGE RESPONSE ACTIONS

Law

10632 (a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(F) Locally appropriate supply augmentation actions.
(G) Locally appropriate demand reduction actions to adequately respond to shortages.
(H) Locally appropriate operational changes
(I) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.
(J) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

Pursuant to the CWC 10632 (a) (4), this section documented the detailed shortage response actions which align with the shortage levels into different categories.

5.1 Demand Reduction

There are a number of demand reduction measures an urban water supplier can implement as response actions to corresponded water shortage levels. Some of these may include watering and outdoor water usage prohibitions, water rate structure changes, public educations or water supply service adjustments. Other demand reduction such as infrastructure improvement or replacing, water-efficient assets installation are considered as long-term water demand reductions will not be listed in this water shortage contingency plan.

consumption reduction actions are summarized in Table 5-1. The permanent water use restrictions enforced year-round are also documented in the table.

5.2 Supply Augmentation

As noted in previous sections, groundwater is the City's sole source of potable water supply, and there are no known opportunities for water supply augmentation through actions such as exchanges, transfers, or purchase programs. Therefore, supply augmentation actions are excluded from the City's Water Shortage Contingency Plan at this time.

5.3 Operation Changes

During a water shortage, changes to water system operations may be considered. These operational changes may include improving water usage consumption and tracking, changes to fire hydrant testing frequencies, alteration in maintenance cycles, and expedited water leak repairs.

5.4 Additional Mandatory Restrictions

Additional mandatory restrictions have been reported in a previous section.

5.5 Emergency Response Plan

The City has a Local Hazard Mitigation Plan, most recently updated in 2012, that provides a framework for the City to address a catastrophic supply interruption due to various hazards, including seismic, geological, wildfire, and flooding hazards. The plan is intended to define the actions required of the City before, during, and after an emergency. It also guides the City's response to major emergencies and disasters.

Table 5-1 Demand Reduction Actions

Level	Restrictions and Prohibitions on End Users Category	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1-3	Landscape - Limit landscape irrigation to specific days	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, premises or vegetation except on the following designated days: - Properties ending with even-numbered addresses: Tuesday and Saturday - Properties ending with odd-numbered addresses: Wednesday and Sunday.	Yes
1-3	Landscape - Limit landscape irrigation to specific days	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, premises or vegetation on any day of the week between the hours of 10 a.m. and 6 p.m. during periods designated as "daylight savings time" (generally occurring between March and November).	Yes
1-3	Landscape - Other landscape restriction or prohibition	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, premises, or vegetation except by the use of a hand-held hose, a sprinkling device or an approved sprinkler system controlled by an automatic shut-off device or a person who is in immediate attendance of the sprinkling device or system.	Yes
1-3	Landscape - Other landscape restriction or prohibition	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, landscaping or vegetation during and up to 48 hours after measurable rainfall.	Yes
1-3	Landscape - Prohibit certain types of landscape irrigation	Prohibit sprinkling, irrigating, or otherwise applying water to any ornamental turf or public street medians.	Yes

Table 5-1 Demand Reduction Actions

Level	Restrictions and Prohibitions on End Users Category	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1-3	Landscape - Other landscape restriction or prohibition	Prohibit sprinkling, irrigating, or otherwise applying water to any yard, ground, landscaping or vegetation outside of a newly constructed home or a building in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the California Department of Housing and Community Development.	Yes
1-3	Landscape - Restrict or prohibit runoff from landscape irrigation	Prohibit water used to irrigate any yard, ground, landscaping or vegetation to run or waste onto non-irrigated areas, private or public walkways, sidewalks, driveways, streets or adjoining or adjacent property.	Yes
1-3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Prohibit keeping, maintaining, operating, or using any water connection, hose, faucet, hydrant, pipe, outlet, or plumbing fixture which is not tight and free from leakage and dripping.	Yes
1-3	Other	Prohibit washing any type of vehicle, boat or trailer with water supplied by a hose unless the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.	Yes
1-3	Other - Prohibit use of potable water for washing hard surfaces	Prohibit use of water for sidewalk, driveway, or walkway washing cleaning, except as required to address an immediate public health or safety need.	Yes
1-3	Water Features - Restrict water use for decorative water features, such as fountains	Prohibit operation of water fountains or other decorative water fixtures without recirculation pumps.	Yes
1-3	Other water feature or swimming pool restriction	Prohibit draining and filling of a swimming pool or similar water feature more than once during a one year period (all pool drainage must occur pursuant to a permit issued by the City's public works department.	Yes

Table 5-1 Demand Reduction Actions

Level	Restrictions and Prohibitions on End Users Category	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1-3	Other	Prohibit willful of negligent waste of water in any manner.	Yes
1-3	CII - Lodging establishment must offer opt out of linen service	Require operators of hotels and motels to provide guests with the option of choosing not to have towels and linens laundered daily. Each hotel and motel shall prominently display notice of this option in each bathroom using clear and easily understood language.	Yes
1-3	Landscape - Prohibit certain types of landscape irrigation	Prohibit the planting of rye grass on any property that is serviced by the city's water system.	Yes
1-3	Other	The city may issue Conditional Water Permits that allow the watering of new landscaping planted outside of newly-constructed buildings on days and/or times other than those consistent with the current use restrictions.	Yes
1-3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Prohibit charity and community vehicle wash events, including any event at which an individual or a group, which is not a commercial washing business operating legally in the city, offers to the general public or portion thereof the service of washing, with water, any type of vehicle, boat, or trailer in exchange for a fee, donation, other form of compensation, or for no compensation.	Yes

Table 5-1 Demand Reduction Actions

Level	Restrictions and Prohibitions on End Users Category	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1-3	Landscape - Prohibit certain types of landscape irrigation	Eliminate watering of ornamental turf areas. Water only actively used turf areas no more than twice per week. Trees and shrubs may be water only twice per week using a handheld hose with a positive shutoff nozzle or drip irrigation. Use of reclaimed water (if available), is exempt.	Yes
1-3	Landscape - Limit landscape irrigation to specific days	Water no more than twice per week using only hand-held hoses with positive shutoff nozzle or drip irrigation systems. Eliminate sprinkler use.	Yes
1-3	CII - Restaurants may only serve water upon request	Prohibit the serving of drinking water, other than upon request, in eating or drinking establishments.	Yes

Table 5-1 Demand Reduction Actions

Level	Restrictions and Prohibitions on End Users Category	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1-3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	When a leak is discovered by a customer in a customer's water system and a customer is charged for water that it has not used, as a result of the leakage, it shall be policy of the city to aid the customer in locating the leak. If the leak is repaired by the customer within a period of ten days of the date the leak was discovered and the customer can establish that a portion of the charges identified in its water bill are in excess of the amount normally charged to the customer, that excess amount of water use caused by the leakage shall be charged to the customer at the standard water rate. If the leak is not repaired by the customer within the 10 day period, the portion of the excess water usage which results from the leakage will be billed at two times the standard water rate until the leak is repaired by the customer. The city shall give prompt notice to a customer if the city obtains information indicating that a leak may exist in the customer's exclusive control.	Yes
1-3	Other - Prohibit use of potable water for construction and dust control	All construction water must be reclaimed or non-potable. Issuance of construction meters will be only for testing and disinfection of potable water lines.	Yes

5.6 Seismic Risk Assessment and Mitigation Plan

Law

10632.5 (a)	*In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.*
(b)	*An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.*
(c)	*An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multi-hazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multi-hazard mitigation plan addresses seismic risk.*

In addition to the emergency response plan described in a previous section, the California Water Code now requires urban water suppliers to document a locally appropriate multi-hazard mitigation plan, as developed under the federal Disaster Mitigation Act of 2000, that includes documentation of seismic risk assessment. Kings County developed such a hazard mitigation plan in December 2012. The City's service area is included in the boundaries reviewed as part of this mitigation plan.

5.7 Shortage Response Action Effectiveness

In addition to documenting demand reduction actions the 2020 UWMP also estimates the effectiveness of these actions on reducing system-wide demand. The City records water consumption and production on a monthly basis, and this data can be used to estimate the effect of any demand reduction actions implemented.

Section 6 COMMUNICATION PROTOCOLS

Law

10632 (a)(5)	*Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, and of the following:* *(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.* *(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.* *(C) Any other relevant communications.*

When the City identifies the need for short-term water use reductions as directed by the Water Shortage Contingency Plan or Annual Assessment, clear and effective communication will be critical to achieve the necessary demand reductions. Methods of public notification include newspaper publications, bill inserts, City website announcements, social media posts, and press

releases or informational campaigns. These public notification methods would be implemented in the event of a Level 2 Water Shortage and would increase in frequency in the event of a Level 3 Water Shortage.

Section 7 COMPLIANCE AND ENFORCEMENT

Law

10632 (a) (6)	*For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.*

Customers who violate the provisions noted in the water code for water shortage conditions shall receive, in accordance with the Amended Hanford Municipal Code Section 13.04.150, the following:

- The first violation shall result in a written notice of the violation from Public Works Department personnel or police department.
- The second violation shall result in a written notice of the violation and a penalty of fifty dollars imposed on the customer's water bill.
- The third violation shall result in a written notice of the violation. Additionally, for unmetered customers, a water meter shall be installed by the city to monitor all water usage on the property. Water meter purchasing cost and installation fees shall be billed to the customer and are due within thirty days of the billing. Metered customers shall have a penalty of one hundred dollars imposed on their water bill.
- The fourth violation shall result in a written notice of the violation and a penalty of two hundred dollar penalty shall be imposed on the customer's water bill.

Section 8 LEGAL AUTHORITIES

Law

10632 (a) (7) *(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.*
(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1. [see below]
(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

Water Code Section Division 1, Section 350

Declaration of water shortage emergency condition. The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

This City has the legal authority to implement and enforce its water shortage response actions and relative penalties, water charge adjustments, and water service alteration or prohibition. City Urgency Ordinance 15-06, which amended the water supply shortage regulations for the City in June 2015, documents the demand reduction measures as well as enforcement protocols.

Section 9 FINANCIAL CONSEQUENCES OF WSCP ACTIVATION

Law

10632 (a) (8) *A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:*

- *(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).*
- *(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).*
- *(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1. [retail urban suppliers only]*

The activation of the Water Shortage Contingency Plan and related Water Shortage Levels have financial consequences for the City. Reduced water consumption will contribute to reduced revenue, while proactive operational practices will contribute to higher operational and maintenance costs. Currently, the City maintains some funds as rate stabilization reserves as well as approximately 60 days of operating reserves. In addition, the City Council has the authority to increase water rates to offset reduced revenues. These reserve funds or rate modifications have the ability to mitigate financial consequences of the Water Shortage Contingency Plan.

Additionally, potential mitigation actions are documented in Table 9-1. These are preliminary actions and would be evaluated in more detail should a water shortage occur.

Table 9-1 Financial Consequences of WSCP

Stage	Supply Reduction	Financial Consequences	Anticipated Mitigation Actions
0	None	None	Funding provided for supplemental water supply reserve.
1	10%-20%	Potential increase in O&M expenses and mild reduction in revenue.	Reduce O&M costs and identify supplemental funding sources.
3	21%-35%	Moderate increase to O&M expenses and decrease in revenue.	Defer capital expenditures and consider use of reserves.
2	35%-50%+	Significant increases to O&M and decreases in revenue.	Implement long-term O&M budget reductions.

Section 10 MONITORING AND REPORTING

Law

10632 (a) (9)	*For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.*

Monitoring and reporting as part of the Water Shortage Contingency Plan and Annual Assessment will be based on the metered production and consumption data. Ongoing review of this information, and comparisons to historical data for similar months, will enable the City to monitor the effectiveness of the WSCP measures. Additionally, due to implemented shortage response actions and water shortage levels, the City's Water Department may increase the frequency of reading meters in order to collect, track, and analyze the water use.

Section 11 WSCP REFINEMENT PROCEDURES

Law

10632 (a) (10)	*Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed*

While the WSCP is a standalone document adopted separately from the 2020 UWMP it should be considered a dynamic planning tool and be subject to ongoing refinement efforts as necessary. Following the declaration of a water shortage and implementation of the WSCP, the monitoring and reporting steps described in a previous section will provide valuable insight into the effectiveness of the WSCP. City staff will evaluate the effectiveness of communication protocols, demand reduction actions, operational changes, or financial consequence mitigation. If this review reveals opportunities for procedural refinements or new WSCP actions, City staff may elect to incorporate these items into an amended version of the WSCP.

Section 12 SPECIAL WATER FEATURE DISTINCTION

Law

10632 (b)	*For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.*

The California Water Code requires urban water suppliers to distinguish between water features that are artificially supplied with water as opposed to swimming pools and spas. The City's current demand reduction actions include this distinction, as documented in a previous section.

Section 13 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

Law

10632 (c)	*The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.*

The WSCP adoption and submittal process, as well as the public availability, are the same as those for the City's UWMP. However, the WSCP may be periodically amended independently from the City's UWMP. Should an amendment to the WSCP be implemented, stakeholder and public notification methods consistent with the UWMP will be performed prior to the adoption of the amended plan.

APPENDIX A

Water Shortage Level Comparison

2015 Hanford WSCP			Corresponding Relationship ("Crosswalk")	Six Standard Stages	
Stage	Percentage Supply Reduction	Water Supply		Stage	DWR 6 Standard Water Shortage Levels
1	10 to 20%	Minor Shortage Potential		1	Up to 10%
				2	10 to 20%
2	20 to 35%	Moderate Shortage Potential		3	20 to 30%
				4	30 to 40%
3	35 to 50%	Critical Shortage Potential		5	40 to 50%
				6	Greater than 50%

APPENDIX B

Urban Water Management Plan Adoption Resolution and Notifications

RESOLUTION NO. 21-45-R

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HANFORD
APPROVING THE 2020 URBAN WATER MANAGEMENT PLAN

At a regular meeting of the City Council of the City of Hanford, duly called and held on October 19, 2021, it was moved by Council Member Sharp, and seconded by Council Member Morrow, and carried that the following resolution be adopted:

WHEREAS, The State of California Urban Water Management Planning Act, SB 797 and amendments thereto, requires the local agency to adopt and file with the State of California Department of Water Resources and updated Urban Water Management Plan every five years; after a noticed public hearing; and

WHEREAS, State regulations require that a stand-alone Water Shortage Contingency Plan be prepared in conjunction with the Urban Water Management Plan; and

WHEREAS, a public hearing notice for the Urban Water Management Plan and Water Shortage Contingency Plan was published in the local newspaper and the public hearing held on Tuesday, October 5, 2021; and

WHEREAS, Section 15282 (v) of the California Environmental Quality Act states that the preparation of Urban Water Management Plans is statutorily exempt.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Hanford does hereby approve the attached 2020 Water Shortage Contingency Plan.

Passed and Adopted at a regular meeting of the City Council of the City of Hanford duly called and held on the 19th day of October, 2021, by the following vote:

AYES: Ramirez, Sharp, Morrow, Breno, Salray

NOES: _____

ABSTAIN: _____

ABSENT: _____

Francisco Ramirez
MAYOR of the City of Hanford

ATTEST: _____
Natalie Corral,
CITY CLERK and Clerk of the
Council of the City of Hanford

STATE OF CALIFORNIA)
COUNTY OF KINGS) ss
CITY OF HANFORD)

I, NATALIE CORRAL, City Clerk of the City of Hanford, do hereby certify the foregoing Resolution was duly passed and adopted by the City Council of the City of Hanford at a regular meeting thereof held on the 19th day of October, 2021.

Dated: 10/19/, 2021

_____
NATALIE CORRAL,
CITY CLERK and Clerk of the
Council of the City of Hanford

RESOLUTION NO. 21-46-R

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HANFORD
APPROVING THE 2020 URBAN WATER MANAGEMENT PLAN

At a regular meeting of the City Council of the City of Hanford, duly called and held on October 19, 2021, it was moved by Council Member Sharp, and seconded by Council Member Morrow, and carried that the following resolution be adopted:

WHEREAS, The State of California Urban Water Management Planning Act, SB 797 and amendments thereto, requires the local agency to adopt and file with the State of California Department of Water Resources and updated Urban Water Management Plan every five years; after a noticed public hearing; and

WHEREAS, a public hearing notice was published in the local newspaper and the public hearing held on Tuesday, October 5, 2021; and

WHEREAS, Section 15282 (v) of the California Environmental Quality Act states that the preparation of Urban Water Management Plans is statutorily exempt.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Hanford does hereby approve the attached 2020 Urban Water Management Plan.

Passed and Adopted at a regular meeting of the City Council of the City of Hanford duly called and held on the 19th day of October, 2021, by the following vote:

AYES: Ramirez, Sharp, Morrow, Breno, Saltray

NOES: _____

ABSTAIN: _____

ABSENT: _____

Francisco Ramirez
MAYOR of the City of Hanford

ATTEST: _____

Natalie Corral,
CITY CLERK and Clerk of the
Council of the City of Hanford

STATE OF CALIFORNIA)
COUNTY OF KINGS) ss
CITY OF HANFORD)

I, NATALIE CORRAL, City Clerk of the City of Hanford, do hereby certify the foregoing Resolution was duly passed and adopted by the City Council of the City of Hanford at a regular meeting thereof held on the 19th day of October, 2021.

Dated: 10/29/, 2021

_____

NATALIE CORRAL,
CITY CLERK and Clerk of the
Council of the City of Hanford

THE SENTINEL
P O BOX 9
HANFORD CA 93232
(559)582-0471
Fax (559)582-2431

ORDER CONFIRMATION

Salesperson: JUAN MORALES — Printed at 09/16/21 09:15 by jmora-bk

---

Acct #: 7650 — Ad #: 46328 — Status: New

CITY OF HANFORD - LEGALS
ACCOUNTS PAYABLE
315 N DOUTY ST
HANFORD CA 93230

Start: 09/17/2021 — Stop: 09/28/2021
Times Ord: 2 — Times Run: ***
3STD 2.00 X 4.73 Words: 367
Total 3STD 9.46
Class: H0986 LEGALS
Rate: LD — Cost: 296.71
Affidavits: 1

Contact:
Phone: (559)585-2500
Fax#:
Email: billing@cityofhanfordca.com
Agency:

Ad Descrpt: AD# 46328 PUBLIC NOTICE N
Given by: *
P.O. #:
Created: jmora 09/15/21 08:07
Last Changed: jmora 09/16/21 09:15

PUB	ZONE	EDT	TP	RUN DATES
HSP	A	95	S	09/17,25
HSO	A	95	S	09/17,28

AUTHORIZATION

Under this agreement rates are subject to change with 30 days notice. In the event of a cancellation before schedule completion, I understand that the rate charged will be based upon the rate for the number of insertions used.

_____ _____
Name (print or type) Name (signature)

(CONTINUED ON NEXT PAGE)

THE SENTINEL
P O BOX 9
HANFORD CA 93232
(559)582-0471
Fax (559)582-2431

ORDER CONFIRMATION (CONTINUED)

Salesperson: JUAN MORALES Printed at 09/16/21 09:15 by jmora-bk

---

Acct #: 7650 Ad #: 46328 Status: New

AD# 46328

Public Notice

Notice of Public Hearing

NOTICE IS HEREBY GIVEN that the City Council of the City of Hanford, California, will hold an informational session on October 5, 2021 at 5:00 p.m. followed by a Public Hearing on October 5, at 7:00 p.m. or as soon as possible thereafter, in the City of Council Chambers located at 400 Douty Street, Hanford, California to consider the following matter:

PUBLIC HEARING ON URBAN WATER MANAGEMENT PLAN & WATER SHORTAGE CONTINGENCY PLAN FOR 2020

The Hanford City Council will hold a Public Hearing to receive comments from the public on the final draft of the City of Hanford 2020 Urban Water Management Plan (UWMP) and 2020 Water Shortage Contingency Plan (WSCP). The City is preparing its 2020 UWMP to continue to provide adequate water supplies to meet existing and future water demands within Citys Urban Growth Boundary. The 2020 UWMP updates the information in the existing 2015 UWMP and provides an overview of the Citys efficient water uses, water supplies, and demand management measures. Additionally, the 2020 WSCP builds upon previous planning efforts and outlines the Citys plan to address potential future water shortages. At the conclusion of receipt of comments by the public, the Public Hearing will be closed.

Written communications may be filed prior to the Public Hearing. Questions or comments regarding the plans should be emailed to jross@cityofhanfordca.com. The final draft plans are available for review at the City Clerks office at 319 N. Douty Street, Hanford CA, Monday through Friday between the hours of 8:00 a.m. and 4:00 p.m. Further detail may be obtained from the City of Hanford Public Works department at (559) 585-2550. The final draft plan can be viewed and downloaded at: https://www.cityofhanfordca.com

ADOPTION OF THE 2020 URBAN WATER MANAGEMENT PLAN and 2020 WATER SHORTAGE CONTINGENCY PLAN

At the regularly scheduled meeting of the Hanford City Council on October 19, 2021, the City Council will also consider adoption of a resolution approving the City of Hanford 2020 UWMP and 2020 WSCP and directing staff to submit the plan to the State Department of Water Resources.

BY ORDER OF THE CITY COUNCIL
OF THE CITY OF HANFORD.

Publish September 17, 25, 2021

APPENDIX E

Water Rate Structure

RESOLUTION NO. 15-60-R

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HANFORD MODIFYING WATER CHARGES AND RATES FOR THE CITY OF HANFORD WATER SYSTEM

At a regular meeting of the City Council of the City of Hanford duly called and held on the 15th day of December, 2015, at 7:00 P.M., and on a motion made by Council Member Curry, and seconded by Council Member Ayers, and duly carried that the following Resolution be adopted:

WHEREAS, in connection with the providing of water service to the citizens of Hanford and in order to provide sufficient funding for the adequate operation, maintenance and improvement of such water service system, the City of Hanford has established water charges and rates for water services in the City of Hanford Water System (collectively" Charges and Rates"); and

WHEREAS, it has been determined by the City of Hanford that the current Charges and Rates do not provide sufficient funds in order to adequately operate, maintain, and improve the water service system and provide adequate funds to pay debt service for bonds, maintain system facilities, and provide water quality in compliance with the State Water Resources Control Board requirements; and

WHEREAS, the following schedule of new Charges and Rates has been determined to be necessary to provide sufficient funding for the adequate operation, maintenance and improvement of the City of Hanford water service system, such funding to be used to pay the costs of operation, maintenance and improvement of the water system, including but not limited to, operations, personnel and funds to be placed on reserve for future repair, improvements, and replacement of the water service system of the City of Hanford.

WHEREAS, due to the drought conditions affecting the state and the conservation order issued by the state to the City of Hanford, the Council is requiring that all water services served by the City of Hanford be metered and a charge on all flat rate account equivalent to $13.33 per month for 60 months be added to pay for the installation of a meter and appurtenances to convert all flat rate services to metered services; and

WHEREAS, all notices of the public hearing were published and served by mail as required by law, and the City Council held a public hearing and received written and oral evidence regarding the increase of the Charges and Rates as identified in this Resolution. At the conclusion of the public hearing, all written protests to the increase in the Charges and Rates were counted, and it was determined that the protests submitted were insufficient to prohibit the increase of the Charges and Rates as identified in this resolution.

WHEREAS, the City Council has determined that pursuant to Section 15273(a) of the California Environmental Quality Act Guidelines, modifying water rates for the purposes identified in Section 15273(a) is statutorily exempt from the requirements of the California Environmental Quality Act.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Hanford hereby establishes the following Charges and Rates for the Hanford water service system and shall become effective as identified below. The Charges and Rates that become effective January 1, 2016 shall remain in effect until changed by resolution of the City Council.

Current and Proposed Water Rates for Metered Water Service Connections Inside the City Limits

	Sep. 1, 2007 (current)	Jan. 1, 2016	July 1, 2016	July 1, 2017	July 1, 2018
CONNECTION CHARGES (per month)					
All Service Connections	$6.14	$2.25	$2.32	$2.39	$2.46
METER SIZE CHARGES (per month)					
5/8", 3/4", & 1" meter	–	$10.00	$10.90	$11.88	$12.95
1-1/2" & 2" meter	–	$15.00	$16.35	$17.82	$19.42
3" & 4" meter	–	$25.00	$27.25	$29.70	$32.37
6" meter	–	$40.00	$43.60	$47.52	$51.80
8" meter	–	$60.00	$65.40	$71.29	$77.71
WATER CONSUMPTION CHARGES (per 100 cubic foot "unit of water")					
Rate per 100 cf	$0.69	$1.04	$1.13	$1.23	$1.34

Current and Proposed Water Rates for Flat Rate Water Service Connections Inside the City Limits

	Sep. 1, 2007 (current)	Jan. 1, 2016	July 1, 2016	July 1, 2017	July 1, 2018
CONNECTION CHARGES (per month)					
All Service Connections	–	$2.25	$2.32	$2.39	$2.46
FLAT RATE CHARGES (per gross square foot of lot area)					
Rate per gross square foot	$0.0035	$0.0058	$0.0063	$0.0069	$0.0075
Flat Rate to Meter Conversion Charge ($800 over 60 months)		$13.33			

Current and Proposed Water Rates for Metered Service Connections Outside the City Limits

	Sep. 1, 2007 (current)	Jan. 1, 2016	July 1, 2016	July 1, 2017	July 1, 2018
CONNECTION CHARGES (per month; 1.1× Inside the City Limits)					
All Service Connections	$9.21	$2.48	$2.55	$2.63	$2.71
METER SIZE CHARGES (per month; 1.1× Inside the City Limits)					
5/8″, 3/4″, & 1″ meter	–	$11.00	$11.99	$13.07	$14.25
1-1/2″ & 2″ meter	–	$16.50	$17.99	$19.60	$21.36
3″ & 4″ meter	–	$27.50	$29.98	$32.67	$35.61
6″ meter	–	$44.00	$47.96	$52.27	$56.98
8″ meter	–	$66.00	$71.94	$78.42	$85.48
WATER CONSUMPTION CHARGES (per 100 cubic foot "unit of water"; 1.1× Inside the City Limits)					
Rate per 100 cf	$1.04	$1.14	$1.24	$1.35	$1.47
PRIVATE FIRE PROTECTION SERVICE (per month)					
1-1/2″ connection	$9.10	$13.50	$14.72	$16.04	$17.48
2″ connection	$11.95	$18.00	$19.62	$21.39	$23.32
3″ connection	$16.55	$27.00	$29.43	$32.08	$34.97
4″ connection	$21.00	$36.00	$37.24	$42.77	$46.62
6″ connection	$33.15	$54.00	$58.86	$64.16	$69.93
8″ connection	$42.10	$72.00	$78.48	$85.54	$93.24
10″ connection	$54.10	$90.00	$98.10	$106.93	$116.55
12″ connection	$69.90	$108.00	$117.72	$128.31	$139.86

Current and Proposed Water Rates for Flat Rate Water Service Connections Outside the City Limits

	Sep. 1, 2007 (current)	Jan. 1, 2016	July 1, 2016	July 1, 2017	July 1, 2018
CONNECTION CHARGES (per month; 1.1× Inside the City Limits)					
All Service Connections	–	$2.48	$2.55	$2.63	$2.71
FLAT RATE CHARGES (per gross square foot of lot area)					
Rate per gross square foot	$0.0053	$0.0064	$0.0069	$0.0076	$0.0083
Flat Rate to Meter Conversion Charge ($800 over 60 months)		$13.33			

BE IT FURTHER RESOLVED that all other system charges and rates identified in resolution 07-03-R are not modified by this resolution and remain in effect.

PASSED, ADOPTED AND APPROVED this 15th day of December, 2015 by the following vote:

AYES: Russ Curry, David Ayers, Justin Mendes

NOES: Gary Pannetta, Francisco Ramirez

ABSTAIN: —

ABSENT: —

JUSTIN MENDES
MAYOR of the City of Hanford

Attest:

JENNIFER GOMEZ
CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF KINGS) ss
CITY OF HANFORD)

I, Jennifer Gomez, City Clerk of the City of Hanford, do hereby certify the foregoing Resolution was duly passed and adopted at a regular meeting of the City Council of the City of Hanford held on the 15 day of December, 2015.

Date: 12-17-15

City Clerk

APPENDIX F

Urban Water Management Plan
Adoption Resolution and Notifications

RESOLUTION NO. 21-45-R

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HANFORD
APPROVING THE 2020 URBAN WATER MANAGEMENT PLAN

At a regular meeting of the City Council of the City of Hanford, duly called and held on October 19, 2021, it was moved by Council Member Sharp, and seconded by Council Member Morrow, and carried that the following resolution be adopted:

WHEREAS, The State of California Urban Water Management Planning Act, SB 797 and amendments thereto, requires the local agency to adopt and file with the State of California Department of Water Resources and updated Urban Water Management Plan every five years; after a noticed public hearing; and

WHEREAS, State regulations require that a stand-alone Water Shortage Contingency Plan be prepared in conjunction with the Urban Water Management Plan; and

WHEREAS, a public hearing notice for the Urban Water Management Plan and Water Shortage Contingency Plan was published in the local newspaper and the public hearing held on Tuesday, October 5, 2021; and

WHEREAS, Section 15282 (v) of the California Environmental Quality Act states that the preparation of Urban Water Management Plans is statutorily exempt.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Hanford does hereby approve the attached 2020 Water Shortage Contingency Plan.

Passed and Adopted at a regular meeting of the City Council of the City of Hanford duly called and held on the 19th day of October, 2021, by the following vote:

AYES: Ramirez, Sharp, Morrow, Breno, Salray

NOES: _____

ABSTAIN: _____

ABSENT: _____

Francisco Ramirez
MAYOR of the City of Hanford

ATTEST: _____
Natalie Corral,
CITY CLERK and Clerk of the
Council of the City of Hanford

STATE OF CALIFORNIA)
COUNTY OF KINGS) ss
CITY OF HANFORD)

I, NATALIE CORRAL, City Clerk of the City of Hanford, do hereby certify the foregoing Resolution was duly passed and adopted by the City Council of the City of Hanford at a regular meeting thereof held on the 19th day of October, 2021.

Dated: 10/19/, 2021

_____
NATALIE CORRAL,
CITY CLERK and Clerk of the
Council of the City of Hanford

RESOLUTION NO. 21-46-R

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HANFORD
APPROVING THE 2020 URBAN WATER MANAGEMENT PLAN

At a regular meeting of the City Council of the City of Hanford, duly called and held on October 19, 2021, it was moved by Council Member Sharp, and seconded by Council Member Morrow, and carried that the following resolution be adopted:

WHEREAS, The State of California Urban Water Management Planning Act, SB 797 and amendments thereto, requires the local agency to adopt and file with the State of California Department of Water Resources and updated Urban Water Management Plan every five years; after a noticed public hearing; and

WHEREAS, a public hearing notice was published in the local newspaper and the public hearing held on Tuesday, October 5, 2021; and

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NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Hanford does hereby approve the attached 2020 Urban Water Management Plan.

Passed and Adopted at a regular meeting of the City Council of the City of Hanford duly called and held on the 19th day of October, 2021, by the following vote:

AYES: Ramirez, Sharp, Morrow, Breno, Saltray

NOES: _____

ABSTAIN: _____

ABSENT: _____

Francisco Ramirez
MAYOR of the City of Hanford

ATTEST: _____

Natalie Corral,
CITY CLERK and Clerk of the
Council of the City of Hanford

STATE OF CALIFORNIA)
COUNTY OF KINGS) ss
CITY OF HANFORD)

I, NATALIE CORRAL, City Clerk of the City of Hanford, do hereby certify the foregoing Resolution was duly passed and adopted by the City Council of the City of Hanford at a regular meeting thereof held on the 19th day of October, 2021.

Dated: 10/29/, 2021

_____

NATALIE CORRAL,
CITY CLERK and Clerk of the
Council of the City of Hanford

THE SENTINEL
P O BOX 9
HANFORD CA 93232
(559)582-0471
Fax (559)582-2431

ORDER CONFIRMATION

Salesperson: JUAN MORALES — Printed at 09/16/21 09:15 by jmora-bk

---

Acct #: 7650 — Ad #: 46328 — Status: New

CITY OF HANFORD - LEGALS
ACCOUNTS PAYABLE
315 N DOUTY ST
HANFORD CA 93230

Start: 09/17/2021 — Stop: 09/28/2021
Times Ord: 2 — Times Run: ***
3STD 2.00 X 4.73 Words: 367
Total 3STD 9.46
Class: H0986 LEGALS
Rate: LD — Cost: 296.71
Affidavits: 1

Contact:
Phone: (559)585-2500
Fax#:
Email: billing@cityofhanfordca.com
Agency:

Ad Descrpt: AD# 46328 PUBLIC NOTICE N
Given by: *
P.O. #:
Created: jmora 09/15/21 08:07
Last Changed: jmora 09/16/21 09:15

PUB	ZONE	EDT	TP	RUN DATES
HSP	A	95	S	09/17,25
HSO	A	95	S	09/17,28

AUTHORIZATION

Under this agreement rates are subject to change with 30 days notice. In the event of a cancellation before schedule completion, I understand that the rate charged will be based upon the rate for the number of insertions used.

_____ _____
Name (print or type) Name (signature)

(CONTINUED ON NEXT PAGE)

THE SENTINEL
P O BOX 9
HANFORD CA 93232
(559)582-0471
Fax (559)582-2431

ORDER CONFIRMATION (CONTINUED)

Salesperson: JUAN MORALES Printed at 09/16/21 09:15 by jmora-bk

---

Acct #: 7650 Ad #: 46328 Status: New

AD# 46328

Public Notice

Notice of Public Hearing

NOTICE IS HEREBY GIVEN that the City Council of the City of Hanford, California, will hold an informational session on October 5, 2021 at 5:00 p.m. followed by a Public Hearing on October 5, at 7:00 p.m. or as soon as possible thereafter, in the City of Council Chambers located at 400 Douty Street, Hanford, California to consider the following matter:

PUBLIC HEARING ON URBAN WATER MANAGEMENT PLAN & WATER SHORTAGE CONTINGENCY PLAN FOR 2020

The Hanford City Council will hold a Public Hearing to receive comments from the public on the final draft of the City of Hanford 2020 Urban Water Management Plan (UWMP) and 2020 Water Shortage Contingency Plan (WSCP). The City is preparing its 2020 UWMP to continue to provide adequate water supplies to meet existing and future water demands within Citys Urban Growth Boundary. The 2020 UWMP updates the information in the existing 2015 UWMP and provides an overview of the Citys efficient water uses, water supplies, and demand management measures. Additionally, the 2020 WSCP builds upon previous planning efforts and outlines the Citys plan to address potential future water shortages. At the conclusion of receipt of comments by the public, the Public Hearing will be closed.

Written communications may be filed prior to the Public Hearing. Questions or comments regarding the plans should be emailed to jross@cityofhanfordca.com. The final draft plans are available for review at the City Clerks office at 319 N. Douty Street, Hanford CA, Monday through Friday between the hours of 8:00 a.m. and 4:00 p.m. Further detail may be obtained from the City of Hanford Public Works department at (559) 585-2550. The final draft plan can be viewed and downloaded at: https://www.cityofhanfordca.com

ADOPTION OF THE 2020 URBAN WATER MANAGEMENT PLAN and 2020 WATER SHORTAGE CONTINGENCY PLAN

At the regularly scheduled meeting of the Hanford City Council on October 19, 2021, the City Council will also consider adoption of a resolution approving the City of Hanford 2020 UWMP and 2020 WSCP and directing staff to submit the plan to the State Department of Water Resources.

BY ORDER OF THE CITY COUNCIL
OF THE CITY OF HANFORD.

Publish September 17, 25, 2021

APPENDIX C

MIXED-USE DEVELOPMENT WSA – CONSISTENCY WITH DWR GUIDELINES

Mixed-Use Development at Grangeville Blvd. and Centennial Dr.

Consistency with DWR Guidelines

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
Section 1 (page 2). Does SB 610 or SB221 apply to the proposed project?	Is the project subject to SB 610? Is the project subject to CEQA (Water Code §10910(a)? If yes, continue.	WSA Section 1.1. Yes, the project is subject to CEQA.
	Is it a "Project" as defined by Water Code §10912(a) or (b)? If yes, to comply with SB 610 go to Section 2.0, page 4.	WSA Section 1.1. No, the Project is not considered to meet the definition of "project" per Water Code §10912(a) or (b).
	Is the project subject to SB 221? Does the tentative map include a "subdivision" as defined by Government Code §66473.7(a)(1)? If no, stop.	No, the Project does not include a "subdivision", SB 221 does not apply to the Project, and no further action relevant to SB 221 is required.
Section 2.0 (page 4). Who will prepare the SB 610 analysis?	Is there a public water system ("water supplier") for the project (Water Code §10910(b)? If no, go to Section 3.0, page 6.	WSA Section 2.1. Yes, the project site will connect to a public water system.
Section 3.0 (page 6). Has an assessment already been prepared that includes this project?	Has this project already been the subject of an assessment (Water Code §10910(h)? If no, go to Section 4.0, page 8.	No, the Project has not been the subject of an assessment.
Section 4.0 (page 8). Is there a current Urban Water Management Plan?	Is there an adopted urban water management Plan (Water Code §10910(c)? If yes, continue. If yes, the information from the UWMP related to the proposed water demand for the project may also be used for carrying out Section 5.0, Steps 1 and 2, Section 7; proceed to Section 5, page 10 of the Guidelines.	Yes, there is an Urban Water Management Plan (UWMP) for the proposed project location described in WSA Section 3.2.
	Is the project water demand for the project accounted for in the most recent UWMP (Water Code §10910(c)(2)? If no, go to Section 5.0, page 10.	Yes
Section 5.0 (page 10). What information should be included in an assessment?	Step One (page 13). Documenting wholesale water supplies.	The Project is not a retail water supplier and would not include the use of wholesale water supplies.
	Step Two (page 17). Documenting Supply if Groundwater is a Source.	The proposed water supply wells are located within The

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
		City of Hanford. WSA Sections 1.3, 2.3 and 3.2.
	Specify if a groundwater management plan or any other specific authorization for groundwater management for the basin has been adopted and how it affects the water supplier's use of the basin.	WSA Section 3.2 The water supply wells are located within the Tulare Lake Basin Groundwater Sustainability Agency which includes the City of Hanford.
	Description and analysis of the amount and location of groundwater pumped by the water supplier for the past five years. Include information on proposed pumping locations and quantities. The description and analysis is to be based on information that is reasonably available, including, but not limited to, historic use records from DWR.	City of Hanford historic records included in WSA Section 3.0. WSA Section 1.3 provides a description of the Project's water requirements.
	Analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the water supplier.	WSA Section 3.2. The quantity of water available in the City of Hanford is sufficient for the Project.
	Step 3 (page 21). Documenting project demand (Project Demand Analysis).	WSA Section 1.3. Construction of the Project will require 35.2-acre feet per year.
	Step 4 (page 26). Documenting dry year(s) supply.	WSA Section 3.2. Addresses water supply availability including during dry years.
	Step 5 (page 31). Documenting dry year(s) demand.	WSA Section 3.2 addresses annual demands, including dry year scenarios.
Section 6.0 (page 33). Is the projected water supply sufficient or insufficient for the proposed project		WSA Section 4.0 summarizes how the identified water supply/supplies are considered sufficient for the Project.
Section 7.0 (page 35). If the projected supply is determined to be insufficient. Section 8.0 (page 38). Final SB 610 assessment actions by lead agencies.	Does the assessment conclude that supply is "sufficient"? If no, continue. The lead agency shall review the WSA and must decide whether additional water supply information is needed for its consideration of the proposed project. The lead	WSA Section 4.0 concludes that sufficient water supplies are available for the Project. The WSA for the Project must be approved prior to or in concurrence with the EIR.

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	agency "shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses."	
	The description of the groundwater basin may be excerpted from the groundwater management plan, from DWR Bulleting 118, California's Ground Water, or from some other document that has been published and that discusses the basin boundaries, type of rock that constitutes the aquifer, variability of the aquifer material, and total groundwater in storage (average specific yield times the volume of the aquifer).	WSA Section 2.2 provides a description of the groundwater basin characteristics using all available resources, including DWR Bulletin 118.
	In an adjudicated basin the amount of water the urban supplier has the legal right to pump should be enumerated in the court decision.	Basin is not adjudicated.
	The Department of Water Resources has projected estimates of overdraft, or "water shortage", based on projected amounts of water supply and demand (basin management) are projected by Santa Cruz Mid-County Groundwater Sustainability Agency in WSA Section 2.2.	Basin groundwater resources are discussed in WSA Section 2.2.
	Bulletin 160, California Water Plan Update. Estimates at the basin or subbasin level will be projected for some basins in Bulletin 118. If the basin has not been evaluated by DWR, data that indicate groundwater level trends over a period of time should be collected and evaluated.	

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	If the evaluation indicates an overdraft due to existing groundwater extraction, or projected increases in groundwater extraction, describe actions and/or program designed to eliminate the long-term overdraft condition.	WSA Section 3.2. The referenced and Appendicized City of Hanford 2020 Urban Water Master Plan describes in detail the subject actions and programs.

APPENDIX G

TRAFFIC STUDY

Project No: 257-88

TRAFFIC STUDY

HANFORD MULTI-USE DEVELOPMENT
GRANGEVILLE BOULEVARD & CENTENNIAL DRIVE
CITY OF HANFORD

Prepared for:

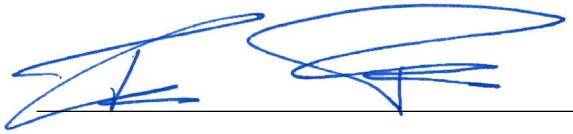
QK, INC.

December 2023

Prepared by:

RUETTGERS & SCHULER
CIVIL ENGINEERS

1800 30th Street, Suite 260
Bakersfield, California 93301



Ian J. Parks, RCE 58155

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INTRODUCTION

The purpose of this study is to evaluate the potential traffic impacts of multi-use development, which includes multi-family housing, a fast-food restaurant with drive-through, and a convenience store with 12 vehicle fueling pumps. The project is located on the northwest corner of Grangeville Boulevard & Centennial Drive in the City of Hanford. A vicinity map is presented in Figure 1 and a location map is presented in Figure 2.

The study is consistent with City guidelines and includes analyses of intersection level of service, roadway capacity, traffic signal warrants and vehicle miles traveled. The scope of the study was developed in coordination with City staff and includes nine intersections (eight signalized and one unsignalized) and the adjoining roadways.

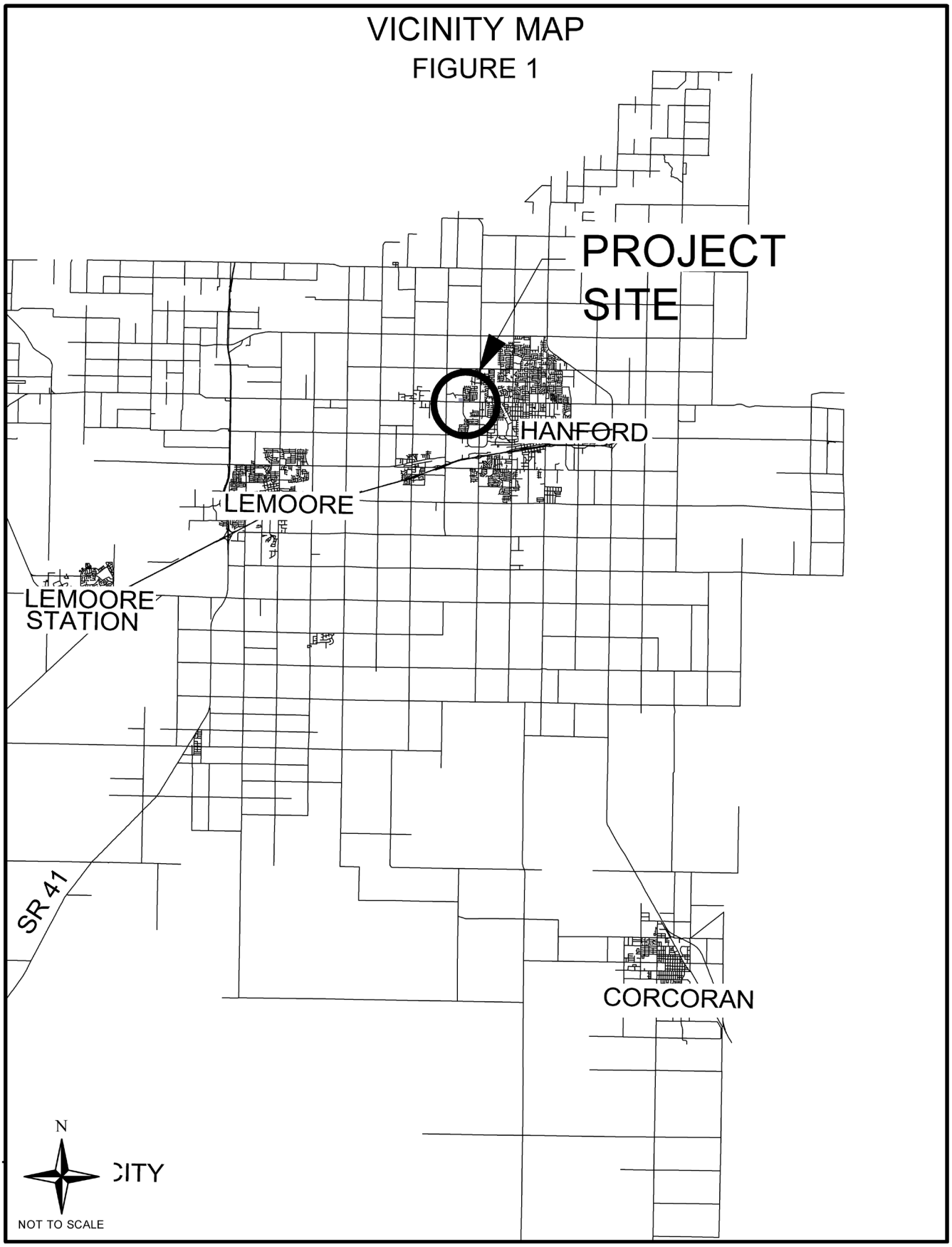
Project Description

The project site would be situated on five acres of land which is currently vacant and unused. The property is zoned Neighborhood Commercial and has a General Plan Land Use designation of Neighborhood Commercial.

Access to the project site would be provided from Grangeville Boulevard and Centennial Drive. The site plan is provided in Figure 3.

Existing Land Uses in Project Vicinity

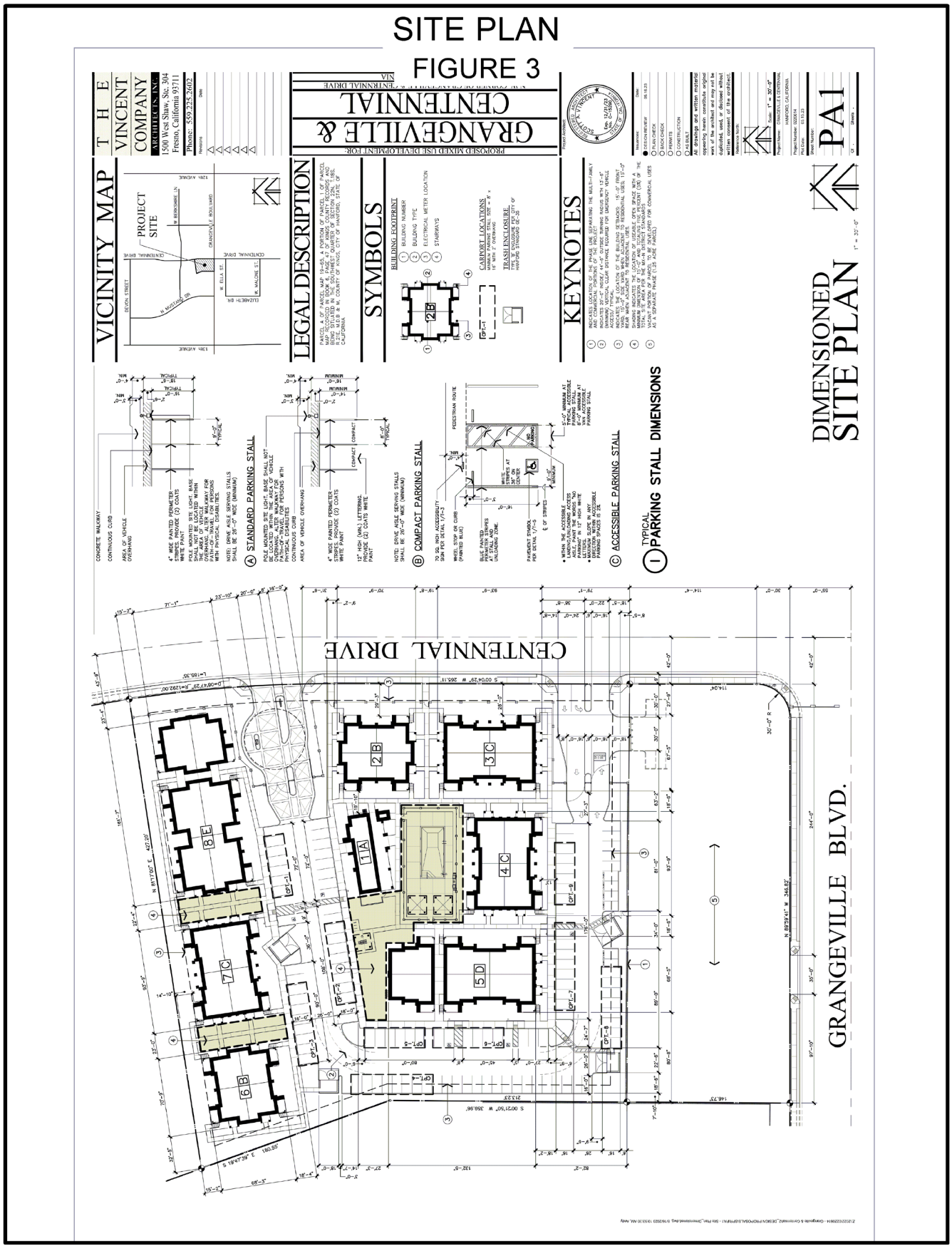
Residential land uses exist to the north, east, west, and south of the project. Frontier Elementary school exists to the west of the project as well. Agricultural land uses exist to the southeast and southwest of the project. Sierra Pacific high school exists generally south of the project.


VICINITY MAP
FIGURE 1
PROJECT SITE
HANFORD
LEMOORE
LEMOORE STATION
SR 41
CORCORAN
N
NOT TO SCALE


LOCATION MAP
FIGURE 2
13th Ave
12th Ave
Grangeville Blvd
Centennial Dr
N
NOT TO SCALE
LEGEND
EXISTING ROAD
FUTURE ROAD

SITE PLAN

FIGURE 3



Roadway Descriptions

11th Avenue is a north-south arterial that extends throughout the City of Hanford. In the vicinity of the project it exists as a four-lane roadway and provides access to residential and commercial land uses.

12th Avenue is a north-south arterial that extends throughout the City of Hanford. In the vicinity of the project it exists as a four-lane roadway and provides access to residential and commercial land uses.

13th Avenue is a north-south arterial that extends throughout the western part of the City of Hanford. In the vicinity of the project it exists as a two-lane roadway and provides access to residential land uses.

Centennial Drive is a north-south collector that extends from Fargo Avenue to 12th Avenue. In the vicinity of the project it exists as a two-lane roadway and provides access to residential land uses.

Fargo Ave is an east-west arterial that extends throughout the City of Hanford. In the vicinity of the project, it exists as a two-lane roadway and provides access to residential and agricultural land uses.

Grangeville Boulevard is an east-west arterial that extends throughout the City of Hanford. In the vicinity of the project, it exists as a four-lane roadway and provides access to residential, commercial and agricultural land uses.

Lacey Boulevard is an east-west arterial that extends from State Route 41 to 7th Avenue in Hanford. In the vicinity of the project, it exists as a four-lane roadway.

PROJECT TRIP GENERATION AND DESIGN HOUR VOLUMES

The project trip generation volumes shown in Table 1 were estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (September 2021). Trip rates and peak hour directional splits for ITE Land Use Codes 220 (Multi-Family Housing), 934 (Fast-Food Restaurant with Drive-Through), and 945 (Gasoline/Service Station with Convenience Market) were used to estimate project trips for weekday peak hour of adjacent street traffic based on information provided by the project applicant.

Table 1
Project Trip Generation

General Information			Daily Trips		AM Peak Hour Trips			PM Peak Hour Trips		
ITE Code	Development Type	Variable	ADT RATE	ADT	Rate	In % Split/ Trips	Out % Split/ Trips	Rate	In % Split/ Trips	Out % Split/ Trips
220	Multifamily Housing (Low Rise)	64 Dwelling Units	eq	486	eq	24% 10	76% 33	eq	63% 30	37% 18
934	Fast-Food Restaurant with Drive-Through	3.5 1000 sq ft GFA	467.48	1,636	44.61	51% 80	49% 76	33.03	52% 60	48% 56
945	Gasoline/Service Station with Convenience Market	12 Vehicle Fueling Positions	eq	2,750	16.06	50% 96	50% 97	18.42	50% 111	50% 110
sub-total				4,872		186	206		201	184
Adjustments										
Capture		5%		244		9	10		10	9
Pass-by[1]		15%		731		28	31		30	28
Total				3,897		149	165		161	147

[1]Pass-by adjustment was applied to the retail portion of the project.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of project peak hour trips is shown in Table 2 and represents the movement of traffic accessing the project site by direction. The project trip distribution was developed based on site location and travel patterns anticipated for the proposed land use.

Table 2
Project Trip Distribution

Direction	Percent
North	25
East	40
South	30
West	5

Project peak hour trips were assigned to the study intersections as shown in Figure 4. Project trip assignment was developed based on trip generation, trip distribution and likely travel routes for traffic accessing the project site.

EXISTING AND FUTURE TRAFFIC

Existing

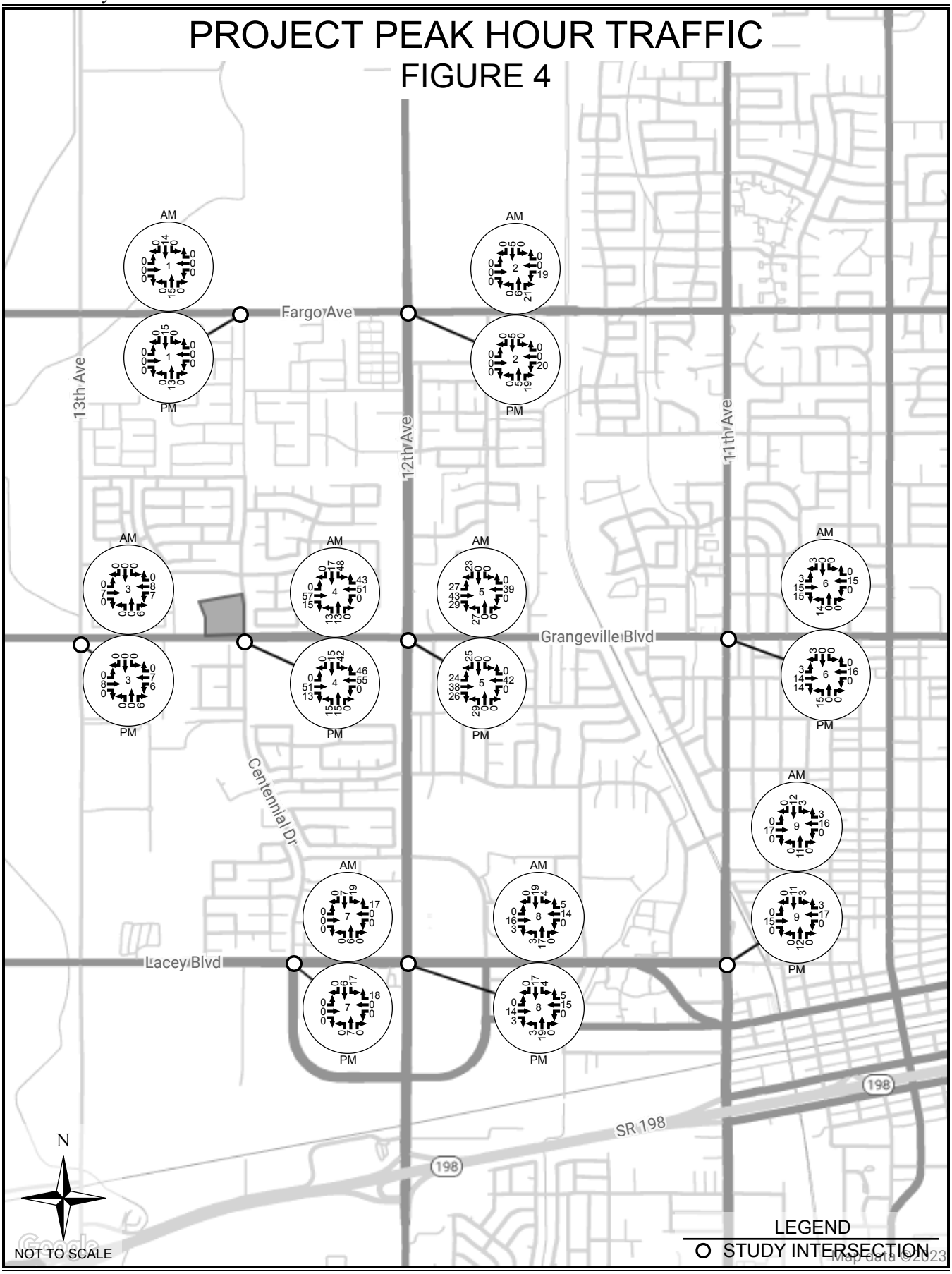
Weekday peak hour turning movement counts were obtained at each of the study intersections in December 2023 (see Appendix for count data). Existing peak hour volumes are shown in Figure 5. Existing plus project peak hour volumes are shown in Figure 6.

Future

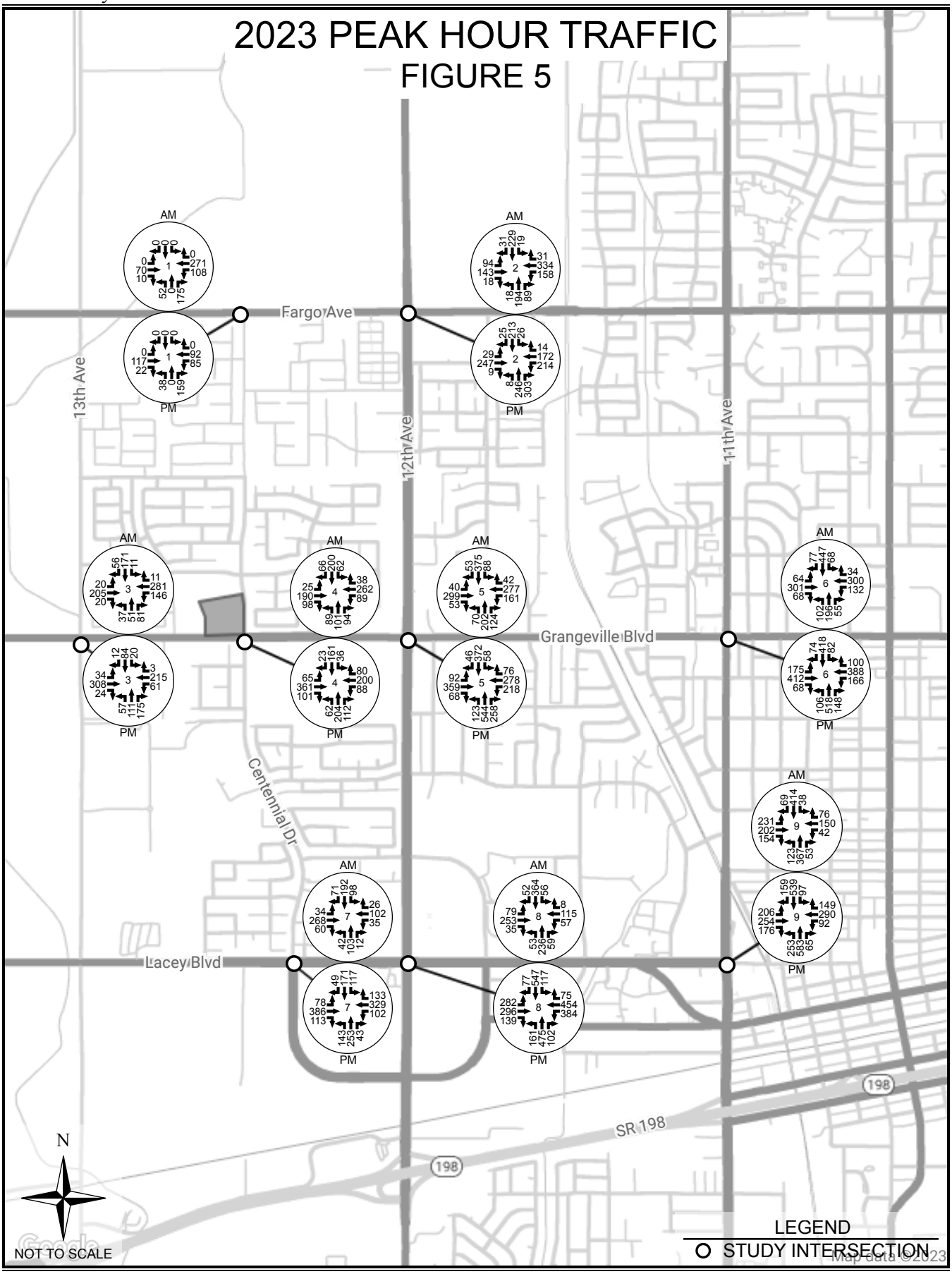
Annual growth rates ranging between 0.5 and 3.46 percent were applied to the existing peak hour volumes to estimate future volumes 2043. These growth rates were estimated based on a review of data from the Kings County Association of Governments (KCAG) travel demand model.

Future peak hour volumes for the year 2043, both without and with project traffic, are shown in Figures 7 and 8, respectively.

PROJECT PEAK HOUR TRAFFIC
FIGURE 4

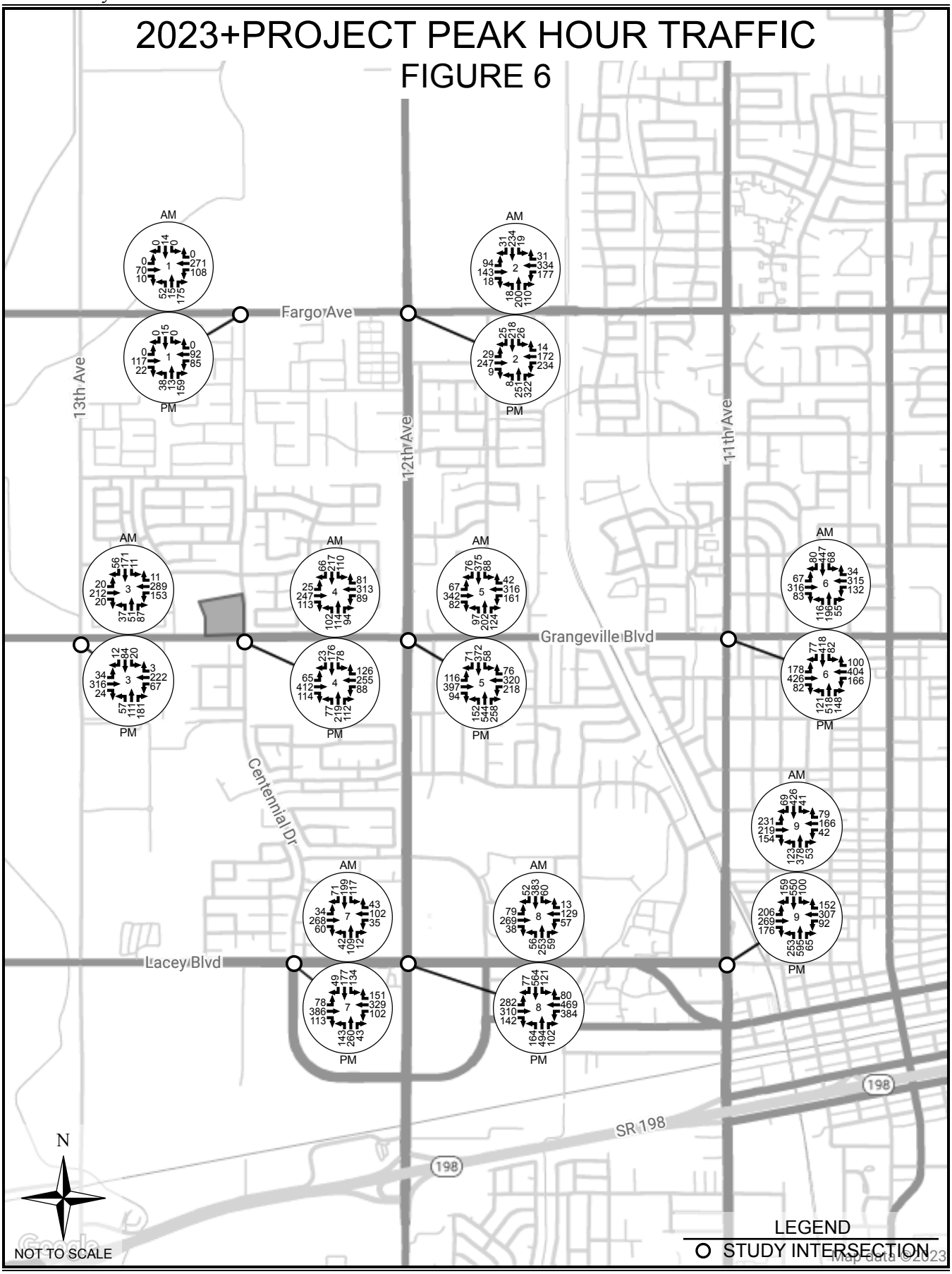


2023 PEAK HOUR TRAFFIC
FIGURE 5

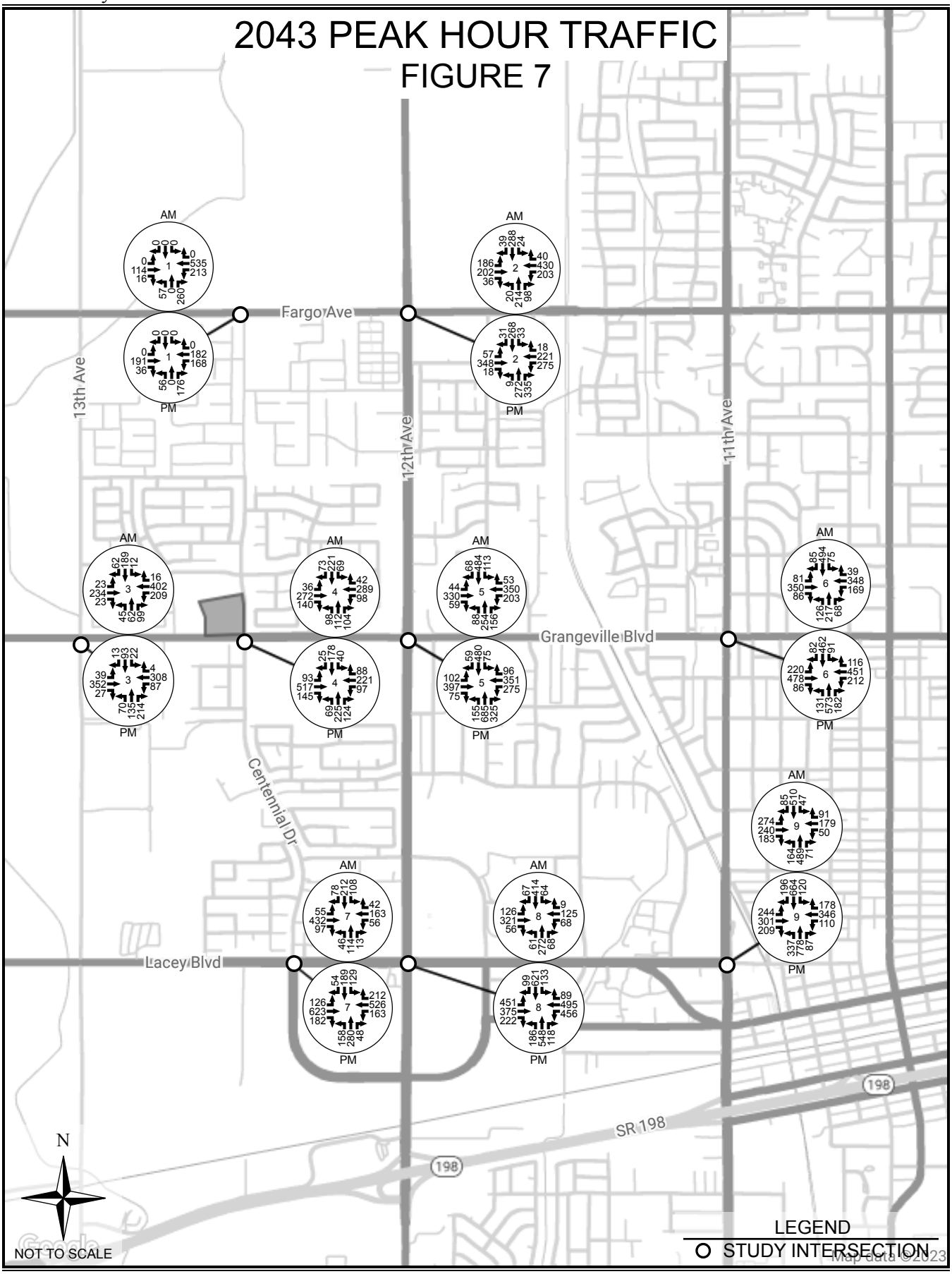


2023+PROJECT PEAK HOUR TRAFFIC

FIGURE 6

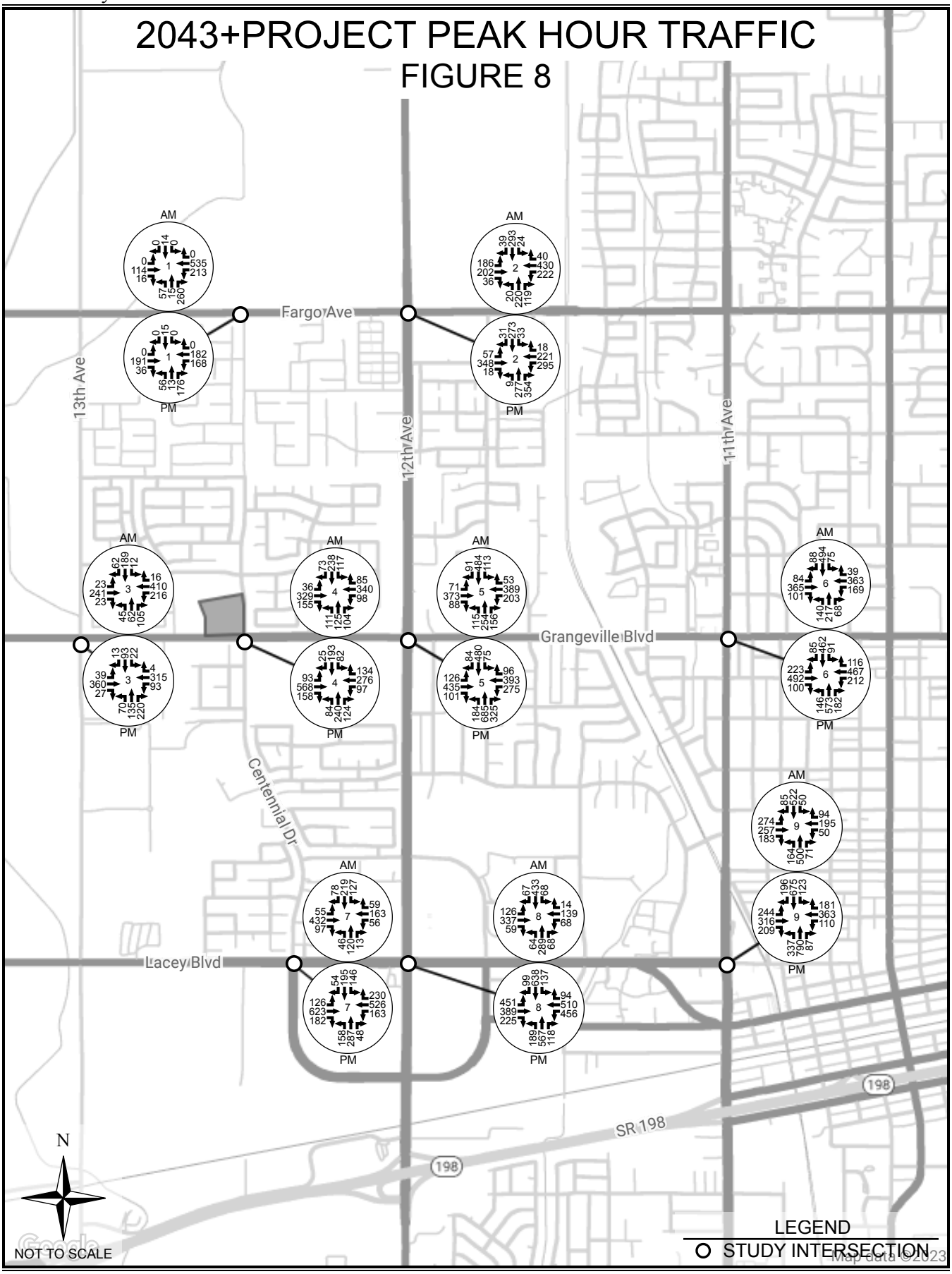


2043 PEAK HOUR TRAFFIC
FIGURE 7



2043+PROJECT PEAK HOUR TRAFFIC

FIGURE 8



INTERSECTION ANALYSIS

A capacity analysis of the study intersections was conducted using Synchro software from Trafficware (see Appendix for Synchro analysis results). This software utilizes the capacity analysis methodology in the Transportation Research Board's *Highway Capacity Manual 2010* (HCM 2010). The analysis was performed for each of the following traffic scenarios.

- Existing Year (2023)
- Existing Year (2023) + Project
- Future Year (2043)
- Future Year (2043) + Project

Level of service (LOS) criteria for unsignalized and signalized intersections, as defined in HCM 2010, are presented in the tables below.

Level of Service Criteria
Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)	Expected Delay to Minor Street Traffic
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short delays
C	> 15 and ≤ 25	Average delays
D	> 25 and ≤ 35	Long delays
E	> 35 and ≤ 50	Very long delays
F	> 50	Extreme delays

Level of Service Criteria
Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	Volume-to-Capacity Ratio
A	≤ 10	< 0.60
B	> 10 and ≤ 20	0.61 - 0.70
C	> 20 and ≤ 35	0.71 - 0.80
D	> 35 and ≤ 55	0.81 - 0.90
E	> 55 and ≤ 80	0.91 - 1.00
F	> 80	> 1.00

Peak hour level of service for the study intersections is presented in Tables 3a and 3b. The City of Hanford has set an intersection level of service standard of LOS C or better. Intersection delay (seconds per vehicle) is shown within parentheses for intersections operating below LOS C.

Table 3a
Intersection Level of Service
Weekday PM Peak Hour

#	Intersection	Control Type	2023	2023+ Project	2043	2043+ Project
1	Centennial Dr & Fargo Ave	NB	B	B	C	C
2	12th Ave & Fargo Ave	Signal	C	C	C	C
3	13th Ave & Grangeville Blvd	Signal	C	C	C	C
4	Centennial Dr & Grangeville Blvd	Signal	C	C	C	C
5	12th Ave & Grangeville Blvd	Signal	C	C	C	C
6	10th Ave & Grangeville Blvd	Signal	C	C	C	C
7	Centennial Dr & Lacey Blvd	Signal	B	B	C	C
8	12th Ave & Lacey Blvd	Signal	C	C	C	C
9	10th Ave & Lacey Blvd	Signal	C	C	C	C

Table 3b
Intersection Level of Service
Weekday AM Peak Hour

#	Intersection	Control Type	2023	2023+ Project	2043	2043+ Project
1	Centennial Dr & Fargo Ave	NB	B	B	C	C
2	12th Ave & Fargo Ave	Signal	B	B	C	C
3	13th Ave & Grangeville Blvd	Signal	B	B	C	C
4	Centennial Dr & Grangeville Blvd	Signal	C	C	C	C
5	12th Ave & Grangeville Blvd	Signal	B	B	B	B
6	10th Ave & Grangeville Blvd	Signal	C	C	C	C
7	Centennial Dr & Lacey Blvd	Signal	B	C	B	C
8	12th Ave & Lacey Blvd	Signal	B	B	B	B
9	10th Ave & Lacey Blvd	Signal	C	C	C	C

TRAFFIC SIGNAL WARRANT ANALYSIS

Peak hour signal warrants were evaluated for the unsignalized intersection within the study based on the 2014 *California Manual on Uniform Traffic Control Devices* (2014 CA MUTCD). Peak hour signal warrants assess delay to traffic on minor street approaches when entering or crossing a major street. Signal warrant analysis results are shown in Tables 4a and 4b.

Table 4a
Traffic Signal Warrants
Weekday PM Peak Hour

		2023			2023+Project			2043			2043+Project		
#	Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	Centennial Dr at Fargo Ave	316	197	NO	316	210	NO	577	292	YES	577	305	YES

Table 4b
Traffic Signal Warrants
Weekday AM Peak Hour

		2023			2023+Project			2043			2043+Project		
#	Intersection	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met	Major Street Total Approach Vol	Minor Street High Approach Vol	Warrant Met
1	Centennial Dr at Fargo Ave	459	227	NO	459	242	NO	756	431	YES	756	446	YES

It is important to note that a signal warrant defines the minimum condition under which signalization of an intersection might be warranted. Meeting this threshold does not suggest traffic signals are required, but rather, that other traffic factors and conditions be considered to determine whether signals are truly justified.

It is also noted that signal warrants do not necessarily correlate with level of service. An intersection may satisfy a signal warrant condition and operate at or above an acceptable level of service or operate below an acceptable level of service and not meet signal warrant criteria.

ROADWAY ANALYSIS

A capacity analysis of the study roadways was conducted using Table 4 in the State of Florida Department of Transportation *Quality/Level of Service Handbook* dated June 2020 (see Appendix). Capacities for roadway segments within the scope of the study are presented in Tables 5a and 5b. The City of Hanford has a minimum level of service standard of LOS C for roadways. The analysis was performed for the following AM and PM traffic scenarios:

- Existing (2023)
- Existing (2023) + Project
- Future (2043)
- Future (2043) + Project

Table 5a
PM Roadway Capacity

Roadway Segment	2023 Two-Way LOS		2023+Project Two-Way LOS		2043 Two-Way LOS		2043+Project Two-Way LOS	
	VOL	LOS	VOL	LOS	VOL	LOS	VOL	LOS
Fargo Ave: Centennial Dr - 12th Ave	490	C	490	C	717	C	717	C
Grangeville Blvd: 13th St - Centennial Dr	812	C	946	C	1070	C	1204	C
Grangeville Blvd: Centennial Dr - 12th Ave	966	C	1160	C	1139	C	1333	C
Grangeville Blvd: 12th Ave - 11th Ave	1247	C	1327	C	1519	C	1599	C
Lacey Blvd: Centennial Dr - 12th Ave	1409	C	1444	C	1828	C	1863	C
Lacey Blvd: 12th Ave - 11th Ave	1428	C	1466	C	1666	C	1704	C
12th Ave: Fargo Ave - Grangeville Blvd	1188	C	1238	C	1497	C	1547	C
12th Ave: Grangeville Blvd - Lacey Blvd	1573	C	1628	C	1995	C	2050	C
11th Ave: Grangeville Blvd - Lacey Blvd	1733	C	1762	C	2180	C	2209	C

Table 5b
AM Roadway Capacity

Roadway Segment	2023 Two-Way LOS		2023+Project Two-Way LOS		2043 Two-Way LOS		2043+Project Two-Way LOS	
	VOL	LOS	VOL	LOS	VOL	LOS	VOL	LOS
Fargo Ave: Centennial Dr - 12th Ave	638	C	638	C	1122	C	1122	C
Grangeville Blvd: 13th St - Centennial Dr	735	C	871	C	972	C	1108	C
Grangeville Blvd: Centennial Dr - 12th Ave	792	C	991	C	939	C	1138	C
Grangeville Blvd: 12th Ave - 11th Ave	991	C	1073	C	1205	C	1287	C
Lacey Blvd: Centennial Dr - 12th Ave	587	C	623	C	814	C	850	C
Lacey Blvd: 12th Ave - 11th Ave	929	C	968	C	1125	C	1164	C
12th Ave: Fargo Ave - Grangeville Blvd	993	C	1044	C	1016	C	1067	C
12th Ave: Grangeville Blvd - Lacey Blvd	1188	C	1244	C	1244	C	1300	C
11th Ave: Grangeville Blvd - Lacey Blvd	1195	C	1224	C	1496	C	1525	C

VMT ANALYSIS

An evaluation of vehicle miles traveled (VMT) for project traffic was conducted in accordance with California Environmental Quality Act (CEQA) requirements. The City of Hanford has adopted the *VMT Thresholds and Implementation Guidelines*, dated October 2022, which contains recommendations regarding VMT assessment, significance thresholds, and mitigation measures. Due to being a multi-use project, the two uses were analyzed individually as follows:

Multi-Family

The guidelines provide "screening thresholds" for identifying whether a land use project should be expected to result in a less than significant transportation impact under CEQA. Projects meeting one or more of these criteria would not be required to undergo a detailed VMT analysis. One of the screening thresholds included in the guidelines pertains to average daily traffic. Projects consistent with the City's General Plan can be successfully screened out if they generate fewer than 1,000 average daily trips. Projects not consistent with the City's General Plan can be screened out if they generate fewer than 500 average daily trips. The project will require a general plan amendment; therefore, the screening threshold is 500 daily trips. As shown in Table 1, the proposed residential (multi-family) portion of the project is expected to generate 486 average daily trips. With the anticipated daily traffic being less than 500, the multi-family portion of the project will screen out of further VMT analysis and is presumed to have a less-than-significant traffic impact.

Retail

The guidelines contain a screening threshold which pertains to locally-serving retail. Retail is considered "locally-serving" if it totals a combined square footage of less than 55,000 square feet. The total square footage of the project will be less than 55,000 square feet, therefore the retail portion of the project will screen out of further VMT analysis and is presumed to have a less-than-significant traffic impact

SUMMARY

The purpose of this study is to evaluate the potential traffic impacts of multi-use development located on the northwest corner of Grangeville Boulevard & Centennial Drive in the City of Hanford

The scope of the study includes four intersections and the adjoining roadway segments. Traffic impact analyses include intersection level of service (LOS), roadway capacity and vehicle miles traveled (VMT). Traffic signal warrants were also analyzed. Analysis results are summarized below.

Intersection Level of Service

All intersections operate at an acceptable level of service and are anticipated to do so with the addition of project traffic through the year 2043.

Roadway Capacity

The roadway segments currently operate at an acceptable level of service in 2023 and are anticipated to continue to do so through 2043 prior to and with the addition of project traffic.

VMT

The project screens out of VMT analysis and therefore is presumed to have a less-than-significant VMT impact.

REFERENCES

1. *California Manual on Uniform Traffic Control Devices for Streets and Highways*, 2014 Edition, California Department of Transportation (Caltrans)
2. *Trip Generation Manual*, 11th Edition, Institute of Transportation Engineers (ITE), September 2021
3. *VMT Thresholds and Implementation Guidelines,* the City of Hanford, dated November 2022

APPENDIX

HANFORD MULTI-USE TRIP GENERATION

11/27/2023

General Information			Daily Trips		AM Peak Hour Trips			PM Peak Hour Trips		
ITE Code	Development Type	Variable	ADT RATE	ADT	Rate	In % Split/ Trips	Out % Split/ Trips	Rate	In % Split/ Trips	Out % Split/ Trips
220	Multifamily Housing (Low Rise)	64 Dwelling Units	eq	486	eq	24% 10	76% 33	eq	63% 30	37% 18
934	Fast-Food Restaurant with Drive-Through	3.5 1000 sq ft GFA	467.48	1,636	44.61	51% 80	49% 76	33.03	52% 60	48% 56
945	Gasoline/Service Station with Convenience Market	12 Vehicle Fueling Positions	eq	2,750	16.06	50% 96	50% 97	18.42	50% 111	50% 110
sub-total				4,872		186	206		201	184
Adjustments										
Capture		5%		244		9	10		10	9
Pass-by		15%		731		28	31		30	28
Total				3,897		149	165		161	147

PM	Direction	%	In	Out
	North	25%	40	37
	East	40%	64	59
	South	30%	48	44
	West	5%	8	7
	Total:	100%	161	147

Intersection 1
Centennial Dr & Fargo Ave

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	117	22	85	92	38	159
Future Vol, veh/h	117	22	85	92	38	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	24	92	100	41	173

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	127	0	412	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	285	-
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	-	-	1459	-	596	923
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1459	-	558	923
Mov Cap-2 Maneuver	-	-	-	-	558	-
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	715	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	820	-	-	1459	-
HCM Lane V/C Ratio	0.261	-	-	0.063	-
HCM Control Delay (s)	10.9	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0.2	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	117	22	85	92	38	159
Future Vol, veh/h	117	22	85	92	38	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	24	92	100	41	173

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	127	0	412	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	285	-
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	-	-	1459	-	596	923
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1459	-	558	923
Mov Cap-2 Maneuver	-	-	-	-	558	-
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	715	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	820	-	-	1459	-
HCM Lane V/C Ratio	0.261	-	-	0.063	-
HCM Control Delay (s)	10.9	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0.2	-

Intersection	
Int Delay, s/veh	7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	191	36	168	182	56	236
Future Vol, veh/h	191	36	168	182	56	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	208	39	183	198	61	257

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	208	0	771	208
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	563	-
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	-	-	1363	-	368	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1363	-	319	832
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	493	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.9	16.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	636	-	-	1363	-
HCM Lane V/C Ratio	0.499	-	-	0.134	-
HCM Control Delay (s)	16.2	-	-	8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.8	-	-	0.5	-

Intersection	
Int Delay, s/veh	7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	191	36	168	182	56	236
Future Vol, veh/h	191	36	168	182	56	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	208	39	183	198	61	257

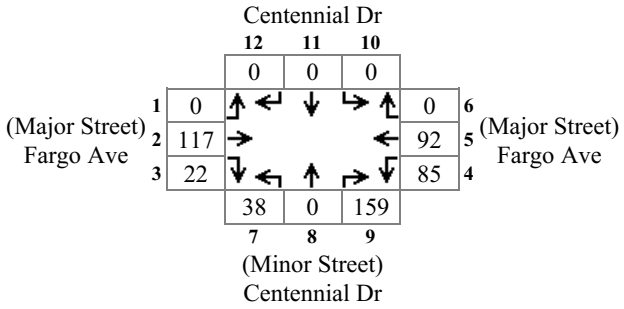
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	208	0	771	208
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	563	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1363	-	368	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1363	-	319	832
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	493	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.9	16.2
HCM LOS			C

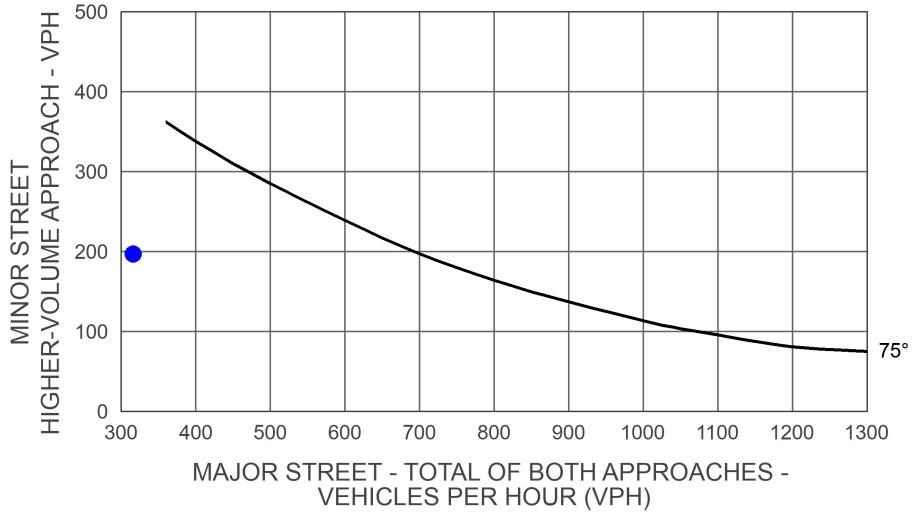
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	636	-	-	1363	-
HCM Lane V/C Ratio	0.499	-	-	0.134	-
HCM Control Delay (s)	16.2	-	-	8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.8	-	-	0.5	-

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 1

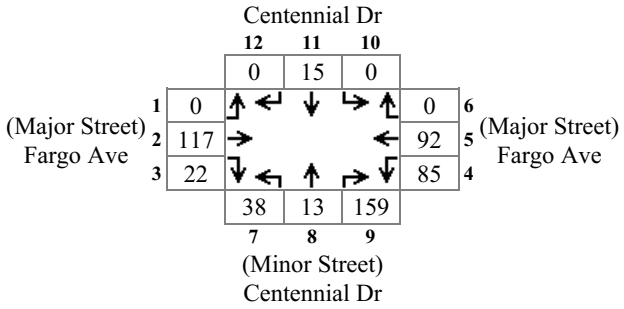


Major Total: 316
Minor High Volume: 197

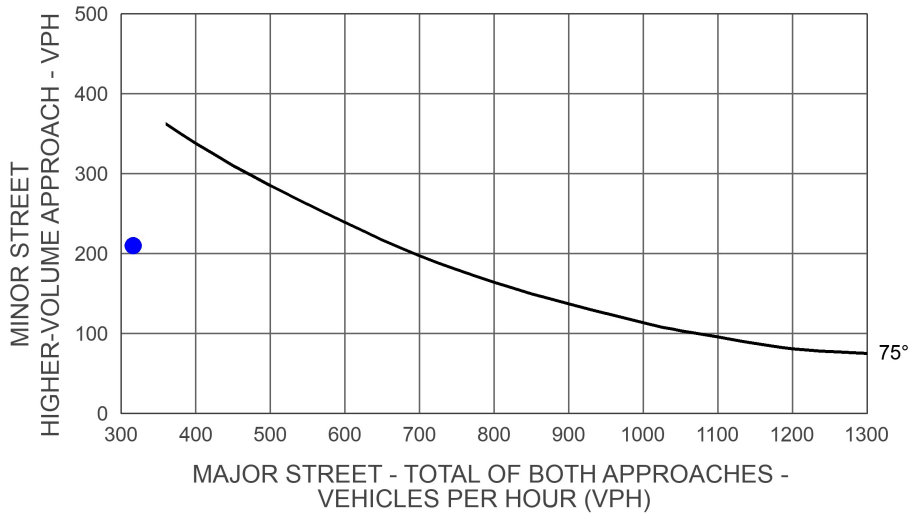


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 1

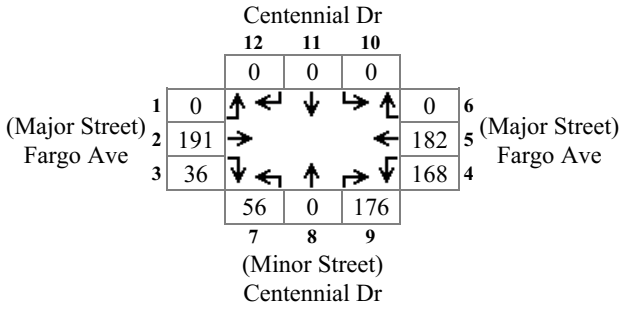


Major Total: 316
Minor High Volume: 210

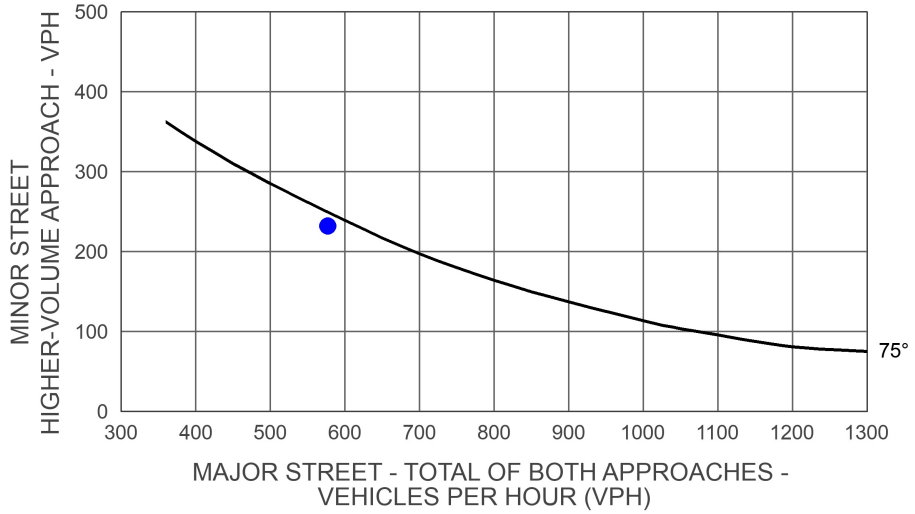


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 1

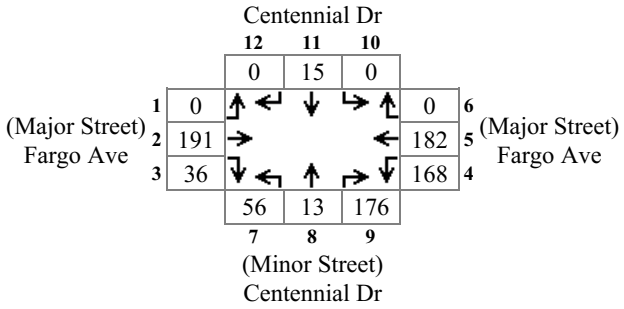


Major Total: 577
Minor High Volume: 232

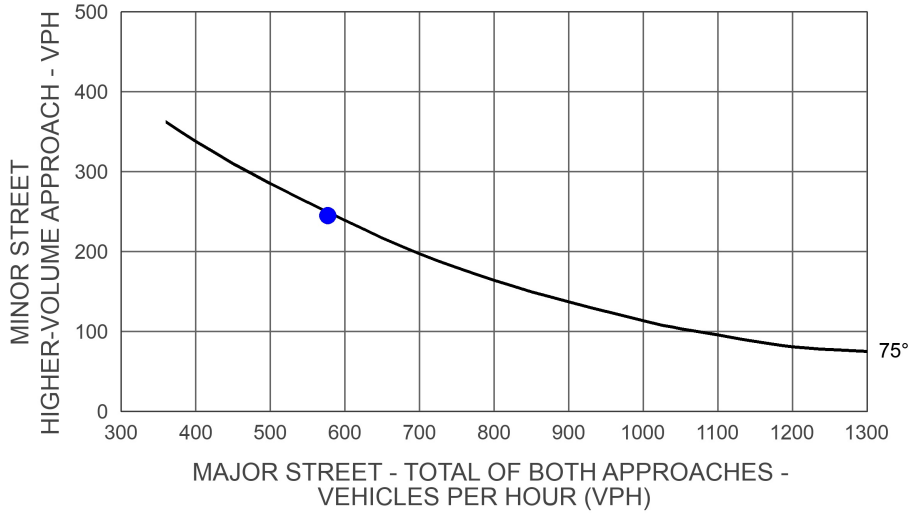


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 1



Major Total: 577
Minor High Volume: 245



Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	70	10	108	271	52	175
Future Vol, veh/h	70	10	108	271	52	175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	11	117	295	57	190

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	76	0	605	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	529	-
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	-	-	1523	-	461	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1523	-	426	985
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	546	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	757	-	-	1523	-
HCM Lane V/C Ratio	0.326	-	-	0.077	-
HCM Control Delay (s)	12	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	70	10	108	271	52	175
Future Vol, veh/h	70	10	108	271	52	175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	11	117	295	57	190

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	76	0	605	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	529	-
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	-	-	1523	-	461	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1523	-	426	985
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	546	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	757	-	-	1523	-
HCM Lane V/C Ratio	0.326	-	-	0.077	-
HCM Control Delay (s)	12	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	114	16	213	535	57	260
Future Vol, veh/h	114	16	213	535	57	260
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	17	232	582	62	283

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	124	0	1169	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	1045	-
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	-	-	1463	-	213	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	339	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1463	-	179	927
Mov Cap-2 Maneuver	-	-	-	-	179	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	285	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	23.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	529	-	-	1463	-
HCM Lane V/C Ratio	0.651	-	-	0.158	-
HCM Control Delay (s)	23.6	-	-	7.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	4.7	-	-	0.6	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	114	16	213	535	57	260
Future Vol, veh/h	114	16	213	535	57	260
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	17	232	582	62	283

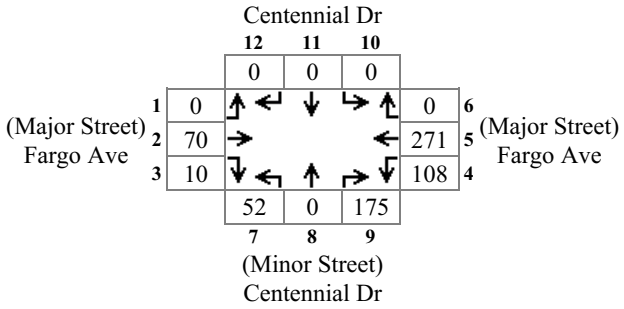
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	124	0	1169	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	1045	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1463	-	213	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	339	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1463	-	179	927
Mov Cap-2 Maneuver	-	-	-	-	179	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	285	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	23.6
HCM LOS			C

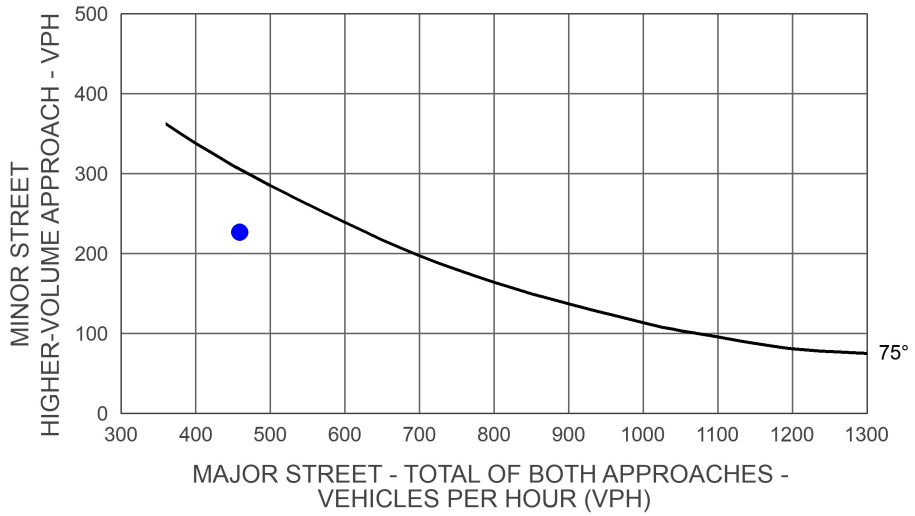
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	529	-	-	1463	-
HCM Lane V/C Ratio	0.651	-	-	0.158	-
HCM Control Delay (s)	23.6	-	-	7.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	4.7	-	-	0.6	-

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 1

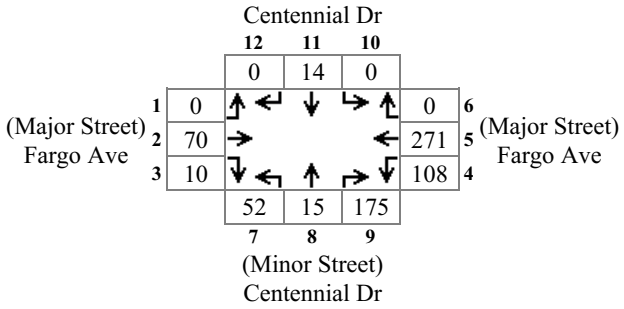


Major Total: 459
Minor High Volume: 227

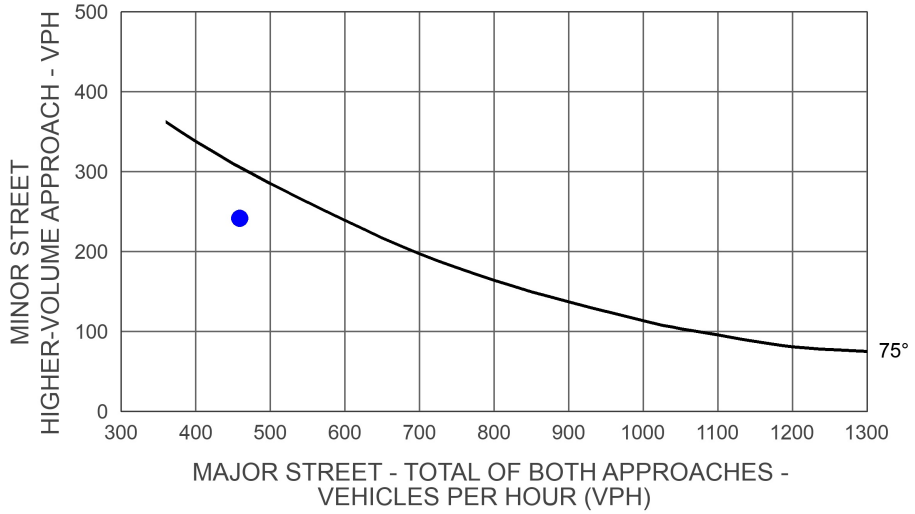


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 1

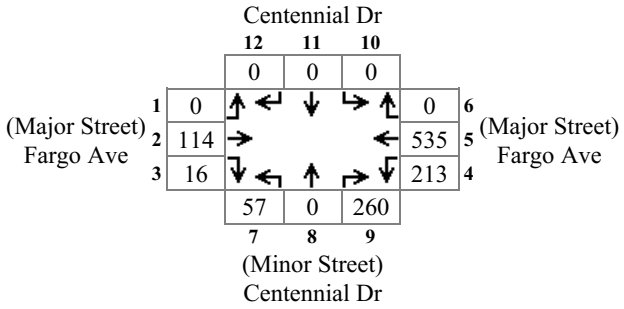


Major Total: 459
Minor High Volume: 242

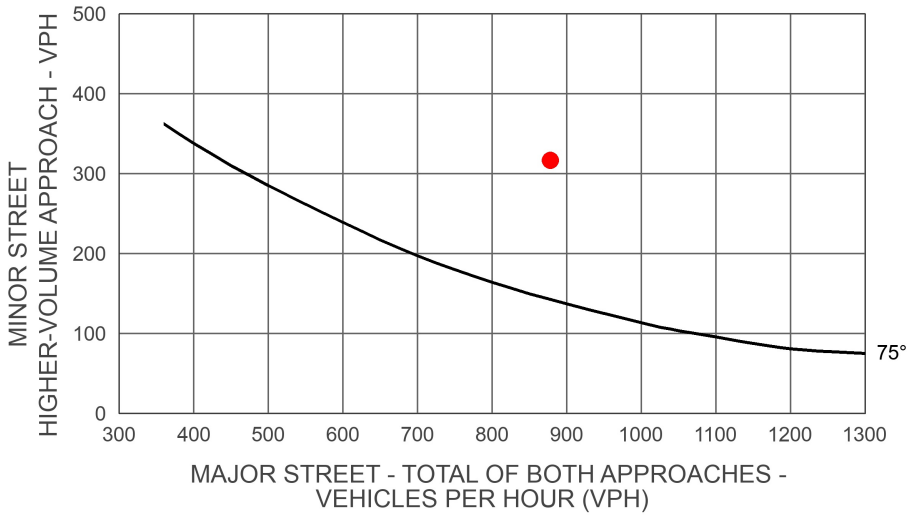


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 1

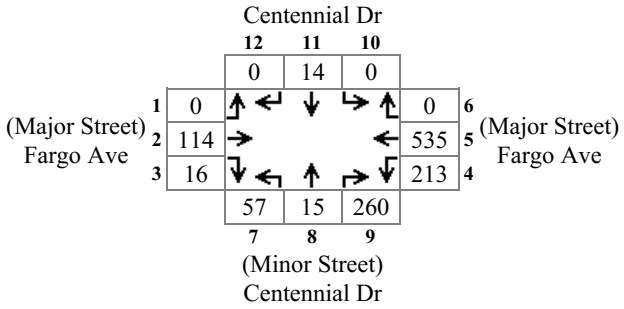


Major Total: 878
Minor High Volume: 317

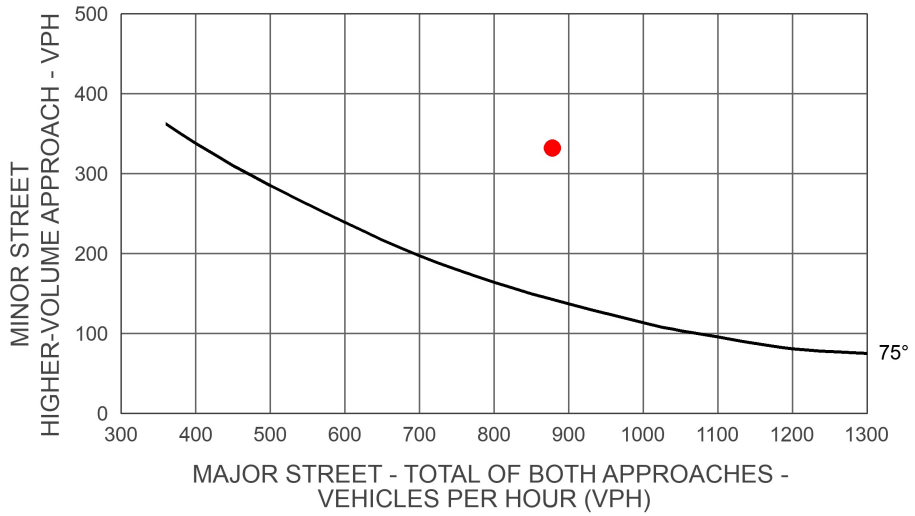


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 1



Major Total: 878
Minor High Volume: 332



Intersection 2
12th Ave & Fargo Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	247	9	214	172	14	8	246	303	26	213	25
Future Volume (veh/h)	29	247	9	214	172	14	8	246	303	26	213	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	32	268	10	233	187	15	9	267	329	28	232	27
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	412	316	312	682	519	251	573	435	80	378	290
Arrive On Green	0.05	0.22	0.22	0.19	0.37	0.37	0.15	0.31	0.31	0.05	0.20	0.20
Sat Flow, veh/h	1634	1863	1428	1634	1863	1416	1634	1863	1414	1634	1863	1427
Grp Volume(v), veh/h	32	268	10	233	187	15	9	267	329	28	232	27
Grp Sat Flow(s),veh/h/ln	1634	1863	1428	1634	1863	1416	1634	1863	1414	1634	1863	1427
Q Serve(g_s), s	1.3	9.0	0.2	9.3	4.9	0.5	0.3	8.0	14.5	1.1	7.8	0.8
Cycle Q Clear(g_c), s	1.3	9.0	0.2	9.3	4.9	0.5	0.3	8.0	14.5	1.1	7.8	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	74	412	316	312	682	519	251	573	435	80	378	290
V/C Ratio(X)	0.43	0.65	0.03	0.75	0.27	0.03	0.04	0.47	0.76	0.35	0.61	0.09
Avail Cap(c_a), veh/h	166	836	641	734	1484	1128	251	944	717	166	971	744
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	32.1	24.5	7.7	26.4	15.4	14.0	24.9	19.3	21.6	31.8	25.0	12.1
Incr Delay (d2), s/veh	3.9	1.7	0.0	3.6	0.2	0.0	0.1	0.6	2.7	2.6	1.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.8	0.1	4.5	2.5	0.2	0.1	4.2	6.0	0.6	4.2	0.3
LnGrp Delay(d),s/veh	36.0	26.2	7.8	29.9	15.6	14.0	24.9	19.9	24.3	34.4	26.7	12.2
LnGrp LOS	D	C	A	C	B	B	C	B	C	C	C	B
Approach Vol, veh/h		310			435			605			287	
Approach Delay, s/veh		26.6			23.2			22.3			26.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	25.3	17.2	19.3	14.6	18.0	7.1	29.3
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	5.3	33.3	29.7	29.7	4.3	34.3	5.7	53.7
Max Q Clear Time (g_c+I1), s	3.1	16.5	11.3	11.0	2.3	9.8	3.3	6.9
Green Ext Time (p_c), s	0.0	2.2	0.7	1.5	0.6	0.8	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	247	9	234	172	14	8	251	322	26	218	25
Future Volume (veh/h)	29	247	9	234	172	14	8	251	322	26	218	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	32	268	10	254	187	15	9	273	350	28	237	27
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	402	308	328	695	529	52	599	455	76	626	481
Arrive On Green	0.04	0.22	0.22	0.20	0.37	0.37	0.03	0.32	0.32	0.05	0.34	0.34
Sat Flow, veh/h	1634	1863	1428	1634	1863	1417	1634	1863	1415	1634	1863	1433
Grp Volume(v), veh/h	32	268	10	254	187	15	9	273	350	28	237	27
Grp Sat Flow(s),veh/h/ln	1634	1863	1428	1634	1863	1417	1634	1863	1415	1634	1863	1433
Q Serve(g_s), s	1.4	9.8	0.4	10.9	5.2	0.5	0.4	8.7	16.6	1.2	7.2	0.9
Cycle Q Clear(g_c), s	1.4	9.8	0.4	10.9	5.2	0.5	0.4	8.7	16.6	1.2	7.2	0.9
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	71	402	308	328	695	529	52	599	455	76	626	481
V/C Ratio(X)	0.45	0.67	0.03	0.77	0.27	0.03	0.17	0.46	0.77	0.37	0.38	0.06
Avail Cap(c_a), veh/h	154	827	634	682	1429	1086	132	827	628	154	852	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	26.7	23.0	28.1	16.2	14.7	35.0	20.1	22.7	34.4	18.8	16.7
Incr Delay (d2), s/veh	4.4	1.9	0.0	3.9	0.2	0.0	1.5	0.5	3.9	3.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.2	0.2	5.3	2.7	0.2	0.2	4.6	7.0	0.6	3.8	0.4
LnGrp Delay(d),s/veh	39.1	28.6	23.0	32.0	16.4	14.8	36.6	20.6	26.6	37.3	19.2	16.8
LnGrp LOS	D	C	C	C	B	B	D	C	C	D	B	B
Approach Vol, veh/h		310			456			632			292	
Approach Delay, s/veh		29.5			25.1			24.2			20.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	27.9	18.9	20.1	6.4	29.0	7.2	31.8
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	5.3	31.3	29.7	31.7	4.3	32.3	5.7	55.7
Max Q Clear Time (g_c+I1), s	3.2	18.6	12.9	11.8	2.4	9.2	3.4	7.2
Green Ext Time (p_c), s	0.0	2.9	0.8	1.6	0.0	3.5	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	348	18	275	221	18	9	272	335	33	268	31
Future Volume (veh/h)	57	348	18	275	221	18	9	272	335	33	268	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	62	378	20	299	240	20	10	296	364	36	291	34
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	483	371	386	806	614	52	470	356	80	503	386
Arrive On Green	0.06	0.26	0.26	0.24	0.43	0.43	0.03	0.25	0.25	0.05	0.27	0.27
Sat Flow, veh/h	1634	1863	1430	1634	1863	1418	1634	1863	1411	1634	1863	1431
Grp Volume(v), veh/h	62	378	20	299	240	20	10	296	364	36	291	34
Grp Sat Flow(s),veh/h/ln	1634	1863	1430	1634	1863	1418	1634	1863	1411	1634	1863	1431
Q Serve(g_s), s	2.9	14.9	0.6	13.5	6.6	0.6	0.5	11.1	9.7	1.7	10.7	1.4
Cycle Q Clear(g_c), s	2.9	14.9	0.6	13.5	6.6	0.6	0.5	11.1	9.7	1.7	10.7	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	483	371	386	806	614	52	470	356	80	503	386
V/C Ratio(X)	0.60	0.78	0.05	0.77	0.30	0.03	0.19	0.63	1.02	0.45	0.58	0.09
Avail Cap(c_a), veh/h	226	850	653	746	1443	1099	118	850	644	124	858	659
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	36.0	27.1	13.2	28.1	14.6	12.9	37.2	26.2	7.1	36.4	24.9	21.5
Incr Delay (d2), s/veh	5.5	2.8	0.1	3.3	0.2	0.0	1.8	1.4	33.0	3.9	1.1	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	1.5	8.0	0.3	6.4	3.4	0.3	0.2	5.9	9.0	0.8	5.6	0.6
LnGrp Delay(d),s/veh	41.5	30.0	13.3	31.5	14.8	12.9	39.0	27.6	40.1	40.3	26.0	21.6
LnGrp LOS	D	C	B	C	B	B	D	C	F	D	C	C
Approach Vol, veh/h		460			559			670			361	
Approach Delay, s/veh		30.8			23.6			34.6			27.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	23.9	22.6	24.4	6.5	25.3	9.0	38.1
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	4.3	34.3	34.7	34.7	4.0	34.6	9.6	59.8
Max Q Clear Time (g_c+I1), s	3.7	13.1	15.5	16.9	2.5	12.7	4.9	8.6
Green Ext Time (p_c), s	0.0	3.8	1.9	1.3	0.0	3.9	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	29.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	348	18	295	221	18	9	277	354	33	273	31
Future Volume (veh/h)	57	348	18	295	221	18	9	277	354	33	273	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	62	378	20	321	240	20	10	301	385	36	297	34
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	478	367	405	823	627	50	469	356	79	502	385
Arrive On Green	0.06	0.26	0.26	0.25	0.44	0.44	0.03	0.25	0.25	0.05	0.27	0.27
Sat Flow, veh/h	1634	1863	1430	1634	1863	1419	1634	1863	1411	1634	1863	1430
Grp Volume(v), veh/h	62	378	20	321	240	20	10	301	385	36	297	34
Grp Sat Flow(s),veh/h/ln	1634	1863	1430	1634	1863	1419	1634	1863	1411	1634	1863	1430
Q Serve(g_s), s	3.0	15.5	0.7	15.1	6.8	0.7	0.5	11.8	10.0	1.8	11.3	1.5
Cycle Q Clear(g_c), s	3.0	15.5	0.7	15.1	6.8	0.7	0.5	11.8	10.0	1.8	11.3	1.5
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	102	478	367	405	823	627	50	469	356	79	502	385
V/C Ratio(X)	0.61	0.79	0.05	0.79	0.29	0.03	0.20	0.64	1.08	0.46	0.59	0.09
Avail Cap(c_a), veh/h	218	819	629	718	1390	1059	114	819	620	120	826	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	28.4	14.1	28.8	14.6	12.9	38.7	27.3	7.1	37.9	26.0	22.4
Incr Delay (d2), s/veh	5.6	3.0	0.1	3.5	0.2	0.0	1.9	1.5	55.4	4.1	1.1	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	1.5	8.4	0.3	7.2	3.5	0.3	0.2	6.2	9.3	0.9	6.0	0.6
LnGrp Delay(d),s/veh	43.0	31.3	14.2	32.4	14.8	13.0	40.6	28.8	62.5	42.0	27.1	22.5
LnGrp LOS	D	C	B	C	B	B	D	C	F	D	C	C
Approach Vol, veh/h		460			581			696			367	
Approach Delay, s/veh		32.2			24.5			47.6			28.1	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	24.6	24.3	25.0	6.5	26.1	9.1	40.2
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	4.3	34.3	34.7	34.7	4.0	34.6	9.6	59.8
Max Q Clear Time (g_c+I1), s	3.8	13.8	17.1	17.5	2.5	13.3	5.0	8.8
Green Ext Time (p_c), s	0.0	4.0	1.9	1.3	0.0	4.0	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	34.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	143	18	158	334	31	18	194	89	19	229	31
Future Volume (veh/h)	94	143	18	158	334	31	18	194	89	19	229	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	102	155	20	172	363	34	20	211	97	21	249	34
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	334	256	348	541	410	87	438	332	88	440	337
Arrive On Green	0.10	0.18	0.18	0.21	0.29	0.29	0.05	0.24	0.24	0.05	0.24	0.24
Sat Flow, veh/h	1634	1863	1425	1634	1863	1413	1634	1863	1409	1634	1863	1429
Grp Volume(v), veh/h	102	155	20	172	363	34	20	211	97	21	249	34
Grp Sat Flow(s),veh/h/ln	1634	1863	1425	1634	1863	1413	1634	1863	1409	1634	1863	1429
Q Serve(g_s), s	3.0	3.7	0.6	4.7	8.6	0.9	0.6	4.9	1.2	0.6	5.9	0.5
Cycle Q Clear(g_c), s	3.0	3.7	0.6	4.7	8.6	0.9	0.6	4.9	1.2	0.6	5.9	0.5
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	166	334	256	348	541	410	87	438	332	88	440	337
V/C Ratio(X)	0.61	0.46	0.08	0.49	0.67	0.08	0.23	0.48	0.29	0.24	0.57	0.10
Avail Cap(c_a), veh/h	215	1064	815	348	1172	889	185	1116	845	185	1116	856
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	21.6	18.4	17.2	17.4	15.7	13.0	22.8	16.6	2.8	22.8	16.9	4.9
Incr Delay (d2), s/veh	3.7	1.0	0.1	1.1	1.5	0.1	1.3	0.8	0.5	1.4	1.1	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	1.5	2.0	0.2	2.2	4.7	0.3	0.3	2.6	1.0	0.3	3.2	0.4
LnGrp Delay(d),s/veh	25.3	19.5	17.3	18.5	17.2	13.0	24.1	17.4	3.3	24.1	18.1	5.0
LnGrp LOS	C	B	B	B	B	B	C	B	A	C	B	A
Approach Vol, veh/h		277			569			328			304	
Approach Delay, s/veh		21.4			17.3			13.6			17.0	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	15.8	14.7	13.0	6.7	15.9	9.1	18.6
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	4.0	28.4	8.2	27.4	4.0	28.4	5.3	30.3
Max Q Clear Time (g_c+I1), s	2.6	6.9	6.7	5.7	2.6	7.9	5.0	10.6
Green Ext Time (p_c), s	0.0	1.1	0.4	0.5	0.2	0.9	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	143	18	177	334	31	18	200	110	19	234	31
Future Volume (veh/h)	94	143	18	177	334	31	18	200	110	19	234	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	102	155	20	192	363	34	20	217	120	21	254	34
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	334	255	345	538	408	87	421	318	109	446	342
Arrive On Green	0.10	0.18	0.18	0.21	0.29	0.29	0.05	0.23	0.23	0.07	0.24	0.24
Sat Flow, veh/h	1634	1863	1425	1634	1863	1413	1634	1863	1409	1634	1863	1429
Grp Volume(v), veh/h	102	155	20	192	363	34	20	217	120	21	254	34
Grp Sat Flow(s),veh/h/ln	1634	1863	1425	1634	1863	1413	1634	1863	1409	1634	1863	1429
Q Serve(g_s), s	3.0	3.8	0.4	5.3	8.7	0.5	0.6	5.2	3.6	0.6	6.1	0.9
Cycle Q Clear(g_c), s	3.0	3.8	0.4	5.3	8.7	0.5	0.6	5.2	3.6	0.6	6.1	0.9
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	166	334	255	345	538	408	87	421	318	109	446	342
V/C Ratio(X)	0.62	0.46	0.08	0.56	0.67	0.08	0.23	0.52	0.38	0.19	0.57	0.10
Avail Cap(c_a), veh/h	172	1104	845	345	1167	885	185	1159	877	185	1159	889
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	21.7	18.5	8.0	17.8	15.8	4.9	22.9	17.1	16.5	22.3	16.9	14.9
Incr Delay (d2), s/veh	6.1	1.0	0.1	2.0	1.5	0.1	1.3	1.0	0.7	0.8	1.1	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	1.6	2.0	0.2	2.6	4.7	0.3	0.3	2.8	1.5	0.3	3.2	0.4
LnGrp Delay(d),s/veh	27.8	19.6	8.1	19.8	17.3	5.0	24.2	18.1	17.3	23.1	18.0	15.1
LnGrp LOS	C	B	A	B	B	A	C	B	B	C	B	B
Approach Vol, veh/h		277			589			357			309	
Approach Delay, s/veh		21.8			17.4			18.2			18.1	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	15.4	14.7	13.0	6.7	16.1	9.1	18.6
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	4.0	29.7	5.7	28.6	4.0	29.7	4.0	30.3
Max Q Clear Time (g_c+I1), s	2.6	7.2	7.3	5.8	2.6	8.1	5.0	10.7
Green Ext Time (p_c), s	0.2	1.2	0.0	0.5	0.0	1.0	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	202	36	203	430	40	20	214	98	24	288	39
Future Volume (veh/h)	186	202	36	203	430	40	20	214	98	24	288	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	202	220	39	221	467	43	22	233	107	26	313	42
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	499	383	292	603	458	78	399	301	138	467	359
Arrive On Green	0.12	0.27	0.27	0.18	0.32	0.32	0.05	0.21	0.21	0.08	0.25	0.25
Sat Flow, veh/h	1634	1863	1430	1634	1863	1415	1634	1863	1407	1634	1863	1430
Grp Volume(v), veh/h	202	220	39	221	467	43	22	233	107	26	313	42
Grp Sat Flow(s),veh/h/ln	1634	1863	1430	1634	1863	1415	1634	1863	1407	1634	1863	1430
Q Serve(g_s), s	7.7	6.1	1.3	8.1	14.2	1.3	0.8	7.0	2.2	0.9	9.5	0.8
Cycle Q Clear(g_c), s	7.7	6.1	1.3	8.1	14.2	1.3	0.8	7.0	2.2	0.9	9.5	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	499	383	292	603	458	78	399	301	138	467	359
V/C Ratio(X)	1.01	0.44	0.10	0.76	0.77	0.09	0.28	0.58	0.36	0.19	0.67	0.12
Avail Cap(c_a), veh/h	201	909	698	315	1040	790	149	909	687	149	909	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	19.0	17.3	24.4	19.1	14.8	28.8	22.1	6.1	26.7	21.1	6.4
Incr Delay (d2), s/veh	65.1	0.6	0.1	9.4	2.2	0.1	2.0	1.4	0.7	0.7	1.7	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	7.0	3.2	0.5	4.4	7.6	0.5	0.4	3.8	1.5	0.4	5.1	0.6
LnGrp Delay(d),s/veh	92.6	19.7	17.4	33.9	21.3	14.9	30.8	23.5	6.8	27.4	22.8	6.5
LnGrp LOS	F	B	B	C	C	B	C	C	A	C	C	A
Approach Vol, veh/h		461			731			362			381	
Approach Delay, s/veh		51.4			24.7			19.0			21.3	
Approach LOS		D			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	17.4	15.2	20.8	7.0	19.7	11.7	24.3
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	4.0	28.9	10.8	29.3	4.0	28.9	6.4	33.7
Max Q Clear Time (g_c+I1), s	2.9	9.0	10.1	8.1	2.8	11.5	9.7	16.2
Green Ext Time (p_c), s	0.2	1.1	0.1	1.5	0.0	1.2	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	29.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	202	36	222	430	40	20	220	119	24	293	39
Future Volume (veh/h)	186	202	36	222	430	40	20	220	119	24	293	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	202	220	39	241	467	43	22	239	129	26	318	42
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	473	363	313	602	457	77	406	307	135	471	362
Arrive On Green	0.12	0.25	0.25	0.19	0.32	0.32	0.05	0.22	0.22	0.08	0.25	0.25
Sat Flow, veh/h	1634	1863	1430	1634	1863	1415	1634	1863	1408	1634	1863	1430
Grp Volume(v), veh/h	202	220	39	241	467	43	22	239	129	26	318	42
Grp Sat Flow(s),veh/h/ln	1634	1863	1430	1634	1863	1415	1634	1863	1408	1634	1863	1430
Q Serve(g_s), s	7.7	6.3	1.3	8.8	14.3	1.3	0.8	7.2	2.6	0.9	9.7	0.8
Cycle Q Clear(g_c), s	7.7	6.3	1.3	8.8	14.3	1.3	0.8	7.2	2.6	0.9	9.7	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	473	363	313	602	457	77	406	307	135	471	362
V/C Ratio(X)	1.01	0.46	0.11	0.77	0.78	0.09	0.28	0.59	0.42	0.19	0.67	0.12
Avail Cap(c_a), veh/h	200	870	668	345	1036	787	148	906	684	148	906	695
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	27.6	19.9	18.0	24.1	19.2	14.9	29.0	22.1	5.8	26.9	21.2	6.4
Incr Delay (d2), s/veh	66.4	0.7	0.1	9.3	2.2	0.1	2.0	1.4	0.9	0.7	1.7	0.1
Initial Q Delay(d3),s/veh	0.1	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	7.1	3.3	0.5	4.8	7.6	0.5	0.4	3.9	1.1	0.4	5.2	0.3
LnGrp Delay(d),s/veh	94.1	20.6	18.1	33.5	21.4	15.0	30.9	23.5	6.7	27.6	22.9	6.5
LnGrp LOS	F	C	B	C	C	B	C	C	A	C	C	A
Approach Vol, veh/h		461			751			390			386	
Approach Delay, s/veh		52.6			24.9			18.3			21.4	
Approach LOS		D			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	17.7	16.0	20.0	7.0	19.9	11.7	24.3
Change Period (Y+Rc), s	5.7	5.7	5.3	5.3	5.7	5.7	5.3	5.3
Max Green Setting (Gmax), s	4.0	28.9	12.0	28.1	4.0	28.9	6.4	33.7
Max Q Clear Time (g_c+I1), s	2.9	9.2	10.8	8.3	2.8	11.7	9.7	16.3
Green Ext Time (p_c), s	0.2	1.2	0.1	1.5	0.0	1.2	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	29.4
HCM 2010 LOS	C

Intersection 3
13th Ave & Grangeville Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	308	24	61	215	3	57	111	175	20	84	12
Future Volume (veh/h)	34	308	24	61	215	3	57	111	175	20	84	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	37	335	26	66	234	3	62	121	190	22	91	13
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1029	785	110	1070	816	146	315	237	54	210	156
Arrive On Green	0.05	0.55	0.55	0.14	1.00	1.00	0.09	0.17	0.17	0.03	0.11	0.11
Sat Flow, veh/h	1634	1863	1421	1634	1863	1421	1634	1863	1402	1634	1863	1388
Grp Volume(v), veh/h	37	335	26	66	234	3	62	121	190	22	91	13
Grp Sat Flow(s),veh/h/ln	1634	1863	1421	1634	1863	1421	1634	1863	1402	1634	1863	1388
Q Serve(g_s), s	2.0	8.8	0.4	3.4	0.0	0.0	3.2	5.2	9.1	1.2	4.1	0.6
Cycle Q Clear(g_c), s	2.0	8.8	0.4	3.4	0.0	0.0	3.2	5.2	9.1	1.2	4.1	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	75	1029	785	110	1070	816	146	315	237	54	210	156
V/C Ratio(X)	0.50	0.33	0.03	0.60	0.22	0.00	0.42	0.38	0.80	0.41	0.43	0.08
Avail Cap(c_a), veh/h	111	1029	785	118	1070	816	146	606	456	103	594	443
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	11.0	2.5	37.8	0.0	0.0	38.8	33.2	21.7	42.6	37.3	23.8
Incr Delay (d2), s/veh	5.0	0.8	0.1	6.9	0.4	0.0	1.9	0.8	6.2	4.8	1.4	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	1.0	4.7	0.2	1.7	0.1	0.0	1.5	2.7	3.9	0.6	2.2	0.2
LnGrp Delay(d),s/veh	46.9	11.8	2.5	44.7	0.4	0.0	40.7	34.0	27.9	47.5	38.7	24.0
LnGrp LOS	D	B	A	D	A	A	D	C	C	D	D	C
Approach Vol, veh/h		398			303			373			126	
Approach Delay, s/veh		14.5			10.1			32.0			38.7	
Approach LOS		B			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	19.2	10.1	53.7	12.1	14.1	8.1	55.7
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.4	28.0	4.8	30.8	5.0	27.4	4.4	31.2
Max Q Clear Time (g_c+I1), s	3.2	11.1	5.4	10.8	5.2	6.1	4.0	2.0
Green Ext Time (p_c), s	0.0	1.0	0.0	2.0	0.0	0.3	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	316	24	67	222	3	57	111	181	20	84	12
Future Volume (veh/h)	34	316	24	67	222	3	57	111	181	20	84	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	37	343	26	73	241	3	62	121	197	22	91	13
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	967	738	122	1021	779	189	363	274	54	210	156
Arrive On Green	0.05	0.52	0.52	0.02	0.18	0.18	0.12	0.20	0.20	0.03	0.11	0.11
Sat Flow, veh/h	1634	1863	1420	1634	1863	1421	1634	1863	1405	1634	1863	1388
Grp Volume(v), veh/h	37	343	26	73	241	3	62	121	197	22	91	13
Grp Sat Flow(s),veh/h/ln	1634	1863	1420	1634	1863	1421	1634	1863	1405	1634	1863	1388
Q Serve(g_s), s	2.0	9.8	0.4	4.0	10.0	0.2	3.1	5.0	11.8	1.2	4.1	0.6
Cycle Q Clear(g_c), s	2.0	9.8	0.4	4.0	10.0	0.2	3.1	5.0	11.8	1.2	4.1	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	75	967	738	122	1021	779	189	363	274	54	210	156
V/C Ratio(X)	0.50	0.35	0.04	0.60	0.24	0.00	0.33	0.33	0.72	0.40	0.43	0.08
Avail Cap(c_a), veh/h	120	967	738	125	1021	779	189	608	459	103	596	444
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	12.7	2.6	42.6	20.7	16.7	36.6	31.2	33.9	42.6	37.3	23.8
Incr Delay (d2), s/veh	5.0	1.0	0.1	6.7	0.5	0.0	1.0	0.5	3.5	4.8	1.4	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	1.0	5.2	0.2	2.0	5.3	0.1	1.5	2.6	4.8	0.6	2.2	0.2
LnGrp Delay(d),s/veh	46.9	13.8	2.7	49.3	21.2	16.7	37.6	31.7	37.4	47.4	38.7	24.0
LnGrp LOS	D	B	A	D	C	B	D	C	D	D	D	C
Approach Vol, veh/h		406			317			380			126	
Approach Delay, s/veh		16.1			27.6			35.6			38.7	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	21.6	10.7	50.7	14.4	14.1	8.1	53.3
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.4	28.1	5.2	30.3	5.0	27.5	4.9	30.6
Max Q Clear Time (g_c+I1), s	3.2	13.8	6.0	11.8	5.1	6.1	4.0	12.0
Green Ext Time (p_c), s	0.0	1.0	0.0	2.0	0.0	0.3	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	352	27	87	308	4	70	135	214	22	93	13
Future Volume (veh/h)	39	352	27	87	308	4	70	135	214	22	93	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	42	383	29	95	335	4	76	147	233	24	101	14
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	498	377	127	550	417	588	825	628	56	219	163
Arrive On Green	0.05	0.27	0.27	0.08	0.30	0.30	0.36	0.44	0.44	0.03	0.12	0.12
Sat Flow, veh/h	1634	1863	1412	1634	1863	1413	1634	1863	1419	1634	1863	1390
Grp Volume(v), veh/h	42	383	29	95	335	4	76	147	233	24	101	14
Grp Sat Flow(s),veh/h/ln	1634	1863	1412	1634	1863	1413	1634	1863	1419	1634	1863	1390
Q Serve(g_s), s	2.3	17.1	0.5	5.1	13.9	0.2	2.8	4.3	9.9	1.3	4.6	0.7
Cycle Q Clear(g_c), s	2.3	17.1	0.5	5.1	13.9	0.2	2.8	4.3	9.9	1.3	4.6	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	498	377	127	550	417	588	825	628	56	219	163
V/C Ratio(X)	0.52	0.77	0.08	0.75	0.61	0.01	0.13	0.18	0.37	0.43	0.46	0.09
Avail Cap(c_a), veh/h	125	662	502	127	664	504	588	825	628	107	600	448
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	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	30.4	2.8	40.6	27.3	22.4	19.3	15.2	16.7	42.6	37.1	23.2
Incr Delay (d2), s/veh	5.0	3.9	0.1	19.7	1.0	0.0	0.1	0.5	1.7	5.0	6.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	9.3	0.2	3.0	7.3	0.1	1.3	2.3	4.1	0.7	2.8	0.3
LnGrp Delay(d),s/veh	46.7	34.4	2.9	60.4	28.3	22.4	19.4	15.6	18.4	47.6	43.9	24.3
LnGrp LOS	D	C	A	E	C	C	B	B	B	D	D	C
Approach Vol, veh/h		454			434			456			139	
Approach Delay, s/veh		33.5			35.3			17.7			42.6	
Approach LOS		C			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	43.9	11.0	28.0	36.4	14.6	8.5	30.6
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.6	27.8	5.3	30.3	4.7	27.7	5.2	30.4
Max Q Clear Time (g_c+I1), s	3.3	11.9	7.1	19.1	4.8	6.6	4.3	15.9
Green Ext Time (p_c), s	0.0	1.5	0.0	2.2	0.0	0.3	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	30.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	360	27	93	315	4	70	135	220	22	93	13
Future Volume (veh/h)	39	360	27	93	315	4	70	135	220	22	93	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	42	391	29	101	342	4	76	147	239	24	101	14
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	505	382	127	557	423	582	818	623	56	219	163
Arrive On Green	0.05	0.27	0.27	0.08	0.30	0.30	0.36	0.44	0.44	0.03	0.12	0.12
Sat Flow, veh/h	1634	1863	1412	1634	1863	1414	1634	1863	1419	1634	1863	1390
Grp Volume(v), veh/h	42	391	29	101	342	4	76	147	239	24	101	14
Grp Sat Flow(s),veh/h/ln	1634	1863	1412	1634	1863	1414	1634	1863	1419	1634	1863	1390
Q Serve(g_s), s	2.3	17.4	0.5	5.5	14.2	0.2	2.8	4.3	10.2	1.3	4.6	0.7
Cycle Q Clear(g_c), s	2.3	17.4	0.5	5.5	14.2	0.2	2.8	4.3	10.2	1.3	4.6	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	505	382	127	557	423	582	818	623	56	219	163
V/C Ratio(X)	0.52	0.77	0.08	0.79	0.61	0.01	0.13	0.18	0.38	0.43	0.46	0.09
Avail Cap(c_a), veh/h	125	662	502	127	664	504	582	818	623	107	600	448
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	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	30.3	2.8	40.8	27.1	22.2	19.6	15.4	17.0	42.6	37.1	23.2
Incr Delay (d2), s/veh	5.0	4.2	0.1	25.2	1.1	0.0	0.1	0.5	1.8	5.0	6.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	9.5	0.2	3.4	7.5	0.1	1.3	2.3	4.3	0.7	2.8	0.3
LnGrp Delay(d),s/veh	46.7	34.5	2.9	66.0	28.1	22.2	19.7	15.9	18.8	47.6	43.9	24.3
LnGrp LOS	D	C	A	E	C	C	B	B	B	D	D	C
Approach Vol, veh/h		462			447			462			139	
Approach Delay, s/veh		33.6			36.6			18.0			42.6	
Approach LOS		C			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	43.5	11.0	28.4	36.1	14.6	8.5	30.9
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.6	27.8	5.3	30.3	4.7	27.7	5.2	30.4
Max Q Clear Time (g_c+I1), s	3.3	12.2	7.5	19.4	4.8	6.6	4.3	16.2
Green Ext Time (p_c), s	0.0	1.5	0.0	2.2	0.0	0.3	0.0	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	30.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	205	20	146	281	11	37	51	81	11	171	56
Future Volume (veh/h)	20	205	20	146	281	11	37	51	81	11	171	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	22	223	22	159	305	12	40	55	88	12	186	61
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	436	329	248	509	386	103	273	204	199	382	289
Arrive On Green	0.11	0.23	0.23	0.15	0.27	0.27	0.06	0.15	0.15	0.12	0.21	0.21
Sat Flow, veh/h	1634	1863	1409	1634	1863	1412	1634	1863	1397	1634	1863	1407
Grp Volume(v), veh/h	22	223	22	159	305	12	40	55	88	12	186	61
Grp Sat Flow(s),veh/h/ln	1634	1863	1409	1634	1863	1412	1634	1863	1397	1634	1863	1407
Q Serve(g_s), s	0.6	4.8	0.6	4.2	6.6	0.3	1.1	1.2	1.5	0.3	4.1	0.9
Cycle Q Clear(g_c), s	0.6	4.8	0.6	4.2	6.6	0.3	1.1	1.2	1.5	0.3	4.1	0.9
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	183	436	329	248	509	386	103	273	204	199	382	289
V/C Ratio(X)	0.12	0.51	0.07	0.64	0.60	0.03	0.39	0.20	0.43	0.06	0.49	0.21
Avail Cap(c_a), veh/h	202	1291	977	248	1343	1018	202	1182	887	202	1182	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	15.4	13.8	18.4	14.6	12.3	20.8	17.3	5.5	17.9	16.2	5.0
Incr Delay (d2), s/veh	0.3	0.9	0.1	5.5	1.1	0.0	2.4	0.4	1.4	0.1	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.6	0.2	2.3	3.5	0.1	0.6	0.6	1.0	0.1	2.2	0.6
LnGrp Delay(d),s/veh	18.7	16.3	13.9	23.9	15.7	12.3	23.2	17.7	6.9	18.1	17.2	5.3
LnGrp LOS	B	B	B	C	B	B	C	B	A	B	B	A
Approach Vol, veh/h		267			476			183			259	
Approach Delay, s/veh		16.3			18.4			13.7			14.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	10.8	11.0	14.8	6.9	13.5	9.2	16.6
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.4	28.0	5.3	30.3	4.4	28.0	4.0	31.6
Max Q Clear Time (g_c+I1), s	2.3	3.5	6.2	6.8	3.1	6.1	2.6	8.6
Green Ext Time (p_c), s	0.2	0.5	0.0	0.9	0.0	0.8	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	212	20	153	289	11	37	51	87	11	171	56
Future Volume (veh/h)	20	212	20	153	289	11	37	51	87	11	171	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	22	230	22	166	314	12	40	55	95	12	186	61
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	441	334	247	517	392	103	422	319	66	380	287
Arrive On Green	0.11	0.24	0.24	0.15	0.28	0.28	0.06	0.23	0.23	0.04	0.20	0.20
Sat Flow, veh/h	1634	1863	1410	1634	1863	1412	1634	1863	1409	1634	1863	1406
Grp Volume(v), veh/h	22	230	22	166	314	12	40	55	95	12	186	61
Grp Sat Flow(s),veh/h/ln	1634	1863	1410	1634	1863	1412	1634	1863	1409	1634	1863	1406
Q Serve(g_s), s	0.6	5.0	0.3	4.5	6.8	0.2	1.1	1.1	2.6	0.3	4.1	1.7
Cycle Q Clear(g_c), s	0.6	5.0	0.3	4.5	6.8	0.2	1.1	1.1	2.6	0.3	4.1	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	180	441	334	247	517	392	103	422	319	66	380	287
V/C Ratio(X)	0.12	0.52	0.07	0.67	0.61	0.03	0.39	0.13	0.30	0.18	0.49	0.21
Avail Cap(c_a), veh/h	201	1286	973	247	1338	1015	201	1177	890	201	1177	889
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	15.4	4.9	18.6	14.6	4.4	20.9	14.3	14.9	21.5	16.3	15.3
Incr Delay (d2), s/veh	0.3	1.0	0.1	7.0	1.2	0.0	2.4	0.1	0.5	1.3	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.7	0.2	2.5	3.7	0.1	0.6	0.6	1.0	0.2	2.2	0.7
LnGrp Delay(d),s/veh	18.9	16.3	4.9	25.6	15.7	4.5	23.3	14.4	15.4	22.8	17.3	15.7
LnGrp LOS	B	B	A	C	B	A	C	B	B	C	B	B
Approach Vol, veh/h		274			492			190			259	
Approach Delay, s/veh		15.6			18.8			16.8			17.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	14.5	11.0	15.0	6.9	13.5	9.1	16.9
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.4	28.0	5.3	30.3	4.4	28.0	4.0	31.6
Max Q Clear Time (g_c+I1), s	2.3	4.6	6.5	7.0	3.1	6.1	2.6	8.8
Green Ext Time (p_c), s	0.0	0.6	0.0	0.9	0.1	0.8	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	234	23	209	402	16	45	62	99	12	189	62
Future Volume (veh/h)	23	234	23	209	402	16	45	62	99	12	189	62
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	25	254	25	227	437	17	49	67	108	13	205	67
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	465	352	231	621	472	108	459	347	65	410	310
Arrive On Green	0.06	0.25	0.25	0.14	0.33	0.33	0.07	0.25	0.25	0.04	0.22	0.22
Sat Flow, veh/h	1634	1863	1411	1634	1863	1415	1634	1863	1410	1634	1863	1408
Grp Volume(v), veh/h	25	254	25	227	437	17	49	67	108	13	205	67
Grp Sat Flow(s),veh/h/ln	1634	1863	1411	1634	1863	1415	1634	1863	1410	1634	1863	1408
Q Serve(g_s), s	0.7	5.9	0.7	6.9	10.1	0.2	1.4	1.4	3.1	0.4	4.8	1.3
Cycle Q Clear(g_c), s	0.7	5.9	0.7	6.9	10.1	0.2	1.4	1.4	3.1	0.4	4.8	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	465	352	231	621	472	108	459	347	65	410	310
V/C Ratio(X)	0.26	0.55	0.07	0.98	0.70	0.04	0.46	0.15	0.31	0.20	0.50	0.22
Avail Cap(c_a), veh/h	195	1204	912	231	1246	946	188	1103	835	188	1103	833
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	22.3	16.1	14.2	21.2	14.4	3.9	22.3	14.6	15.2	23.0	16.9	6.7
Incr Delay (d2), s/veh	1.5	1.0	0.1	54.0	1.5	0.0	3.0	0.1	0.5	1.5	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.1	0.3	6.5	5.4	0.2	0.7	0.7	1.3	0.2	2.6	0.7
LnGrp Delay(d),s/veh	23.8	17.1	14.3	75.2	15.9	4.0	25.2	14.7	15.7	24.5	17.9	7.1
LnGrp LOS	C	B	B	E	B	A	C	B	B	C	B	A
Approach Vol, veh/h		304			681			224			285	
Approach Delay, s/veh		17.4			35.3			17.5			15.6	
Approach LOS		B			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	16.2	11.0	16.4	7.3	14.9	6.9	20.5
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.4	28.0	5.3	30.3	4.4	28.0	4.2	31.4
Max Q Clear Time (g_c+I1), s	2.4	5.1	8.9	7.9	3.4	6.8	2.7	12.1
Green Ext Time (p_c), s	0.0	1.6	0.0	1.0	0.0	1.5	0.2	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	241	23	216	410	16	45	62	105	12	189	62
Future Volume (veh/h)	23	241	23	216	410	16	45	62	105	12	189	62
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	25	262	25	235	446	17	49	67	114	13	205	67
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	473	358	234	631	479	108	286	215	201	391	295
Arrive On Green	0.06	0.25	0.25	0.14	0.34	0.34	0.07	0.15	0.15	0.12	0.21	0.21
Sat Flow, veh/h	1634	1863	1411	1634	1863	1415	1634	1863	1399	1634	1863	1407
Grp Volume(v), veh/h	25	262	25	235	446	17	49	67	114	13	205	67
Grp Sat Flow(s),veh/h/ln	1634	1863	1411	1634	1863	1415	1634	1863	1399	1634	1863	1407
Q Serve(g_s), s	0.7	6.0	0.7	7.0	10.2	0.4	1.4	1.5	2.1	0.3	4.8	1.3
Cycle Q Clear(g_c), s	0.7	6.0	0.7	7.0	10.2	0.4	1.4	1.5	2.1	0.3	4.8	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	473	358	234	631	479	108	286	215	201	391	295
V/C Ratio(X)	0.26	0.55	0.07	1.01	0.71	0.04	0.45	0.23	0.53	0.06	0.52	0.23
Avail Cap(c_a), veh/h	197	1217	922	234	1259	957	190	1115	837	201	1115	842
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	22.1	15.9	13.9	21.0	14.1	10.8	22.0	18.2	6.3	19.0	17.2	6.8
Incr Delay (d2), s/veh	1.4	1.0	0.1	60.5	1.5	0.0	2.9	0.4	2.0	0.1	1.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.2	0.3	7.0	5.5	0.2	0.7	0.8	0.9	0.2	2.6	0.5
LnGrp Delay(d),s/veh	23.5	16.9	14.0	81.5	15.5	10.9	24.9	18.6	8.4	19.1	18.3	7.2
LnGrp LOS	C	B	B	F	B	B	C	B	A	B	B	A
Approach Vol, veh/h		312			698			230			285	
Approach Delay, s/veh		17.2			37.6			14.9			15.7	
Approach LOS		B			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	11.5	11.0	16.4	7.2	14.3	6.9	20.6
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.4	28.0	5.3	30.3	4.4	28.0	4.2	31.4
Max Q Clear Time (g_c+I1), s	2.3	4.1	9.0	8.0	3.4	6.8	2.7	12.2
Green Ext Time (p_c), s	0.2	0.6	0.0	1.0	0.0	0.9	0.2	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Intersection 4
Centennial Dr & Grangeville Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	361	101	88	200	80	62	204	112	36	161	23
Future Volume (veh/h)	65	361	101	88	200	80	62	204	112	36	161	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	71	392	110	96	217	87	67	222	122	39	175	25
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	817	629	148	852	649	106	280	154	70	361	52
Arrive On Green	0.10	0.58	0.58	0.09	0.46	0.46	0.07	0.25	0.24	0.04	0.23	0.21
Sat Flow, veh/h	1634	1863	1434	1634	1863	1419	1634	1122	617	1634	1586	227
Grp Volume(v), veh/h	71	392	110	96	217	87	67	0	344	39	0	200
Grp Sat Flow(s),veh/h/ln	1634	1863	1434	1634	1863	1419	1634	0	1739	1634	0	1813
Q Serve(g_s), s	3.8	11.0	3.2	5.1	6.4	3.2	3.6	0.0	16.7	2.1	0.0	8.6
Cycle Q Clear(g_c), s	3.8	11.0	3.2	5.1	6.4	3.2	3.6	0.0	16.7	2.1	0.0	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		0.13
Lane Grp Cap(c), veh/h	118	817	629	148	852	649	106	0	435	70	0	413
V/C Ratio(X)	0.60	0.48	0.17	0.65	0.25	0.13	0.63	0.00	0.79	0.56	0.00	0.48
Avail Cap(c_a), veh/h	180	817	629	163	852	649	127	0	587	122	0	606
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.4	12.8	11.2	39.5	15.0	14.1	41.0	0.0	31.8	42.2	0.0	30.2
Incr Delay (d2), s/veh	4.6	1.9	0.6	7.3	0.7	0.4	7.2	0.0	5.2	6.7	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	6.0	1.4	2.6	3.5	1.3	1.8	0.0	8.7	1.1	0.0	4.4
LnGrp Delay(d),s/veh	44.0	14.7	11.8	46.9	15.7	14.5	48.2	0.0	37.0	49.0	0.0	31.1
LnGrp LOS	D	B	B	D	B	B	D		D	D		C
Approach Vol, veh/h		573			400			411			239	
Approach Delay, s/veh		17.8			22.9			38.8			34.0	
Approach LOS		B			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	26.5	12.2	43.5	9.9	24.5	10.5	45.1
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	5.4	29.1	7.3	26.2	5.7	28.8	8.2	25.3
Max Q Clear Time (g_c+I1), s	4.1	18.7	7.1	13.0	5.6	10.6	5.8	8.4
Green Ext Time (p_c), s	0.0	1.5	0.0	2.6	0.0	1.9	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	412	114	88	255	126	77	219	112	78	176	23
Future Volume (veh/h)	65	412	114	88	255	126	77	219	112	78	176	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	71	448	124	96	277	137	84	238	122	85	191	25
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	737	567	148	772	587	127	297	152	128	415	54
Arrive On Green	0.10	0.53	0.53	0.09	0.41	0.41	0.08	0.26	0.24	0.08	0.26	0.24
Sat Flow, veh/h	1634	1863	1434	1634	1863	1418	1634	1153	591	1634	1607	210
Grp Volume(v), veh/h	71	448	124	96	277	137	84	0	360	85	0	216
Grp Sat Flow(s),veh/h/ln	1634	1863	1434	1634	1863	1418	1634	0	1744	1634	0	1817
Q Serve(g_s), s	3.8	15.1	4.2	5.1	9.2	5.6	4.5	0.0	17.4	4.6	0.0	9.0
Cycle Q Clear(g_c), s	3.8	15.1	4.2	5.1	9.2	5.6	4.5	0.0	17.4	4.6	0.0	9.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		0.12
Lane Grp Cap(c), veh/h	118	737	567	148	772	587	127	0	449	128	0	469
V/C Ratio(X)	0.60	0.61	0.22	0.65	0.36	0.23	0.66	0.00	0.80	0.66	0.00	0.46
Avail Cap(c_a), veh/h	180	737	567	149	772	587	136	0	583	138	0	610
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	0.95	0.95	0.95	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.4	16.5	13.9	39.5	18.1	17.1	40.3	0.0	31.5	40.3	0.0	28.2
Incr Delay (d2), s/veh	4.5	3.5	0.8	8.9	1.2	0.9	10.3	0.0	6.1	10.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	8.4	1.8	2.7	5.0	2.3	2.4	0.0	9.2	2.4	0.0	4.6
LnGrp Delay(d),s/veh	44.0	19.9	14.7	48.4	19.4	18.0	50.7	0.0	37.6	50.6	0.0	28.9
LnGrp LOS	D	B	B	D	B	B	D		D	D		C
Approach Vol, veh/h		643			510			444			301	
Approach Delay, s/veh		21.6			24.5			40.1			35.0	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	27.2	12.2	39.6	11.0	27.2	10.5	41.3
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	6.3	28.8	6.5	26.4	6.2	28.9	8.2	24.7
Max Q Clear Time (g_c+I1), s	6.6	19.4	7.1	17.1	6.5	11.0	5.8	11.2
Green Ext Time (p_c), s	0.0	1.6	0.0	2.8	0.0	2.0	0.0	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	517	145	97	221	88	69	225	124	40	178	25
Future Volume (veh/h)	93	517	145	97	221	88	69	225	124	40	178	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	101	562	158	105	240	96	75	245	135	43	193	27
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	667	513	166	369	278	223	310	171	80	300	42
Arrive On Green	0.26	0.36	0.36	0.10	0.20	0.20	0.14	0.28	0.26	0.05	0.19	0.17
Sat Flow, veh/h	1634	1863	1433	1634	1863	1406	1634	1121	618	1634	1590	223
Grp Volume(v), veh/h	101	562	158	105	240	96	75	0	380	43	0	220
Grp Sat Flow(s),veh/h/ln	1634	1863	1433	1634	1863	1406	1634	0	1739	1634	0	1813
Q Serve(g_s), s	3.6	20.6	3.2	4.6	8.8	3.3	3.1	0.0	15.1	1.9	0.0	8.3
Cycle Q Clear(g_c), s	3.6	20.6	3.2	4.6	8.8	3.3	3.1	0.0	15.1	1.9	0.0	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.12
Lane Grp Cap(c), veh/h	427	667	513	166	369	278	223	0	480	80	0	342
V/C Ratio(X)	0.24	0.84	0.31	0.63	0.65	0.34	0.34	0.00	0.79	0.54	0.00	0.64
Avail Cap(c_a), veh/h	427	900	692	176	775	585	223	0	705	154	0	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	21.9	5.2	32.1	27.4	14.3	29.0	0.0	25.1	34.5	0.0	27.9
Incr Delay (d2), s/veh	0.3	5.5	0.3	6.7	1.9	0.7	0.9	0.0	3.8	5.4	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	11.5	2.1	2.4	4.7	1.6	1.5	0.0	7.7	1.0	0.0	4.4
LnGrp Delay(d),s/veh	21.9	27.4	5.5	38.7	29.4	15.1	29.9	0.0	28.9	39.9	0.0	29.9
LnGrp LOS	C	C	A	D	C	B	C		C	D		C
Approach Vol, veh/h		821			441			455			263	
Approach Delay, s/veh		22.5			28.5			29.1			31.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	24.5	11.5	30.6	14.1	18.0	23.4	18.7
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	5.7	28.8	6.3	34.2	5.7	28.8	11.3	29.2
Max Q Clear Time (g_c+I1), s	3.9	17.1	6.6	22.6	5.1	10.3	5.6	10.8
Green Ext Time (p_c), s	0.0	1.1	0.0	2.3	0.1	0.7	1.7	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	26.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	568	158	97	276	134	84	240	124	82	193	25
Future Volume (veh/h)	93	568	158	97	276	134	84	240	124	82	193	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	101	617	172	105	300	146	91	261	135	89	210	27
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	402	693	533	150	405	306	269	313	162	131	302	39
Arrive On Green	0.25	0.37	0.37	0.09	0.22	0.22	0.16	0.27	0.26	0.08	0.19	0.17
Sat Flow, veh/h	1634	1863	1433	1634	1863	1408	1634	1149	595	1634	1610	207
Grp Volume(v), veh/h	101	617	172	105	300	146	91	0	396	89	0	237
Grp Sat Flow(s),veh/h/ln	1634	1863	1433	1634	1863	1408	1634	0	1744	1634	0	1817
Q Serve(g_s), s	4.3	27.1	3.9	5.4	13.1	5.8	4.3	0.0	18.6	4.6	0.0	10.6
Cycle Q Clear(g_c), s	4.3	27.1	3.9	5.4	13.1	5.8	4.3	0.0	18.6	4.6	0.0	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		0.11
Lane Grp Cap(c), veh/h	402	693	533	150	405	306	269	0	475	131	0	341
V/C Ratio(X)	0.25	0.89	0.32	0.70	0.74	0.48	0.34	0.00	0.83	0.68	0.00	0.69
Avail Cap(c_a), veh/h	402	768	591	150	661	500	269	0	603	131	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	25.7	5.5	38.4	31.8	15.8	32.2	0.0	30.1	38.9	0.0	33.1
Incr Delay (d2), s/veh	0.3	11.8	0.3	13.4	2.7	1.2	0.7	0.0	8.0	13.1	0.0	2.5
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	2.0	16.2	2.6	3.0	7.1	2.8	2.0	0.0	10.0	2.6	0.0	5.6
LnGrp Delay(d),s/veh	26.7	37.5	5.8	51.8	34.4	17.0	32.9	0.0	38.0	52.0	0.0	35.7
LnGrp LOS	C	D	A	D	C	B	C		D	D		D
Approach Vol, veh/h		890			551			487			326	
Approach Delay, s/veh		30.2			33.1			37.1			40.1	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	27.7	12.0	36.4	18.4	20.4	25.4	22.9
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	5.7	28.8	6.3	34.2	5.7	28.8	11.3	29.2
Max Q Clear Time (g_c+I1), s	6.6	20.6	7.4	29.1	6.3	12.6	6.3	15.1
Green Ext Time (p_c), s	0.0	1.0	0.0	1.6	0.0	0.7	1.7	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	33.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	190	98	89	262	38	89	101	94	62	200	66
Future Volume (veh/h)	25	190	98	89	262	38	89	101	94	62	200	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	27	207	107	97	285	41	97	110	102	67	217	72
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	536	412	378	891	679	144	210	194	106	285	95
Arrive On Green	0.04	0.29	0.29	0.23	0.48	0.48	0.09	0.24	0.22	0.06	0.22	0.20
Sat Flow, veh/h	1634	1863	1431	1634	1863	1419	1634	881	817	1634	1326	440
Grp Volume(v), veh/h	27	207	107	97	285	41	97	0	212	67	0	289
Grp Sat Flow(s),veh/h/ln	1634	1863	1431	1634	1863	1419	1634	0	1698	1634	0	1766
Q Serve(g_s), s	1.5	8.0	5.2	4.4	8.5	1.4	5.2	0.0	9.8	3.6	0.0	13.8
Cycle Q Clear(g_c), s	1.5	8.0	5.2	4.4	8.5	1.4	5.2	0.0	9.8	3.6	0.0	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.25
Lane Grp Cap(c), veh/h	67	536	412	378	891	679	144	0	404	106	0	380
V/C Ratio(X)	0.41	0.39	0.26	0.26	0.32	0.06	0.68	0.00	0.52	0.63	0.00	0.76
Avail Cap(c_a), veh/h	109	536	412	378	891	679	163	0	613	120	0	591
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)	0.95	0.95	0.95	0.99	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.1	25.7	24.7	28.3	14.4	12.6	39.8	0.0	30.1	41.0	0.0	33.3
Incr Delay (d2), s/veh	3.8	2.0	1.5	0.3	0.9	0.2	8.9	0.0	1.1	8.5	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.4	2.2	2.0	4.6	0.6	2.7	0.0	4.7	1.9	0.0	7.1
LnGrp Delay(d),s/veh	45.9	27.7	26.1	28.6	15.4	12.8	48.7	0.0	31.2	49.5	0.0	36.5
LnGrp LOS	D	C	C	C	B	B	D		C	D		D
Approach Vol, veh/h		341			423			309			356	
Approach Delay, s/veh		28.6			18.2			36.7			38.9	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	25.4	24.8	29.9	11.9	23.4	7.7	47.1
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	5.3	31.2	7.3	24.2	7.7	28.8	4.3	27.2
Max Q Clear Time (g_c+I1), s	5.6	11.8	6.4	10.0	7.2	15.8	3.5	10.5
Green Ext Time (p_c), s	0.0	1.0	0.0	0.9	0.1	0.8	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	29.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	247	113	89	313	81	102	114	94	110	217	66
Future Volume (veh/h)	25	247	113	89	313	81	102	114	94	110	217	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	27	268	123	97	340	88	111	124	102	120	236	72
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	764	588	149	577	438	159	176	145	218	304	93
Arrive On Green	0.19	0.41	0.41	0.09	0.31	0.31	0.10	0.19	0.17	0.13	0.22	0.21
Sat Flow, veh/h	1634	1863	1434	1634	1863	1414	1634	936	770	1634	1358	414
Grp Volume(v), veh/h	27	268	123	97	340	88	111	0	226	120	0	308
Grp Sat Flow(s),veh/h/ln	1634	1863	1434	1634	1863	1414	1634	0	1706	1634	0	1772
Q Serve(g_s), s	1.2	8.9	5.0	5.2	13.9	4.1	5.9	0.0	11.2	6.2	0.0	14.7
Cycle Q Clear(g_c), s	1.2	8.9	5.0	5.2	13.9	4.1	5.9	0.0	11.2	6.2	0.0	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.23
Lane Grp Cap(c), veh/h	312	764	588	149	577	438	159	0	320	218	0	397
V/C Ratio(X)	0.09	0.35	0.21	0.65	0.59	0.20	0.70	0.00	0.71	0.55	0.00	0.78
Avail Cap(c_a), veh/h	312	764	588	149	577	438	171	0	570	218	0	604
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)	0.95	0.95	0.95	0.98	0.98	0.98	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	18.3	17.1	39.5	26.2	22.8	39.4	0.0	34.5	36.5	0.0	32.9
Incr Delay (d2), s/veh	0.1	1.2	0.8	9.4	4.3	1.0	11.1	0.0	2.8	3.0	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.8	2.1	2.7	7.8	1.7	3.2	0.0	5.5	3.0	0.0	7.6
LnGrp Delay(d),s/veh	30.1	19.5	17.9	49.0	30.5	23.9	50.4	0.0	37.3	39.4	0.0	36.4
LnGrp LOS	C	B	B	D	C	C	D		D	D		D
Approach Vol, veh/h		418			525			337			428	
Approach Delay, s/veh		19.7			32.8			41.7			37.3	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	20.9	12.2	40.9	12.7	24.2	21.2	31.9
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	8.7	28.8	6.5	24.0	8.1	29.4	4.3	26.2
Max Q Clear Time (g_c+I1), s	8.2	13.2	7.2	10.9	7.9	16.7	3.2	15.9
Green Ext Time (p_c), s	0.1	0.7	0.0	1.2	0.0	0.9	0.2	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	272	140	98	289	42	98	112	104	69	221	73
Future Volume (veh/h)	36	272	140	98	289	42	98	112	104	69	221	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	39	296	152	107	314	46	107	122	113	75	240	79
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	300	536	412	341	584	443	156	224	208	116	306	101
Arrive On Green	0.18	0.29	0.29	0.21	0.31	0.31	0.10	0.25	0.24	0.07	0.23	0.22
Sat Flow, veh/h	1634	1863	1431	1634	1863	1414	1634	882	817	1634	1329	438
Grp Volume(v), veh/h	39	296	152	107	314	46	107	0	235	75	0	319
Grp Sat Flow(s),veh/h/ln	1634	1863	1431	1634	1863	1414	1634	0	1699	1634	0	1767
Q Serve(g_s), s	1.8	12.1	7.6	5.0	12.5	1.5	5.7	0.0	10.8	4.0	0.0	15.3
Cycle Q Clear(g_c), s	1.8	12.1	7.6	5.0	12.5	1.5	5.7	0.0	10.8	4.0	0.0	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.25
Lane Grp Cap(c), veh/h	300	536	412	341	584	443	156	0	432	116	0	406
V/C Ratio(X)	0.13	0.55	0.37	0.31	0.54	0.10	0.69	0.00	0.54	0.65	0.00	0.79
Avail Cap(c_a), veh/h	300	536	412	341	584	443	182	0	625	127	0	591
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)	0.94	0.94	0.94	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	27.1	25.5	30.1	25.5	11.1	39.4	0.0	29.3	40.7	0.0	32.7
Incr Delay (d2), s/veh	0.2	3.8	2.4	0.5	3.4	0.5	8.4	0.0	1.1	9.5	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.8	3.3	2.3	7.0	0.6	3.0	0.0	5.2	2.1	0.0	7.9
LnGrp Delay(d),s/veh	30.9	31.0	27.9	30.6	29.0	11.6	47.8	0.0	30.4	50.2	0.0	37.0
LnGrp LOS	C	C	C	C	C	B	D		C	D		D
Approach Vol, veh/h		487			467			342			394	
Approach Delay, s/veh		30.0			27.6			35.8			39.6	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	26.9	22.8	29.9	12.6	24.7	20.5	32.2
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	5.7	31.8	6.3	24.2	8.7	28.8	4.0	26.5
Max Q Clear Time (g_c+I1), s	6.0	12.8	7.0	14.1	7.7	17.3	3.8	14.5
Green Ext Time (p_c), s	0.0	1.1	0.0	1.2	0.1	0.9	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	329	155	98	340	85	111	125	104	117	238	73
Future Volume (veh/h)	36	329	155	98	340	85	111	125	104	117	238	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	39	358	168	107	370	92	121	136	113	127	259	79
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	710	547	161	584	443	170	186	155	233	324	99
Arrive On Green	0.17	0.38	0.38	0.10	0.31	0.31	0.10	0.20	0.19	0.14	0.24	0.22
Sat Flow, veh/h	1634	1863	1434	1634	1863	1414	1634	931	774	1634	1358	414
Grp Volume(v), veh/h	39	358	168	107	370	92	121	0	249	127	0	338
Grp Sat Flow(s),veh/h/ln	1634	1863	1434	1634	1863	1414	1634	0	1705	1634	0	1772
Q Serve(g_s), s	1.8	13.2	7.4	5.7	15.3	4.3	6.5	0.0	12.3	6.5	0.0	16.2
Cycle Q Clear(g_c), s	1.8	13.2	7.4	5.7	15.3	4.3	6.5	0.0	12.3	6.5	0.0	16.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.23
Lane Grp Cap(c), veh/h	272	710	547	161	584	443	170	0	341	233	0	423
V/C Ratio(X)	0.14	0.50	0.31	0.67	0.63	0.21	0.71	0.00	0.73	0.54	0.00	0.80
Avail Cap(c_a), veh/h	272	710	547	163	584	443	180	0	570	233	0	595
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)	0.94	0.94	0.94	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	21.3	19.5	39.1	26.5	22.7	39.0	0.0	34.0	35.9	0.0	32.4
Incr Delay (d2), s/veh	0.2	2.4	1.4	9.0	4.8	1.0	11.8	0.0	3.0	2.6	0.0	5.2
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	7.2	3.1	3.0	8.6	1.8	3.5	0.0	6.1	3.1	0.0	8.5
LnGrp Delay(d),s/veh	32.3	23.7	20.9	48.2	31.3	23.7	50.8	0.0	37.1	38.4	0.0	37.5
LnGrp LOS	C	C	C	D	C	C	D		D	D		D
Approach Vol, veh/h		565			569			370			465	
Approach Delay, s/veh		23.5			33.3			41.6			37.8	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	22.0	12.9	38.3	13.3	25.5	19.0	32.2
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	8.7	28.8	7.3	23.2	8.6	28.9	4.0	26.5
Max Q Clear Time (g_c+I1), s	8.5	14.3	7.7	15.2	8.5	18.2	3.8	17.3
Green Ext Time (p_c), s	0.0	0.7	0.0	1.4	0.0	1.0	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	33.1
HCM 2010 LOS	C

Intersection 5
12th Ave & Grangeville Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	359	68	218	278	76	123	544	258	58	372	46
Future Volume (veh/h)	92	359	68	218	278	76	123	544	258	58	372	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	100	390	74	237	302	83	134	591	280	63	404	50
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	822	332	410	1002	400	272	1155	467	198	1072	428
Arrive On Green	0.08	0.23	0.23	0.13	0.28	0.28	0.09	0.33	0.33	0.06	0.30	0.30
Sat Flow, veh/h	3170	3539	1429	3170	3539	1413	3170	3539	1432	3170	3539	1414
Grp Volume(v), veh/h	100	390	74	237	302	83	134	591	280	63	404	50
Grp Sat Flow(s),veh/h/ln	1585	1770	1429	1585	1770	1413	1585	1770	1432	1585	1770	1414
Q Serve(g_s), s	1.9	6.1	2.7	4.5	4.3	2.9	2.6	8.7	10.5	1.2	5.8	1.6
Cycle Q Clear(g_c), s	1.9	6.1	2.7	4.5	4.3	2.9	2.6	8.7	10.5	1.2	5.8	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	249	822	332	410	1002	400	272	1155	467	198	1072	428
V/C Ratio(X)	0.40	0.47	0.22	0.58	0.30	0.21	0.49	0.51	0.60	0.32	0.38	0.12
Avail Cap(c_a), veh/h	361	1767	713	509	1933	772	346	1994	807	277	1916	765
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	21.2	19.9	26.2	18.0	17.5	28.0	17.5	18.1	28.7	17.6	16.1
Incr Delay (d2), s/veh	1.0	0.4	0.3	1.3	0.2	0.3	1.4	0.4	1.2	0.9	0.2	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	0.9	3.0	1.1	2.0	2.1	1.1	1.2	4.2	4.3	0.6	2.8	0.6
LnGrp Delay(d),s/veh	29.2	21.7	20.3	27.5	18.2	17.7	29.3	17.8	19.3	29.7	17.8	16.3
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		564			622			1005			517	
Approach Delay, s/veh		22.8			21.7			19.8			19.1	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	24.9	12.3	18.9	9.5	23.4	9.0	22.2
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.3	34.8	8.6	30.3	5.7	33.4	5.6	33.3
Max Q Clear Time (g_c+I1), s	3.2	12.5	6.5	8.1	4.6	7.8	3.9	6.3
Green Ext Time (p_c), s	0.0	5.9	0.2	3.5	0.0	6.1	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	397	94	218	320	76	152	544	258	58	372	71
Future Volume (veh/h)	116	397	94	218	320	76	152	544	258	58	372	71
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	126	432	102	237	348	83	165	591	280	63	404	77
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	866	350	405	1010	403	306	1146	464	194	1021	408
Arrive On Green	0.09	0.24	0.24	0.13	0.29	0.29	0.10	0.32	0.32	0.06	0.29	0.29
Sat Flow, veh/h	3170	3539	1429	3170	3539	1413	3170	3539	1432	3170	3539	1413
Grp Volume(v), veh/h	126	432	102	237	348	83	165	591	280	63	404	77
Grp Sat Flow(s),veh/h/ln	1585	1770	1429	1585	1770	1413	1585	1770	1432	1585	1770	1413
Q Serve(g_s), s	2.5	6.9	3.8	4.7	5.1	2.9	3.3	8.9	10.8	1.3	6.1	2.7
Cycle Q Clear(g_c), s	2.5	6.9	3.8	4.7	5.1	2.9	3.3	8.9	10.8	1.3	6.1	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	276	866	350	405	1010	403	306	1146	464	194	1021	408
V/C Ratio(X)	0.46	0.50	0.29	0.58	0.34	0.21	0.54	0.52	0.60	0.32	0.40	0.19
Avail Cap(c_a), veh/h	303	1716	693	495	1930	770	370	1935	783	269	1823	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	21.4	20.3	27.1	18.7	17.9	28.4	18.1	18.8	29.7	18.9	17.7
Incr Delay (d2), s/veh	1.2	0.4	0.5	1.3	0.2	0.2	1.5	0.4	1.3	1.0	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	1.1	3.4	1.5	2.1	2.5	1.2	1.5	4.4	4.4	0.6	3.0	1.1
LnGrp Delay(d),s/veh	29.8	21.9	20.7	28.5	18.9	18.2	29.9	18.5	20.0	30.6	19.1	17.9
LnGrp LOS	C	C	C	C	B	B	C	B	C	C	B	B
Approach Vol, veh/h		660			668			1036			544	
Approach Delay, s/veh		23.2			22.2			20.7			20.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	25.4	12.4	20.2	10.4	23.0	9.8	22.8
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.3	34.8	8.6	30.3	6.4	32.7	4.6	34.3
Max Q Clear Time (g_c+I1), s	3.3	12.8	6.7	8.9	5.3	8.1	4.5	7.1
Green Ext Time (p_c), s	0.0	6.0	0.2	4.0	0.1	6.2	0.0	4.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	397	75	275	351	96	155	685	325	75	480	59
Future Volume (veh/h)	102	397	75	275	351	96	155	685	325	75	480	59
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	111	432	82	299	382	104	168	745	353	82	522	64
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	413	782	315	385	750	298	544	1233	499	212	862	343
Arrive On Green	0.13	0.22	0.22	0.12	0.21	0.21	0.17	0.35	0.35	0.07	0.24	0.24
Sat Flow, veh/h	3170	3539	1428	3170	3539	1407	3170	3539	1433	3170	3539	1410
Grp Volume(v), veh/h	111	432	82	299	382	104	168	745	353	82	522	64
Grp Sat Flow(s),veh/h/ln	1585	1770	1428	1585	1770	1407	1585	1770	1433	1585	1770	1410
Q Serve(g_s), s	2.1	7.1	1.7	6.0	6.3	2.9	3.1	11.5	14.0	1.6	8.6	2.4
Cycle Q Clear(g_c), s	2.1	7.1	1.7	6.0	6.3	2.9	3.1	11.5	14.0	1.6	8.6	2.4
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	413	782	315	385	750	298	544	1233	499	212	862	343
V/C Ratio(X)	0.27	0.55	0.26	0.78	0.51	0.35	0.31	0.60	0.71	0.39	0.61	0.19
Avail Cap(c_a), veh/h	413	1744	704	385	1868	743	544	1851	750	288	1851	738
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	25.8	22.8	6.6	28.1	23.0	10.7	23.9	17.7	18.6	29.5	22.1	19.8
Incr Delay (d2), s/veh	0.3	0.6	0.4	9.7	0.5	0.7	0.3	0.5	1.9	1.2	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.5	0.7	3.1	3.1	1.2	1.4	5.7	5.7	0.8	4.3	0.9
LnGrp Delay(d),s/veh	26.2	23.4	7.0	37.8	23.5	11.4	24.2	18.2	20.4	30.6	22.8	20.0
LnGrp LOS	C	C	A	D	C	B	C	B	C	C	C	C
Approach Vol, veh/h		625			785			1266			668	
Approach Delay, s/veh		21.8			27.4			19.6			23.5	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	27.0	12.0	18.6	15.3	20.1	12.6	18.0
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.7	33.2	6.3	30.8	4.7	33.2	4.0	33.1
Max Q Clear Time (g_c+I1), s	3.6	16.0	8.0	9.1	5.1	10.6	4.1	8.3
Green Ext Time (p_c), s	0.0	4.6	0.0	2.1	0.0	2.4	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	22.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	435	101	275	393	96	184	685	325	75	480	84
Future Volume (veh/h)	126	435	101	275	393	96	184	685	325	75	480	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	137	473	110	299	427	104	200	745	353	82	522	91
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	406	821	331	377	788	314	534	1224	495	209	860	343
Arrive On Green	0.13	0.23	0.23	0.12	0.22	0.22	0.17	0.35	0.35	0.07	0.24	0.24
Sat Flow, veh/h	3170	3539	1429	3170	3539	1408	3170	3539	1433	3170	3539	1410
Grp Volume(v), veh/h	137	473	110	299	427	104	200	745	353	82	522	91
Grp Sat Flow(s),veh/h/ln	1585	1770	1429	1585	1770	1408	1585	1770	1433	1585	1770	1410
Q Serve(g_s), s	2.7	8.0	2.4	6.2	7.2	2.9	3.8	11.7	14.4	1.7	8.8	3.5
Cycle Q Clear(g_c), s	2.7	8.0	2.4	6.2	7.2	2.9	3.8	11.7	14.4	1.7	8.8	3.5
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	406	821	331	377	788	314	534	1224	495	209	860	343
V/C Ratio(X)	0.34	0.58	0.33	0.79	0.54	0.33	0.37	0.61	0.71	0.39	0.61	0.27
Avail Cap(c_a), veh/h	406	1708	690	377	1829	728	534	1813	734	282	1813	722
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	26.8	22.9	6.8	28.9	23.1	10.7	24.8	18.3	19.1	30.2	22.6	20.6
Incr Delay (d2), s/veh	0.5	0.6	0.6	11.1	0.6	0.6	0.4	0.5	1.9	1.2	0.7	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	1.2	3.9	1.6	3.3	3.6	1.5	1.7	5.8	6.0	0.8	4.4	1.4
LnGrp Delay(d),s/veh	27.2	23.6	7.3	40.0	23.7	11.3	25.3	18.7	21.0	31.4	23.3	21.0
LnGrp LOS	C	C	A	D	C	B	C	B	C	C	C	C
Approach Vol, veh/h		720			830			1298			695	
Approach Delay, s/veh		21.8			28.0			20.4			24.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	27.3	12.0	19.6	15.4	20.4	12.6	19.0
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.7	33.2	6.3	30.8	4.7	33.2	4.0	33.1
Max Q Clear Time (g_c+I1), s	3.7	16.4	8.2	10.0	5.8	10.8	4.7	9.2
Green Ext Time (p_c), s	0.0	4.6	0.0	2.4	0.0	2.5	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	299	53	161	277	42	70	202	124	88	375	53
Future Volume (veh/h)	40	299	53	161	277	42	70	202	124	88	375	53
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	43	325	58	175	301	46	76	220	135	96	408	58
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	834	337	380	1015	405	243	889	359	264	912	364
Arrive On Green	0.07	0.24	0.24	0.12	0.29	0.29	0.08	0.25	0.25	0.08	0.26	0.26
Sat Flow, veh/h	3170	3539	1429	3170	3539	1413	3170	3539	1430	3170	3539	1411
Grp Volume(v), veh/h	43	325	58	175	301	46	76	220	135	96	408	58
Grp Sat Flow(s),veh/h/ln	1585	1770	1429	1585	1770	1413	1585	1770	1430	1585	1770	1411
Q Serve(g_s), s	0.7	4.0	1.7	2.7	3.4	1.2	1.2	2.6	4.0	1.5	5.0	1.6
Cycle Q Clear(g_c), s	0.7	4.0	1.7	2.7	3.4	1.2	1.2	2.6	4.0	1.5	5.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	834	337	380	1015	405	243	889	359	264	912	364
V/C Ratio(X)	0.20	0.39	0.17	0.46	0.30	0.11	0.31	0.25	0.38	0.36	0.45	0.16
Avail Cap(c_a), veh/h	350	2195	886	651	2531	1011	369	2353	951	436	2429	968
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	22.7	16.6	15.7	21.2	14.3	13.6	22.5	15.4	16.0	22.4	16.1	14.8
Incr Delay (d2), s/veh	0.4	0.3	0.2	0.9	0.2	0.1	0.7	0.1	0.6	0.8	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.0	0.7	1.2	1.7	0.5	0.5	1.3	1.6	0.7	2.5	0.7
LnGrp Delay(d),s/veh	23.1	16.9	15.9	22.0	14.5	13.7	23.3	15.6	16.6	23.2	16.4	15.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		426			522			431			562	
Approach Delay, s/veh		17.4			17.0			17.2			17.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	17.0	10.2	16.2	8.0	17.3	7.5	18.8
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	5.8	33.0	8.9	30.3	4.7	34.1	4.0	35.2
Max Q Clear Time (g_c+I1), s	3.5	6.0	4.7	6.0	3.2	7.0	2.7	5.4
Green Ext Time (p_c), s	0.1	3.4	0.2	3.0	0.0	3.4	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	342	82	161	316	42	97	202	124	88	375	76
Future Volume (veh/h)	67	342	82	161	316	42	97	202	124	88	375	76
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	73	372	89	175	343	46	105	220	135	96	408	83
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	882	356	372	1011	404	263	906	366	256	898	358
Arrive On Green	0.08	0.25	0.25	0.12	0.29	0.29	0.08	0.26	0.26	0.08	0.25	0.25
Sat Flow, veh/h	3170	3539	1430	3170	3539	1413	3170	3539	1430	3170	3539	1411
Grp Volume(v), veh/h	73	372	89	175	343	46	105	220	135	96	408	83
Grp Sat Flow(s),veh/h/ln	1585	1770	1430	1585	1770	1413	1585	1770	1430	1585	1770	1411
Q Serve(g_s), s	1.2	4.8	2.7	2.8	4.1	1.3	1.7	2.7	4.2	1.5	5.2	2.5
Cycle Q Clear(g_c), s	1.2	4.8	2.7	2.8	4.1	1.3	1.7	2.7	4.2	1.5	5.2	2.5
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	256	882	356	372	1011	404	263	906	366	256	898	358
V/C Ratio(X)	0.28	0.42	0.25	0.47	0.34	0.11	0.40	0.24	0.37	0.38	0.45	0.23
Avail Cap(c_a), veh/h	347	2100	848	623	2409	962	435	2251	910	417	2231	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	17.0	16.2	22.2	15.2	14.2	23.5	15.9	16.5	23.5	17.0	16.0
Incr Delay (d2), s/veh	0.6	0.3	0.4	0.9	0.2	0.1	1.0	0.1	0.6	0.9	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.4	1.1	1.3	2.0	0.5	0.8	1.3	1.7	0.7	2.6	1.0
LnGrp Delay(d),s/veh	23.9	17.3	16.6	23.1	15.4	14.3	24.4	16.1	17.1	24.4	17.3	16.3
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		534			564			460			587	
Approach Delay, s/veh		18.1			17.7			18.3			18.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	17.8	10.3	17.4	8.5	17.7	8.4	19.4
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	5.8	33.0	8.9	30.3	6.1	32.7	4.2	35.0
Max Q Clear Time (g_c+I1), s	3.5	6.2	4.8	6.8	3.7	7.2	3.2	6.1
Green Ext Time (p_c), s	0.1	3.6	0.2	3.5	0.1	3.5	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	330	59	203	350	53	88	254	156	113	484	68
Future Volume (veh/h)	44	330	59	203	350	53	88	254	156	113	484	68
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	48	359	64	221	380	58	96	276	170	123	526	74
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	838	338	412	1064	425	241	977	395	266	1005	401
Arrive On Green	0.07	0.24	0.24	0.13	0.30	0.30	0.08	0.28	0.28	0.08	0.28	0.28
Sat Flow, veh/h	3170	3539	1429	3170	3539	1414	3170	3539	1431	3170	3539	1413
Grp Volume(v), veh/h	48	359	64	221	380	58	96	276	170	123	526	74
Grp Sat Flow(s),veh/h/ln	1585	1770	1429	1585	1770	1414	1585	1770	1431	1585	1770	1413
Q Serve(g_s), s	0.8	5.0	2.1	3.8	4.9	1.8	1.7	3.6	5.7	2.2	7.3	2.3
Cycle Q Clear(g_c), s	0.8	5.0	2.1	3.8	4.9	1.8	1.7	3.6	5.7	2.2	7.3	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	838	338	412	1064	425	241	977	395	266	1005	401
V/C Ratio(X)	0.23	0.43	0.19	0.54	0.36	0.14	0.40	0.28	0.43	0.46	0.52	0.18
Avail Cap(c_a), veh/h	308	1934	781	595	2254	900	319	2115	855	325	2121	847
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	25.9	19.0	17.9	23.8	16.0	14.9	25.8	16.6	17.4	25.6	17.6	15.8
Incr Delay (d2), s/veh	0.6	0.3	0.3	1.1	0.2	0.1	1.1	0.2	0.7	1.2	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	0.4	2.5	0.9	1.7	2.4	0.7	0.8	1.8	2.3	1.0	3.6	0.9
LnGrp Delay(d),s/veh	26.5	19.3	18.1	24.9	16.2	15.1	26.8	16.8	18.2	26.8	18.1	16.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		471			659			542			723	
Approach Delay, s/veh		19.9			19.0			19.0			19.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	20.2	11.6	17.9	8.5	20.6	7.9	21.6
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.7	33.7	9.3	30.3	4.6	33.8	4.0	35.6
Max Q Clear Time (g_c+I1), s	4.2	7.7	5.8	7.0	3.7	9.3	2.8	6.9
Green Ext Time (p_c), s	0.0	4.6	0.3	3.5	0.0	4.5	0.0	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	373	88	203	389	53	115	254	156	113	484	91
Future Volume (veh/h)	71	373	88	203	389	53	115	254	156	113	484	91
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	77	405	96	221	423	58	125	276	170	123	526	99
Adj No. of Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	396	803	324	412	821	327	269	1013	410	266	1010	403
Arrive On Green	0.13	0.23	0.23	0.13	0.23	0.23	0.08	0.29	0.29	0.08	0.29	0.29
Sat Flow, veh/h	3170	3539	1429	3170	3539	1409	3170	3539	1431	3170	3539	1413
Grp Volume(v), veh/h	77	405	96	221	423	58	125	276	170	123	526	99
Grp Sat Flow(s),veh/h/ln	1585	1770	1429	1585	1770	1409	1585	1770	1431	1585	1770	1413
Q Serve(g_s), s	1.3	5.9	3.3	3.8	6.1	1.2	2.2	3.5	5.6	2.2	7.3	1.8
Cycle Q Clear(g_c), s	1.3	5.9	3.3	3.8	6.1	1.2	2.2	3.5	5.6	2.2	7.3	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	803	324	412	821	327	269	1013	410	266	1010	403
V/C Ratio(X)	0.19	0.50	0.30	0.54	0.52	0.18	0.47	0.27	0.42	0.46	0.52	0.25
Avail Cap(c_a), veh/h	396	1932	780	595	2215	882	324	2113	854	324	2113	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	19.8	18.8	23.9	19.6	7.3	25.6	16.2	16.9	25.6	17.6	5.3
Incr Delay (d2), s/veh	0.2	0.5	0.5	1.1	0.5	0.3	1.3	0.1	0.7	1.2	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.9	1.3	1.7	3.1	0.7	1.0	1.7	2.3	1.0	3.6	1.2
LnGrp Delay(d),s/veh	23.2	20.3	19.3	24.9	20.1	7.6	26.8	16.3	17.6	26.8	18.0	5.6
LnGrp LOS	C	C	B	C	C	A	C	B	B	C	B	A
Approach Vol, veh/h		578			702			571			748	
Approach Delay, s/veh		20.5			20.6			19.0			17.8	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	20.8	11.6	17.3	9.0	20.7	11.3	17.6
Change Period (Y+Rc), s	5.3	5.3	5.7	5.7	5.3	5.3	5.7	5.7
Max Green Setting (Gmax), s	4.7	33.7	9.3	30.3	4.7	33.7	4.6	35.0
Max Q Clear Time (g_c+I1), s	4.2	7.6	5.8	7.9	4.2	9.3	3.3	8.1
Green Ext Time (p_c), s	0.0	4.7	0.3	2.1	0.0	4.6	0.4	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	19.4
HCM 2010 LOS	B

Intersection 6
10th Ave & Grangeville Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	412	68	166	388	100	106	518	148	82	418	74
Future Volume (veh/h)	175	412	68	166	388	100	106	518	148	82	418	74
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	190	448	74	180	422	109	115	563	161	89	454	80
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	772	127	259	657	168	224	736	210	132	646	113
Arrive On Green	0.18	0.25	0.23	0.16	0.24	0.21	0.14	0.27	0.26	0.08	0.22	0.20
Sat Flow, veh/h	1634	3034	498	1634	2779	710	1634	2707	771	1634	3001	525
Grp Volume(v), veh/h	190	260	262	180	267	264	115	367	357	89	266	268
Grp Sat Flow(s),veh/h/ln	1634	1770	1763	1634	1770	1719	1634	1770	1709	1634	1770	1757
Q Serve(g_s), s	7.4	8.8	8.9	7.1	9.3	9.5	4.5	13.0	13.2	3.6	9.5	9.7
Cycle Q Clear(g_c), s	7.4	8.8	8.9	7.1	9.3	9.5	4.5	13.0	13.2	3.6	9.5	9.7
Prop In Lane	1.00		0.28	1.00		0.41	1.00		0.45	1.00		0.30
Lane Grp Cap(c), veh/h	289	450	449	259	418	407	224	481	465	132	381	378
V/C Ratio(X)	0.66	0.58	0.58	0.69	0.64	0.65	0.51	0.76	0.77	0.67	0.70	0.71
Avail Cap(c_a), veh/h	383	689	686	459	772	750	263	627	605	215	575	571
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	26.2	22.3	22.5	27.2	23.5	23.9	27.4	22.9	23.1	30.5	24.8	25.0
Incr Delay (d2), s/veh	2.5	1.2	1.2	3.3	1.6	1.7	1.8	4.1	4.4	5.9	2.3	2.4
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	3.5	4.4	4.5	3.4	4.7	4.7	2.1	6.9	6.7	1.8	4.9	4.9
LnGrp Delay(d),s/veh	28.7	23.4	23.7	30.5	25.1	25.6	29.2	27.0	27.5	36.4	27.1	27.4
LnGrp LOS	C	C	C	C	C	C	C	C	C	D	C	C
Approach Vol, veh/h		712			711			839			623	
Approach Delay, s/veh		25.0			26.7			27.5			28.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	22.6	14.8	21.4	13.4	18.7	16.1	20.2
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	8.1	23.3	17.5	24.9	10.1	21.3	14.3	28.1
Max Q Clear Time (g_c+I1), s	5.6	15.2	9.1	10.9	6.5	11.7	9.4	11.5
Green Ext Time (p_c), s	0.0	2.2	0.3	2.2	1.2	1.4	1.3	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	26.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	426	82	166	404	100	121	518	148	82	418	77
Future Volume (veh/h)	178	426	82	166	404	100	121	518	148	82	418	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	193	463	89	180	439	109	132	563	161	89	454	84
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	689	132	291	671	165	229	748	213	132	646	119
Arrive On Green	0.17	0.23	0.21	0.18	0.24	0.21	0.14	0.28	0.26	0.08	0.22	0.20
Sat Flow, veh/h	1634	2954	564	1634	2803	690	1634	2707	771	1634	2975	547
Grp Volume(v), veh/h	193	276	276	180	276	272	132	367	357	89	269	269
Grp Sat Flow(s),veh/h/ln	1634	1770	1749	1634	1770	1724	1634	1770	1709	1634	1770	1752
Q Serve(g_s), s	7.7	9.8	10.0	7.0	9.7	9.9	5.2	13.1	13.2	3.7	9.7	9.8
Cycle Q Clear(g_c), s	7.7	9.8	10.0	7.0	9.7	9.9	5.2	13.1	13.2	3.7	9.7	9.8
Prop In Lane	1.00		0.32	1.00		0.40	1.00		0.45	1.00		0.31
Lane Grp Cap(c), veh/h	280	413	408	291	424	413	229	489	472	132	384	380
V/C Ratio(X)	0.69	0.67	0.68	0.62	0.65	0.66	0.58	0.75	0.76	0.67	0.70	0.71
Avail Cap(c_a), veh/h	426	674	667	469	721	702	332	716	691	237	613	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	24.0	24.4	26.2	23.6	24.0	27.8	22.8	23.0	30.8	24.9	25.1
Incr Delay (d2), s/veh	3.0	1.9	2.0	2.2	1.7	1.8	2.3	2.6	2.8	5.9	2.3	2.4
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	3.7	5.0	5.0	3.3	4.9	4.9	2.5	6.7	6.5	1.9	4.9	5.0
LnGrp Delay(d),s/veh	29.8	25.9	26.3	28.4	25.3	25.8	30.1	25.4	25.8	36.7	27.2	27.6
LnGrp LOS	C	C	C	C	C	C	C	C	C	D	C	C
Approach Vol, veh/h		745			728			856			627	
Approach Delay, s/veh		27.1			26.3			26.3			28.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	23.1	16.3	20.1	13.7	19.0	15.8	20.5
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	9.1	27.0	18.1	24.6	13.1	23.0	16.3	26.4
Max Q Clear Time (g_c+I1), s	5.7	15.2	9.0	12.0	7.2	11.8	9.7	11.9
Green Ext Time (p_c), s	0.1	2.6	0.9	1.6	1.8	1.5	0.7	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	478	86	212	451	116	131	573	182	91	462	82
Future Volume (veh/h)	220	478	86	212	451	116	131	573	182	91	462	82
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	239	520	93	230	490	126	142	623	198	99	502	89
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	696	124	329	684	175	265	779	247	140	657	116
Arrive On Green	0.19	0.23	0.21	0.20	0.25	0.23	0.16	0.30	0.29	0.09	0.22	0.21
Sat Flow, veh/h	1634	2992	533	1634	2780	710	1634	2631	835	1634	2997	529
Grp Volume(v), veh/h	239	307	306	230	311	305	142	419	402	99	295	296
Grp Sat Flow(s),veh/h/ln	1634	1770	1755	1634	1770	1720	1634	1770	1697	1634	1770	1756
Q Serve(g_s), s	12.1	13.9	14.1	11.3	13.9	14.2	6.9	18.9	19.0	5.1	13.6	13.7
Cycle Q Clear(g_c), s	12.1	13.9	14.1	11.3	13.9	14.2	6.9	18.9	19.0	5.1	13.6	13.7
Prop In Lane	1.00		0.30	1.00		0.41	1.00		0.49	1.00		0.30
Lane Grp Cap(c), veh/h	307	412	408	329	436	423	265	524	502	140	388	385
V/C Ratio(X)	0.78	0.74	0.75	0.70	0.71	0.72	0.54	0.80	0.80	0.71	0.76	0.77
Avail Cap(c_a), veh/h	490	632	627	471	612	595	452	959	919	207	694	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	30.9	31.2	32.2	29.9	30.3	33.3	28.1	28.4	38.6	31.7	31.9
Incr Delay (d2), s/veh	4.3	2.7	2.8	2.7	2.3	2.5	1.7	2.9	3.0	6.5	3.1	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	7.1	7.1	5.4	7.1	7.0	3.2	9.6	9.3	2.6	7.0	7.0
LnGrp Delay(d),s/veh	37.8	33.6	34.0	34.9	32.2	32.9	35.0	31.0	31.4	45.1	34.8	35.2
LnGrp LOS	D	C	C	C	C	C	C	C	C	D	C	D
Approach Vol, veh/h		852			846			963			690	
Approach Delay, s/veh		34.9			33.2			31.8			36.4	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	29.7	21.5	24.2	18.1	23.0	20.3	25.3
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	10.1	46.1	23.3	29.3	23.1	33.1	24.3	28.3
Max Q Clear Time (g_c+I1), s	7.1	21.0	13.3	16.1	8.9	15.7	14.1	16.2
Green Ext Time (p_c), s	0.1	3.8	2.4	1.9	3.3	2.0	0.6	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	33.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	492	100	212	467	116	146	573	182	91	462	85
Future Volume (veh/h)	223	492	100	212	467	116	146	573	182	91	462	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	242	535	109	230	508	126	159	623	198	99	502	92
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	699	142	326	701	173	265	777	247	139	652	119
Arrive On Green	0.19	0.24	0.22	0.20	0.25	0.23	0.16	0.30	0.29	0.09	0.22	0.21
Sat Flow, veh/h	1634	2921	592	1634	2802	691	1634	2631	835	1634	2980	543
Grp Volume(v), veh/h	242	323	321	230	320	314	159	419	402	99	297	297
Grp Sat Flow(s),veh/h/ln	1634	1770	1743	1634	1770	1724	1634	1770	1697	1634	1770	1753
Q Serve(g_s), s	12.5	15.1	15.2	11.6	14.7	14.9	8.0	19.4	19.4	5.2	14.0	14.1
Cycle Q Clear(g_c), s	12.5	15.1	15.2	11.6	14.7	14.9	8.0	19.4	19.4	5.2	14.0	14.1
Prop In Lane	1.00		0.34	1.00		0.40	1.00		0.49	1.00		0.31
Lane Grp Cap(c), veh/h	308	424	417	326	443	431	265	523	501	139	387	383
V/C Ratio(X)	0.78	0.76	0.77	0.71	0.72	0.73	0.60	0.80	0.80	0.71	0.77	0.77
Avail Cap(c_a), veh/h	479	619	610	461	599	584	442	938	900	203	679	673
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	34.2	31.4	31.7	33.1	30.4	30.8	34.5	28.8	29.1	39.5	32.5	32.7
Incr Delay (d2), s/veh	4.6	3.3	3.6	2.8	2.8	3.0	2.2	2.9	3.1	6.5	3.2	3.4
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	6.0	7.8	7.7	5.5	7.4	7.5	3.8	9.8	9.5	2.6	7.2	7.2
LnGrp Delay(d),s/veh	38.8	34.7	35.3	35.9	33.2	33.8	36.7	31.7	32.1	46.0	35.7	36.1
LnGrp LOS	D	C	D	D	C	C	D	C	C	D	D	D
Approach Vol, veh/h		886			864			980			693	
Approach Delay, s/veh		36.0			34.1			32.7			37.3	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	30.2	21.7	25.2	18.3	23.4	20.7	26.2
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	10.1	46.1	23.3	29.3	23.1	33.1	24.3	28.3
Max Q Clear Time (g_c+I1), s	7.2	21.4	13.6	17.2	10.0	16.1	14.5	16.9
Green Ext Time (p_c), s	0.1	3.8	2.4	1.9	3.2	2.0	0.6	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	301	68	132	300	34	102	196	55	68	447	77
Future Volume (veh/h)	64	301	68	132	300	34	102	196	55	68	447	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	70	327	74	143	326	37	111	213	60	74	486	84
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	524	117	202	752	85	153	1228	337	109	1271	219
Arrive On Green	0.07	0.18	0.16	0.12	0.23	0.22	0.09	0.45	0.44	0.07	0.42	0.41
Sat Flow, veh/h	1634	2863	638	1634	3200	360	1634	2735	750	1634	3013	518
Grp Volume(v), veh/h	70	200	201	143	179	184	111	136	137	74	284	286
Grp Sat Flow(s),veh/h/ln	1634	1770	1732	1634	1770	1790	1634	1770	1716	1634	1770	1761
Q Serve(g_s), s	3.7	9.4	9.7	7.6	7.8	7.9	5.9	4.1	4.3	4.0	10.0	10.1
Cycle Q Clear(g_c), s	3.7	9.4	9.7	7.6	7.8	7.9	5.9	4.1	4.3	4.0	10.0	10.1
Prop In Lane	1.00		0.37	1.00		0.20	1.00		0.44	1.00		0.29
Lane Grp Cap(c), veh/h	117	324	317	202	416	420	153	795	770	109	747	743
V/C Ratio(X)	0.60	0.62	0.63	0.71	0.43	0.44	0.73	0.17	0.18	0.68	0.38	0.38
Avail Cap(c_a), veh/h	178	468	458	272	570	577	218	795	770	183	747	743
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)	0.95	0.95	0.95	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	33.9	34.3	37.9	29.3	29.5	39.7	14.8	15.0	41.1	17.9	18.1
Incr Delay (d2), s/veh	4.5	1.8	2.0	5.3	0.7	0.7	5.8	0.4	0.4	7.3	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	4.7	4.8	3.7	3.9	4.0	2.9	2.1	2.1	2.0	5.1	5.2
LnGrp Delay(d),s/veh	45.0	35.7	36.3	43.2	30.0	30.2	45.5	15.2	15.4	48.4	19.4	19.6
LnGrp LOS	D	D	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		471			506			384			644	
Approach Delay, s/veh		37.3			33.8			24.0			22.8	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	44.4	15.1	20.5	12.4	42.0	10.5	25.1
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	9.2	24.2	13.3	22.1	11.1	22.3	8.1	27.3
Max Q Clear Time (g_c+I1), s	6.0	6.3	9.6	11.7	7.9	12.1	5.7	9.9
Green Ext Time (p_c), s	0.0	2.9	0.1	2.1	0.1	2.4	0.0	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	316	83	132	315	34	116	196	55	68	447	80
Future Volume (veh/h)	67	316	83	132	315	34	116	196	55	68	447	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	73	343	90	143	342	37	126	213	60	74	486	87
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	505	131	209	760	82	170	362	99	620	1221	217
Arrive On Green	0.07	0.18	0.16	0.13	0.24	0.22	0.10	0.13	0.12	0.38	0.41	0.40
Sat Flow, veh/h	1634	2770	716	1634	3217	345	1634	2729	747	1634	2995	533
Grp Volume(v), veh/h	73	217	216	143	187	192	126	136	137	74	286	287
Grp Sat Flow(s),veh/h/ln	1634	1770	1716	1634	1770	1793	1634	1770	1706	1634	1770	1758
Q Serve(g_s), s	3.9	10.3	10.6	7.5	8.1	8.3	6.7	6.5	6.8	2.6	10.3	10.4
Cycle Q Clear(g_c), s	3.9	10.3	10.6	7.5	8.1	8.3	6.7	6.5	6.8	2.6	10.3	10.4
Prop In Lane	1.00		0.42	1.00		0.19	1.00		0.44	1.00		0.30
Lane Grp Cap(c), veh/h	121	323	313	209	418	424	170	235	226	620	722	717
V/C Ratio(X)	0.60	0.67	0.69	0.68	0.45	0.45	0.74	0.58	0.61	0.12	0.40	0.40
Avail Cap(c_a), veh/h	163	468	454	254	566	574	236	513	495	620	722	717
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)	0.94	0.94	0.94	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	34.3	34.8	37.5	29.3	29.5	39.1	36.7	37.0	18.2	18.8	19.0
Incr Delay (d2), s/veh	4.5	2.3	2.5	5.6	0.7	0.8	6.5	8.5	9.7	0.1	1.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.2	5.3	3.7	4.0	4.2	3.4	3.7	3.8	1.2	5.3	5.4
LnGrp Delay(d),s/veh	44.9	36.6	37.3	43.1	30.1	30.3	45.6	45.2	46.7	18.2	20.4	20.6
LnGrp LOS	D	D	D	D	C	C	D	D	D	B	C	C
Approach Vol, veh/h		506			522			399			647	
Approach Delay, s/veh		38.1			33.7			45.8			20.3	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.1	15.9	15.5	20.4	13.4	40.7	10.7	25.3
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	9.2	25.2	12.3	22.1	12.1	22.3	7.3	27.1
Max Q Clear Time (g_c+I1), s	4.6	8.8	9.5	12.6	8.7	12.4	5.9	10.3
Green Ext Time (p_c), s	1.1	0.8	0.6	1.1	0.1	1.8	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	32.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	350	86	169	348	39	126	217	68	75	494	85
Future Volume (veh/h)	81	350	86	169	348	39	126	217	68	75	494	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	88	380	93	184	378	42	137	236	74	82	537	92
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	540	131	244	823	91	181	379	115	552	1115	190
Arrive On Green	0.08	0.19	0.17	0.15	0.26	0.24	0.11	0.14	0.13	0.34	0.37	0.36
Sat Flow, veh/h	1634	2813	680	1634	3207	354	1634	2655	809	1634	3016	515
Grp Volume(v), veh/h	88	237	236	184	207	213	137	155	155	82	314	315
Grp Sat Flow(s),veh/h/ln	1634	1770	1724	1634	1770	1792	1634	1770	1694	1634	1770	1761
Q Serve(g_s), s	4.7	11.3	11.6	9.7	8.9	9.0	7.3	7.4	7.8	3.1	12.2	12.4
Cycle Q Clear(g_c), s	4.7	11.3	11.6	9.7	8.9	9.0	7.3	7.4	7.8	3.1	12.2	12.4
Prop In Lane	1.00		0.39	1.00		0.20	1.00		0.48	1.00		0.29
Lane Grp Cap(c), veh/h	139	340	331	244	454	460	181	253	242	552	654	651
V/C Ratio(X)	0.63	0.70	0.71	0.75	0.46	0.46	0.76	0.61	0.64	0.15	0.48	0.48
Avail Cap(c_a), veh/h	145	468	456	254	586	593	218	492	471	552	654	651
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)	0.93	0.93	0.93	1.00	1.00	1.00	0.56	0.56	0.56	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	33.9	34.4	36.7	28.2	28.4	38.8	36.2	36.6	20.8	21.7	21.9
Incr Delay (d2), s/veh	7.6	2.5	3.0	11.5	0.7	0.7	6.8	6.1	7.1	0.1	2.5	2.6
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	2.4	5.7	5.8	5.2	4.4	4.5	3.7	4.0	4.1	1.4	6.4	6.4
LnGrp Delay(d),s/veh	47.4	36.4	37.3	48.2	28.9	29.1	45.6	42.4	43.7	20.9	24.3	24.4
LnGrp LOS	D	D	D	D	C	C	D	D	D	C	C	C
Approach Vol, veh/h		561			604			447			711	
Approach Delay, s/veh		38.5			34.8			43.8			23.9	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.4	16.8	17.5	21.3	14.0	37.3	11.6	27.1
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	10.3	24.1	12.3	22.1	11.1	23.3	6.3	28.1
Max Q Clear Time (g_c+I1), s	5.1	9.8	11.7	13.6	9.3	14.4	6.7	11.0
Green Ext Time (p_c), s	1.3	0.9	0.2	1.1	0.1	1.9	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	365	101	169	363	39	140	217	68	75	494	88
Future Volume (veh/h)	84	365	101	169	363	39	140	217	68	75	494	88
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1750	1716	1863	1750	1716	1863	1750	1716	1863	1750
Adj Flow Rate, veh/h	91	397	110	184	395	42	152	236	74	82	537	96
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	611	167	274	961	102	209	422	129	346	728	130
Arrive On Green	0.09	0.22	0.20	0.17	0.30	0.27	0.13	0.16	0.15	0.21	0.24	0.23
Sat Flow, veh/h	1634	2733	748	1634	3224	341	1634	2655	810	1634	2993	533
Grp Volume(v), veh/h	91	255	252	184	216	221	152	155	155	82	317	316
Grp Sat Flow(s),veh/h/ln	1634	1770	1711	1634	1770	1795	1634	1770	1695	1634	1770	1756
Q Serve(g_s), s	3.6	8.8	9.1	7.1	6.6	6.7	6.0	5.4	5.7	2.8	11.1	11.2
Cycle Q Clear(g_c), s	3.6	8.8	9.1	7.1	6.6	6.7	6.0	5.4	5.7	2.8	11.1	11.2
Prop In Lane	1.00		0.44	1.00		0.19	1.00		0.48	1.00		0.30
Lane Grp Cap(c), veh/h	152	396	383	274	527	535	209	281	270	346	430	427
V/C Ratio(X)	0.60	0.64	0.66	0.67	0.41	0.41	0.73	0.55	0.58	0.24	0.74	0.74
Avail Cap(c_a), veh/h	180	626	605	340	800	811	316	658	630	346	610	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	23.7	24.1	26.3	18.9	19.0	28.2	26.1	26.4	22.0	23.5	23.6
Incr Delay (d2), s/veh	3.9	1.8	1.9	3.7	0.5	0.5	4.8	1.7	1.9	0.3	2.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	4.5	4.5	3.5	3.3	3.3	3.0	2.8	2.8	1.3	5.7	5.8
LnGrp Delay(d),s/veh	33.2	25.5	26.0	30.0	19.4	19.6	33.0	27.8	28.3	22.3	26.3	26.6
LnGrp LOS	C	C	C	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		598			621			462			715	
Approach Delay, s/veh		26.9			22.6			29.7			26.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	14.7	15.3	19.1	12.6	20.4	10.3	24.0
Change Period (Y+Rc), s	4.9	4.9	5.7	5.7	4.9	4.9	5.7	5.7
Max Green Setting (Gmax), s	10.3	24.1	12.3	22.1	12.1	22.3	5.7	28.7
Max Q Clear Time (g_c+I1), s	4.8	7.7	9.1	11.1	8.0	13.2	5.6	8.7
Green Ext Time (p_c), s	1.4	0.9	0.8	1.4	0.2	1.7	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	26.0
HCM 2010 LOS	C

Intersection 7
Centennial Dr & Lacey Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	386	113	102	329	133	143	253	43	117	171	49
Future Volume (veh/h)	78	386	113	102	329	133	143	253	43	117	171	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	85	420	123	111	358	145	155	275	47	127	186	53
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	857	346	166	932	372	234	442	339	214	615	170
Arrive On Green	0.08	0.24	0.24	0.10	0.26	0.26	0.14	0.24	0.24	0.13	0.23	0.20
Sat Flow, veh/h	1634	3539	1429	1634	3539	1412	1634	1863	1429	1634	2727	753
Grp Volume(v), veh/h	85	420	123	111	358	145	155	275	47	127	119	120
Grp Sat Flow(s),veh/h/ln	1634	1770	1429	1634	1770	1412	1634	1863	1429	1634	1770	1710
Q Serve(g_s), s	2.8	5.7	4.0	3.6	4.6	2.7	5.0	7.3	0.9	4.1	3.1	3.3
Cycle Q Clear(g_c), s	2.8	5.7	4.0	3.6	4.6	2.7	5.0	7.3	0.9	4.1	3.1	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	132	857	346	166	932	372	234	442	339	214	399	386
V/C Ratio(X)	0.65	0.49	0.36	0.67	0.38	0.39	0.66	0.62	0.14	0.59	0.30	0.31
Avail Cap(c_a), veh/h	353	1648	666	414	1782	711	552	1072	822	499	961	929
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	24.8	18.1	17.5	24.1	16.8	5.7	22.6	19.0	6.4	22.8	17.9	18.2
Incr Delay (d2), s/veh	5.2	0.4	0.6	4.6	0.3	0.7	3.2	1.4	0.2	2.6	0.4	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	1.4	2.8	1.6	1.8	2.3	1.7	2.4	3.9	0.6	2.0	1.6	1.6
LnGrp Delay(d),s/veh	30.0	18.6	18.1	28.6	17.0	6.4	25.8	20.4	6.5	25.4	18.3	18.7
LnGrp LOS	C	B	B	C	B	A	C	C	A	C	B	B
Approach Vol, veh/h		628			614			477			366	
Approach Delay, s/veh		20.0			16.6			20.8			20.9	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	17.2	9.7	17.5	11.9	16.5	8.5	18.7
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	15.7	30.7	13.2	25.0	17.5	28.9	11.1	27.1
Max Q Clear Time (g_c+I1), s	6.1	9.3	5.6	7.7	7.0	5.3	4.8	6.6
Green Ext Time (p_c), s	0.9	1.1	0.2	4.1	0.3	1.2	0.1	4.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	386	113	102	329	151	143	260	43	134	177	49
Future Volume (veh/h)	78	386	113	102	329	151	143	260	43	134	177	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	85	420	123	111	358	164	155	283	47	146	192	53
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	851	344	163	923	368	232	448	343	222	643	173
Arrive On Green	0.08	0.24	0.24	0.10	0.26	0.26	0.14	0.24	0.24	0.14	0.23	0.21
Sat Flow, veh/h	1634	3539	1429	1634	3539	1411	1634	1863	1429	1634	2747	737
Grp Volume(v), veh/h	85	420	123	111	358	164	155	283	47	146	122	123
Grp Sat Flow(s),veh/h/ln	1634	1770	1429	1634	1770	1411	1634	1863	1429	1634	1770	1714
Q Serve(g_s), s	2.8	5.8	4.0	3.7	4.7	3.2	5.1	7.7	0.9	4.8	3.2	3.4
Cycle Q Clear(g_c), s	2.8	5.8	4.0	3.7	4.7	3.2	5.1	7.7	0.9	4.8	3.2	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	130	851	344	163	923	368	232	448	343	222	415	402
V/C Ratio(X)	0.66	0.49	0.36	0.68	0.39	0.45	0.67	0.63	0.14	0.66	0.29	0.31
Avail Cap(c_a), veh/h	174	1557	629	220	1657	661	481	1044	801	290	785	760
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	25.2	18.5	17.8	24.5	17.1	5.9	22.9	19.2	6.5	23.1	17.7	18.1
Incr Delay (d2), s/veh	5.5	0.4	0.6	5.1	0.3	0.8	3.3	1.5	0.2	3.4	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	1.5	2.9	1.6	1.9	2.3	2.0	2.5	4.1	0.6	2.4	1.6	1.6
LnGrp Delay(d),s/veh	30.7	18.9	18.4	29.6	17.4	6.7	26.3	20.7	6.7	26.5	18.1	18.5
LnGrp LOS	C	B	B	C	B	A	C	C	A	C	B	B
Approach Vol, veh/h		628			633			485			391	
Approach Delay, s/veh		20.4			16.8			21.1			21.4	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	17.5	9.6	17.6	12.0	17.2	8.5	18.7
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.7	30.3	6.7	23.9	15.3	23.7	5.1	25.5
Max Q Clear Time (g_c+I1), s	6.8	9.7	5.7	7.8	7.1	5.4	4.8	6.7
Green Ext Time (p_c), s	0.3	1.1	0.0	4.1	0.3	1.2	0.0	4.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	623	182	163	526	212	158	280	48	129	189	54
Future Volume (veh/h)	126	623	182	163	526	212	158	280	48	129	189	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	137	677	198	177	572	230	172	304	52	140	205	59
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	987	399	230	1081	432	239	436	334	199	569	159
Arrive On Green	0.11	0.28	0.28	0.14	0.31	0.31	0.15	0.23	0.23	0.12	0.21	0.19
Sat Flow, veh/h	1634	3539	1431	1634	3539	1414	1634	1863	1429	1634	2718	760
Grp Volume(v), veh/h	137	677	198	177	572	230	172	304	52	140	131	133
Grp Sat Flow(s),veh/h/ln	1634	1770	1431	1634	1770	1414	1634	1863	1429	1634	1770	1709
Q Serve(g_s), s	5.8	12.2	8.3	7.4	9.5	6.0	7.2	10.6	1.3	5.9	4.5	4.8
Cycle Q Clear(g_c), s	5.8	12.2	8.3	7.4	9.5	6.0	7.2	10.6	1.3	5.9	4.5	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	187	987	399	230	1081	432	239	436	334	199	370	358
V/C Ratio(X)	0.73	0.69	0.50	0.77	0.53	0.53	0.72	0.70	0.16	0.70	0.35	0.37
Avail Cap(c_a), veh/h	197	1143	462	234	1222	488	404	826	634	211	576	556
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	30.5	22.9	21.5	29.5	20.5	8.1	29.0	25.0	8.4	30.0	24.1	24.4
Incr Delay (d2), s/veh	12.4	1.4	1.0	14.1	0.4	1.0	4.0	2.0	0.2	9.5	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	6.1	3.4	4.2	4.7	3.2	3.5	5.7	0.8	3.2	2.2	2.3
LnGrp Delay(d),s/veh	42.9	24.3	22.5	43.6	20.9	9.1	33.1	27.0	8.6	39.5	24.6	25.1
LnGrp LOS	D	C	C	D	C	A	C	C	A	D	C	C
Approach Vol, veh/h		1012			979			528			404	
Approach Delay, s/veh		26.5			22.2			27.2			29.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	20.7	14.1	23.9	14.4	18.9	12.2	25.8
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	7.9	30.3	9.3	22.1	16.3	21.9	7.7	23.7
Max Q Clear Time (g_c+I1), s	7.9	12.6	9.4	14.2	9.2	6.8	7.8	11.5
Green Ext Time (p_c), s	0.0	1.1	0.0	4.5	0.3	1.2	0.0	5.9

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	623	182	163	526	230	158	287	48	146	195	54
Future Volume (veh/h)	126	623	182	163	526	230	158	287	48	146	195	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	137	677	198	177	572	250	172	312	52	159	212	59
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	977	395	229	1070	428	238	440	338	207	596	161
Arrive On Green	0.11	0.28	0.28	0.14	0.30	0.30	0.15	0.24	0.24	0.13	0.22	0.20
Sat Flow, veh/h	1634	3539	1431	1634	3539	1414	1634	1863	1429	1634	2740	742
Grp Volume(v), veh/h	137	677	198	177	572	250	172	312	52	159	135	136
Grp Sat Flow(s),veh/h/ln	1634	1770	1431	1634	1770	1414	1634	1863	1429	1634	1770	1713
Q Serve(g_s), s	5.9	12.4	8.4	7.6	9.8	6.8	7.3	11.2	1.3	6.8	4.7	4.9
Cycle Q Clear(g_c), s	5.9	12.4	8.4	7.6	9.8	6.8	7.3	11.2	1.3	6.8	4.7	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	187	977	395	229	1070	428	238	440	338	207	385	372
V/C Ratio(X)	0.73	0.69	0.50	0.77	0.53	0.58	0.72	0.71	0.15	0.77	0.35	0.37
Avail Cap(c_a), veh/h	193	1121	453	229	1199	479	396	810	622	207	565	547
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	31.1	23.5	22.1	30.1	21.1	8.4	29.6	25.4	8.6	30.7	24.1	24.4
Incr Delay (d2), s/veh	13.1	1.6	1.0	14.8	0.4	1.5	4.1	2.1	0.2	15.9	0.5	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	3.3	6.2	3.4	4.3	4.8	3.6	3.6	6.0	0.8	4.0	2.3	2.4
LnGrp Delay(d),s/veh	44.2	25.1	23.1	44.9	21.5	9.9	33.7	27.5	8.8	46.6	24.6	25.0
LnGrp LOS	D	C	C	D	C	A	C	C	A	D	C	C
Approach Vol, veh/h		1012			999			536			430	
Approach Delay, s/veh		27.3			22.7			27.7			32.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	21.2	14.2	24.1	14.6	19.8	12.3	26.0
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	7.9	30.3	9.3	22.1	16.3	21.9	7.7	23.7
Max Q Clear Time (g_c+I1), s	8.8	13.2	9.6	14.4	9.3	6.9	7.9	11.8
Green Ext Time (p_c), s	0.0	1.1	0.0	4.4	0.3	1.3	0.0	5.9

Intersection Summary	
HCM 2010 Ctrl Delay	26.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	268	60	35	102	26	42	103	12	98	192	71
Future Volume (veh/h)	34	268	60	35	102	26	42	103	12	98	192	71
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	37	291	65	38	111	28	46	112	13	107	209	77
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	762	307	95	764	304	122	342	262	204	595	212
Arrive On Green	0.06	0.22	0.22	0.06	0.22	0.22	0.07	0.18	0.18	0.12	0.23	0.20
Sat Flow, veh/h	1634	3539	1428	1634	3539	1408	1634	1863	1426	1634	2544	905
Grp Volume(v), veh/h	37	291	65	38	111	28	46	112	13	107	143	143
Grp Sat Flow(s),veh/h/ln	1634	1770	1428	1634	1770	1408	1634	1863	1426	1634	1770	1680
Q Serve(g_s), s	0.8	2.7	1.4	0.9	1.0	0.3	1.0	2.0	0.2	2.3	2.6	2.8
Cycle Q Clear(g_c), s	0.8	2.7	1.4	0.9	1.0	0.3	1.0	2.0	0.2	2.3	2.6	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	94	762	307	95	764	304	122	342	262	204	414	393
V/C Ratio(X)	0.39	0.38	0.21	0.40	0.15	0.09	0.38	0.33	0.05	0.53	0.35	0.36
Avail Cap(c_a), veh/h	256	2294	925	282	2349	934	303	1538	1177	512	1688	1602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	12.8	12.3	17.4	12.1	3.2	16.9	13.6	4.5	15.7	12.2	12.6
Incr Delay (d2), s/veh	2.7	0.3	0.3	2.7	0.1	0.1	1.9	0.6	0.1	2.1	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	0.6	0.5	0.5	0.2	0.5	1.1	0.1	1.2	1.3	1.4
LnGrp Delay(d),s/veh	20.1	13.2	12.7	20.1	12.2	3.3	18.8	14.1	4.5	17.8	12.7	13.1
LnGrp LOS	C	B	B	C	B	A	B	B	A	B	B	B
Approach Vol, veh/h		393			177			171			393	
Approach Delay, s/veh		13.7			12.5			14.6			14.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	11.0	6.2	12.2	6.8	13.0	6.2	12.3
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	10.7	30.3	5.7	23.9	5.8	35.2	5.1	24.5
Max Q Clear Time (g_c+I1), s	4.3	4.0	2.9	4.7	3.0	4.8	2.8	3.0
Green Ext Time (p_c), s	0.8	0.4	0.0	1.8	0.0	1.4	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	268	60	35	102	43	42	109	12	117	199	71
Future Volume (veh/h)	34	268	60	35	102	43	42	109	12	117	199	71
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	37	291	65	38	111	47	46	118	13	127	216	77
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	940	380	505	1903	764	79	260	198	177	511	176
Arrive On Green	0.04	0.27	0.27	0.31	0.54	0.54	0.05	0.14	0.14	0.11	0.20	0.18
Sat Flow, veh/h	1634	3539	1430	1634	3539	1421	1634	1863	1421	1634	2567	885
Grp Volume(v), veh/h	37	291	65	38	111	47	46	118	13	127	147	146
Grp Sat Flow(s),veh/h/ln	1634	1770	1430	1634	1770	1421	1634	1863	1421	1634	1770	1683
Q Serve(g_s), s	2.0	5.9	2.5	1.5	1.3	1.4	2.5	5.2	0.4	6.8	6.5	6.9
Cycle Q Clear(g_c), s	2.0	5.9	2.5	1.5	1.3	1.4	2.5	5.2	0.4	6.8	6.5	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	60	940	380	505	1903	764	79	260	198	177	353	335
V/C Ratio(X)	0.61	0.31	0.17	0.08	0.06	0.06	0.58	0.45	0.07	0.72	0.42	0.44
Avail Cap(c_a), veh/h	91	940	380	505	1903	764	129	654	499	218	718	682
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	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	26.4	15.7	22.0	9.9	10.0	41.9	35.6	8.6	38.8	31.5	31.9
Incr Delay (d2), s/veh	9.7	0.9	1.0	0.1	0.1	0.2	6.6	1.2	0.1	8.4	0.8	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	1.1	3.0	1.1	0.7	0.7	0.6	1.3	2.8	0.1	3.4	3.3	3.3
LnGrp Delay(d),s/veh	52.4	27.3	16.7	22.1	10.0	10.1	48.5	36.8	8.7	47.2	32.2	32.8
LnGrp LOS	D	C	B	C	A	B	D	D	A	D	C	C
Approach Vol, veh/h		393			196			177			420	
Approach Delay, s/veh		27.9			12.4			37.8			37.0	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	16.5	31.8	27.9	8.4	21.9	7.3	52.4
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	10.7	30.3	5.6	23.0	5.8	35.2	4.1	24.5
Max Q Clear Time (g_c+I1), s	8.8	7.2	3.5	7.9	4.5	8.9	4.0	3.4
Green Ext Time (p_c), s	0.1	1.4	0.1	1.2	0.0	1.4	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	30.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	432	97	56	163	42	46	114	13	108	212	78
Future Volume (veh/h)	55	432	97	56	163	42	46	114	13	108	212	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	60	470	105	61	177	46	50	124	14	117	230	85
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	933	377	111	935	373	116	330	252	213	601	215
Arrive On Green	0.07	0.26	0.26	0.07	0.26	0.26	0.07	0.18	0.18	0.13	0.24	0.21
Sat Flow, veh/h	1634	3539	1430	1634	3539	1412	1634	1863	1425	1634	2540	909
Grp Volume(v), veh/h	60	470	105	61	177	46	50	124	14	117	158	157
Grp Sat Flow(s),veh/h/ln	1634	1770	1430	1634	1770	1412	1634	1863	1425	1634	1770	1679
Q Serve(g_s), s	1.6	5.0	2.6	1.6	1.7	0.6	1.3	2.6	0.2	3.0	3.3	3.5
Cycle Q Clear(g_c), s	1.6	5.0	2.6	1.6	1.7	0.6	1.3	2.6	0.2	3.0	3.3	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	110	933	377	111	935	373	116	330	252	213	419	397
V/C Ratio(X)	0.54	0.50	0.28	0.55	0.19	0.12	0.43	0.38	0.06	0.55	0.38	0.40
Avail Cap(c_a), veh/h	184	2011	813	184	2011	802	372	1328	1016	486	1385	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	13.9	13.0	20.0	12.6	3.4	19.7	16.1	6.0	18.1	14.2	14.6
Incr Delay (d2), s/veh	4.1	0.4	0.4	4.2	0.1	0.1	2.5	0.7	0.1	2.2	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.5	1.1	0.8	0.8	0.4	0.7	1.4	0.1	1.5	1.7	1.7
LnGrp Delay(d),s/veh	24.2	14.3	13.4	24.2	12.7	3.5	22.3	16.8	6.1	20.2	14.7	15.2
LnGrp LOS	C	B	B	C	B	A	C	B	A	C	B	B
Approach Vol, veh/h		635			284			188			432	
Approach Delay, s/veh		15.1			13.7			17.5			16.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	11.8	7.0	15.7	7.1	14.5	7.0	15.7
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	11.9	30.3	4.1	24.3	8.8	33.4	4.1	24.3
Max Q Clear Time (g_c+I1), s	5.0	4.6	3.6	7.0	3.3	5.5	3.6	3.7
Green Ext Time (p_c), s	0.9	0.4	0.0	3.1	0.0	1.5	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	432	97	56	163	59	46	120	13	127	219	78
Future Volume (veh/h)	55	432	97	56	163	59	46	120	13	127	219	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1750
Adj Flow Rate, veh/h	60	470	105	61	177	64	50	130	14	138	238	85
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	495	926	374	507	953	380	164	254	194	189	390	135
Arrive On Green	0.30	0.26	0.26	0.31	0.27	0.27	0.10	0.14	0.14	0.12	0.15	0.14
Sat Flow, veh/h	1634	3539	1430	1634	3539	1412	1634	1863	1420	1634	2561	887
Grp Volume(v), veh/h	60	470	105	61	177	64	50	130	14	138	162	161
Grp Sat Flow(s),veh/h/ln	1634	1770	1430	1634	1770	1412	1634	1863	1420	1634	1770	1679
Q Serve(g_s), s	2.4	10.3	5.3	2.4	3.5	2.2	2.6	5.9	0.4	7.4	7.8	8.2
Cycle Q Clear(g_c), s	2.4	10.3	5.3	2.4	3.5	2.2	2.6	5.9	0.4	7.4	7.8	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	495	926	374	507	953	380	164	254	194	189	269	255
V/C Ratio(X)	0.12	0.51	0.28	0.12	0.19	0.17	0.31	0.51	0.07	0.73	0.60	0.63
Avail Cap(c_a), veh/h	495	926	374	507	953	380	181	647	493	251	690	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	28.6	26.8	22.5	25.6	12.3	38.0	36.5	8.8	38.9	36.0	36.5
Incr Delay (d2), s/veh	0.1	2.0	1.9	0.1	0.4	0.9	1.0	1.6	0.2	7.1	2.2	2.5
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	1.1	5.3	2.3	1.1	1.8	1.0	1.2	3.1	0.2	3.7	3.9	4.0
LnGrp Delay(d),s/veh	23.1	30.6	28.6	22.6	26.0	13.2	39.1	38.1	8.9	45.9	38.2	39.1
LnGrp LOS	C	C	C	C	C	B	D	D	A	D	D	D
Approach Vol, veh/h		635			302			194			461	
Approach Delay, s/veh		29.6			22.6			36.2			40.8	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	16.4	32.2	27.8	13.1	17.9	31.5	28.5
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	12.7	30.3	4.7	22.9	8.8	34.2	4.0	23.6
Max Q Clear Time (g_c+I1), s	9.4	7.9	4.4	12.3	4.6	10.2	4.4	5.5
Green Ext Time (p_c), s	0.1	0.6	0.0	1.8	0.2	1.1	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

Intersection 8
12th Ave & Lacey Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	282	296	139	384	454	75	161	475	102	117	547	77
Future Volume (veh/h)	282	296	139	384	454	75	161	475	102	117	547	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	307	322	151	417	493	82	175	516	111	127	595	84
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	476	700	282	541	772	312	240	1034	418	186	916	370
Arrive On Green	0.15	0.20	0.20	0.17	0.22	0.22	0.15	0.29	0.29	0.11	0.26	0.26
Sat Flow, veh/h	3170	3539	1427	3170	3539	1428	1634	3539	1431	1634	3539	1430
Grp Volume(v), veh/h	307	322	151	417	493	82	175	516	111	127	595	84
Grp Sat Flow(s),veh/h/ln	1585	1770	1427	1585	1770	1428	1634	1770	1431	1634	1770	1430
Q Serve(g_s), s	6.5	5.7	4.3	8.9	9.0	2.3	7.3	8.6	4.2	5.3	10.6	3.3
Cycle Q Clear(g_c), s	6.5	5.7	4.3	8.9	9.0	2.3	7.3	8.6	4.2	5.3	10.6	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	476	700	282	541	772	312	240	1034	418	186	916	370
V/C Ratio(X)	0.64	0.46	0.54	0.77	0.64	0.26	0.73	0.50	0.27	0.68	0.65	0.23
Avail Cap(c_a), veh/h	594	1506	607	599	1511	610	253	1676	678	272	1716	693
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	28.4	25.1	10.6	28.1	25.2	10.6	28.9	20.8	19.3	30.2	23.4	20.7
Incr Delay (d2), s/veh	1.6	0.5	1.6	5.5	0.9	0.4	9.6	0.4	0.3	4.3	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.8	1.8	4.3	4.5	0.9	3.9	4.2	1.7	2.6	5.3	1.3
LnGrp Delay(d),s/veh	30.0	25.6	12.2	33.6	26.1	11.0	38.5	21.2	19.6	34.5	24.2	21.0
LnGrp LOS	C	C	B	C	C	B	D	C	B	C	C	C
Approach Vol, veh/h		780			992			802			806	
Approach Delay, s/veh		24.7			28.0			24.7			25.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	24.7	16.1	18.0	14.4	22.4	14.7	19.5
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	10.5	32.3	12.5	29.3	9.7	33.1	12.4	29.4
Max Q Clear Time (g_c+I1), s	7.3	10.6	10.9	7.7	9.3	12.6	8.5	11.0
Green Ext Time (p_c), s	0.1	3.2	0.3	3.2	0.2	2.7	1.3	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	282	310	142	384	469	80	164	494	102	121	564	77
Future Volume (veh/h)	282	310	142	384	469	80	164	494	102	121	564	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	307	337	154	417	510	87	178	537	111	132	613	84
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	471	709	286	538	783	316	243	1038	420	191	926	374
Arrive On Green	0.15	0.20	0.20	0.17	0.22	0.22	0.15	0.29	0.29	0.12	0.26	0.26
Sat Flow, veh/h	3170	3539	1427	3170	3539	1428	1634	3539	1431	1634	3539	1430
Grp Volume(v), veh/h	307	337	154	417	510	87	178	537	111	132	613	84
Grp Sat Flow(s),veh/h/ln	1585	1770	1427	1585	1770	1428	1634	1770	1431	1634	1770	1430
Q Serve(g_s), s	6.6	6.1	4.5	9.2	9.5	2.5	7.6	9.2	4.3	5.7	11.3	3.4
Cycle Q Clear(g_c), s	6.6	6.1	4.5	9.2	9.5	2.5	7.6	9.2	4.3	5.7	11.3	3.4
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	471	709	286	538	783	316	243	1038	420	191	926	374
V/C Ratio(X)	0.65	0.48	0.54	0.78	0.65	0.28	0.73	0.52	0.26	0.69	0.66	0.22
Avail Cap(c_a), veh/h	579	1487	600	592	1502	606	256	1628	658	276	1672	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	25.7	10.9	28.9	25.8	10.8	29.6	21.4	19.7	30.9	24.0	21.1
Incr Delay (d2), s/veh	1.9	0.5	1.6	5.9	0.9	0.5	9.8	0.4	0.3	4.4	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.0	2.6	4.4	4.8	1.4	4.1	4.5	1.7	2.8	5.6	1.4
LnGrp Delay(d),s/veh	31.1	26.2	12.5	34.8	26.7	11.2	39.4	21.8	20.0	35.3	24.8	21.4
LnGrp LOS	C	C	B	C	C	B	D	C	C	D	C	C
Approach Vol, veh/h		798			1014			826			829	
Approach Delay, s/veh		25.4			28.7			25.4			26.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	25.4	16.4	18.6	14.8	23.0	14.8	20.1
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	11.0	32.2	12.7	29.7	10.1	33.1	12.4	30.0
Max Q Clear Time (g_c+I1), s	7.7	11.2	11.2	8.1	9.6	13.3	8.6	11.5
Green Ext Time (p_c), s	0.1	3.3	0.3	3.3	0.2	2.8	1.3	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	451	375	222	456	495	89	186	548	118	133	621	99
Future Volume (veh/h)	451	375	222	456	495	89	186	548	118	133	621	99
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	490	408	241	496	538	97	202	596	128	145	675	108
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	584	684	275	656	764	308	245	850	343	287	941	380
Arrive On Green	0.18	0.19	0.19	0.21	0.22	0.22	0.15	0.24	0.24	0.18	0.27	0.27
Sat Flow, veh/h	3170	3539	1426	3170	3539	1428	1634	3539	1429	1634	3539	1430
Grp Volume(v), veh/h	490	408	241	496	538	97	202	596	128	145	675	108
Grp Sat Flow(s),veh/h/ln	1585	1770	1426	1585	1770	1428	1634	1770	1429	1634	1770	1430
Q Serve(g_s), s	13.0	9.1	9.6	12.8	12.2	5.0	10.4	13.4	6.5	7.0	15.0	3.0
Cycle Q Clear(g_c), s	13.0	9.1	9.6	12.8	12.2	5.0	10.4	13.4	6.5	7.0	15.0	3.0
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	584	684	275	656	764	308	245	850	343	287	941	380
V/C Ratio(X)	0.84	0.60	0.87	0.76	0.70	0.31	0.83	0.70	0.37	0.51	0.72	0.28
Avail Cap(c_a), veh/h	599	1247	503	656	1231	497	245	1361	550	287	1402	567
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	34.2	31.9	15.5	32.4	31.5	28.6	35.8	30.1	27.5	32.4	28.9	8.6
Incr Delay (d2), s/veh	10.1	0.8	8.6	5.0	1.2	0.6	20.2	1.1	0.7	1.4	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	4.6	5.3	6.0	6.1	2.0	6.1	6.7	2.6	3.3	7.4	1.9
LnGrp Delay(d),s/veh	44.3	32.8	24.0	37.4	32.7	29.2	56.0	31.2	28.2	33.8	29.9	9.0
LnGrp LOS	D	C	C	D	C	C	E	C	C	C	C	A
Approach Vol, veh/h		1139			1131			926			928	
Approach Delay, s/veh		35.9			34.5			36.2			28.1	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	24.9	22.0	20.8	17.0	27.1	20.0	22.7
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	12.7	32.1	15.1	29.7	11.7	33.1	15.5	29.3
Max Q Clear Time (g_c+I1), s	9.0	15.4	14.8	11.6	12.4	17.0	15.0	14.2
Green Ext Time (p_c), s	1.5	2.8	0.2	2.5	0.0	3.3	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	33.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	451	389	225	456	510	94	189	567	118	137	638	99
Future Volume (veh/h)	451	389	225	456	510	94	189	567	118	137	638	99
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	490	423	245	496	554	102	205	616	128	149	693	108
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	581	690	278	657	775	313	241	864	349	282	953	385
Arrive On Green	0.18	0.19	0.19	0.21	0.22	0.22	0.15	0.24	0.24	0.17	0.27	0.27
Sat Flow, veh/h	3170	3539	1427	3170	3539	1428	1634	3539	1429	1634	3539	1430
Grp Volume(v), veh/h	490	423	245	496	554	102	205	616	128	149	693	108
Grp Sat Flow(s),veh/h/ln	1585	1770	1427	1585	1770	1428	1634	1770	1429	1634	1770	1430
Q Serve(g_s), s	13.2	9.6	10.0	13.0	12.8	5.3	10.8	14.1	6.6	7.3	15.7	3.1
Cycle Q Clear(g_c), s	13.2	9.6	10.0	13.0	12.8	5.3	10.8	14.1	6.6	7.3	15.7	3.1
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	581	690	278	657	775	313	241	864	349	282	953	385
V/C Ratio(X)	0.84	0.61	0.88	0.76	0.71	0.33	0.85	0.71	0.37	0.53	0.73	0.28
Avail Cap(c_a), veh/h	589	1227	495	657	1211	489	241	1339	541	282	1380	558
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	34.8	32.5	15.9	32.9	31.9	29.0	36.7	30.5	27.7	33.3	29.3	8.7
Incr Delay (d2), s/veh	10.7	0.9	8.9	5.0	1.2	0.6	24.2	1.1	0.6	1.9	1.1	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	6.6	4.8	5.4	6.1	6.4	2.1	6.5	7.0	2.6	3.5	7.7	1.9
LnGrp Delay(d),s/veh	45.5	33.4	24.8	37.9	33.2	29.6	60.9	31.6	28.3	35.1	30.4	9.1
LnGrp LOS	D	C	C	D	C	C	E	C	C	D	C	A
Approach Vol, veh/h		1158			1152			949			950	
Approach Delay, s/veh		36.7			34.9			37.5			28.7	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	25.5	22.3	21.2	17.0	27.8	20.2	23.3
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	12.7	32.1	15.1	29.7	11.7	33.1	15.5	29.3
Max Q Clear Time (g_c+I1), s	9.3	16.1	15.0	12.0	12.8	17.7	15.2	14.8
Green Ext Time (p_c), s	1.4	2.8	0.1	2.6	0.0	3.4	0.1	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	34.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	253	35	57	115	8	53	236	59	56	364	52
Future Volume (veh/h)	79	253	35	57	115	8	53	236	59	56	364	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	86	275	38	62	125	9	58	257	64	61	396	57
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	728	293	221	688	278	125	970	392	128	976	395
Arrive On Green	0.08	0.21	0.21	0.07	0.19	0.19	0.08	0.27	0.27	0.08	0.28	0.28
Sat Flow, veh/h	3170	3539	1427	3170	3539	1427	1634	3539	1431	1634	3539	1431
Grp Volume(v), veh/h	86	275	38	62	125	9	58	257	64	61	396	57
Grp Sat Flow(s),veh/h/ln	1585	1770	1427	1585	1770	1427	1634	1770	1431	1634	1770	1431
Q Serve(g_s), s	1.1	2.9	0.9	0.8	1.3	0.2	1.5	2.4	1.5	1.5	3.9	1.3
Cycle Q Clear(g_c), s	1.1	2.9	0.9	0.8	1.3	0.2	1.5	2.4	1.5	1.5	3.9	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	256	728	293	221	688	278	125	970	392	128	976	395
V/C Ratio(X)	0.34	0.38	0.13	0.28	0.18	0.03	0.46	0.26	0.16	0.48	0.41	0.14
Avail Cap(c_a), veh/h	450	2520	1016	369	2429	979	342	2792	1128	361	2833	1145
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	14.7	13.9	19.0	14.5	14.0	19.0	12.2	11.9	19.0	12.7	11.7
Incr Delay (d2), s/veh	0.8	0.3	0.2	0.7	0.1	0.0	2.6	0.1	0.2	2.7	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	0.4	0.4	0.6	0.1	0.8	1.2	0.6	0.8	2.0	0.5
LnGrp Delay(d),s/veh	19.4	15.0	14.1	19.7	14.6	14.1	21.6	12.4	12.0	21.7	13.0	11.9
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		399			196			379			514	
Approach Delay, s/veh		15.9			16.2			13.7			13.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	15.8	7.0	12.8	7.3	15.9	7.5	12.4
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.2	32.6	4.1	29.7	7.7	33.1	5.2	28.6
Max Q Clear Time (g_c+I1), s	3.5	4.4	2.8	4.9	3.5	5.9	3.1	3.3
Green Ext Time (p_c), s	0.0	3.2	0.0	1.7	0.0	3.2	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	269	38	57	129	13	56	253	59	60	383	52
Future Volume (veh/h)	79	269	38	57	129	13	56	253	59	60	383	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	86	292	41	62	140	14	61	275	64	65	416	57
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	745	300	218	706	285	126	984	398	130	992	401
Arrive On Green	0.08	0.21	0.21	0.07	0.20	0.20	0.08	0.28	0.28	0.08	0.28	0.28
Sat Flow, veh/h	3170	3539	1428	3170	3539	1427	1634	3539	1431	1634	3539	1431
Grp Volume(v), veh/h	86	292	41	62	140	14	61	275	64	65	416	57
Grp Sat Flow(s),veh/h/ln	1585	1770	1428	1585	1770	1427	1634	1770	1431	1634	1770	1431
Q Serve(g_s), s	1.1	3.1	1.0	0.8	1.5	0.3	1.6	2.7	1.5	1.7	4.2	1.3
Cycle Q Clear(g_c), s	1.1	3.1	1.0	0.8	1.5	0.3	1.6	2.7	1.5	1.7	4.2	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	745	300	218	706	285	126	984	398	130	992	401
V/C Ratio(X)	0.34	0.39	0.14	0.28	0.20	0.05	0.48	0.28	0.16	0.50	0.42	0.14
Avail Cap(c_a), veh/h	439	2460	992	360	2371	956	334	2709	1095	360	2765	1118
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	15.0	14.1	19.5	14.7	14.2	19.5	12.4	12.0	19.4	12.9	11.9
Incr Delay (d2), s/veh	0.8	0.3	0.2	0.7	0.1	0.1	2.8	0.2	0.2	3.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	0.4	0.4	0.7	0.1	0.8	1.3	0.6	0.9	2.1	0.5
LnGrp Delay(d),s/veh	20.0	15.3	14.3	20.2	14.8	14.3	22.3	12.6	12.2	22.4	13.2	12.0
LnGrp LOS	B	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		419			216			400			538	
Approach Delay, s/veh		16.2			16.3			14.0			14.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	16.2	7.0	13.3	7.4	16.3	7.5	12.8
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.4	32.4	4.1	29.7	7.7	33.1	5.2	28.6
Max Q Clear Time (g_c+I1), s	3.7	4.7	2.8	5.1	3.6	6.2	3.1	3.5
Green Ext Time (p_c), s	0.0	3.4	0.0	1.9	0.0	3.4	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	15.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	321	56	68	125	9	61	272	68	64	414	67
Future Volume (veh/h)	126	321	56	68	125	9	61	272	68	64	414	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	137	349	61	74	136	10	66	296	74	70	450	73
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	788	318	228	724	292	126	1006	407	129	1012	409
Arrive On Green	0.09	0.22	0.22	0.07	0.20	0.20	0.08	0.28	0.28	0.08	0.29	0.29
Sat Flow, veh/h	3170	3539	1428	3170	3539	1427	1634	3539	1431	1634	3539	1431
Grp Volume(v), veh/h	137	349	61	74	136	10	66	296	74	70	450	73
Grp Sat Flow(s),veh/h/ln	1585	1770	1428	1585	1770	1427	1634	1770	1431	1634	1770	1431
Q Serve(g_s), s	1.9	4.0	1.6	1.0	1.5	0.3	1.8	3.1	1.8	1.9	4.9	1.8
Cycle Q Clear(g_c), s	1.9	4.0	1.6	1.0	1.5	0.3	1.8	3.1	1.8	1.9	4.9	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	788	318	228	724	292	126	1006	407	129	1012	409
V/C Ratio(X)	0.48	0.44	0.19	0.32	0.19	0.03	0.52	0.29	0.18	0.54	0.44	0.18
Avail Cap(c_a), veh/h	407	2316	935	339	2240	903	314	2512	1016	356	2603	1053
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	15.7	14.8	20.6	15.4	14.9	20.8	13.1	12.6	20.7	13.7	12.6
Incr Delay (d2), s/veh	1.2	0.4	0.3	0.8	0.1	0.0	3.4	0.2	0.2	3.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.0	0.7	0.5	0.7	0.1	0.9	1.5	0.7	1.0	2.4	0.7
LnGrp Delay(d),s/veh	21.5	16.1	15.0	21.4	15.5	15.0	24.1	13.2	12.8	24.3	14.0	12.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		547			220			436			593	
Approach Delay, s/veh		17.3			17.5			14.8			15.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	17.3	7.4	14.4	7.6	17.4	8.2	13.6
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.9	31.9	4.1	29.7	7.7	33.1	5.1	28.7
Max Q Clear Time (g_c+I1), s	3.9	5.1	3.0	6.0	3.8	6.9	3.9	3.5
Green Ext Time (p_c), s	0.1	3.8	0.0	2.2	0.0	3.8	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	337	59	68	139	14	64	289	68	68	433	67
Future Volume (veh/h)	126	337	59	68	139	14	64	289	68	68	433	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1716	1716	1863	1716	1716	1863	1716
Adj Flow Rate, veh/h	137	366	64	74	151	15	70	314	74	74	471	73
Adj No. of Lanes	2	2	1	2	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	804	324	225	741	299	127	1016	411	133	1028	416
Arrive On Green	0.09	0.23	0.23	0.07	0.21	0.21	0.08	0.29	0.29	0.08	0.29	0.29
Sat Flow, veh/h	3170	3539	1429	3170	3539	1428	1634	3539	1431	1634	3539	1431
Grp Volume(v), veh/h	137	366	64	74	151	15	70	314	74	74	471	73
Grp Sat Flow(s),veh/h/ln	1585	1770	1429	1585	1770	1428	1634	1770	1431	1634	1770	1431
Q Serve(g_s), s	2.0	4.3	1.7	1.1	1.7	0.4	2.0	3.3	1.9	2.1	5.2	1.8
Cycle Q Clear(g_c), s	2.0	4.3	1.7	1.1	1.7	0.4	2.0	3.3	1.9	2.1	5.2	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	804	324	225	741	299	127	1016	411	133	1028	416
V/C Ratio(X)	0.49	0.46	0.20	0.33	0.20	0.05	0.55	0.31	0.18	0.56	0.46	0.18
Avail Cap(c_a), veh/h	364	2258	911	330	2221	896	307	2435	985	354	2539	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	16.0	15.0	21.2	15.7	15.1	21.3	13.4	12.9	21.2	13.9	12.7
Incr Delay (d2), s/veh	1.3	0.4	0.3	0.8	0.1	0.1	3.7	0.2	0.2	3.6	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.1	0.7	0.5	0.8	0.2	1.0	1.6	0.7	1.1	2.6	0.7
LnGrp Delay(d),s/veh	22.1	16.4	15.3	22.0	15.8	15.2	25.0	13.6	13.1	24.8	14.3	12.9
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		567			240			458			618	
Approach Delay, s/veh		17.6			17.7			15.2			15.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	17.8	7.4	14.9	7.7	17.9	8.3	14.0
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	9.1	31.7	4.1	29.7	7.7	33.1	4.6	29.2
Max Q Clear Time (g_c+I1), s	4.1	5.3	3.1	6.3	4.0	7.2	4.0	3.7
Green Ext Time (p_c), s	0.1	4.0	0.0	2.4	0.0	4.0	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Intersection 9
10th Ave & Lacey Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	254	176	92	290	149	253	583	65	97	539	159
Future Volume (veh/h)	206	254	176	92	290	149	253	583	65	97	539	159
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	224	276	191	100	315	162	275	634	71	105	586	173
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	323	936	378	222	527	264	377	900	101	184	973	393
Arrive On Green	0.10	0.26	0.26	0.07	0.23	0.22	0.12	0.28	0.26	0.11	0.27	0.27
Sat Flow, veh/h	3170	3539	1430	3170	2267	1137	3170	3203	358	1634	3539	1431
Grp Volume(v), veh/h	224	276	191	100	244	233	275	350	355	105	586	173
Grp Sat Flow(s),veh/h/ln	1585	1770	1430	1585	1770	1634	1585	1770	1791	1634	1770	1431
Q Serve(g_s), s	4.0	3.7	6.7	1.8	7.2	7.6	4.9	10.4	10.5	3.6	8.5	3.6
Cycle Q Clear(g_c), s	4.0	3.7	6.7	1.8	7.2	7.6	4.9	10.4	10.5	3.6	8.5	3.6
Prop In Lane	1.00		1.00	1.00		0.70	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	323	936	378	222	412	380	377	497	503	184	973	393
V/C Ratio(X)	0.69	0.29	0.50	0.45	0.59	0.61	0.73	0.70	0.71	0.57	0.60	0.44
Avail Cap(c_a), veh/h	323	1887	763	371	971	896	377	799	809	253	1725	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	17.3	18.4	26.3	20.1	20.5	25.0	19.0	19.1	24.8	18.6	6.6
Incr Delay (d2), s/veh	6.3	0.2	1.0	1.4	1.4	1.6	7.0	1.8	1.8	2.7	0.6	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	2.0	1.8	2.7	0.8	3.7	3.6	2.5	5.3	5.4	1.7	4.2	1.5
LnGrp Delay(d),s/veh	31.8	17.4	19.4	27.7	21.5	22.1	32.1	20.8	20.9	27.5	19.2	7.4
LnGrp LOS	C	B	B	C	C	C	C	C	C	C	B	A
Approach Vol, veh/h		691			577			980			864	
Approach Delay, s/veh		22.7			22.8			24.0			17.8	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	20.5	8.1	19.6	11.0	20.2	10.0	17.7
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	7.8	25.3	6.0	30.5	5.7	27.4	5.1	31.4
Max Q Clear Time (g_c+I1), s	5.6	12.5	3.8	8.7	6.9	10.5	6.0	9.6
Green Ext Time (p_c), s	0.9	2.2	0.1	2.8	0.0	3.3	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	269	176	92	307	152	253	595	65	100	550	159
Future Volume (veh/h)	206	269	176	92	307	152	253	595	65	100	550	159
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	224	292	191	100	334	165	275	647	71	109	598	173
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	1013	410	208	530	256	431	889	97	206	945	382
Arrive On Green	0.12	0.29	0.29	0.07	0.23	0.22	0.14	0.28	0.26	0.13	0.27	0.27
Sat Flow, veh/h	3170	3539	1431	3170	2298	1110	3170	3210	352	1634	3539	1430
Grp Volume(v), veh/h	224	292	191	100	255	244	275	356	362	109	598	173
Grp Sat Flow(s),veh/h/ln	1585	1770	1431	1585	1770	1639	1585	1770	1792	1634	1770	1430
Q Serve(g_s), s	4.4	4.2	7.2	2.0	8.5	8.8	5.4	11.9	12.0	4.1	9.7	4.0
Cycle Q Clear(g_c), s	4.4	4.2	7.2	2.0	8.5	8.8	5.4	11.9	12.0	4.1	9.7	4.0
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	384	1013	410	208	408	378	431	490	496	206	945	382
V/C Ratio(X)	0.58	0.29	0.47	0.48	0.63	0.64	0.64	0.73	0.73	0.53	0.63	0.45
Avail Cap(c_a), veh/h	466	1886	763	350	878	813	549	813	823	250	1556	629
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	18.1	19.2	29.4	22.6	23.0	26.7	21.4	21.5	26.7	21.1	7.5
Incr Delay (d2), s/veh	1.4	0.2	0.8	1.7	1.6	1.8	1.6	2.1	2.1	2.1	0.7	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	2.0	2.0	2.9	0.9	4.3	4.1	2.4	6.0	6.2	2.0	4.8	2.3
LnGrp Delay(d),s/veh	28.5	18.3	20.0	31.2	24.2	24.8	28.3	23.5	23.6	28.8	21.8	8.3
LnGrp LOS	C	B	C	C	C	C	C	C	C	C	C	A
Approach Vol, veh/h		707			599			993			880	
Approach Delay, s/veh		22.0			25.6			24.8			20.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	22.1	8.3	22.7	12.9	21.4	11.9	19.1
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.7	28.7	6.3	33.9	10.0	27.4	8.7	31.5
Max Q Clear Time (g_c+I1), s	6.1	14.0	4.0	9.2	7.4	11.7	6.4	10.8
Green Ext Time (p_c), s	1.1	2.3	0.1	2.9	0.3	3.3	0.8	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	301	209	110	346	178	337	778	87	120	664	196
Future Volume (veh/h)	244	301	209	110	346	178	337	778	87	120	664	196
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	265	327	227	120	376	193	366	846	95	130	722	213
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	361	1000	404	223	540	273	486	1029	116	189	1006	407
Arrive On Green	0.11	0.28	0.28	0.07	0.24	0.23	0.15	0.32	0.30	0.12	0.28	0.28
Sat Flow, veh/h	3170	3539	1431	3170	2261	1142	3170	3202	360	1634	3539	1431
Grp Volume(v), veh/h	265	327	227	120	293	276	366	468	473	130	722	213
Grp Sat Flow(s),veh/h/ln	1585	1770	1431	1585	1770	1633	1585	1770	1791	1634	1770	1431
Q Serve(g_s), s	6.2	5.6	10.3	2.8	11.5	11.9	8.4	18.6	18.6	5.8	14.0	6.2
Cycle Q Clear(g_c), s	6.2	5.6	10.3	2.8	11.5	11.9	8.4	18.6	18.6	5.8	14.0	6.2
Prop In Lane	1.00		1.00	1.00		0.70	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	361	1000	404	223	423	390	486	569	576	189	1006	407
V/C Ratio(X)	0.73	0.33	0.56	0.54	0.69	0.71	0.75	0.82	0.82	0.69	0.72	0.52
Avail Cap(c_a), veh/h	361	1521	615	324	739	682	486	719	727	201	1330	538
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	32.7	21.7	23.4	34.3	26.5	26.9	30.9	23.9	24.0	32.4	24.6	9.6
Incr Delay (d2), s/veh	7.5	0.2	1.2	2.0	2.0	2.4	6.6	6.1	6.1	8.7	1.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	2.8	4.2	1.3	5.9	5.6	4.2	10.1	10.2	3.1	7.0	3.3
LnGrp Delay(d),s/veh	40.2	21.8	24.6	36.3	28.5	29.3	37.5	30.0	30.1	41.1	25.8	10.7
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	B
Approach Vol, veh/h		819			689			1307			1065	
Approach Delay, s/veh		28.5			30.2			32.1			24.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	28.5	9.4	25.6	15.7	25.7	12.7	22.2
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.1	29.7	6.9	31.9	10.4	27.4	7.8	31.0
Max Q Clear Time (g_c+I1), s	7.8	20.6	4.8	12.3	10.4	16.0	8.2	13.9
Green Ext Time (p_c), s	0.1	2.6	0.1	3.3	0.0	3.6	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	316	209	110	363	181	337	790	87	123	675	196
Future Volume (veh/h)	244	316	209	110	363	181	337	790	87	123	675	196
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	265	343	227	120	395	197	366	859	95	134	734	213
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	355	1010	409	222	557	274	477	1036	115	189	1021	413
Arrive On Green	0.11	0.29	0.29	0.07	0.24	0.23	0.15	0.32	0.31	0.12	0.29	0.29
Sat Flow, veh/h	3170	3539	1431	3170	2284	1123	3170	3207	355	1634	3539	1431
Grp Volume(v), veh/h	265	343	227	120	305	287	366	474	480	134	734	213
Grp Sat Flow(s),veh/h/ln	1585	1770	1431	1585	1770	1637	1585	1770	1792	1634	1770	1431
Q Serve(g_s), s	6.3	6.0	10.5	2.8	12.2	12.6	8.6	19.3	19.3	6.1	14.5	6.3
Cycle Q Clear(g_c), s	6.3	6.0	10.5	2.8	12.2	12.6	8.6	19.3	19.3	6.1	14.5	6.3
Prop In Lane	1.00		1.00	1.00		0.69	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	355	1010	409	222	431	399	477	572	579	189	1021	413
V/C Ratio(X)	0.75	0.34	0.56	0.54	0.71	0.72	0.77	0.83	0.83	0.71	0.72	0.52
Avail Cap(c_a), veh/h	355	1492	603	318	726	671	477	705	714	197	1306	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	22.0	23.6	35.0	26.9	27.3	31.7	24.3	24.5	33.1	24.8	9.8
Incr Delay (d2), s/veh	8.4	0.2	1.2	2.0	2.1	2.5	7.4	6.8	6.7	10.7	1.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	2.9	4.3	1.3	6.2	6.0	4.3	10.4	10.6	3.3	7.2	3.3
LnGrp Delay(d),s/veh	41.9	22.2	24.8	37.0	29.0	29.7	39.1	31.1	31.2	43.8	26.2	10.8
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	B
Approach Vol, veh/h		835			712			1320			1081	
Approach Delay, s/veh		29.2			30.7			33.4			25.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	29.1	9.4	26.2	15.7	26.4	12.7	23.0
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.1	29.7	6.9	31.9	10.4	27.4	7.8	31.0
Max Q Clear Time (g_c+I1), s	8.1	21.3	4.8	12.5	10.6	16.5	8.3	14.6
Green Ext Time (p_c), s	0.0	2.6	0.1	3.4	0.0	3.6	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	202	154	42	150	76	123	367	53	38	414	69
Future Volume (veh/h)	231	202	154	42	150	76	123	367	53	38	414	69
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	251	220	167	46	163	83	134	399	58	41	450	75
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	285	1380	559	574	1107	535	187	640	92	73	680	274
Arrive On Green	0.09	0.39	0.39	0.18	0.48	0.47	0.06	0.21	0.19	0.04	0.19	0.19
Sat Flow, veh/h	3170	3539	1434	3170	2301	1113	3170	3095	446	1634	3539	1426
Grp Volume(v), veh/h	251	220	167	46	123	123	134	227	230	41	450	75
Grp Sat Flow(s),veh/h/ln	1585	1770	1434	1585	1770	1645	1585	1770	1772	1634	1770	1426
Q Serve(g_s), s	7.0	3.6	7.2	1.1	3.5	3.8	3.7	10.5	10.7	2.2	10.6	3.0
Cycle Q Clear(g_c), s	7.0	3.6	7.2	1.1	3.5	3.8	3.7	10.5	10.7	2.2	10.6	3.0
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	285	1380	559	574	851	791	187	366	366	73	680	274
V/C Ratio(X)	0.88	0.16	0.30	0.08	0.14	0.16	0.72	0.62	0.63	0.56	0.66	0.27
Avail Cap(c_a), veh/h	285	1380	559	574	851	791	187	535	536	123	1129	455
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)	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	40.5	17.9	19.0	30.6	13.0	13.3	41.6	32.5	32.7	42.1	33.6	17.1
Incr Delay (d2), s/veh	25.1	0.2	1.3	0.1	0.4	0.4	12.5	1.7	1.8	5.9	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	1.8	3.1	0.5	1.8	1.8	2.0	5.3	5.4	1.1	5.3	1.2
LnGrp Delay(d),s/veh	65.6	18.1	20.3	30.7	13.4	13.7	54.1	34.2	34.5	48.1	34.6	17.6
LnGrp LOS	E	B	C	C	B	B	D	C	C	D	C	B
Approach Vol, veh/h		638			292			591			566	
Approach Delay, s/veh		37.4			16.2			38.8			33.3	
Approach LOS		D			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	22.6	20.3	39.1	9.3	21.3	12.1	47.3
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	5.5	25.9	4.0	34.2	4.0	27.4	7.2	31.0
Max Q Clear Time (g_c+I1), s	4.2	12.7	3.1	9.2	5.7	12.6	9.0	5.8
Green Ext Time (p_c), s	0.0	1.8	0.1	1.5	0.0	1.9	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	219	154	42	166	79	123	378	53	41	426	69
Future Volume (veh/h)	231	219	154	42	166	79	123	378	53	41	426	69
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	251	238	167	46	180	86	134	411	58	45	463	75
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	285	1380	559	563	1123	512	187	643	90	78	692	279
Arrive On Green	0.09	0.39	0.39	0.18	0.48	0.47	0.06	0.21	0.19	0.05	0.20	0.20
Sat Flow, veh/h	3170	3539	1434	3170	2350	1072	3170	3109	435	1634	3539	1427
Grp Volume(v), veh/h	251	238	167	46	133	133	134	233	236	45	463	75
Grp Sat Flow(s),veh/h/ln	1585	1770	1434	1585	1770	1653	1585	1770	1774	1634	1770	1427
Q Serve(g_s), s	7.0	4.0	7.2	1.1	3.8	4.1	3.7	10.8	11.0	2.4	10.9	3.0
Cycle Q Clear(g_c), s	7.0	4.0	7.2	1.1	3.8	4.1	3.7	10.8	11.0	2.4	10.9	3.0
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	285	1380	559	563	845	790	187	366	367	78	692	279
V/C Ratio(X)	0.88	0.17	0.30	0.08	0.16	0.17	0.72	0.64	0.64	0.58	0.67	0.27
Avail Cap(c_a), veh/h	285	1380	559	563	845	790	187	531	532	127	1129	455
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)	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	40.5	18.0	19.0	30.9	13.3	13.5	41.6	32.6	32.8	42.0	33.5	16.9
Incr Delay (d2), s/veh	25.1	0.3	1.3	0.1	0.4	0.5	12.5	1.8	1.9	5.6	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	2.0	3.1	0.5	1.9	2.0	2.0	5.5	5.6	1.2	5.4	1.2
LnGrp Delay(d),s/veh	65.6	18.2	20.3	30.9	13.7	14.0	54.1	34.4	34.7	47.6	34.5	17.3
LnGrp LOS	E	B	C	C	B	B	D	C	C	D	C	B
Approach Vol, veh/h		656			312			603			583	
Approach Delay, s/veh		36.9			16.4			38.9			33.3	
Approach LOS		D			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	22.6	20.0	39.1	9.3	21.6	12.1	47.0
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	5.7	25.7	4.0	34.2	4.0	27.4	7.2	31.0
Max Q Clear Time (g_c+I1), s	4.4	13.0	3.1	9.2	5.7	12.9	9.0	6.1
Green Ext Time (p_c), s	0.0	1.8	0.1	1.6	0.0	1.9	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	240	183	50	179	91	164	489	71	47	510	85
Future Volume (veh/h)	274	240	183	50	179	91	164	489	71	47	510	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	298	261	199	54	195	99	178	532	77	51	554	92
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	543	1713	694	136	817	396	187	752	108	86	837	338
Arrive On Green	0.17	0.48	0.48	0.04	0.36	0.35	0.06	0.24	0.23	0.05	0.24	0.24
Sat Flow, veh/h	3170	3539	1435	3170	2298	1115	3170	3096	446	1634	3539	1429
Grp Volume(v), veh/h	298	261	199	54	148	146	178	303	306	51	554	92
Grp Sat Flow(s),veh/h/ln	1585	1770	1435	1585	1770	1643	1585	1770	1773	1634	1770	1429
Q Serve(g_s), s	7.7	3.7	7.5	1.5	5.3	5.7	5.0	14.1	14.2	2.7	12.8	2.9
Cycle Q Clear(g_c), s	7.7	3.7	7.5	1.5	5.3	5.7	5.0	14.1	14.2	2.7	12.8	2.9
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	543	1713	694	136	629	584	187	430	431	86	837	338
V/C Ratio(X)	0.55	0.15	0.29	0.40	0.24	0.25	0.95	0.71	0.71	0.59	0.66	0.27
Avail Cap(c_a), veh/h	543	1713	694	187	629	584	187	527	528	131	1129	456
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)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	34.1	12.9	13.9	41.9	20.4	20.7	42.2	31.1	31.3	41.7	31.1	10.8
Incr Delay (d2), s/veh	1.1	0.2	1.0	1.9	0.9	1.0	52.4	3.3	3.4	5.0	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.9	3.1	0.7	2.7	2.7	3.6	7.3	7.4	1.4	6.3	1.2
LnGrp Delay(d),s/veh	35.3	13.1	14.9	43.8	21.3	21.8	94.6	34.4	34.7	46.7	31.8	11.2
LnGrp LOS	D	B	B	D	C	C	F	C	C	D	C	B
Approach Vol, veh/h		758			348			787			697	
Approach Delay, s/veh		22.3			25.0			48.1			30.2	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	25.9	7.9	47.6	9.3	25.3	19.4	36.0
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	5.9	25.5	4.4	33.8	4.0	27.4	7.1	31.1
Max Q Clear Time (g_c+I1), s	4.7	16.2	3.5	9.5	7.0	14.8	9.7	7.7
Green Ext Time (p_c), s	0.0	3.6	0.0	3.2	0.0	4.2	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	257	183	50	195	94	164	500	71	50	522	85
Future Volume (veh/h)	274	257	183	50	195	94	164	500	71	50	522	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1716	1863	1716	1716	1863	1750	1716	1863	1750	1716	1863	1716
Adj Flow Rate, veh/h	298	279	199	54	212	102	178	543	77	54	567	92
Adj No. of Lanes	2	2	1	2	2	0	2	2	0	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	680	1760	714	127	755	349	278	772	109	88	760	307
Arrive On Green	0.21	0.50	0.50	0.04	0.32	0.31	0.09	0.25	0.24	0.05	0.21	0.21
Sat Flow, veh/h	3170	3539	1435	3170	2338	1080	3170	3106	439	1634	3539	1428
Grp Volume(v), veh/h	298	279	199	54	158	156	178	309	311	54	567	92
Grp Sat Flow(s),veh/h/ln	1585	1770	1435	1585	1770	1649	1585	1770	1775	1634	1770	1428
Q Serve(g_s), s	8.2	4.3	5.1	1.7	6.7	7.1	5.4	15.9	16.0	3.2	15.0	5.4
Cycle Q Clear(g_c), s	8.2	4.3	5.1	1.7	6.7	7.1	5.4	15.9	16.0	3.2	15.0	5.4
Prop In Lane	1.00		1.00	1.00		0.66	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	680	1760	714	127	572	533	278	440	441	88	760	307
V/C Ratio(X)	0.44	0.16	0.28	0.43	0.28	0.29	0.64	0.70	0.71	0.61	0.75	0.30
Avail Cap(c_a), veh/h	680	1760	714	168	572	533	285	503	504	152	1016	410
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)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	34.1	13.7	5.8	46.9	25.2	25.5	44.1	34.2	34.4	46.3	36.7	33.0
Incr Delay (d2), s/veh	0.4	0.2	0.9	2.2	1.2	1.4	4.6	3.7	3.8	4.3	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	2.1	2.2	0.8	3.4	3.4	2.6	8.2	8.3	1.6	7.5	2.2
LnGrp Delay(d),s/veh	34.5	13.9	6.8	49.1	26.4	26.9	48.7	37.9	38.2	50.6	38.0	33.3
LnGrp LOS	C	B	A	D	C	C	D	D	D	D	D	C
Approach Vol, veh/h		776			368			798			713	
Approach Delay, s/veh		20.0			29.9			40.4			38.4	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	28.9	8.0	53.7	12.8	25.5	25.4	36.3
Change Period (Y+Rc), s	5.3	5.3	4.9	4.9	5.3	5.3	4.9	4.9
Max Green Setting (Gmax), s	8.0	27.1	4.4	40.1	7.7	27.4	13.1	31.4
Max Q Clear Time (g_c+I1), s	5.2	18.0	3.7	7.1	7.4	17.0	10.2	9.1
Green Ext Time (p_c), s	0.0	2.2	0.0	3.4	0.1	2.1	1.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.4
HCM 2010 LOS	C

Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

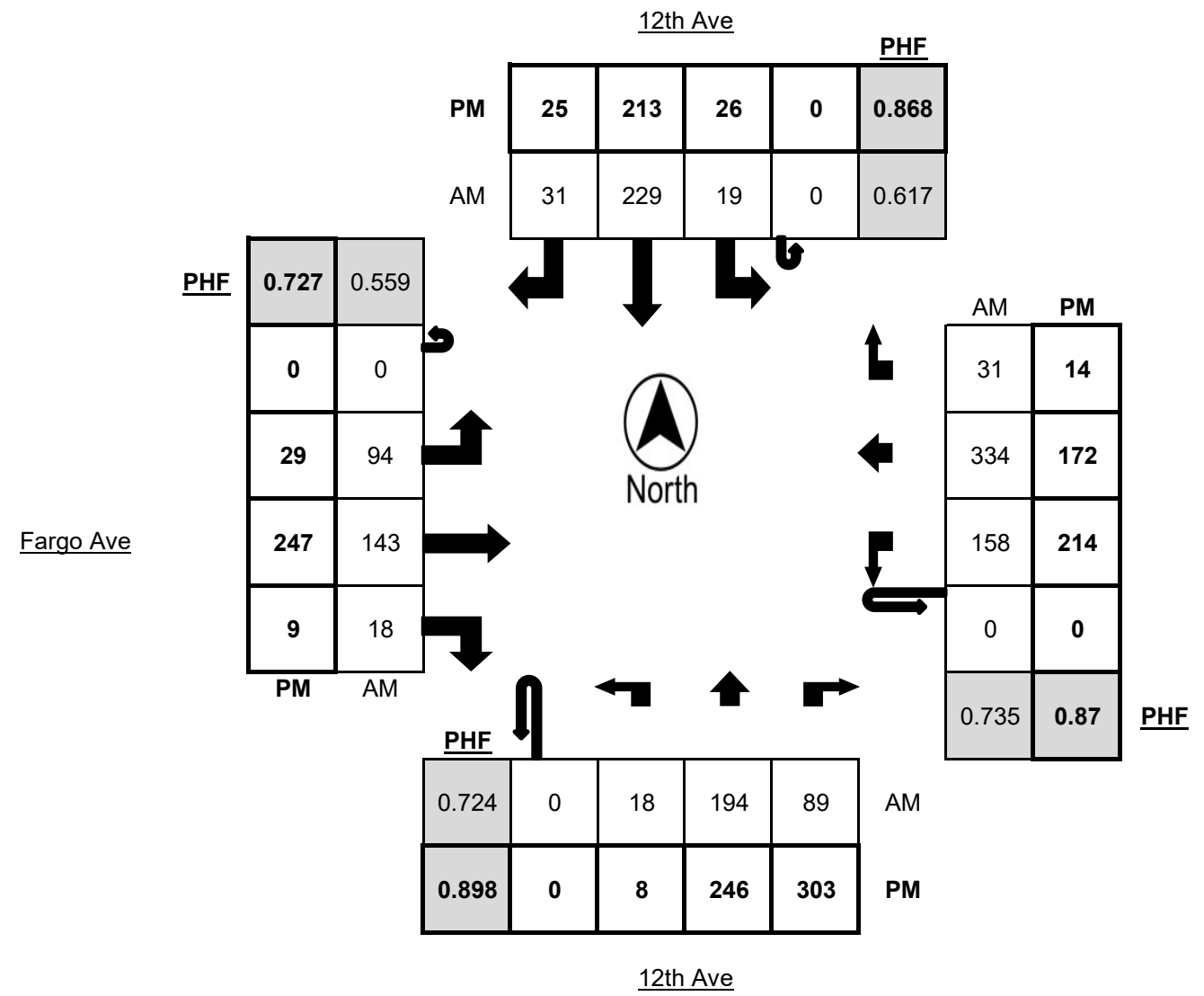
LOCATION Fargo Ave @ 12th Ave
LATITUDE 36.3572
COUNTY Kings
LONGITUDE -119.6729
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	0	1	30	5	0	0	1	15	0	0	0	6	5	2	0	0	21	21	3	2
6:15 AM - 6:30 AM	0	3	33	5	0	0	1	17	1	1	0	4	5	1	0	0	28	27	4	0
6:30 AM - 6:45 AM	0	3	22	7	1	0	0	23	1	0	0	2	45	1	0	0	18	33	5	0
6:45 AM - 7:00 AM	0	1	35	13	0	0	1	27	4	1	0	3	22	4	0	0	23	36	5	0
7:00 AM - 7:15 AM	0	3	37	7	0	0	2	35	6	0	0	8	13	2	0	0	20	60	6	0
7:15 AM - 7:30 AM	0	4	39	16	0	0	3	40	2	0	0	13	24	7	0	0	37	57	7	0
7:30 AM - 7:45 AM	0	4	61	26	1	0	3	67	8	0	0	30	44	0	0	0	55	116	7	3
7:45 AM - 8:00 AM	0	7	57	40	0	0	11	87	15	1	0	43	62	9	0	0	46	101	11	1
TOTAL	**0**	**26**	**314**	**119**	**2**	**0**	**22**	**311**	**37**	**3**	**0**	**109**	**220**	**26**	**0**	**0**	**248**	**451**	**48**	**6**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	4	48	74	1	0	8	60	7	1	0	14	81	3	0	0	41	36	2	2
4:15 PM - 4:30 PM	0	0	62	76	1	0	6	61	9	5	0	3	45	2	1	0	54	57	2	0
4:30 PM - 4:45 PM	0	2	70	83	0	0	6	55	4	1	0	5	57	3	0	0	48	38	7	0
4:45 PM - 5:00 PM	0	2	66	70	1	0	6	37	5	0	0	7	64	1	0	0	71	41	3	0
5:00 PM - 5:15 PM	0	7	70	93	0	0	4	41	4	0	0	5	51	2	0	0	44	43	2	1
5:15 PM - 5:30 PM	0	3	54	67	1	0	7	51	6	0	0	6	51	5	0	0	60	41	2	0
5:30 PM - 5:45 PM	0	2	41	72	2	0	3	49	9	0	0	5	49	4	0	0	39	43	2	0
5:45 PM - 6:00 PM	0	0	40	59	0	0	5	42	4	0	0	3	36	1	0	0	58	54	0	0
TOTAL	**0**	**20**	**451**	**594**	**6**	**0**	**45**	**396**	**48**	**7**	**0**	**48**	**434**	**21**	**1**	**0**	**415**	**353**	**20**	**3**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	0	18	194	89	1	0	19	229	31	1	0	94	143	18	0	0	158	334	31	4
4:00 PM - 5:00 PM	0	8	246	303	3	0	26	213	25	7	0	29	247	9	1	0	214	172	14	2

	PHF	Trucks
AM	0.694	0.4%
PM	0.996	0.9%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

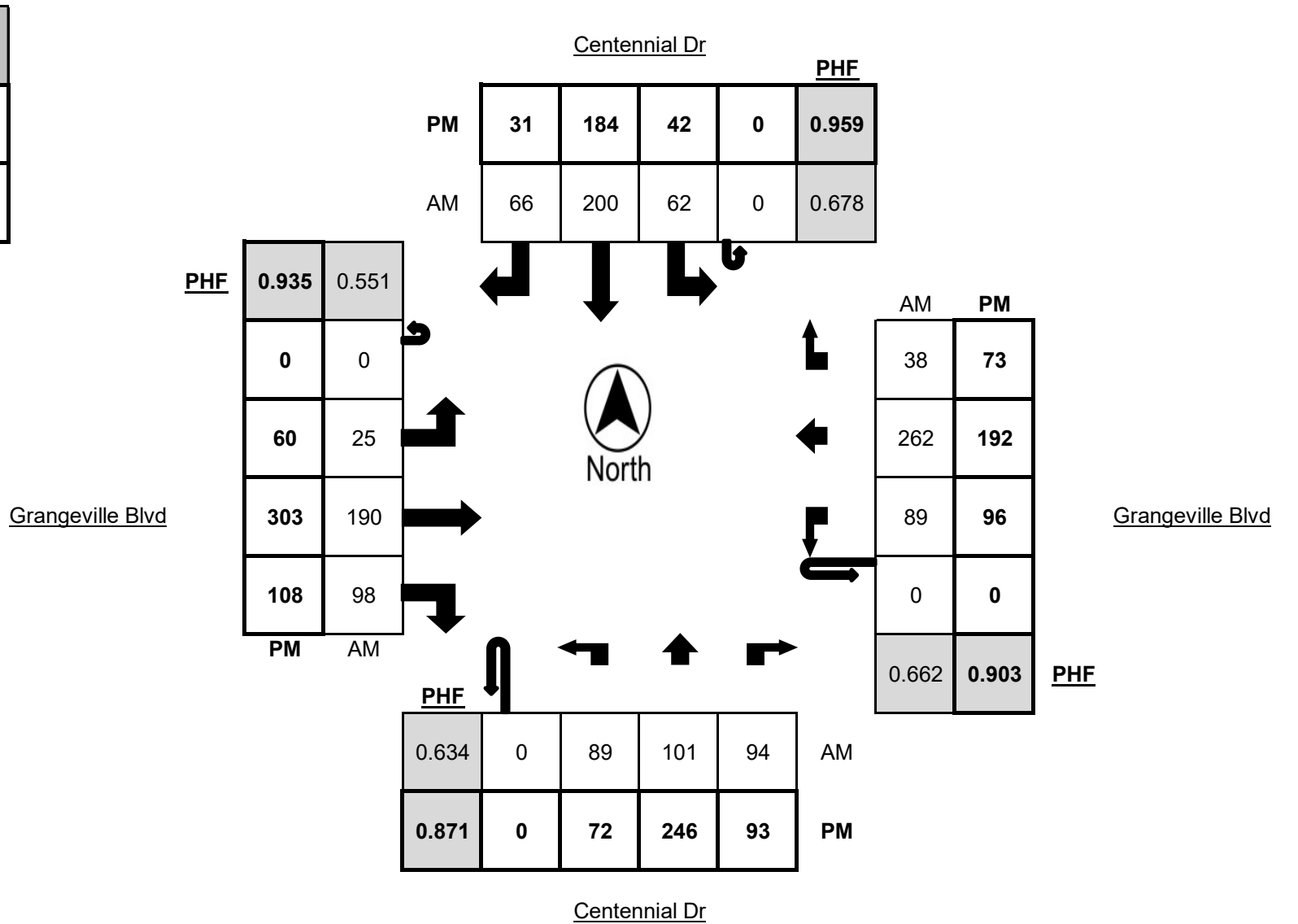
LOCATION Grangeville Blvd @ Centennial Dr
LATITUDE 36.3426
COUNTY Kings
LONGITUDE -119.6819
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	0	7	8	0	0	0	5	17	6	0	0	0	6	8	1	0	6	41	1	1
6:15 AM - 6:30 AM	0	7	8	4	0	0	6	17	15	0	0	1	13	6	0	0	7	60	3	1
6:30 AM - 6:45 AM	0	8	14	7	0	0	4	26	16	0	0	4	15	11	1	0	5	46	1	0
6:45 AM - 7:00 AM	0	9	9	11	1	0	10	34	8	0	0	4	19	12	0	0	7	33	2	3
7:00 AM - 7:15 AM	0	9	17	17	1	0	4	27	11	0	0	4	22	9	4	0	8	46	2	0
7:15 AM - 7:30 AM	0	20	27	11	0	0	18	40	13	0	0	3	35	20	4	0	14	51	9	2
7:30 AM - 7:45 AM	0	28	24	19	1	0	21	47	26	1	0	9	46	23	2	0	23	75	14	2
7:45 AM - 8:00 AM	0	32	33	47	3	0	19	86	16	4	0	9	87	46	2	0	44	90	13	3
TOTAL	**0**	**120**	**140**	**116**	**6**	**0**	**87**	**294**	**111**	**5**	**0**	**34**	**243**	**135**	**14**	**0**	**114**	**442**	**45**	**12**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	18	57	29	1	0	8	40	5	1	0	22	94	23	1	0	33	58	16	0
4:15 PM - 4:30 PM	0	16	55	25	0	0	6	47	4	0	0	18	93	27	0	0	17	51	22	1
4:30 PM - 4:45 PM	0	16	39	33	0	0	13	31	4	0	0	10	90	24	1	0	14	50	21	0
4:45 PM - 5:00 PM	0	12	53	25	0	0	9	43	10	0	0	15	84	27	0	0	24	41	21	1
5:00 PM - 5:15 PM	0	25	74	19	1	0	13	46	8	0	0	20	67	29	1	0	29	49	19	1
5:15 PM - 5:30 PM	0	18	69	31	0	0	8	46	7	0	0	16	80	22	0	0	19	42	17	1
5:30 PM - 5:45 PM	0	17	50	18	0	0	12	49	6	0	0	9	72	30	1	0	24	60	16	0
5:45 PM - 6:00 PM	0	12	54	28	0	0	15	66	10	0	0	10	49	17	0	0	27	41	14	1
TOTAL	**0**	**134**	**451**	**208**	**2**	**0**	**84**	**368**	**54**	**1**	**0**	**120**	**629**	**199**	**4**	**0**	**187**	**392**	**146**	**5**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	0	89	101	94	5	0	62	200	66	5	0	25	190	98	12	0	89	262	38	7
4:45 PM - 5:45 PM	0	72	246	93	1	0	42	184	31	0	0	60	303	108	2	0	96	192	73	3

	PHF	**Trucks**
AM	0.629	2.2%
PM	0.942	0.4%



Metro Traffic Data Inc.
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Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

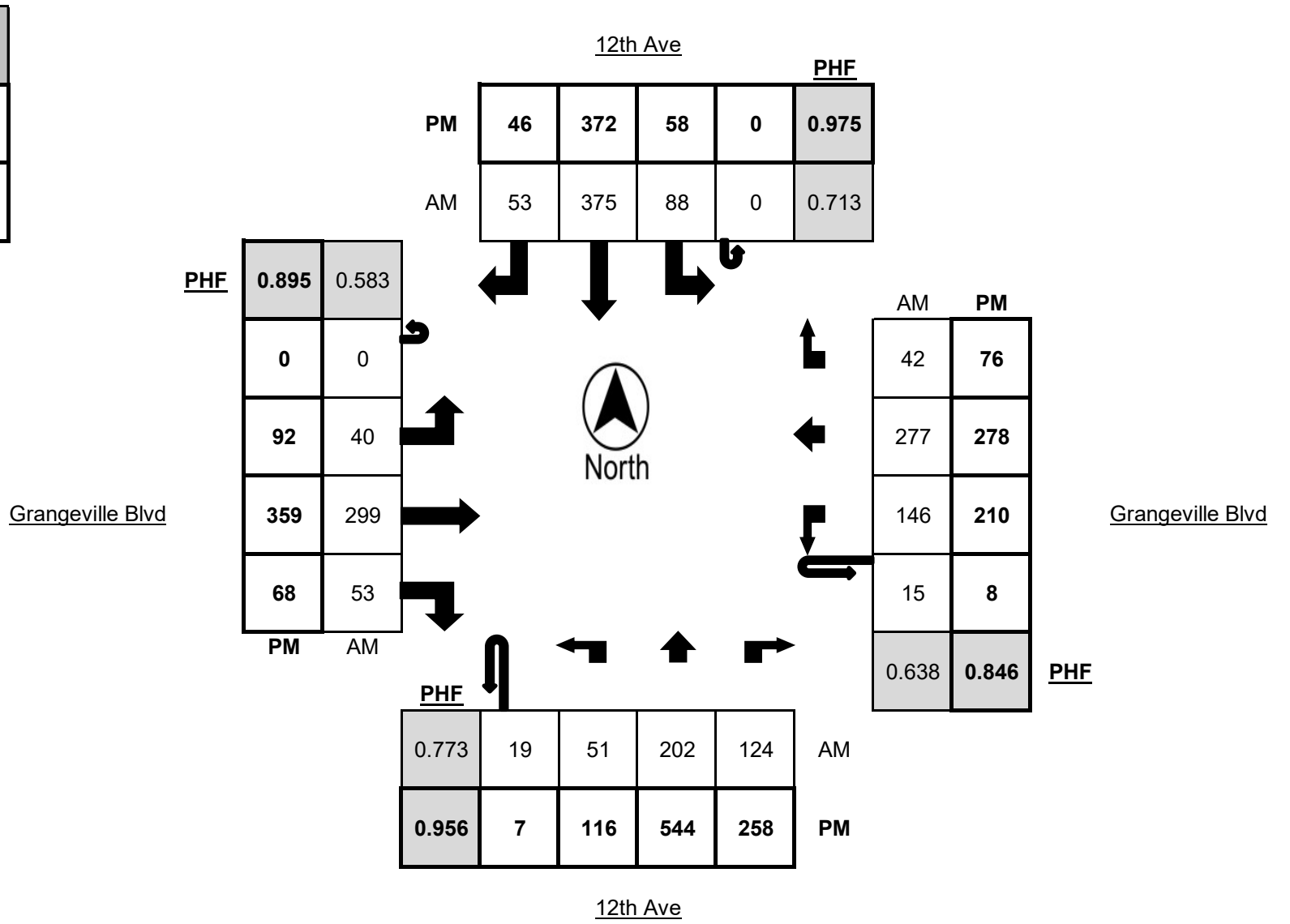
LOCATION Grangeville Blvd @ 12th Ave
LATITUDE 36.3426
COUNTY Kings
LONGITUDE -119.6729
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	3	9	31	7	0	0	6	35	10	1	0	2	11	3	1	1	19	31	9	1
6:15 AM - 6:30 AM	2	10	35	10	0	1	11	37	10	1	0	2	21	10	0	1	14	42	6	1
6:30 AM - 6:45 AM	2	11	23	11	1	0	9	47	5	1	0	6	20	5	1	1	20	31	7	0
6:45 AM - 7:00 AM	5	11	40	10	0	0	13	61	9	1	0	0	35	10	1	0	25	21	4	3
7:00 AM - 7:15 AM	2	9	37	18	1	0	20	65	4	0	0	6	26	15	4	3	19	39	6	1
7:15 AM - 7:30 AM	6	11	44	18	1	0	24	80	14	1	0	4	63	10	1	3	25	53	16	2
7:30 AM - 7:45 AM	5	17	64	37	3	0	18	98	12	0	0	9	76	15	2	2	34	82	10	3
7:45 AM - 8:00 AM	6	14	57	51	0	0	26	132	23	4	0	21	134	13	2	7	68	103	10	2
TOTAL	**31**	**92**	**331**	**162**	**6**	**1**	**127**	**555**	**87**	**9**	**0**	**50**	**386**	**81**	**12**	**18**	**224**	**402**	**68**	**13**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	2	29	126	65	1	0	18	89	15	3	0	20	102	23	0	1	42	67	19	0
4:15 PM - 4:30 PM	4	26	144	68	1	0	12	95	13	3	0	24	84	14	0	0	50	72	20	1
4:30 PM - 4:45 PM	0	26	141	66	0	0	18	89	12	2	0	27	91	15	0	3	49	64	16	1
4:45 PM - 5:00 PM	1	35	133	59	1	0	10	99	6	0	0	21	82	16	0	4	69	75	21	2
5:00 PM - 5:15 PM	0	45	169	61	2	1	10	76	12	0	0	23	67	18	0	1	47	68	17	1
5:15 PM - 5:30 PM	0	36	129	51	1	1	20	98	7	0	0	18	88	28	1	4	55	66	11	1
5:30 PM - 5:45 PM	2	52	135	77	2	0	18	90	11	0	0	25	73	13	0	0	41	50	9	0
5:45 PM - 6:00 PM	0	27	116	54	1	0	15	91	8	1	0	15	62	25	2	1	51	64	7	1
TOTAL	**9**	**276**	**1093**	**501**	**9**	**2**	**121**	**727**	**84**	**9**	**0**	**173**	**649**	**152**	**3**	**14**	**404**	**526**	**120**	**7**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	19	51	202	124	5	0	88	375	53	5	0	40	299	53	9	15	146	277	42	8
4:00 PM - 5:00 PM	7	116	544	258	3	0	58	372	46	8	0	92	359	68	0	8	210	278	76	4

	PHF	**Trucks**
AM	0.671	1.5%
PM	0.987	0.6%



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Turning Movement Report

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1800 30th St, Ste 260
Bakersfield, CA 93301

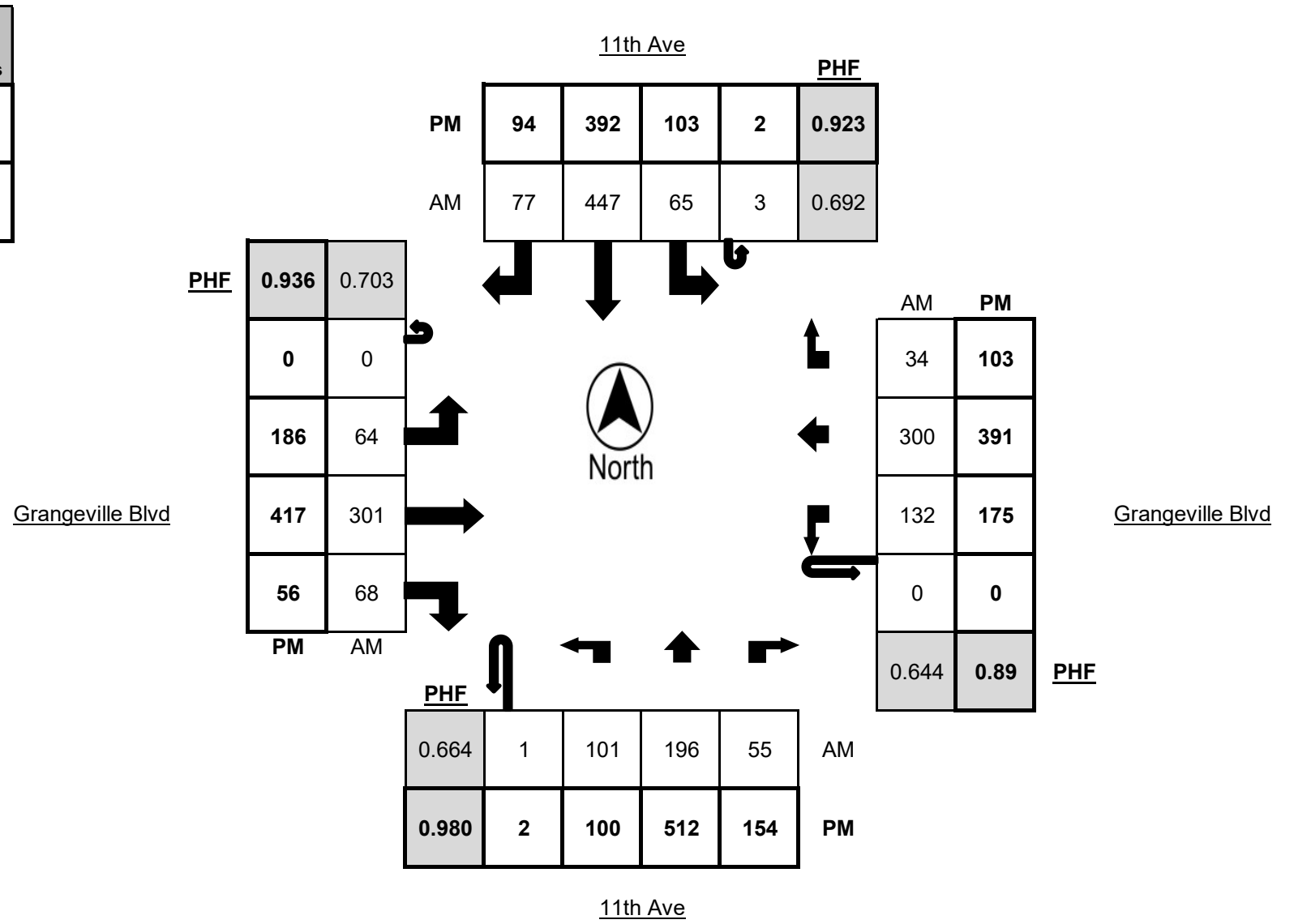
LOCATION Grangeville Blvd @ 11th Ave
LATITUDE 36.3427
COUNTY Kings
LONGITUDE -119.6551
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	0	6	38	7	0	0	6	38	9	0	0	5	19	6	1	0	6	29	8	0
6:15 AM - 6:30 AM	0	6	36	8	0	0	8	52	10	1	0	7	24	5	0	0	7	31	9	1
6:30 AM - 6:45 AM	0	3	22	7	2	0	4	47	10	0	0	6	25	12	1	0	18	33	2	1
6:45 AM - 7:00 AM	0	10	42	6	3	0	13	81	14	1	0	16	39	9	4	0	19	36	6	4
7:00 AM - 7:15 AM	0	12	42	11	1	0	11	82	15	3	0	9	34	10	0	0	17	36	6	1
7:15 AM - 7:30 AM	0	20	38	13	1	0	13	94	23	5	0	9	71	21	4	0	27	54	8	2
7:30 AM - 7:45 AM	0	22	45	17	1	0	14	111	15	2	0	21	86	18	3	0	38	88	11	3
7:45 AM - 8:00 AM	1	47	71	14	1	3	27	160	24	2	0	25	110	19	2	0	50	122	9	1
TOTAL	**1**	**126**	**334**	**83**	**9**	**3**	**96**	**665**	**120**	**14**	**0**	**98**	**408**	**100**	**15**	**0**	**182**	**429**	**59**	**13**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	25	145	36	2	3	14	98	16	3	0	48	106	23	1	0	45	97	21	3
4:15 PM - 4:30 PM	0	29	120	38	3	1	22	126	13	5	0	44	101	15	0	0	35	80	28	0
4:30 PM - 4:45 PM	0	23	136	37	4	0	15	97	22	0	0	43	97	17	2	0	42	95	23	1
4:45 PM - 5:00 PM	1	28	117	37	3	0	27	97	23	2	0	40	108	13	0	0	44	116	28	0
5:00 PM - 5:15 PM	1	25	130	40	0	0	29	97	24	0	0	55	109	12	0	0	46	87	27	0
5:15 PM - 5:30 PM	0	24	129	40	3	2	32	101	25	3	0	48	103	14	1	0	43	93	25	0
5:30 PM - 5:45 PM	0	18	103	36	0	2	21	102	19	0	0	35	85	9	1	0	33	90	11	0
5:45 PM - 6:00 PM	0	16	111	28	3	4	26	102	17	3	0	44	125	3	1	0	44	87	13	0
TOTAL	**2**	**188**	**991**	**292**	**18**	**12**	**186**	**820**	**159**	**16**	**0**	**357**	**834**	**106**	**6**	**0**	**332**	**745**	**176**	**4**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	1	101	196	55	4	3	65	447	77	12	0	64	301	68	9	0	132	300	34	7
4:30 PM - 5:30 PM	2	100	512	154	10	2	103	392	94	5	0	186	417	56	3	0	175	391	103	1

	PHF	**Trucks**
AM	0.676	1.7%
PM	0.985	0.7%



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

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

Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

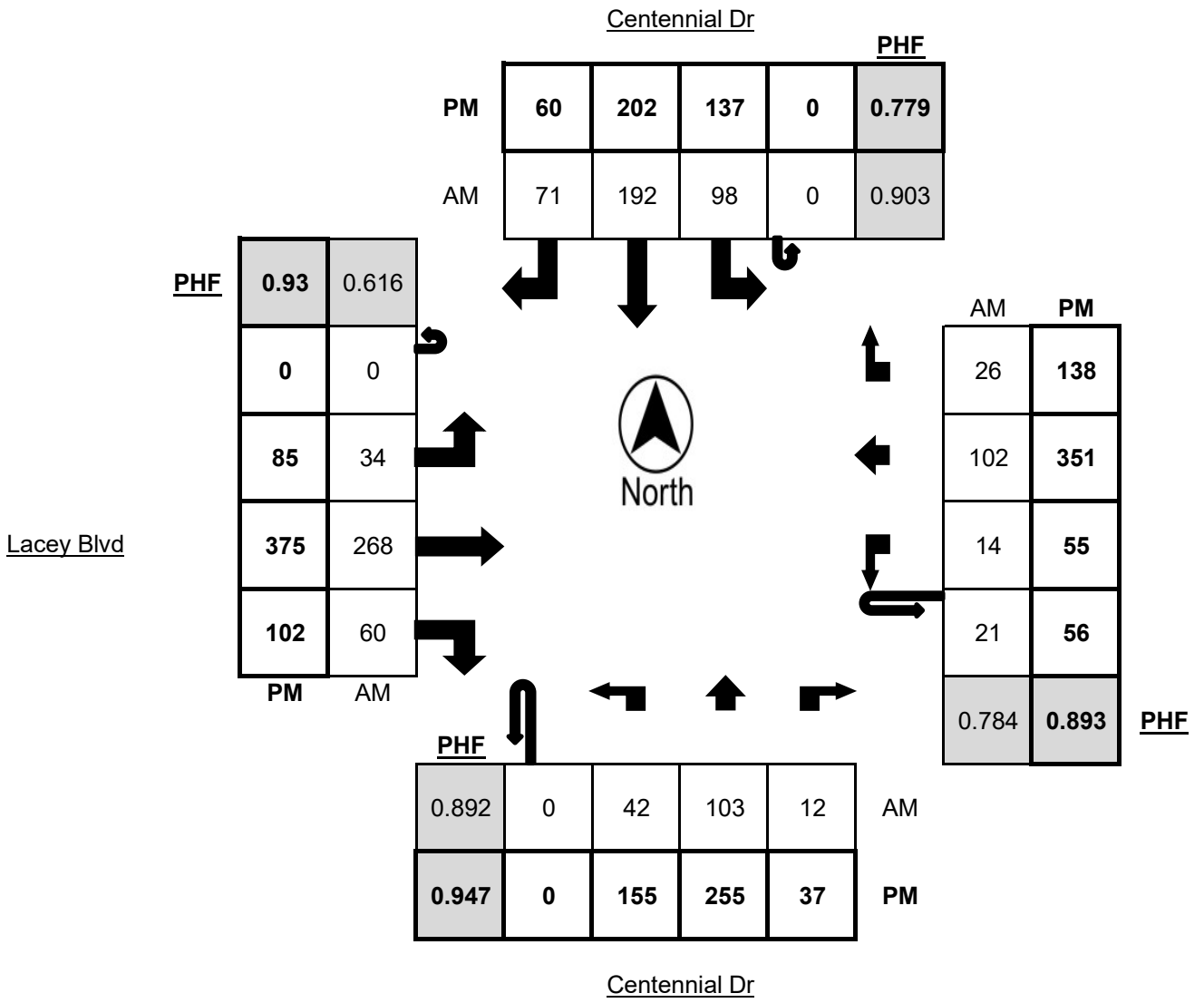
LOCATION Lacey Blvd @ Centennial Dr
LATITUDE 36.3281
COUNTY Kings
LONGITUDE -119.6792
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	0	4	8	2	0	0	13	21	5	0	0	0	10	4	1	9	1	9	4	0
6:15 AM - 6:30 AM	0	3	13	2	0	0	13	20	3	0	0	3	15	4	0	0	0	8	4	0
6:30 AM - 6:45 AM	0	6	8	1	0	0	11	34	5	1	0	3	27	7	1	4	2	7	4	1
6:45 AM - 7:00 AM	0	10	15	1	0	0	12	39	9	0	0	5	29	13	0	5	2	7	4	1
7:00 AM - 7:15 AM	0	8	23	1	0	0	18	41	18	3	0	4	30	7	0	2	1	19	6	1
7:15 AM - 7:30 AM	0	11	22	5	0	0	29	40	20	2	0	4	49	13	0	5	5	21	5	3
7:30 AM - 7:45 AM	0	14	28	1	1	0	23	56	16	2	0	13	75	20	0	8	5	28	6	2
7:45 AM - 8:00 AM	0	9	30	5	1	0	28	55	17	1	0	13	114	20	0	6	3	34	9	2
TOTAL	**0**	**65**	**147**	**18**	**2**	**0**	**147**	**306**	**93**	**9**	**0**	**45**	**349**	**88**	**2**	**39**	**19**	**133**	**42**	**10**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	28	71	12	1	0	24	42	17	2	0	16	109	36	1	9	14	86	34	1
4:15 PM - 4:30 PM	1	35	65	9	0	0	32	39	10	2	0	18	96	17	1	18	13	81	31	2
4:30 PM - 4:45 PM	0	38	70	10	0	0	33	40	13	2	0	23	82	29	0	15	7	88	32	1
4:45 PM - 5:00 PM	0	41	47	12	0	0	28	50	9	4	0	21	99	31	0	13	13	74	36	3
5:00 PM - 5:15 PM	0	42	65	7	0	0	38	66	24	1	0	20	102	25	2	14	16	104	34	2
5:15 PM - 5:30 PM	0	34	73	8	1	0	38	46	14	1	0	21	92	17	0	14	19	85	36	2
5:30 PM - 5:45 PM	0	40	58	6	0	0	37	39	12	0	0	8	85	20	0	11	11	80	30	1
5:45 PM - 6:00 PM	0	30	71	10	0	0	41	44	6	2	0	5	72	23	0	11	6	79	25	2
TOTAL	**1**	**288**	**520**	**74**	**2**	**0**	**271**	**366**	**105**	**14**	**0**	**132**	**737**	**198**	**4**	**105**	**99**	**677**	**258**	**14**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	0	42	103	12	2	0	98	192	71	8	0	34	268	60	0	21	14	102	26	8
4:30 PM - 5:30 PM	0	155	255	37	1	0	137	202	60	8	0	85	375	102	2	56	55	351	138	8

	PHF	**Trucks**
AM	0.760	1.7%
PM	0.901	0.9%



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Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

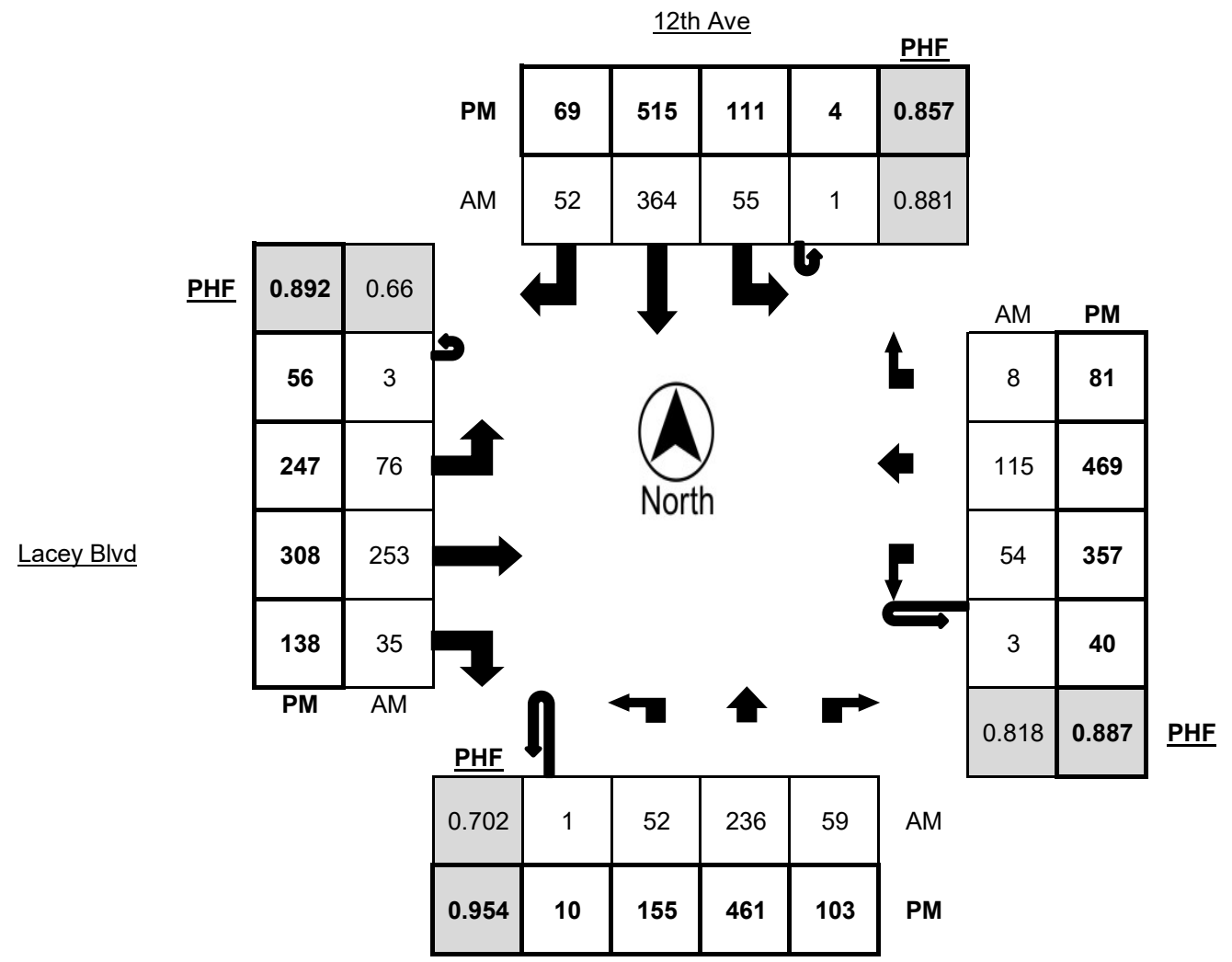
LOCATION Lacey Blvd @ 12th Ave
LATITUDE 36.3281
COUNTY Kings
LONGITUDE -119.6729
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	0	9	29	2	1	1	4	62	4	1	0	8	12	4	1	0	7	15	3	1
6:15 AM - 6:30 AM	0	5	33	7	1	0	2	47	2	1	0	10	17	5	0	2	10	6	3	0
6:30 AM - 6:45 AM	1	3	26	2	2	0	6	62	6	1	0	3	20	16	1	1	6	8	2	2
6:45 AM - 7:00 AM	1	13	27	2	0	0	7	64	6	1	1	6	24	12	0	0	5	12	2	1
7:00 AM - 7:15 AM	0	11	36	5	2	1	11	72	18	2	0	15	33	6	1	1	10	15	4	2
7:15 AM - 7:30 AM	1	10	42	13	1	0	11	85	10	2	1	13	59	7	1	1	12	27	0	1
7:30 AM - 7:45 AM	0	14	74	18	3	0	17	101	12	5	2	17	63	12	3	1	17	35	2	1
7:45 AM - 8:00 AM	0	17	84	23	0	0	16	106	12	2	0	31	98	10	1	0	15	38	2	2
TOTAL	**3**	**82**	**351**	**72**	**10**	**2**	**74**	**599**	**70**	**15**	**4**	**103**	**326**	**72**	**8**	**6**	**82**	**156**	**18**	**10**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	36	117	27	1	0	26	147	20	1	0	52	71	32	2	5	91	121	16	0
4:15 PM - 4:30 PM	3	30	127	23	1	2	21	136	16	4	13	64	74	28	2	8	98	115	25	3
4:30 PM - 4:45 PM	1	41	119	30	0	1	30	115	23	2	11	64	69	29	1	9	88	134	14	1
4:45 PM - 5:00 PM	3	47	112	22	0	0	37	149	18	1	17	61	82	50	2	12	73	84	20	2
5:00 PM - 5:15 PM	3	37	103	28	0	1	23	115	12	1	15	58	83	31	4	11	98	136	22	0
5:15 PM - 5:30 PM	4	45	106	30	0	1	32	132	23	0	9	63	89	33	1	3	88	82	8	1
5:30 PM - 5:45 PM	2	36	130	23	1	3	31	127	20	1	21	50	82	31	2	5	70	95	15	1
5:45 PM - 6:00 PM	0	34	107	24	1	1	30	118	20	0	21	43	76	41	0	9	77	84	15	1
TOTAL	**16**	**306**	**921**	**207**	**4**	**9**	**230**	**1039**	**152**	**10**	**107**	**455**	**626**	**275**	**14**	**62**	**683**	**851**	**135**	**9**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	1	52	236	59	6	1	55	364	52	11	3	76	253	35	6	3	54	115	8	6
4:15 PM - 5:15 PM	10	155	461	103	1	4	111	515	69	8	56	247	308	138	9	40	357	469	81	6

	PHF	Trucks
AM	0.756	2.1%
PM	0.992	0.8%



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Hanford, CA 93230

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Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

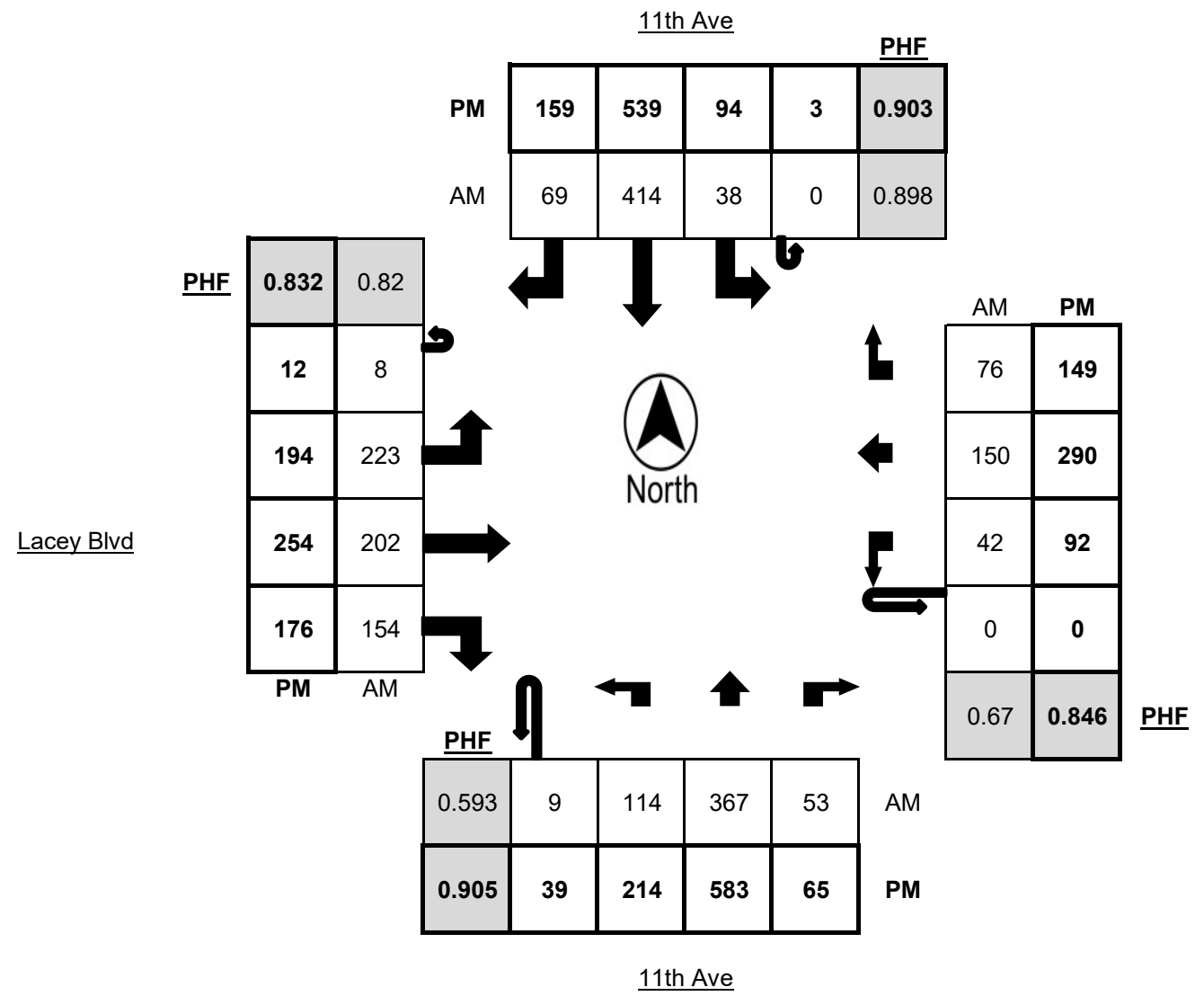
LOCATION Lacey Blvd @ 11th Ave
LATITUDE 36.3281
COUNTY Kings
LONGITUDE -119.6551
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	1	17	42	3	1	1	5	49	3	0	4	48	75	53	3	0	3	13	2	0
6:15 AM - 6:30 AM	0	7	38	11	1	0	2	56	2	0	3	39	57	40	2	0	7	9	5	0
6:30 AM - 6:45 AM	2	5	28	5	2	0	9	67	9	2	2	63	77	49	3	0	9	11	3	0
6:45 AM - 7:00 AM	1	10	48	6	2	0	6	78	11	3	3	44	45	34	0	0	11	16	7	0
7:00 AM - 7:15 AM	1	15	46	14	1	0	7	85	12	1	2	56	68	53	3	0	6	17	12	0
7:15 AM - 7:30 AM	1	23	55	13	3	0	7	107	20	3	3	69	51	29	1	0	9	24	15	0
7:30 AM - 7:45 AM	3	29	103	11	3	0	10	115	20	3	1	46	45	39	1	0	13	50	22	0
7:45 AM - 8:00 AM	4	47	163	15	4	0	14	107	17	2	2	52	38	33	1	0	14	59	27	0
TOTAL	**13**	**153**	**523**	**78**	**17**	**1**	**60**	**664**	**94**	**14**	**20**	**417**	**456**	**330**	**14**	**0**	**72**	**199**	**93**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	4	52	153	19	5	1	22	138	37	1	4	48	75	53	3	0	27	79	43	1
4:15 PM - 4:30 PM	13	49	164	23	2	2	27	150	35	5	3	39	57	40	2	0	19	61	34	0
4:30 PM - 4:45 PM	14	59	147	11	4	0	16	107	40	0	2	63	77	49	3	0	25	89	43	0
4:45 PM - 5:00 PM	8	54	119	12	3	0	29	144	47	1	3	44	45	34	0	0	21	61	29	0
5:00 PM - 5:15 PM	7	64	140	21	2	1	25	142	35	0	2	56	68	53	3	0	17	79	26	0
5:15 PM - 5:30 PM	6	57	160	25	5	1	22	109	46	3	3	69	51	29	1	0	11	65	35	1
5:30 PM - 5:45 PM	4	62	146	17	2	1	24	110	36	1	1	46	45	39	1	0	18	47	16	1
5:45 PM - 6:00 PM	7	48	156	21	3	1	18	125	35	1	2	52	38	33	1	0	24	45	15	0
TOTAL	**63**	**445**	**1185**	**149**	**26**	**7**	**183**	**1025**	**311**	**12**	**20**	**417**	**456**	**330**	**14**	**0**	**162**	**526**	**241**	**3**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	9	114	367	53	11	0	38	414	69	9	8	223	202	154	6	0	42	150	76	0
4:00 PM - 5:00 PM	39	214	583	65	14	3	94	539	159	7	12	194	254	176	8	0	92	290	149	1

	PHF	Trucks
AM	0.810	1.4%
PM	0.948	1.0%



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Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

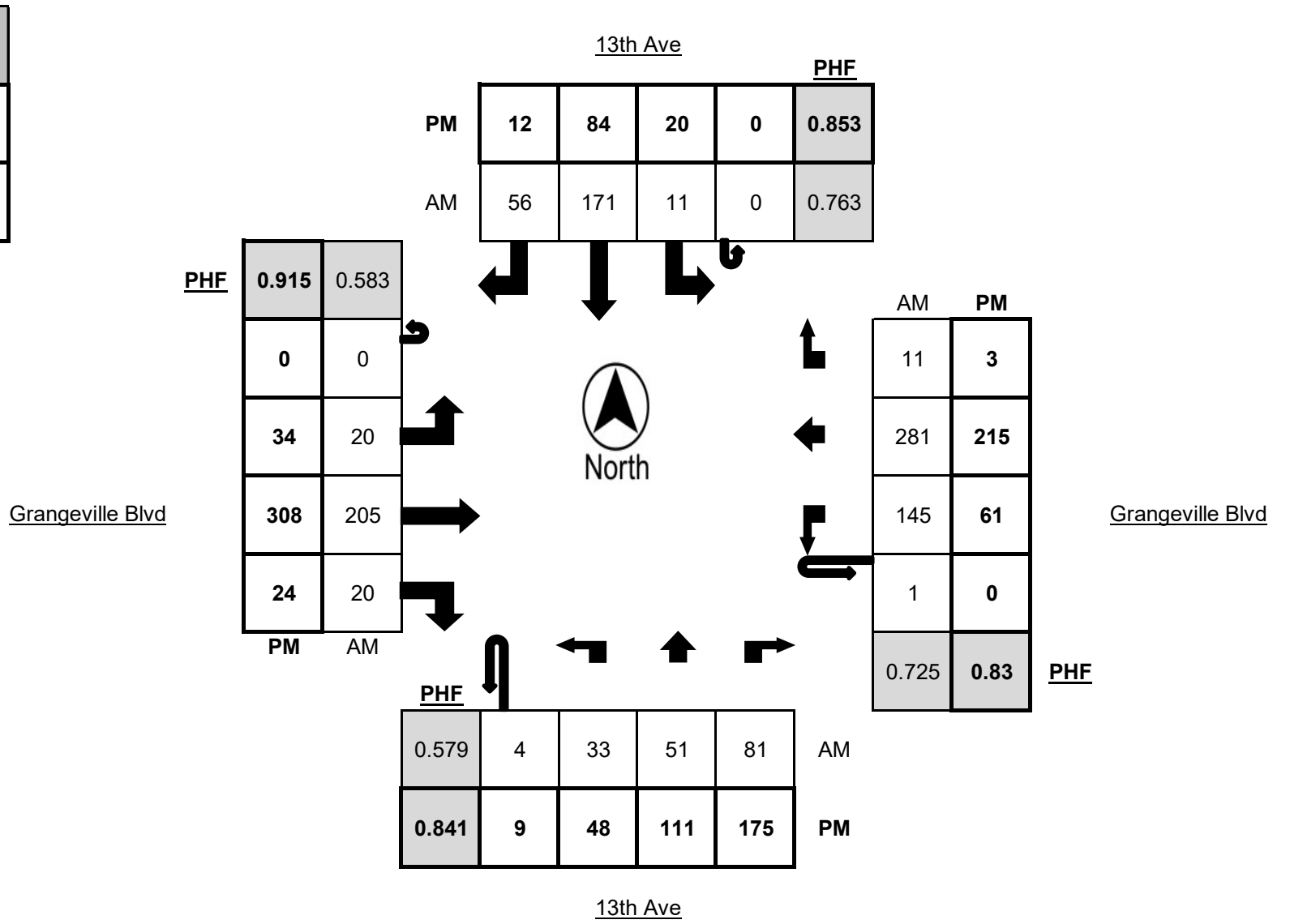
LOCATION Grangeville Blvd @ 13th Ave
LATITUDE 36.3426
COUNTY Kings
LONGITUDE -119.6911
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	0	3	2	3	1	0	0	7	1	0	0	1	10	0	0	0	8	54	0	1
6:15 AM - 6:30 AM	0	1	6	2	0	0	1	15	3	0	0	0	14	2	0	0	19	65	0	1
6:30 AM - 6:45 AM	0	1	11	13	2	0	1	18	11	0	0	0	12	5	0	0	15	58	0	0
6:45 AM - 7:00 AM	0	3	9	8	0	1	1	24	5	1	0	0	22	3	0	0	11	42	2	0
7:00 AM - 7:15 AM	0	1	3	11	3	0	1	39	9	0	0	3	23	0	5	0	20	45	0	0
7:15 AM - 7:30 AM	0	5	10	16	3	0	2	36	10	1	0	1	37	4	1	0	30	54	2	1
7:30 AM - 7:45 AM	2	14	12	22	4	0	1	43	19	2	0	8	59	5	1	1	42	89	4	6
7:45 AM - 8:00 AM	2	13	26	32	2	0	7	53	18	1	0	8	86	11	0	0	53	93	5	5
TOTAL	**4**	**41**	**79**	**107**	**15**	**1**	**14**	**235**	**76**	**5**	**0**	**21**	**263**	**30**	**7**	**1**	**198**	**500**	**13**	**14**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	8	15	29	50	1	0	7	24	3	0	0	9	85	6	0	0	19	65	0	1
4:15 PM - 4:30 PM	1	7	29	53	0	0	5	24	5	0	0	8	74	7	0	0	17	47	2	0
4:30 PM - 4:45 PM	0	17	24	45	1	0	5	17	4	0	0	9	74	9	0	0	10	56	1	0
4:45 PM - 5:00 PM	0	9	29	27	0	0	3	19	0	0	0	8	75	2	0	0	15	47	0	0
5:00 PM - 5:15 PM	0	8	28	36	2	0	8	21	5	3	0	8	72	8	0	0	16	64	2	1
5:15 PM - 5:30 PM	1	8	27	33	0	0	7	19	4	0	0	4	69	2	0	0	20	37	3	0
5:30 PM - 5:45 PM	0	7	21	29	1	0	4	15	5	0	0	7	70	7	0	0	29	46	4	3
5:45 PM - 6:00 PM	2	6	29	29	0	0	5	43	3	0	0	6	39	6	0	0	29	37	0	0
TOTAL	**12**	**77**	**216**	**302**	**5**	**0**	**44**	**182**	**29**	**3**	**0**	**59**	**558**	**47**	**0**	**0**	**155**	**399**	**12**	**5**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	4	33	51	81	12	0	11	171	56	4	0	20	205	20	7	1	145	281	11	12
4:00 PM - 5:00 PM	9	48	111	175	2	0	20	84	12	0	0	34	308	24	0	0	61	215	3	1

	PHF	Trucks
AM	0.670	3.2%
PM	0.863	0.3%



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Turning Movement Report

Prepared For:

Ruettgers & Schuler Civil Engineers
1800 30th St, Ste 260
Bakersfield, CA 93301

LOCATION Fargo Ave @ Centennial Dr
LATITUDE 36.3572
COUNTY Kings
LONGITUDE -119.6820
COLLECTION DATE Thursday, December 7, 2023
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
6:00 AM - 6:15 AM	0	5	0	12	0	0	0	0	0	0	0	0	0	4	0	0	3	19	0	0
6:15 AM - 6:30 AM	0	6	0	4	1	0	0	0	0	0	0	0	6	2	0	0	5	22	0	0
6:30 AM - 6:45 AM	0	7	0	13	0	0	0	0	0	0	0	0	4	5	0	0	5	29	0	0
6:45 AM - 7:00 AM	0	4	0	14	1	0	0	0	0	0	0	0	9	4	0	0	11	31	0	0
7:00 AM - 7:15 AM	0	9	0	16	1	0	0	0	0	0	0	0	4	3	0	0	8	57	0	0
7:15 AM - 7:30 AM	0	12	0	28	2	0	0	0	0	0	0	0	9	0	1	0	15	43	0	2
7:30 AM - 7:45 AM	0	18	0	45	0	0	0	0	0	0	0	0	22	3	1	0	36	95	0	2
7:45 AM - 8:00 AM	0	13	0	86	4	0	0	0	0	0	0	0	35	4	1	0	49	76	0	1
TOTAL	**0**	**74**	**0**	**218**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**89**	**25**	**3**	**0**	**132**	**372**	**0**	**5**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	12	0	56	0	0	0	0	0	0	0	0	42	8	1	0	13	22	0	1
4:15 PM - 4:30 PM	0	13	0	32	1	0	0	0	0	0	0	0	16	6	0	0	37	25	0	0
4:30 PM - 4:45 PM	0	5	0	34	0	0	0	0	0	0	0	0	31	2	0	0	21	21	0	0
4:45 PM - 5:00 PM	0	8	0	37	0	0	0	0	0	0	0	0	28	6	0	0	14	24	0	0
5:00 PM - 5:15 PM	0	12	0	37	0	0	0	0	0	0	0	0	25	6	0	0	18	32	0	0
5:15 PM - 5:30 PM	0	10	0	33	0	0	0	0	0	0	0	0	27	10	0	0	27	20	0	1
5:30 PM - 5:45 PM	0	8	0	30	0	0	0	0	0	0	0	0	18	6	0	0	25	20	0	1
5:45 PM - 6:00 PM	0	6	0	25	0	0	0	0	0	0	0	0	18	6	0	0	32	32	0	0
TOTAL	**0**	**74**	**0**	**284**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**205**	**50**	**1**	**0**	**187**	**196**	**0**	**3**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 8:00 AM	0	52	0	175	7	0	0	0	0	0	0	0	70	10	3	0	108	271	0	5
4:00 PM - 5:00 PM	0	38	0	159	1	0	0	0	0	0	0	0	117	22	1	0	85	92	0	1

	PHF	Trucks
AM	0.652	2.2%
PM	0.838	0.6%